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## Update Pages to the Radio Regulations

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COVERING NOTE

## GENERAL SECRETARIAT INTERNATIONAL TELECOMMUNICATION UNION

## Subject: 1986 Updating of the Radio Regulations (edition of 1982, revised in 1985)

aeneve, 31 October 1986

## REPLACEMENT PAGES

for the updating of the Radio Regulations, edition of 1982 , revised in 1985 , as a consequence of the entry into force, on 30 October 1986 , of the Final Acts of the First Session of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It, Geneva, 1985 (WARC Orb-85).

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## General Secretariat

# Radio <br> <br> Regulations 

 <br> <br> Regulations}

Edition of 1982
Revised in 1985 and 1986


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## FOREWORD

1. This edition of the Radio Regulations is published under the authority of the Secretary-General of the International Telecommunication Union. It is a consolidated document, which incorporates, in Volume 1, the provisions of the Radio Regulations (Geneva, 1979) and Appendices 1 to 24 thereto, and, in Volume 2, Appendices 25 to 44, as well as Resolutions and Recommendations, as adopted by the World Administrative Radio Conference, Geneva, 1979.
1.1 This edition includes the partial revision adopted by the World Administrative Radio Conference for the Mobile Services, Geneva, 1983.
1.2 It also includes the partial revision adopted by the First Session of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It, Geneva, 1985.
1.3 The Final Protocol (reservations and counter-reservations of signatory delegations) to the Final Acts of the World Administrative Radio Conference, Geneva, 1979, that to the Final Acts of the World Administrative Radio Conference for the Mobile Services, Geneva, 1983, and that to the Final Acts of the First Session of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It, Geneva, 1985, have not been reproduced in this edition.
2. Pages are separately numbered for each Article, Appendix, Resolution, Recommendation, etc. The following symbols have been used for this numbering, which appears at the top of each page:

TA $\quad=$ Analytical Table
IA $=$ Analytical Index of Resolutions and Recommendations
$\mathrm{N} \quad=$ Notes
RR $\quad=$ Radio Regulations
AP $\quad=$ Appendix
RES $\quad=$ Resolution
REC $\quad=$ Recommendation.

Examples:

| TA-6 | $=$ Analytical Table, page 6 |
| :--- | :--- |
| IA-3 | $=$Analytical Index of Resolutions and Recommendations, <br> page 3 |
| N-2 | Notes, page 2 |
| RR8-14 | $=$ Article 8 of the Radio Regulations, page 14 |
| AP16-5 | $=$ Appendix 16, page 5 |
| RES500-2 | $=$ Resolution 500, page 2 |
| REC604-1 | $=$ Recommendation 604, page 1. |

2.1 The Foreword bears arabic page numbers and the Table of Contents bears roman page numbers.
2.2 In the Table of Contents the total number of pages for each category of information is indicated.

For example:
RR1-1/23 shows that Article 1 has 23 pages;
RR3-1 shows that Article 3 has only one page.
2.3 The symbol Mob-83 indicates an addition, modification or deletion of a Provision, Appendix, Resolution or Recommendation by the World Administrative Radio Conference for the Mobile Services, Geneva, 1983. The pages which have been modified in the updating of January 1985 bear the abbreviation (Rev. 1985) at the bottom of the page.
2.4 Similarly, the symbol Orb-85 is used when a decision of the First Session of the World Administrative Radio Conference on the Use of the GeostationarySatellite Orbit and the Planning of Space Services Utilizing It, Geneva, 1985, is concerned. The pages which have been modified in the updating of October 1986 bear the abbreviation (Rev. 1986) at the bottom of the page.
2.5 In the case of a deletion the symbol SUP is used and the conference having made the decision is indicated.
3. The General Secretariat has furnished, in addition to several short notes in the body of the text, the following notes:

- in Appendix 42 to the Radio Regulations, a note listing the international call sign series allocated by the Secretary-General on a provisional basis between the end of the World Administrative Radio Conference, Geneva, 1979, and 29 January 1985;
- in Appendix 44 to the Radio Regulations, two notes listing blocks of selective call numbers for ship stations, and blocks of coast station identification numbers supplied to administrations by the SecretaryGeneral between the end of the World Administrative Radio Conference, Geneva, 1979, and, respectively, 2 June 1986 and 20 June 1986;
- preceding the Resolutions, a note indicating the manner in which the Resolutions have been grouped;
- preceding the Recommendations, a note indicating the manner in which the Recommendations have been grouped;
- in the section "Notes":
- a note referring to the formation and use of call signs;
- a note listing the provisions of the Radio Regulations that contain references to CCIR Recommendations, together with the reference numbers and titles of the CCIR Recommendations;
- flowcharts from the IFRB Handbook on Radio Regulatory Procedures (see Resolution 6).


## ANALYTICAL TABLE

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ABBREVIATIONS AND SYMBOLS
Anx - Annex
AP - Appendix
Art - Article
RES - Resolution
REC - Recommendation
Sec - Section
- - used in order to avoid repeating a heading or subheading
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## ANALYTICAL INDEX OF RESOLUTIONS AND RECOMMENDATIONS

The Analytical Index of Resolutions and Recommendations is presented as a set of six tables. Each table groups Resolutions and Recommendations bearing the same numbers As far as possible, the grouping of the Resolutions and Recommendations respects the grouping system agreed upon for the 1982 edition of the Radio Regulations; revisions by the World Administrative Radio Conference for the Mobile Services, Geneva, 1983 (Mob-83) and the First Session of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It, Geneva, 1985 (Orb-85) have been taken into account

The table on page IA-2 covers the numbers 1 - 18 ,
that on page IA-3, the numbers $30-69$,
that on page IA-4, the numbers $70-206$,
that on page IA-5, the numbers 300-322, that on page IA-6, the numbers $400-602$
and that on page IA-7, the numbers 603-713.

The Resolution numbers are entered along the top of the table and the Recommendation numbers along the bottom. The absence of a number in the series indicates that the corresponding Resolution and/or Recommendation does not exist.

The key words or subjects relating specifically to the group of Resolutions and Recommendations in each separate table are listed in alphabetical order on the right-hand side of each page. These key words or subjects may be of a primary (main) or secondary importance for a particular Resolution or Recommendation.

For Resolutions, the symbol " 0 " denotes a primary key word or subject and the symbol "@" denotes a secondary one. For Recommendations, the symbol "-" denotes a primary key word or subject and the symbol "\#" denotes a secondary one.

To determine the main subject of a Resolution or Recommendation, simply trace down the column bearing the relevant Resolution andor Recommendation number until the symbol " 0 " or " $=$ " is encountered. From that position trace towards the right of the table to find the subject concerned. The same procedure applies for determining a secondary subject where the relevant symbols are "@" for Resolutions and "\#" for Recommendations.
Example:
On the page grouping numbers 1 to 18 , the symbols " 0 " and "@" are entered under Resolution 5. By tracing to the right along a horizontal line on which the symbol "O" appears, a primary subject "Technical Cooperation and Assistance", for example, is found. Using the same method for the symbol "@", a secondary subject "UNDP", for example, is found.

To determine the Resolutions or Recommendations to which a particular subject refers, begin on the right-hand side of the table(s) at the appropriate subject and trace across towards the left until one (or more) of the relevant symbols is encountered. Then trace up or down the columns for Resolutions or Recommendations, as the case may be Example:
"Technical Cooperation" is listed on the right-hand side of the table on page IA-2 By tracing towards the left it becomes evident that "Technical Cooperation" is a primary subject for Resolutions 5, 7, 14, 15, 16 and Recommendation 6, and a secondary one for Recommendation 5.

The Table of Contents contains a complete list of Resolutions and Recommendations together with their full titles, as well as references to the revisions made by the Mob- 83 and by the Orb- 85 .




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$\qquad$

* In columns where the numbers of the Recommendations or Reports (see note **) appear, the number following the hyphen indicates, in each case, the most recent version of each Recommendation or Report to date on publication of this Note by the General Secretariat.
** Four Reports explicitly cited in the Radio Regulations are also included in this column.

| $\begin{aligned} & \text { RR } \\ & \text { Item } \end{aligned}$ | Subject | CCIR Recommendations** cited in the $R R$ |
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| $\begin{aligned} & 1107 \\ & 1107.1 \end{aligned}$ | Criteria to be employed in evaluating interference between earth stations and other terrestrial services, except for fixed and mobile | $\begin{array}{ll} 355-3, & 356-4, \\ 358-3, & 359-5, \\ 4506-5, \\ 452-4, & 465-2, \\ 580-1, & 615, \\ 520 \end{array}$ |
| $\begin{aligned} & 1118 \\ & 1118.1 \end{aligned}$ | Calculation methods and criteria to be employed in evaluating interference which would be caused to terrestrial services by earth stations | $\begin{array}{ll} 355-3, & 357-3, \\ 359-5, & 452-4,4 \\ 580-1, & 615,619, \\ 580 \end{array}$ |
| $\begin{aligned} & 1119 \\ & 1119.1 \end{aligned}$ | Calculation methods and criteria to be employed in evaluating interference which would be caused to reception at the earth station by terrestrial services | $\begin{aligned} & 355-3,356-4,359-5, \\ & 406-5,465-2,558-2, \\ & 580 \end{aligned}$ |
| $\begin{aligned} & 1148 \\ & 1148.1 \end{aligned}$ | Criteria relating to coordination between earth station and other terrestrial services, except fixed and mobile | $\begin{aligned} & 359-5,452-4,465-2, \\ & 580-1,620 \end{aligned}$ |
| $\begin{aligned} & 1164 \\ & 1164.1 \end{aligned}$ | Calculation methods and the criteria in evaluating interference relating to coordination between terrestrial | 355-3, 356-4, 359-5, 406-5, 452-4, 465-2, 558-2, 580, 620 |


| $\begin{aligned} & \mathrm{RR} \\ & \text { Item } \end{aligned}$ | Subject | CCIR Recommendations** cited in the RR |
| :---: | :---: | :---: |
| 1454 | Technical standards of IFRB should be based, amongst other things, on CCIR Recommendations | $\begin{aligned} & 205-2,240-4,314-6, \\ & 339-6,355-3,356-4, \\ & 357-3,358-3,359-5, \\ & 364-4,368-5,370-5, \\ & 371-5,372-4,406-5, \\ & 412-4,434-4,435-5, \\ & 441-1,450-1,452-4, \\ & 465-2,496-2,509,527-1, \\ & 528-2,529,530-2,532, \\ & 533-1,534-1,558-2,570, \\ & 578,580-1,589-1,591-1, \\ & 597-1,598,599,615, \\ & 617,619,620,638 \end{aligned}$ |
| 1582 | Technical standards of IFRB shou1d be based, amongst other things, on CCIR Recommendations | $\begin{aligned} & 314-6,355-3,356-4, \\ & 358-3,359-5,364-4, \\ & 368-5,373-1,465-1, \\ & 479-2,496-2,509,510-1, \\ & 514,517-1,523-2,524-2, \\ & 527-1,528-2,529,530-2, \\ & 531,558-2,578,580-1, \\ & 611,617,619,620 \end{aligned}$ |
| 1812 | Receiver characteristics | $\begin{aligned} & 331-4, \quad 332-4,478-3, \\ & 489-1,494,539-2 \end{aligned}$ |
| $\begin{aligned} & 1814 \\ & 1814.1 \end{aligned}$ | Interference from technical apparatus (except ISM) | 433-3 |
| $\begin{aligned} & 1815 \\ & 1815.1 \end{aligned}$ | Interference from ISM equipment | 433-3 |
| 1878 | Standards on monitoring stations | $\begin{aligned} & 182-3,328-6,377-2, \\ & 378-4,443-1 \end{aligned}$ |
| 2057 | Identification signals | 493-3, 585-1, 587-1 |
| 2075 | Forms of identification signals | 493-3, 585-1, 587-1 |
| 2076 | Transmission of identification signals | 493-3, 585-1, 587-1 |
| 2077 | Identification methods | 585-1, 587-1 |
| 2149 | Identity assignments | 493-3, 585-1, 587-1 |


| $\begin{aligned} & \text { RR } \\ & \text { Item } \end{aligned}$ | Subject | CCIR Recommendations** cited in the RR |
| :---: | :---: | :---: |
| 2501 | Selection of sites and frequencies for terrestrial stations | 452-4, 620 |
| 2502 | Direction of maximum radiation in the | 406-5, |
| 2502.2 | frequency bands between 1 and 10 GHz | Report 393-4 |
| 2503 | Direction of maximum radiation in the | 406-5, |
| 2503.2 | frequency bands between 10 and 15 GHz | Report 393-4 |
| 2504 | Direction of maximum radiation in the | 406-5 |
| 2504.1 | frequency bands above 15 GHz |  |
| 2506 | Power limits where compliance with | 406-5, |
| 2506.1 | No. 2502 is impracticable | Report 393-4 |
| 2509 | Application of the limits concerning | *355-3, 356-4, 357-3, |
| 2509.1 | inter-regional interference | $\begin{aligned} & 358-3,359-5,406-5 \\ & 558-2,615 \end{aligned}$ |
| 2510 | Application of the limits concerning | *355-3, 356-4, 357-3, |
| 2510.1 | inter-regional interference | $\begin{aligned} & 358-3, \quad 359-5, \quad 406-5, \\ & 558-2,615 \end{aligned}$ |
| 2511 | Application of the limits concerning | * 355 -3, 356-4, 357-3, |
| 2511.2 | inter-regional interference | $\begin{aligned} & 358-3,359-5,406-5, \\ & 558-2,615 \end{aligned}$ |
| 2539 | Selection of sites and frequencies for Earth stations | $\begin{array}{rll} * 355-3, & 356-4, & 357-3, \\ 358-3, & 359-5, & 363-3, \\ 406-5, & 465-2, & 558-2 \\ 580-1, & 615 \end{array}$ |
| 2547 | Application of the limits concerning | *355-3, 356-4, 357-3, |
| 2547.1 | ```inter-regional interference (Earth stations)``` | $\begin{aligned} & 358-3, \quad 359-5, \quad 363-3, \\ & 406-5,465-1, \quad 558-2, \\ & 580-1, \quad 615 \end{aligned}$ |
| 2548 | Application of the limits concerning | *355-3, 356-4, 357-3, |
| 2548.1 | ```inter-regional interference (Earth stations)``` | $\begin{aligned} & 358-3,359-5,363-3, \\ & 406-5, \\ & 580-1, \\ & 615 \end{aligned}$ |

[^6](Rev. 1986)

| $\begin{aligned} & \text { RR } \\ & \text { Item } \end{aligned}$ | Subject | CCIR Recommendations** cited in the RR |
| :---: | :---: | :---: |
| 2559 | Application of the limits concerning | *355-3, 356-4, 357-3, |
| 2559.1 | inter-regional interference | $\begin{array}{ll} 358-3, & 359-5, \\ 406-5, & 465-1, \\ 585-3 \\ 580-1, & 615 \end{array}$ |
| $\begin{aligned} & 2576 \\ & 2576.1 \end{aligned}$ | Application of the limits concerning inter-regional interference | $\begin{array}{rll} * 355-3, & 356-4, & 357-3 \\ 358-3, & 359-5, & 363-3 \\ 406-5, & 465-1, & 558-2 \\ 580-1, & 615 \end{array}$ |
| $\begin{aligned} & 2580 \\ & 2580.1 \end{aligned}$ | Application of the limits concerning inter-regional interference | $\begin{array}{lll} *_{355-3}, & 356-4, & 357-3, \\ 358-3, & 359-5, & 363-3, \\ 406-5, & 465-1, & 558-2, \\ 580-1, & 615 \end{array}$ |
| $\begin{aligned} & 2582 \\ & 2582.1 \end{aligned}$ | Power-flux density limits | 358-3 |
| $\begin{aligned} & 2613 \\ & 2613.1 \end{aligned}$ | Accepted level of interference | $\begin{aligned} & 466-4,483-1,514,523-2 \\ & 609 \end{aligned}$ |
| $\begin{aligned} & 2614 \\ & 2614.1 \end{aligned}$ | Accepted level of interference | $\begin{aligned} & 466-4,483-1,514,523-2, \\ & 609 \end{aligned}$ |
| $\begin{aligned} & 2619 \\ & 2619.1 \end{aligned}$ | Accepted level of interference | $\begin{aligned} & 466-4,483-1,509,514, \\ & 523-2,609 \end{aligned}$ |
| $\begin{aligned} & 2623 \\ & 2623.1 \end{aligned}$ | Accepted level of interference | 509, 514, 609 |
| $\begin{aligned} & 2627 \\ & 2627.1 \end{aligned}$ | Accepted level of interference | $\begin{aligned} & 466-4,483-1,514,523-2 \\ & 609 \end{aligned}$ |
| $\begin{aligned} & 2630 \\ & 2630.1 \end{aligned}$ | Accepted level of interference | $\begin{aligned} & 466-4,483-1,514,523-2 \\ & 609 \end{aligned}$ |
| $\begin{aligned} & 2632 \\ & 2632.2 \end{aligned}$ | Level of interference | $\begin{aligned} & 314-6,465-2,479-2,514, \\ & 515,517-1,524-1,577-1, \\ & 580-1,611 \end{aligned}$ |

[^7]N-8

| $\begin{aligned} & \text { RR } \\ & \text { Item } \end{aligned}$ | Subject | CCIR Recommendations** cited in the RR |
| :---: | :---: | :---: |
| 2636 | Limitation of off-axis radiation | $\begin{aligned} & 465-2,509,514,524-1 \\ & 580 \end{aligned}$ |
| 2770 | Interference reduction | 374-3, 376-1, 537 |
| 2772 | Standard frequency and time signals | 375-2, 460-4, 583 |
| 2904 | Level of interference | 314-6, 479-2, 517-1, 611 |
| 4123A | Characteristics of the digital selective calling equipment (Frequency bands between 4000 kHz and 27500 kHz ) | 493-3, 541-2 |
| 4681 | Digital selective calling system | 493-3, 541-2 |
| Art. 64 | Narrow-band direct-printing telegraphy | 490, 491-1, 492-3, 540-2 |
| AP3 <br> Sect. B <br> Item 8b <br> Sect. D <br> Item 9b | Maximum power density calculation | Report 792-2 |
| AP4 <br> Sect. C <br> Item 4a, <br> Sect. D <br> Item $4 a$ | Maximum spectral power density calculation | Report 792-2 |
| AP6 <br> Part B <br> Item 2 | Computation of necessary bandwidth | 328-6, 338-2 |
| AP7 <br> Note 36 | Frequency tolerances | $\begin{aligned} & 478-3 \\ & \text { Report } 181.4 \end{aligned}$ |
| AP8 <br> Notes 12 <br> and 13 | Spurious emissions | 329-5 |
| AP9 <br> List <br> VIII <br> Part <br> II-D <br> Note 1 | Particulars of monitoring stations carrying out bandwidth measurements | $\begin{aligned} & \text { 443-1, } \\ & \text { Report 275-4 } \end{aligned}$ |


| $\begin{aligned} & \text { RR } \\ & \text { Item } \end{aligned}$ | Subject | CCIR Recommendations** cited in the RR |
| :---: | :---: | :---: |
| AP9 <br> List <br> VIII <br> Part <br> III <br> Note 1 | Information available for bandwidth measurements | $\begin{aligned} & \text { 443-1, } \\ & \text { Report } 275-4 \end{aligned}$ |
| AP28 <br> Para <br> 2.3.1 <br> Note 2 | Permissible level of the interfering emission | 356-4, 357-3 |
| Para <br> 3.2.2 <br> Note | Calculation of coordination distance. Numerical method | $\begin{aligned} & 359-5,452-4,465-2 \\ & 580-1,620 \end{aligned}$ |
| Table 1 <br> Note 5 | Parameters required for determination of coordination distances in satellite communications | $\begin{aligned} & 359-5,452-4,465-2 \\ & 580-1,620 \end{aligned}$ |
| AP29 <br> Para <br> 2.2.1 | Radiation patterns for earth station antennas | 465-2, 580-1 |
| Annex III | Radiation patterns for earth station antennas to be used when they are not published | 465-2, 580-1 |
| AP30 <br> (Orb-85) <br> Art. 6 <br> Para <br> 6.3.1 <br> Note 1 | Criteria of evaluation of interference in satellite communications | 452-4, 619, 620 |
| Art. 7 <br> Para <br> 7.2.5 | Criteria of evaluation of interference in satellite communications | 452-4, 619, 620 |
| $\begin{aligned} & \text { Annex } 5 \\ & \text { Para } 3.1 \end{aligned}$ | Pre-emphasis characteristics in satellite broadcasting | 405-1 |
| $\begin{aligned} & \text { Annex } 5 \\ & \text { Para } 3.6 \end{aligned}$ | Figure of merit ( $G / T$ ) of receiving installations | Report 473-4 |
| Annex 5 Para 3.9 .3 | Spurious emissions | 329-5 |

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| $\begin{aligned} & \text { RR } \\ & \text { Item } \end{aligned}$ | Subject | CCIR Recommendations** cited in the RR |
| :---: | :---: | :---: |
| AP30 | Criteria for sharing between services | 483-1 |
| Annex 6 |  |  |
| Para 1.1 |  |  |
|  |  |  |
| Annex 6 | Quality of the service | 500-3 |
| Para 1.6b ${ }^{\text {b }}$ |  |  |
| Note 1 |  |  |
| Annex 6 | Reference antenna | 465-2, 580-1 |
| Para 2.1 465-2, 580-1 |  |  |
| Annex 6 | Use of energy dispersion | Report 631-3 |
| Para 3.3 |  |  |
| AP37 <br> Para c | Emergency position indicating radio beacons | 439-3 |
|  |  |  |
| AP38 <br> Para e, <br> $g$ and $j$ | Narrow-band direct-printing telegraphy | 476-4, 490, 491-1, 625 |
|  |  |  |
| AP40 <br> Para a | Lincompex | 455-1, 475-1 |
|  |  |  |
| AP43 <br> Para 1.2 | Maritime mobile service identities | 585-1, 587-1 |
|  |  |  |

(Rev. 1986)

## FLOWCHARTS EXTRACTED FROM THE IFRB HANDBOOK ON RADIO REGULATORY PROCEDURES <br> (See Resolution 6)

The flowcharts listed below are an aid to understanding and do not form part of the Radio Regulations.

| Flowchart | Subject | Relevant <br> provisions of the |
| :---: | :---: | :---: |
|  |  | Radio Regulations |
| AW | The advance publication procedure of Section I of Article 11 of the Radio Regulations, applicable to space and earth stations in geostationary or non-geostationary-satellite networks | Artll (Sec I) |
| AX | The RR1060 coordination procedure applicable to space or earth stations in a geostationarysatellite network in relation to other geosta-tionary-satellite networks operating in the same frequency band before an assignment is notified to the IFRB | Artll (Sec II) |
| AY | The RR1107 coordination procedure applicable to earth stations in relation to terrestrial stations in frequency bands above 1 GHz before an assignment is notified to the IFRB ......... | Artll (Sec III) |
| AR | The coordination procedure of Section IV of Article 11 of the Radio Regulations ........... | Artll (Sec IV) |
| $A B$ | Date of submission of a notice vis-à-vis date of putting the assignment into use (terrestrial services in bands not shared with space services) | Artl2 (Sec I) |
| $A S^{*}$ | Date of submission of a notice vis-à-vis date of putting the assignment into use (terrestrial services in frequency bands above 28 MHz )..... | Art12 (Sec I) |

[^8]Flowchart $\quad$ Subject $\quad \frac{\text { Relevant }}{\frac{\text { provisions of the }}{\text { Radio Regulations }}}$

AC Regulatory examination of notices with respect to RR1240, RR1352 or RR1503 for conformity with the Table of frequency allocations or a footnote concerning additional or alternative allocations

Art12 (S-Secs IIA and IIE)/
Art13 (Sec II)
AD Procedure relating to technical examination of frequency assignment notices in bands below 28 MHz other than exclusive bands (RR1241 or RR1242)

Art12 (S-Sec IIA)
AG Procedures relevant to examination of frequency assignment notices concerning stations in the broadcasting service in bands below 5950 kHz to which Article 12 of the Radio Regulations applies

Art12 (S-Sec IIA)
AE Procedure relating to resubmitted notices (RR1254 - RR1265)

Art12 (S-Sec IIA)
AF Procedure under RR1218 for the fixed service in bands between 3 and 27.5 MHz Art12 (S-Sec IIA)

AQ Procedures relating to examination and recording of assignments to terrestrial services operating in bands above 28 MHz which are not shared with equal rights with space services ............... Artl2 (S-Sec IIA)
$A M^{*} \quad$ Procedure relating to examination of notices of assignments to transmitting coast radiotelephone stations in the exclusive maritime mobile bands between 4 and 23 MHz Art12 (S-Sec IIB)

Procedure relating to examination of notices of assignments to receiving coast radiotelephone stations in the exclusive maritime mobile bands between 4 and 23 MHz Art12 (S-Sec IIB)

[^9]| Flowchart | Subject | Relevant |  |
| :---: | :---: | :---: | :---: |
|  |  | $\begin{aligned} & \text { provis } \\ & \text { Radio } \end{aligned}$ | sions of the Regulations |
| $\mathrm{AO}^{*}$ | Procedure relating to notices of frequency assignments in the exclusive aeronautical mobile (R) bands between 2850 and 22000 kHz . | Art12 | (S-Sec IIC) |
| AP | Procedure relating to notices of frequency assignments in the exclusive aeronautical mobile (OR) bands between 3025 and 18030 kHz | Artl2 | (S-Sec IIC) |
| AT | Procedures relating to examination and recording of assignments to terrestrial stations which are in the same frequency band as, and within the coordination area of, an existing earth station or one for which coordination has been successfully completed or initiated | Artl2 | (S-Sec IIE) |
| Az* | Date of submission of a notice vis-à-vis date of putting the assignment into use (space services, space or earth stations) | Artl3 | (Sec I) |
| AC | Regulatory examination of notices with respect to RR1240, RR1352 or RR1503 for conformity with the Table of frequency allocations or a footnote concerning additional or alternative allocations | Art13 <br> Art12 | (Sec II)/ (S-Secs IIA and IIE) |
| BA | Procedure of examination and registration of assignments to stations in space services other than the broadcasting-satellite service: all frequency bands | Art13 | (Sec II) |
| AA | The Article 14 procedure | Art14 |  |
| AL | The Article 16 procedure | Artl6 |  |
| AJ | Article 17: Time table of activities .... | Artl7 |  |

[^10]

* This IFRB Handbook flowchart is at present under revision and has not been reproduced in the "Notes" section of the Radio Regulations.

THE ADVANCE PUBLICATION PROCEDURE OF SECTION

OF ARTICLE 11 OF THE RADIO REGULATIONS, APPLICABLE TO SPACE AND EARTH STATIONS IN GEOSTATIONARY OR NON-GEOSTATIONARY SATELLITE NETWORKS (SEE NOTE 1)

FLOWCHART No. AW
Sheet 1 of 2 ANNEX V.2. (See V.2.1)
this flowchart is issued as an aid to understanding and does not form part of the radio regulations



THIS FLOWCHART IS ISSUED AS AN AID TO
UNDERSTANDING AND DOES NOT FORM PART OFTANDING AND DOES NOT FOR
$t=Y$ es

- = No

Action by


THE RR 1060 COORDINATION PROCEDURE APPLICABLE TO SPACE OR EARTH STATIONS IN A GEOSTATIONARY SATELITE NETWORK IN REIATION TO OTHER GEOSTATIONARY SATELLITE NETWORKS OPERATING IN THE SAME FREQUENCY BAND BEFORE AN ASSIGNMENT IS NOTIFIED TO THE IFRB

Administration A responsible for the station identifies any other administrations which may be affected, using the method of Appendix 29
It may request the assistance of the IFRB in this context (RR 1184). It is assumed that the coordination under RR 1107, when required,

FLOWCHART No AX
Sheet 1 of 3





THE RR 1107 COORDINATION PROCEDURE APPLICABLE TO EARTH STATIONS

## N RELATION TO TERRESTRIAL STATIONS IN FREQUENCY BANDS ABOVE 1 GHZ BEFORE

 AN ASSIGNMENT IS NOTIFIED TO THE.IFRBFLOWCHART No AY

THIS FLOWCHART IS ISSUED AS AN AID TO UNDERSTANDING AND DOES NOT FORM PART OF THE RADIO REGULATIONS


1
Administration A responsible for the earth station identifies other administrations which may be affected using the methods of Appendix 28. It may request Administration A responsible for the earth station identifies other administrations which may be affected using the men reduired, has been or is being effected
the assistance of the IFRB (RR 1184, RR 1186 or RR 1187). It is assumed that the coordination under RR 1060, when requir


$\mathrm{R}_{1}=$ Date of recelpt of original notice by IFRB
$S_{1}=$ Originally notified date of putting the assignment into use
Action by
$\square$ Administration $A$
DATE OF SUBMISSION OF A NOTICE VIS-A-VIS DATE OF PUTTING THE ASSIGNMENT INTO USE

## ANNEX III.1.1

FLOWCHART No. AB

## Sheet 2 of 2



Note 2: This flowchart is primarily concerned with dates, and consequentiy does not sow lt in other flowcharts dealing with particular frequency bands or services.

Articles 12 and 13
ATticles 12 and 13
REGULATORY EXAMINATION OF NOTICES WITH RESPECT TO RR 1240, RR 1352 OR RR 1503 FOR CONFORMITY WITH THE
TALE OF FREOUENCY ALLOCATIONS OR AOOTNOTE CONCERNING ADDITIONAL OR ALTERNATIVE ALLOCATIONS

ANNEX III. 1.2 See III 1.32 and IV.I)


## PROCEDURE RELATING TO TECHNICAL EXAMINATION OF FREQUENCY ASSIGNMENT NOTICES

 IN BANDS BELOW 28 MHZ OTHER THAN EXCLUSIVE BANDS (RR 1241 OR RR 1242)

PROCEDURES RELEVANT TO EXAMINATION OF FREQUENCY ASSIGNMENT NOTICES
CONCERNING STATIONS IN THE BROADCASTING SERVICE IN BANDS BELOW 5950 kHz TO WHICH article 12 of the radio regulations applies

ANNEX III.4.3
FLOWCHART No. AG
(See III. 4.33 and III. 44 Sheet 1 of 2
$R_{1}=$ Date of receipt of notice by IFRB
$P_{1}=\begin{aligned} & \text { Date of publication in Spectal Section } \\ & \text { GE } 75 / / R E S 500 \text { of weekly circular }\end{aligned}$
$P_{2}=\begin{aligned} & \text { Date of publication in Part } 1 \text { of weekly } \\ & \text { circular, not more than } 40 \text { days after } R_{1}\end{aligned}$
$P_{3}=$ Not more than 45 days atter $P_{2}$
$S_{1}=\begin{aligned} & \text { Date on which modification or introduction } \\ & \text { of new station is to be effected }\end{aligned}$
$+=$ Yes

- = No

$\left[\begin{array}{l}\square \\ L\end{array}\right]=\operatorname{RBB}$




## ANNEX III.1.4

 FLOWCHART No. AEF Assignment in question
$D_{1}=$ Date of receipt of origina notice by IFRB
$+=Y e s$
= No
$\square$ Administration
$\square$ Another administration
$\square$ IFRB


## ANNEX III. 1.4

FLOWCHART No. AE
(See III. 1.4.4)

FROM BOX 16 ON SHEET 1


Note 1: Date $\mathrm{D}_{8}$ is the date determined by the Board for a review of the unfavourable finding under RR 1241 or RR 1242 in accordance with RR 1428, and is usually date $\mathrm{D}_{3}+2$ year assignments between 9 kHz and 4000 kHz , or date $\mathrm{D}_{3}+6$ years for assignment between 4 MHz and 28 MHz . However if the assignment giving rise to the unfavourab of WARC-79, date $D_{8}$ is 2 or 6 years after the date on which that assignment is brought into service.



NB 1) The IFRB consults with admunistration $A$ when approprite as to
the acceppobitity of $F$ (RR ${ }^{12921}$
2) Administrations are urged to afford all possible assistance through
therr monitoring stations (RR 1294)
3) The provisions of RR 1438 - RR 145
3) The provisions of RR 1438 - RR 1450 and RR 1964 - RR 1966 are
relevant to this procedure


PROCEDURE RELATING TO EXAMINATION OF NOTICES OF ASSIGNMENTS TO RECEIVING COAST radiotelephone stations in the exclusive maritime mobile bands between 4 and 23 MHz

$\mathrm{R}_{1}=$ Date of receipt of notice by IFRB
$P_{1}=\begin{aligned} & \text { Date of publication of detats in Part } 1 \text { of weekly } \\ & \text { Circular, not more than } 40 \text { days after } R_{1}\end{aligned}$
$P_{2}=$ Not more than 45 days atter $P_{1}$
ANNEX III.7.1
$\mathrm{F}=$ Assigned Frequenc,
$\mathrm{I}=$ Action oy IFRB
$+=$ Yes
$-=$ No
this flowchart is issued as an aid to understanding and does not form part
of the radio regulations
FLOWCHART No AP
(See III.7.3.3)
procedure relating to notices of frequency assignments in the exclusive aeronautical mobile (or)
Notes
1FR8 concludes that $F$ conforms with a primary
allotment in the Plan and thus with RR 1345
2 IFRE concludes that $F$ conforms with a secondary
allotment in the Plan and thus with RR 1346 .
3 IFRB concludes that $F$ conforms with RR 1347
4 IFRB concludes that $F$ satsifies the requirements
for a secoconary allorment in the Plan and thus
for a secondary allormen
conforms with RR 1346


THIS FLOWCHART IS ISSUED AS AN AID TO UNDERSTANDING AND DOES NOT FORM PART OF THE RADIO REGULATIONS

## LOWCHART No BA

SHEET 1 OF 4
(ANNEX V.8.2

Action by $\square$ $=$ Administration A $[7]=I F R B$

$$
t=\text { Yes }
$$

- No

NOTES:

1. When an assignment is recorded in the Master Register the particulars are published in Part II of the weekly circular.
2. When a notice is returned to the notifying administration the particulars are published in Part III of the weekly ircula
3. When a notice is resubmitted to the IFRB the particulars are published in Part IB of the weekly circular
4. When examinations in respect of RR 1504 and RR 1505 re both relevant they are carried out at the same time or convenience, they are shown on Sheets 3 and 4 as consecutive examinations
5. The space service assignment concerned may be recorded if it and the assignment which gave rise to the unfavourable finding under RR $1506-1508$ or RR 1509-1512 as relevant, have both been in use for a common month period without complaint of harmful interference (RR 1544).

PROCEDURE OF EXAMINATION AND REGISTRATION OF ASSIGNMENTS TO STATIONS IN SPACE SERVICES OTHER THAN THE BROADCASTING - SATELLITE SERVICE: ALL FREQUENCY BANDS






this flowchart is issued as an aid to understanding and does not form par of the radio regulations

ARticle 17 : time tabl OF ACTIVITIES

ANNEX III.4.5
FLOWCHART No A (See III.4.7)

Date $D_{s} \quad=$ Date on which implementation of the seasonal
Date $D_{1} \quad$ schedule in question starts at 0100 U
$\begin{aligned} & =\text { Approximately } 6 \text { months before } D_{s} \\ \text { Date } D_{2} & =\text { Closing date for submission of propected schedules }\end{aligned}$
(approximately 4 months before $D_{3}$ )
Date $D_{3}=2$ months before $D_{0}$

$$
-\quad=\text { No }
$$

$$
+_{\text {Action bv }}=Y_{\text {es }}
$$

$\square$
$=$ Administrations
$\Gamma 7=1 F R B$




FRB studies projected schedules and

1. Selects frequencles where appropriate
(RR $1754-1757$ )
(RR 1754-1757)
2. Identifies incompatibilities
3. Gives special consideration in appro
prate cases (RR 1759)
4 Makes suggestions to administrations
5 Prepares and arranges publication of Tentative Schedule by date $\mathrm{D}_{3}$ (RR 1760) $\qquad$


## CHAPTER I

## Terminology

ARTICLE 1

## Terms and Definitions

## Introduction

For the purposes of these Regulations, the following terms shall have the meanings defined below. These terms and definitions do not, however, necessarily apply for other purposes. Definitions identical to those contained in the International Telecommunication Convention (Malaga-Torremolinos, 1973) are marked "(CONV.)".*
Note: If, in the text of a definition below, a term is printed in italics, this means that the term itself is defined in this Article.

## Section I. General Terms

1.1. Administration: Any governmental department or service responsible for discharging the obligations undertaken in the Convention of the International Telecommunication Union and the Regulations (CONV.).
1.2 Telecommunication: Any transmission, emission or reception of signs, signals, writing, images and sounds or intelligence of any nature by wire, radio, optical or other electromagnetic systems (CONV.).
1.3 Radio: A general term applied to the use of radio waves (CONV.).
1.4 Radio Waves or Hertzian Waves: Electromagnetic waves of frequencies arbitrarily lower than 3000 GHz , propagated in space without artificial guide.

[^11]7 1.5 Radiocommunication: Telecommunication by means of radio waves (CONV.).

8 1.6 Terrestrial Radiocommunication: Any radiocommunication other than space radiocommunication or radio astronomy.
91.7 Space Radiocommunication: Any radiocommunication involving the use of one or more space stations or the use of one or more reflecting satellites or other objects in space.

10 Radiodetermination: The determination of the position, velocity and/or other characteristics of an object, or the obtaining of information relating to these parameters, by means of the propagation properties of radio waves.

11 Radionavigation: Radiodetermination used for the purposes of navigation, including obstruction warning.

12 I.10 Radiolocation: Radiodetermination used for purposes other than those of radionavigation.

13 L.11 Radio Direction-Finding: Radiodetermination using the reception of radio waves for the purpose of determining the direction of a station or object.
1.13 Coordinated Universal Time (UTC): Time scale, based on the second (SI), as defined and recommended by the CCIR ${ }^{\prime}$, and maintained by the International Time Bureau (BIH).

For most practical purposes associated with the Radio Regulations, UTC is equivalent to mean solar time at the prime meridian ( $0^{\circ}$ longitude), formerly expressed in GMT.
$16 \quad 1.14 \quad$ Industrial, Scientific and Medical (ISM) Applications (of radio frequency energy): Operation of equipment or appliances designed to generate and use locally radio frequency energy for industrial, scientific, medical, domestic or similar purposes, excluding applications in the field of telecommunications.
15.1

[^12]
## Section VII. Frequency Sharing

160 7.1 Interference: The effect of unwanted energy due to one or a combination of emissions, radiations, or inductions upon reception in a radiocommunication system, manifested by any performance degradation, misinterpretation, or loss of information which could be extracted in the absence of such unwanted energy.

161 P.2 Permissible Interference ${ }^{1}$ : Observed or predicted interference which complies with quantitative interference and sharing criteria contained in these Regulations or in CCIR Recommendations or in special agreements as provided for in these Regulations.

162 7.3 Accepted Interference ${ }^{1}$ : Interference at a higher level than that defined as permissible interference and which has been agreed upon between two or more administrations without prejudice to other administrations.

163 7.4 Harmful Interference: Interference which endangers the functioning of a radionavigation service or of other safety services or seriously degrades, obstructs, or repeatedly interrupts a radiocommunication service operating in accordance with these Regulations.

164 7.5 Protection Ratio (R.F.): The minimum value of the wanted-to-unwanted signal ratio, usually expressed in decibels, at the receiver input, determined under specified conditions such that a specified reception quality of the wanted signal is achieved at the receiver output.

165 7.6 Coordination Area: The area associated with an earth station outside of which a terrestrial station sharing the same frequency band neither causes nor is subject to interfering emissions greater than a permissible level.

166 7.7 Coordination Contour: The line enclosing the coordination area.
161.1
${ }^{1}$ The terms "permissible interference" and "accepted interference" are used in the coordination of frequency assignments between administrations.
$167 \quad 7.8 \quad$ Coordination Distance: Distance on a given azimuth from an earth station beyond which a terrestrial station sharing the same frequency band neither causes nor is subject to interfering emissions greater than a permissible level.
$168 \quad 7.9 \quad$ Equivalent Satellite Link Noise Temperature: The noise temperature referred to the output of the receiving antenna of the earth station corresponding to the radio frequency noise power which produces the total observed noise at the output of the satellite link excluding noise due to interference coming from satellite links using other satellites and from terrestrial systems.

## Section VIII. Technical Terms Relating to Space

169 D.1 Deep Space: Space at distances from the Earth approximately equal to, or greater than, the distance between the Earth and the Moon.

170 Spacecraft: A man-made vehicle which is intended to go beyond the major portion of the Earth's atmosphere.

171 Satellite: A body which revolves around another body of preponderant mass and which has a motion primarily and permanently determined by the force of attraction of that other body.

172 8.4 Active Satellite: A satellite carrying a station intended to transmit or retransmit radiocommunication signals.

173 R.5 Reflecting Satellite: A satellite intended to reflect radiocommunication signals.
8.6 Active Sensor: A measuring instrument in the earth explora-tion-satellite service or in the space research service by means of which information is obtained by transmission and reception of radio waves.

175 8.7 Passive Sensor: A measuring instrument in the earth explora-tion-satellite service or in the space research service by means of which information is obtained by reception of radio waves of natural origin.

In making assignments to stations of other services to which the band $150.05-153 \mathrm{MHz}$ is allocated, administrations are urged to take all practicable steps to protect the radio astronomy service from harmful interference. Emissions from space or airborne stations can be particularly serious sources of interference to the radio astronomy service (see Nos. 343 and 344 and Article 36).

611 Additional allocation: in Australia and India, the band $150.05-153 \mathrm{MHz}$ is also allocated to the radio astronomy service on a primary basis.

Additional allocation: in Sweden and Switzerland the band 150.05 153 MHz is also allocated to the aeronautical mobile (OR) service on a secondary basis.

613 The frequency 156.8 MHz is the international distress, safety and calling frequency for the maritime mobile VHF radiotelephone service. The conditions for the use of this frequency are contained in Article 38.

In the bands $156-156.7625 \mathrm{MHz}, \quad 156.8375-157.45 \mathrm{MHz}$, $160.6-160.975 \mathrm{MHz}$ and $161.475-162.05 \mathrm{MHz}$, each administration shall give priority to the maritime mobile service on only such frequencies as are assigned to stations of the maritime mobile service by that administration (see Article 60).

Any use of frequencies in these bands by stations of other services to which they are allocated should be avoided in areas where such use might cause harmful interference to the maritime mobile VHF radiocommunication service.

However, the frequency 156.8 MHz and the frequency bands in which priority is given to the maritime mobile service may be used for radiocommunications on inland waterways subject to agreement between interested and affected administrations and taking into account current frequency usage and existing agreements.

613A In the maritime mobile VHF service the frequency 156.525 MHz is to be Mob-83 used exclusively as from 1 January 1986 for digital selective calling for distress and safety communications. The frequency 156.825 MHz is used exclusively for direct-printing telegraphy in the maritime mobile VHF service for distress and safety purposes. The conditions for the use of these frequencies are prescribed in Article 38 and in Appendix 18.

614 Alternative allocation: in France and Monaco, the band $162-174 \mathrm{MHz}$ is allocated to the broadcasting service on a primary basis until 1 January 1985.

615 Alternative allocation: in Morocco, the band $162-174 \mathrm{MHz}$ is allocated to the broadcasting service on a primary basis. The use of this band shall be subject to agreement with administrations having services, operating or planned, in accordance with the Table which are likely to be affected. Stations in existence on 1 January 1981, with their technical characteristics as of that date, are not affected by such agreement.

616 Additional allocation: in China, the band $163-167 \mathrm{MHz}$ is also allocated to the space operation service (space-to-Earth) on a primary basis subject to agreement obtained under the procedure set forth in Article 14.

617 Additional allocation: in Afghanistan, China and Pakistan, the band $167-174 \mathrm{MHz}$ is also allocated to the broadcasting service on a primary basis. The introduction of the broadcasting service into this band shall be subject to agreement with the neighbouring countries in Region 3 whose services are likely to be affected.

618 Additional allocation: in Japan, the band $170-174 \mathrm{MHz}$ is also allocated to the broadcasting service on a primary basis.

Additional allocation: in Canada, the bands $405.5-406 \mathrm{MHz}$ and $406.1-410 \mathrm{MHz}$ are also allocated to the mobile-satellite, except aeronautical mobile-satellite, service (Earth-to-space), on a primary basis, subject to agreement obtained under the procedure set forth in Article 14.

649 The use of the band $406-406.1 \mathrm{MHz}$ by the mobile-satellite service is Mob-83 limited to low-power satellite emergency position-indicating radiobeacons (see also Article 38).

650 In making assignments to stations of other services to which the band $406.1-410 \mathrm{MHz}$ is allocated, administrations are urged to take all practicable steps to protect the radio astronomy service from harmful interference. Emissions from space or airborne stations can be particularly serious sources of interference to the radio astronomy service (see Nos. 343 and 344 and Article 36).

RR8-80


## GHz

10.7 - 11.7

| Allocation to Services |  |  |
| :--- | :---: | :---: |
| Region 1 | Region 2 | Region 3 |
| $\mathbf{1 0 . 7 - 1 1 . 7}$ | $\mathbf{1 0 . 7 - 1 1 . 7}$ |  |
| FIXED | FIXED |  |
| FIXED-SATELLITE <br> (space-to-Earth) <br> (Earth-to-space) 835 <br> MOBILE except <br> aeronautical mobile | FIXED-SATELLITE (space-to-Earth) |  |

835 In Region 1, the use of the band $10.7-11.7 \mathrm{GHz}$ by the fixed-satellite service (Earth-to-space) is limited to feeder links for the broadcasting-satellite service.

## GHz

11.7 - 12.75

| Allocation to Services |  |  |
| :--- | :--- | :--- |
| Region 1 | Region 2 | Region 3 |

836 In Region 2, in the band $11.7-12.2 \mathrm{GHz}$, transponders on space stations Orb-85 in the fixed-satellite service may be used additionally for transmissions in the broadcasting-satellite service, provided that such transmissions do not have a maximum e.i.r.p. greater than 53 dBW per television channel and do not cause greater interference or require more protection from interference than the coordinated fixed-satellite service frequency assignments. With respect to the space services, this band shall be used principally for the fixed-satellite service.

837 Different category of service: in Canada, Mexico and the United States, the Orb-85 allocation of the band $11.7-12.1 \mathrm{GHz}$ to the fixed service is on a secondary basis (see No. 424).

838 In the band $11.7-12.5 \mathrm{GHz}$ in Regions 1 and 3, the fixed, fixed-satellite, mobile, except aeronautical mobile, and broadcasting services, in accordance with their respective allocations, shall not cause harmful interference to broadcasting-satellite stations operating in accordance with the provisions of Appendix 30 *.

839 The use of the bands $11.7-12.2 \mathrm{GHz}$ by the fixed-satellite service in
Orb-85 Region 2 and $11.7-12.7 \mathrm{GHz}$ by the broadcasting-satellite service in Region 2 is limited to national and sub-regional systems. The use of the band $11.7-12.2 \mathrm{GHz}$ by the fixed-satellite service in Region 2 is subject to previous agreement between the administrations concerned and those having services, operating or planned to operate in accordance with the Table, which may be affected (see Articles 11, 13 and 14). For the use of the band $12.2-12.7 \mathrm{GHz}$ by the broadcasting-satellite service in Region 2, see Article 15.

## 840 and 841 SUP

Orb-85
842 Additional allocation: the band $12.1-12.2 \mathrm{GHz}$ in Brazil and Peru, is also Orb-85 allocated to the fixed service on a primary basis.

## 843 SUP <br> Orb-85

844 In Region 2, in the band $12.2-12.7 \mathrm{GHz}$, existing and future terrestrial Orb-85 radiocommunication services shall not cause harmful interference to the space services operating in conformity with the Broadcasting-Satellite Plan for Region 2 contained in Appendix 30 (Orb-85).

845 In Region 3, the band $12.2-12.5 \mathrm{GHz}$ is also allocated to the fixedsatellite (space-to-Earth) service limited to national and sub-regional systems. The power flux-density limits in No. 2574 shall apply to this frequency band.

[^13]The introduction of the service in relation to the broadcasting-satellite service in Region 1 shall follow the procedures specified in Article 7 of Appendix $30^{*}$, with the applicable frequency band extended to cover 12.2 12.5 GHz .

846 In Region 2, in the band $12.2-12.7 \mathrm{GHz}$, assignments to stations of the Orb-85 broadcasting-satellite service in the Plan for Region 2 contained in Appendix 30 (Orb-85) may also be used for transmissions in the fixed-satellite service (space-to-Earth), provided that such transmissions do not cause more interference or require more protection from interference than the broad-casting-satellite service transmissions operating in conformity with the Region 2 Plan. With respect to the space services, this band shall be used principally for the broadcasting-satellite service.

847 The broadcasting-satellite service in the band $12.5-12.75 \mathrm{GHz}$ in
Orb-85 Region 3 is limited to community reception with a power flux-density not exceeding $-111 \mathrm{~dB}\left(\mathrm{~W} / \mathrm{m}^{2}\right)$ as defined in Annex 5 of Appendix 30 (Orb-85). See also Resolution 34.

848 Additional allocation: in Algeria, Angola, Saudi Arabia, Bahrain, Cameroon, the Central African Republic, the Congo, the Ivory Coast, Egypt, the United Arab Emirates, Ethiopia, Gabon, Ghana, Guinea, Iraq, Israel, Jordan, Kenya, Kuwait, the Lebanon, Libya, Madagascar, Mali, Morocco, Mongolia, Niger, Nigeria, Qatar, Syria, Senegal, Somalia, Sudan, Chad, Togo, Yemen (P.D.R. of) and Zaire, the band $12.5-12.75 \mathrm{GHz}$ is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

849 Additional allocation: in the Federal Republic of Germany, Belgium, Denmark, Spain, Finland, France, Greece, Liechtenstein, Luxembourg, Monaco, Norway, Uganda, the Netherlands, Portugal, Roumania, Sweden, Switzerland, Tanzania, Tunisia and Yugoslavia, the band $12.5-12.75 \mathrm{GHz}$ is also allocated to the fixed and mobile, except aeronautical mobile, services on a secondary basis.

850 Additional allocation: in Austria, Bulgaria, Hungary, Poland, the German Democratic Republic, Czechoslovakia and the U.S.S.R., the band 12.5 12.75 GHz is also allocated to the fixed service and the mobile, except aeronautical mobile, service on a primary basis. However, stations in these services shall not cause harmful interference to fixed-satellite earth stations of countries in Region 1 other than those mentioned in this footnote. Coordination of these earth stations is not required with stations of the fixed and mobile services of the countries mentioned in this footnote. The power flux-density limit at the Earth's surface given in No. $\mathbf{2 5 7 4}$ for the fixed-satellite service shall apply on the territory of the countries mentioned in this footnote.

[^14]867 Additional allocation: in Israel, the band $15.7-17.3 \mathrm{GHz}$ is also allocated to the fixed and mobile services on a primary basis. These services shall not claim protection from or cause harmful interference to services operating in accordance with the Table in countries other than those included in No. 866.

868 Additional allocation: in Afghanistan, Algeria, the Federal Republic of Germany, Angola, Saudi Arabia, Austria, Bahrain, Bangladesh, Cameroon, Costa Rica, El Salvador, the United Arab Emirates, Finland, Guatemala, Honduras, India, Indonesia, Iran, Iraq, Israel, Japan, Kuwait, Libya, Nepal, Nicaragua, Pakistan, Qatar, Sudan, Sri Lanka, Sweden, Thailand and Yugoslavia, the band $17.3-17.7 \mathrm{GHz}$ is also allocated to the fixed and mobile services on a secondary basis. The power limits given in Nos. 2505 and 2508 shall apply provisionally (see Resolution 101).

869 The use of the band $17.3-18.1 \mathrm{GHz}$ by the fixed-satellite service
Orb-85 (Earth-to-space) is limited to feeder links for the broadcasting-satellite service. For the use of the band $17.3-17.8 \mathrm{GHz}$ in Region 2 by the feeder links for the broadcasting-satellite service in the band $12.2-12.7 \mathrm{GHz}$, see Article 15A.

## GHz

$17.7-19.7$


## ARTICLE 11

# Coordination of Frequency Assignments to Stations in a Space Radiocommunication Service Except Stations in the BroadcastingSatellite Service and to Appropriate Terrestrial Stations ${ }^{1}$ 

## Section I. Procedures for the Advance Publication of Information on Planned Satellite Networks ${ }^{2}$

## 1041 <br> Publication of Information

1042 § 1. (1) An administration (or one acting on behalf of a group of named administrations) which intends to establish a satellite system shall, prior to the coordination procedure in accordance with No. 1060 where applicable, send to the International Frequency Registration Board, not earlier than five years and preferably not later than two years before the date of bringing into service each satellite network of the planned system, the information listed in Appendix 4.
(2) Any amendments to the information sent concerning a planned satellite system in accordance with No. 1042 shall also be sent to the Board as soon as they become available.
(3) The Board shall publish the information sent under Nos. 1042 and 1043 in a special section of its weekly circular and shall also, when the weekly circular contains such information, so advise all administrations by circular telegram. The circular telegram shall include the frequency bands to be used and, in the case of a geostationary satellite, the orbital location of the space station.
(4) If the information is found to be incomplete, the Board shall publish it under No. 1044 and immediately seek, from the administration concerned, any clarification and information not provided. In

[^15]such cases, the period of four months specified in No. 1047 shall count from the date of publication, under No. 1044, of the complete information.

1047 § $2 . \quad$ If, after studying the information published under No. 1044, any administration is of the opinion that interference which may be unacceptable may be caused to its existing or planned space radiocommunication services, it shall, within four months after the date of the weekly circular publishing the complete information listed in Appendix 4, send its comments to the administration concerned. A copy of these comments shall also be sent to the Board. If no such comments are received from an administration within the period mentioned above, it may be assumed that that administration has no basic objections to the planned satellite network(s) of that system on which details have been published.

## 1048 Resolution of Difficulties

1049 §3. (1) An administration receiving comments sent in accordance with No. 1047 shall endeavour to resolve any difficulties that may arise and shall provide any additional information that may be available.
(2) In case of difficulties arising when any planned satellite network of a system is intended to use the geostationary-satellite orbit:

1051 a) the administration responsible for the planned system shall first explore all possible means of meeting its requirements, taking into account the characteristics of the geostationary-satellite networks of other systems, and without considering the possibility of adjustment to systems of other administrations. If no such means can be found, the administration concerned is then free to apply to other administrations concerned to solve these difficulties;
b) an administration receiving a request under No. 1051 shall, in consultation with the requesting administration, explore all possible means of meeting the

## ARTICLE 12

## Orb-85 Notification and Recording in the Master International Frequency Register of frequency Assignments ${ }^{1}$ to Terrestrial Radiocommunication Stations ${ }^{2,3,4}$

## Section I. Notification of Frequency Assignments

1214 § 1. (1) Any frequency assignment ${ }^{5}$ to a fixed, land, broadcasting ${ }^{6}$, radionavigation land, radiolocation land or a standard frequency and time signal station, or to a ground-based station in the meteorological aids service, shall be notified to the International Frequency Registration Board:
a) if the use of the frequency concerned is capable of causing harmful interference to any service of another administration ${ }^{7}$; or
A.12.1 ${ }^{1}$ The expression frequency assignment, wherever it appears in this Article, shall be understood to refer either to a new frequency assignment or to a change in an assignment already recorded in the Master International Frequency Register (heremafter called the Master Register).
A.12.2 $\quad 2$ For the notification and recording in the Master International Frequency Register of frequency assignments to radio astronomy and space radiocommunication stations, see Article 13
${ }^{3}$ For the notification and recording of frequency assignments to terres-Orb-85 trial stations in the frequency bands $11.7-12.2 \mathrm{GHz}$ (in Region 3), 12.2-12.7 GHz (in Regton 2) and 11.7-12.5 GHz (in Region 1), so far as their relationship to the broadcasting-satellite service in these bands is concerned, see also Article 15.
A. 12.4

Orb-85
1214.1
1214.2
1215.1
${ }^{4}$ For the notification and recording of frequency assıgnments to terrestrial stations in the frequency band $17.7-17.8 \mathrm{GHz}$ (in Region 2), so far as their relationshıp to the fixed-satellite service (Earth-to-space) in this band is concerned, see also Article 15A.
uncy is used by numerous stations under the paragraphs 3 and 4). see Article 17.
${ }^{7}$ The attention of admınistrations is specifically drawn to the application of the provisions of Nos. 1215 and 1217 in those cases where they make a frequency assignment to a terrestrial station, located within the coordination area of an earth station (see Nos. 1148 to 1154), in a band which terrestrial radiocommunication services share with equal rights with space radiocommunication services in the frequency spectrum above 1 GHz .
(2) Similar notice ${ }^{2}$ shall be given when an administration desires to request the assistance of the Board in selecting a frequency assignment to a station of the fixed service in any of the bands allocated exclusively, or on a shared basis, to that service between 3000 kHz and 27500 kHz , or when an administration wishes to use for the same type of station a predetermined frequency assignment; in the latter case, the
administration shall indicate the reasons on which the request is based of station a predetermined frequency assignment; in the latter case, the
administration shall indicate the reasons on which the request is based together with the possible modifications which could be made to the characteristics of its assignment, and the Board will take account of this information when searching for a satisfactory solution. For this purpose an individual notice shall be drawn up as specified in Section D of Appendix 1. It is recommended that the notifying administration should provide the additional information called for in that Appendix, together with such further information as it may consider appropriate. The procedure to be followed is given in Nos. 1275 to 1304.
(3) Similar notice shall be given for any frequency to be used for the reception of mobile stations by a particular land station in each
case where one or more of the conditions specified in Nos. 1214 to the reception of mobile stations by a particular land station in each
case where one or more of the conditions specified in Nos. 1214 to 1217 are applicable.
1220 (4) Specific frequencies listed in the Preface to the International Frequency List which are prescribed by these Regulations for common use by stations of a given service (for example, international distress frequencies 500 kHz and 2182 kHz , frequencies of ship radiotelegraph stations operating in their exclusive high frequency bands, etc.), shall not be notified to the Board.

1221 § 2. (1) For any notification under Nos. 1214 to $\mathbf{1 2 1 7}$ or $\mathbf{1 2 1 9}$ an individual notice for each frequency assignment shall be drawn up as prescribed in Section A or B of Appendix 1, which specify the basic characteristics to be furnished, according to the case. It is recommended that the notifying administration should also supply the additional information called for in that Appendix, together with such further information as it may consider appropriate.
${ }^{1}$ Same text as for No. 1215.1.
1218.1
b) if the frequency is to be used for international radiocommunication; or
c) if it is desired to obtain international recognition of the use of the frequency ${ }^{1}$.解

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## ARTICLE 13

## Notification and Recording in the Master International Frequency Register of Frequency Assignments ${ }^{1}$ to Radio Astronomy and Space Radiocommunication Stations Except Stations in the Broadcasting-Satellite Service ${ }^{2}$

Section I. Notification of Frequency Assignments
§ 1. (1) Any frequency assignment to be used for transmission or reception by an earth or space station shall be notified to the Board: tion by a particular radio astronomy station may be notified if it is desired that such data should be included in the Master Register.
(3) When the Board receives from one administration a notice containing a modification or deletion of a space station assignment already recorded in the Master Register on behalf of a group of administrations, it shall be assumed, in the absence of information to the contrary, that the notice of modification or deletion is submitted on behalf of all the administrations which were associated with the original notification.

[^17](4) A notice submitted in accordance with Nos. 1488 to 1491 and relating to a frequency assignment to mobile earth stations in a satellite system shall include the technical characteristics either of each mobile earth station, or of a typical mobile earth station, and an indication of the service area within which these stations are to be operated.
§ 2. For any notification under Nos. 1488 to 1492 or 1494 , a notice for each frequency assignment shall be drawn up as prescribed in Appendix 3, the various sections of which specify the basic characteristics to be furnished according to the case. It is recommended that the notifying administration should also supply the additional data called for in Section A of that Appendix, together with such further data as it may consider appropriate.

1496 § 3. (1) For a frequency assignment to an earth or space station, each notice shall be submitted in order to reach the Board not earlier than three years before the date on which the assignment is to be brought into use. The notice shall reach the Board in any case not later than three months ${ }^{1}$ before this date, except in the case of assignments in the space research service in bands allocated exclusively to this service or in shared bands in which this service is the sole primary service. In the case of such an assignment in the space research service, the notice should, whenever practicable, reach the Board before the date on which the assignment is brought into use, but it shall in any case reach the Board not later than thirty days after the date it is actually brought into use.
(2) Any frequency assignment to an earth or space station, the notice of which reaches the Board after the applicable period specified in No. 1496, shall, where it is to be recorded, bear a mark in the Master Register to indicate that it is not in conformity with No. 1496.

[^18]ARTICLE 15

Orb-85 Coordination, Notification and Recording of Frequency Assignments to Stations of the Broadcasting-Satellite Service in the Frequency Bands 11.7 - $\mathbf{1 2 . 2} \mathbf{~ G H z}$ (in Region 3), 12.2-12.7 GHz (in Region 2) and 11.7 - $\mathbf{1 2 . 5} \mathbf{~ G H z}$ (in Region 1) and to the Other Services to Which these Bands Are Allocated, so far as their Relationship to the Broadcasting-Satellite Service in these Bands Is Concerned

1656 casting-satellite service in the frequency bands $11.7-12.5 \mathrm{GHz}$ (in Region 1), $12.2-12.7 \mathrm{GHz}$ (in Region 2) and $11.7-12.2 \mathrm{GHz}$ (in Region 3), as contained in Appendix 30 (Orb-85) to the Radio Regulations, shall apply to the assignment and use of frequencies by stations of the broadcasting-satellite service in these bands and to the stations of other services to which these bands are allocated so far as their relationship to the broadcasting-satellite service in these bands is concerned. For the broadcasting-satellite service in Region 2, Resolution 42 (Orb-85) is also applicable.

The provisions and associated Plans for the broadRegion 2, Resolution 42 (Orb-85) is also applicable.

Orb-85 Coordination, Notification and Recording of Frequency Assignments to Stations in the Fixed-Satellite Service
(Earth-to-Space) in the Frequency Band 17.3 - 17.8 GHz (in Region 2) Providing Feeder Links for the Broadcasting-Satellite Service and also to Stations of Other Services to Which this Band Is Allocated in Region 2, so far as their Relationship to the Fixed-Satellite Service (Earth-to-Space) in this Band Is Concerned in Region 2

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The provisions and associated Plan for feeder links associated with the broadcasting-satellite service, utilizing the fixed-satellite service (Earth-to-space) in the band $17.3-17.8 \mathrm{GHz}$ (in Region 2), as contained in Appendix 30A, shall apply to the assignment to and use by feeder links of frequencies in this band and to stations of other services to which this band is allocated in Region 2 so far as the relationship of these other services to the fixed-satellite service (Earth-to-space) in this band is concerned in Region 2. For feeder links in the fixed-satellite service for the broadcasting-satellite service in Region 2, Resolution 42 (Orb-85) is also applicable.

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to NOT allocated.
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## ARTICLE 29

## Special Rules Relating to Space Radiocommunication Services

## Section I. Cessation of Emissions

2612 § $1 . \quad$ Space stations shall be fitted with devices to ensure immediate cessation of their radio emissions by telecommand, whenever such cessation is required under the provisions of these Regulations.

## Section II. Control of Interference to Geostationary-Satellite Systems

2613 § 2. Non-geostationary space stations shall cease or reduce to a negligible level their emissions, and their associated earth stations shall not transmit to them, whenever there is insufficient angular separation between non-geostationary satellites and geostationary satellites, and whenever there is unacceptable interference ${ }^{1}$ to geostationary-satellite space systems in the fixed-satellite service operating in accordance with these Regulations.

2614 § 3. In the frequency band $29.95-30 \mathrm{GHz}$ space stations in the earth exploration-satellite service on board geostationary satellites and operating with space stations in the same service on board non-geostationary satellites shall have the following restriction:

Whenever the emissions from the geostationary satellites are directed towards the geostationary-satellite orbit and cause unacceptable interference ${ }^{1}$ to any geostationary-satellite space system in the fixed-satellite service, these emissions shall be reduced to a level at or less than accepted interference ${ }^{1}$.

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## Section III. Station Keeping of Space Stations ${ }^{1}$

2615 § 4. (1) Space stations on board geostationary satellites which use any frequency band allocated to the fixed-satellite service or the broadcasting-satellite service ${ }^{2}$ :

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d) however, space stations need not comply with No. 2617 nor No. 2618 as appropriate as long as the satellite network to which the space station belongs does not cause unacceptable interference ${ }^{3}$ to any other satellite network whose space station complies with the limits given in Nos. 2617 and 2618.
' In the case of space stations on board geosynchronous satellites with orbits having an angle of inclination greater than 5 degrees the positional tolerance shall relate to the nodal point.
${ }^{2}$ Space stations in the broadcasting-satellite service on geostationary satellites operating in the band $11.7-12.7 \mathrm{GHz}$ are exempted from these provisions but shall maintain their positions in accordance with Appendix 30 *.
2619.1
${ }^{3}$ The level of accepted interference shall be fixed by agreement between the administrations concerned, using the relevant CCIR Recommendations as a guide.

* Note by the General Secretariat: Appendix 30 has been revised by the First Session of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It, Geneva, 1985, and becomes Appendix 30 (Orb-85).
b) shall maintain their positions within $\pm 1$ degree of longitude of their nominal positions; but
(2) Space stations on board geostationary satellites which do not use any frequency band allocated to the fixed-satellite service or the broadcasting-satellite service:
a) shall have the capability of maintaining their positions within $\pm 0.5$ degree of the longitude of their nominal positions;
b) shall maintain their positions within $\pm 0.5$ degree of longitude of their nominal positions; but
c) need not comply with No. 2622 as long as the satellite network to which the space station belongs does not cause unacceptable interference ${ }^{1}$ to any other satellite network whose space station complies with the limits given in No. 2622.
(3) Space stations ${ }^{2}$ on board geostationary satellites which are put into service prior to 1 January 1987, with the advance publication information for the network having been published before 1 January 1982, are exempted from the provisions of Nos. 2615 to 2623 inclusive; however they
2623.1
2624.1 between the administrations concerned, using the relevant CCIR Recommendations as a guide.
${ }^{2}$ Space stations in the broadcasting-satellite service on geostationary satellites operating in the band $11.7-12.7 \mathrm{GHz}$ are exempted from these provisions but shall maintain their positions in accordance with Appendix 30 *.
* Note by the General Secretariat: Appendix $\mathbf{3 0}$ has been revised by the First Session of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It, Geneva, 1985, and becomes Appendix 30 (Orb-85).
c) need not comply with No. 2626 as long as the satellite network to which the space station belongs does not cause unacceptable interference ${ }^{1}$ to any other satellite network whose space station complies with the limits given in No. 2626.


## Section IV. Pointing Accuracy of Antennae on Geostationary Satellites

2628 § 5. (1) The pointing direction of maximum radiation of any earthward beam of antennae on geostationary satellites ${ }^{2}$ shall be capable of being maintained within:
a) $10 \%$ of the half power beamwidth relative to the nominal pointing direction, or
b) 0.3 degree relative to the nominal pointing direction,
whichever is greater. This position applies only when such a beam is intended for less than global coverage.

2629
2627.1
${ }^{1}$ The level of accepted interference shall be fixed by agreement between the administrations concerned, using the relevant CCIR Recommendations as a guide.
2628.1
(2) In the event that the beam is not rotationally symmetrical about the axis of maximum radiation, the tolerance in any plane containing this axis shall be related to the half power beamwidth in that plane.
${ }^{2}$ Transmitting antennae of space stations in the broadcasting- satellite service operating in the band $11.7-12.7 \mathrm{GHz}$ are not subject to these provisions but shall maintain their pointing accuracy in accordance with paragraph 3.14.1 of Annex 8 to Appendix $\mathbf{3 0}$ *.

* Note by the General Secretariat: Appendix 30 has been revised by the First Session of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It, Geneva, 1985, and becomes Appendix 30 (Orb-85).
(3) This accuracy shall be maintained only if it is required to avoid unacceptable interference ${ }^{1}$ to other systems.


## Section V. Power Flux-Density at the Geostationary-Satellite Orbit

2631 § 6. In the frequency band $8025 \mathrm{MHz}-8400 \mathrm{MHz}$, which the earth exploration-satellite service using non-geostationary satellites shares with the fixed-satellite service (Earth-to-space) or the meteorological-satellite service (Earth-to-space), the maximum power flux-density produced at the geostationary-satellite orbit by any earth exploration-satellite service space station shall not exceed $-174 \mathrm{~dB}\left(\mathrm{~W} / \mathrm{m}^{2}\right)$ in any 4 kHz band.

## Section VI. Radio Astronomy in the Shielded Zone of the Moon

2632 § 7. (1) In the shielded zone of the Moon ${ }^{2}$ emissions causing harmful interference to radio astronomy observations ${ }^{3}$ and to other users of passive services shall be prohibited in the entire frequency spectrum except in the following bands:
a) the frequency bands allocated to the space research service using active sensors;

[^20]2632.2

2634

2635

NOT allocated. istrations concerned.
(2) In frequency bands in which emissions are not prohibited by Nos. 2632 to 2634, radio astronomy observations and passive space research in the shielded zone of the Moon may be protected from harmful interference by agreement between admin-

## Section VII. Earth Station Off-Axis Power Limitations

§ 8. The level of equivalent isotropically radiated power (e.i.r.p.) emitted by an earth station at angles in the direction of the geostationary-satellite orbit off the main-beam axis has a significant impact on interference caused to other geostationary-satellite networks. Enhanced utilization of the geostationary-satellite orbit and easier coordination would be attained by minimizing such off-axis radiation and administrations are encouraged to achieve the lowest values practicable bearing in mind the latest CCIR Recommendations. Minimizing such levels is particularly important in intensively used up-link bands.

2988I
Mob-83
2988J § 7E. The carrier frequency 16522 kHz is used for distress Mob-83 and safety traffic by radiotelephony (see No. 2944).

2988K
W. 16695 kHz

Mob-83
2988L § 7F. The frequency 16695 kHz is used exclusively for dis-Mob-83 tress and safety traffic using narrow-band direct-printing telegraphy (see No. 2944).

2988M
X. $\quad 16750 \mathrm{kHz}$

Mob-83
2988N § 7G. The frequency 16750 kHz is used exclusively for dis-Mob-83 tress and safety calls using digital selective calling techniques (see No. 2944).

2989
Mob-83
2990
SUP
Mob-83
2990A §8. (1A)The aeronautical emergency frequency $121.5 \mathrm{MHz}^{1}$ is Mob-83 used for the purposes of distress and urgency for radiotelephony by stations of the aeronautical mobile service using frequencies in the band between 117.975 MHz and 136 MHz ( 137 MHz after 1 January 1990). This frequency may also be used for these purposes in survival craft stations and emergency positionindicating radiobeacons.

2990A. 1
Mob-83
Y. 121.5 MHz and 123.1 MHz

[^21]2990B Mob-83
(1B) The aeronautical auxiliary frequency 123.1 MHz , which is auxiliary to the aeronautical emergency frequency 121.5 MHz , is for use by stations of the aeronautical mobile service and by other mobile and land stations engaged in coordinated search and rescue operations (see also No. 593).

## 2991

Mob-83

2992
Z. 156.3 MHz

Mob-83

2993 § 9. The frequency 156.3 MHz may be used for communica-Mob-83 tion between ship stations and aircraft stations, using G3E emission, engaged in coordinated search and rescue operations. It may also be used by aircraft stations to communicate with ship stations for other safety purposes (see also note $g$ ) of Appendix 18).

2993A
AA. $\quad 156.525 \mathrm{MHz}$
Mob-83

2993B § 9A. The frequency 156.525 MHz is used exclusively in the Mob-83 maritime mobile service for distress and safety calls by digital selective calling techniques (see Nos. 613A and 2944 and Resolution 317 (Mob-83)).

2993C
Mob-83

2993D § 9B. The frequency 156.650 MHz is used for ship-to-ship Mob-83 communications related to the safety of navigation in accordance with note $n$ ) of Appendix 18 (see No. 2944).

2993E
Mob-83
$2994 \S 10$. (1) The frequency 156.8 MHz is the international distress,
Mob-83 safety and calling frequency for radiotelephony for stations of the maritime mobile service when they use frequencies in the authorized bands between 156 MHz and 174 MHz (see also Nos. $\mathbf{5 0 1}$ and 613). It is used for the distress signal, the distress call and distress traffic, as well as for the urgency signal, urgency traffic and the safety signal (see also No. 2995A). Safety messages shall be transmitted where practicable on a working frequency after a preliminary announcement on 156.8 MHz . The class of emission to be used for radiotelephony on the frequency 156.8 MHz shall be G3E (see No. 2944 and Appendix 19).

2995
(2) However, ship stations which cannot transmit on 156.8 MHz should use any other available frequency on which attention might be attracted.
(3) The frequency 156.8 MHz may be used by aircraft Mob-83 stations for safety purposes only.

## 2995B

Mob-83

2995C § 10A. The frequency 156.825 MHz is used exclusively in the maritime mobile service for distress and safety traffic by directprinting telegraphy (see Nos. 2944, 3033 and 4393 and note $k$ ) of Appendix 18).

2996
Mob-83
(See Nos. 501 and 642)

2997
Mob-83

2997A § 10B. The frequency band $406-406.1 \mathrm{MHz}$ is used exclusively Mob-83 by satellite emergency position-indicating radiobeacons in the Earth-to-space direction (see No. 649).

2998
AG. 1544-1545 MHz Band
Mob-83
2998A § 10C. Use of the band $1544-1545 \mathrm{MHz}$ (space-to-Earth) is Mob-83 limited to distress and safety operations (see No. 728) including:

2998B
Mob-83

2998C
Mob-83
a) feeder links of satellites needed to relay the emissions of satellite emergency position-indicating radiobeacons to earth stations;
b) narrow-band (space-to-Earth) links from space stations to mobile stations.

2998D
AH. 1 $645.5-1646.5 \mathrm{MHz}$ Band
Mob-83
2998E § 10D. Use of the band 1645.5-1646.5 MHz (Earth-to-space)
Mob-83 is limited to distress and safety operations (see No. 728).

2999
Mob-83
3000 § 11. Any aircraft in distress shall transmit the distress call on the frequency on which watch is kept by the land or mobile stations capable of helping it. When the call is intended for stations in the maritime mobile service, the provisions of Nos. 2970 and 2971 or 2973 and 2975 or 2994 and 2995 shall be complied with.

3011 § 14. (1) Test transmissions shall be kept to a minimum on the Mob-83 frequencies identified in Section I of this Article and should, wherever practicable, be carried out on artificial antennas or with reduced power.

3012 to 3015 SUP
Mob-83

3016
Mob-83 for testing purposes on any frequency except for essential tests coordinated with competent authorities. As an exception such tests are permitted for radiotelephone equipment which can operate only on the international distress frequency 2182 kHz , in which case a suitable artificial antenna shall be employed.

3016A § 14A.(1) Before transmitting on any of the frequencies identified
Mob-83 in Section I for distress and safety, a station shall listen on the frequency concerned to make sure that no distress transmission is being sent (see No. 4915).

3016B
(2) The provisions of No. 3016A do not apply to stations in Mob-83 distress.

3017
B. 500 kHz

3018 § 15. (1) Apart from the transmissions authorized on 490 kHz Mob-83 and 500 kHz , and taking account of No. 4226, all transmissions on the frequencies included between 490 kHz and 510 kHz are forbidden (see No. 471 and Resolution 206 (Mob-83)).

3019
(2) In order to facilitate the reception of distress calls, other transmissions on the frequency 500 kHz shall be reduced to a minimum, and in any case shall not exceed one minute.

3020 and 3021 SUP
Mob-83

3023 § 16. (1) Except for transmissions authorized on the carrier Mob-83 frequency 2182 kHz and on the frequencies 2174.5 kHz and 2187.5 kHz , all transmissions on the frequencies between 2173.5 kHz and 2190.5 kHz are forbidden.

3024 and 3025 SUP
Mob-83
3026 (4) To facilitate the reception of distress calls, all transmissions on 2182 kHz shall be kept to a minimum.

3027
(5) At sea it is not permitted to radiate test transmissions

Mob-83 of the radiotelephone alarm signal on the carrier frequency 2182 kHz . The function of the generator of the radiotelephone alarm signal shall be checked by aural monitoring without operating a transmitter. The transmitter shall be checked independently. During tests of the radio installation carried out by an administration or on behalf of an administration the radiotelephone alarm signal device should be checked with a suitable artificial antenna on frequencies other than 2182 kHz . If the installation is capable of operating only on the frequency 2182 kHz a suitable artificial antenna should be employed (see No. 3016).

3028
(6) Before and after the tests performed using an artificial Mob-83 antenna in accordance with No. 3027, a suitable announcement should be made on the test frequency that the signals are or were for testing purposes only. The identification of the station should be included in the announcement.

3029 to 3031
SUP
Mob-83

3031A
DA. 121.5 MHz, 123.1 MHz and 243 MHz
Mob-83
3031B § 17A. On the frequencies $121.5 \mathrm{MHz}, 123.1 \mathrm{MHz}$ and
Mob-83 243 MHz transmissions other than those authorized are forbidden (see Nos. 501, 593, 642, 2990A and 2990B).

3033 § 18. (1) All emissions in the band $156.7625-156.8375 \mathrm{MHz}$ Mob-83 capable of causing harmful interference to the authorized transmissions of stations of the maritime mobile service on 156.8 MHz are forbidden. The frequency 156.825 MHz may, however, be used for the purposes described in No. 2995C subject to not causing harmful interference to authorized transmissions on 156.8 MHz (see also note $k$ ) of Appendix 18).

3034 and 3035 SUP
Mob-83
3036 (4) To facilitate the reception of distress calls all transmissions on 156.8 MHz shall be kept to a minimum and shall not exceed one minute.

Section III. Watch on Distress Frequencies

3038 § 19. (1) In order to increase the safety of life at sea and over the
3033.1

SUP
Mob-83
(2) During the periods mentioned above, except for the emissions provided for in this Chapter on the frequency 500 kHz : sea, all stations of the maritime mobile service normally keeping watch on frequencies in the authorized bands between 415 kHz and 526.5 kHz shall, during their hours of service, take the necessary measures to ensure watch on the international distress frequency 500 kHz for three minutes twice an hour beginning at $x$ h 15 and $x$ h 45, Coordinated Universal Time (UTC) by an operator using headphones or loudspeaker.
a) transmissions shall cease in the bands between 485 kHz and 515 kHz (see also Resolution 206 (Mob-83));
$\overline{\text { SUP }}$

析

3041 b) outside these bands, transmissions of stations of the mobile service may continue; stations of the maritime mobile service may listen to these transmissions on the express condition that they first ensure watch on the distress frequency as required by No. 3038.

3042 § 20. (1) Stations of the maritime mobile service open to public Mob-83 correspondence and using frequencies in the authorized bands between 415 kHz and 526.5 kHz shall, during their hours of service, remain on watch on 500 kHz . This watch is obligatory only for class A2A and H2A emissions.

3043
(2) These stations, while observing the requirements of No. 3038, are authorized to relinquish this watch only when they are engaged in communications on other frequencies.

3044
3045

3046

3046A
(4) Ship stations, while observing the requirements of

Mob-83 No. 3038, are also authorized to relinquish this watch ${ }^{1}$ when it is impractical to listen by split headphones or by loudspeaker, and by order of the master in order to repair or carry out maintenance required to prevent imminent malfunction of:

[^22](3) When they are engaged in such communications:
a) ship stations may maintain this watch on 500 kHz by means of an operator using headphones or a loudspeaker or by some appropriate means such as an automatic alarm receiver;
b) coast stations may maintain this watch on 500 kHz by means of an operator using headphones or a loudspeaker; in the latter case an indication may be inserted in the List of Coast Stations.

- 3200-3340 kHz: Ship stations, single-sideband radiotelephony.
- 3340-3400 kHz: Intership, single-sideband radiotelephony.
- 3500-3600 kHz: Intership, single-sideband radiotelephony.
- 3600-3800 kHz: Coast stations, single-sideband radiotelephony.

4188A
(1A) In Region 1, frequencies assigned to stations operating Mob-83 in the bands listed below shall be in accordance with the following subdivision:

- 1606.5-1625 kHz: Coast stations, narrowband direct-printing telegraphy, digital selective calling.
$-1635-1800 \mathrm{kHz}$ : Coast stations, single-sideband radiotelephony.
- $2045-2141.5 \mathrm{kHz}: \quad$ Ship stations, single-sideband radiotelephony.
- 2141.5-2 160 kHz : Ship stations narrow-band direct-printing telegraphy, digital selective calling.

4189 Mob-83
(2) In these bands, in Region 1, the channel spacing for narrow-band direct-printing telegraphy and for digital selective calling is 0.5 kHz and for single-sideband radiotelephony it is 3 kHz .
4190 to $4192 \quad$ SUP
Mob-83
(Rev. 1986)

4193 § 7. In Regions 2 and 3, the carrier frequencies 2635 kHz Mob-83 (assigned frequency 2636.4 kHz ) and 2638 kHz (assigned frequency 2639.4 kHz ) are used as single-sideband intership radiotelephony working frequencies in addition to the frequencies prescribed for common use in certain services. The carrier frequencies 2635 kHz and 2638 kHz should be used with class J3E emissions only. In Region 3 these frequencies are protected by a guardband between 2634 kHz and 2642 kHz .

4194

## SUP

Mob-83

4195 D. Bands Between 4000 kHz and 27500 kHz

4196 § 9. (1) The bands exclusively allocated to the maritime mobile service between 4000 kHz and 27500 kHz (see Article 8) are subdivided into the following categories:

4197
Mob-83
a) Ship stations, telephony, duplex operation (twofrequency channels) ${ }^{\text {' }}$

$$
\begin{array}{r}
4063-4143.6 \mathrm{kHz} \\
6200-6218.6 \mathrm{kHz} \\
8195-8291.1 \mathrm{kHz} \\
12330-12429.2 \mathrm{kHz} \\
16460-16587.1 \mathrm{kHz} \\
22000-22124 \mathrm{kHz}
\end{array}
$$

b) Coast stations, telephony, duplex operation (twofrequency channels)

$$
\begin{array}{r}
4357.4-4438 \mathrm{kHz} \\
6506.4-6525 \mathrm{kHz} \\
8718.9-8815 \mathrm{kHz} \\
13100.8-13200 \mathrm{kHz} \\
17232.9-17360 \mathrm{kHz} \\
22596-22720 \mathrm{kHz}
\end{array}
$$

4197.1

Mob-83

[^23]stations shall be associated in pairs, as indicated in Appendix 16, except temporarily in cases where working conditions prohibit the use of paired frequencies in order to meet operational needs.
(2) The frequencies to be used for the conduct of simplex radiotelephony are shown in Appendix 16, Section B. In these cases, the peak envelope power of the coast station transmitter shall not exceed 1 kW .
(3) The frequencies indicated in Appendix 16 for ship station transmissions may be used by ships of any category according to traffic requirements.
(4) The technical characteristics of transmitters used for radiotelephony in the bands between 4000 kHz and 23000 kHz are specified in Appendix 17.
D. Bands Between 156 MHz and 174 MHz

## D1. Call and Reply

§ 86. (1) The frequency 156.8 MHz is the international distress, safety and calling frequency for radiotelephony when using frequencies in the authorized bands between 156 MHz and 174 MHz (see No. 2994 for details of use). The class of emission to be used for radiotelephony on the frequency 156.8 MHz shall be G3E (see Appendix 19).
(2) The frequency 156.8 MHz may also be used:
a) by coast and ship stations for call and reply in accordance with the provisions of Articles 62 and 65;
b) by coast stations to announce the transmission on another frequency of traffic lists and important maritime information (see Nos. 4925 to 4929).
(3) The frequency 156.8 MHz may be used by ship stations and coast stations for selective calling.

4391 (4) Any one of the channels designated in Appendix 18 for public correspondence may be used as a calling channel if an administration so desires. Such use shall be indicated in the List of Coast Stations.

4392

4393
Mob-83
(5) Ship and coast stations in the public correspondence service may use a working frequency, for calling purposes, as provided in Articles 62 and 65.
(6) All emissions in the band 156.7625-156.8375 MHz capable of causing harmful interference to the authorized transmissions of stations of the maritime mobile service on 156.8 MHz are forbidden. The frequency 156.825 MHz may, however, be used for the purposes described in No. 2995C subject to not causing harmful interference to authorized transmissions on 156.8 MHz (see also note $k$ ) of Appendix 18).

4394 (7) To facilitate the reception of distress calls all transmissions on 156.8 MHz shall be kept to a minimum and shall not exceed one minute.
(8) Before transmitting on the frequency 156.8 MHz , a station should listen on this frequency for a reasonable period to make sure that no distress traffic is being sent (see No. 4915).

4396
(9) The provisions of No. 4395 do not apply to stations in distress.

## D2. Watch

4397 § 87. (1) In addition to the watch referred to in No. 3057, a coast station open to the international public correspondence service should, during its hours of service, maintain watch on its receiving frequency or frequencies indicated in the List of Coast Stations.
4393.1

SUP
Mob-83
13162.8 kHz
17294.9 kHz
22658 kHz
$156.8 \mathrm{MHz}^{1}$

4679B
Mob-83

4679C
Mob-83
4680
Mob-83
b) appropriate radiotelephone working frequencies in the band $1606.5-4000 \mathrm{kHz}$ (Regions 1 and 3) and in the band $1605^{*}-4000 \mathrm{kHz}$ (Region 2);
c) appropriate radiotelephone working frequencies in the band $156-174 \mathrm{MHz}$.

## Section III. Digital Selective Calling System

4681 § 6. A digital selective calling system may be used if it is in full conformity with the relevant CCIR Recommendations in which all operational, technical and compatibility aspects which might be involved have been taken into account.

4681A § 6A. The frequencies used for distress and safety purposes Mob-83 using digital selective calling are as follows (see also Article 38):

| $\quad 490$ | kHz (shore-to-ship) ${ }^{2}$ |
| :--- | :--- |
| 2187.5 | kHz |
| 4188 | kHz |
| 6282 | kHz |

4679A. 1 Selective calling on this frequency should normally be only in the direction coast station to ship or intership. Selective calls from ship to coast station should whenever possible be sent on other frequencies of Appendix 18, as appropriate.
4680.1 and 4680.2 SUP

## Mob-83

4681A. $1 \quad{ }^{2}$ See also Resolution 206 (Mob-83).
Mob-83

* For the band 1605-1625 kHz, see Nos. 480 and 481.

| 8375 | kHz |
| :---: | :---: |
| 12563 | kHz |
| 16750 | kHz |
|  | 156.525 |
| MHz |  |

4682 § 7. The frequencies assignable to ship and coast stations for Mob-83 digital selective calling, for purposes other than distress and safety, are as follows:

4683
Mob-83

4684
a) Ship stations
4187.5 kHz
6281.5 kHz
8375.5 kHz

12562 kHz
12562.5 kHz
16750.5 kHz

16751 kHz
22248 kHz
22248.5 kHz
b) Coast stations

4357 kHz
6506 kHz
8718.5 kHz

13100 kHz
13100.5 kHz

17232 kHz
17232.5 kHz

22595 kHz
22595.5 kHz

4685 § 8. In addition to the frequencies listed in Nos. 4683
Mob-83 and 4684, appropriate working frequencies in the following bands may be used for digital selective calling:

$$
\begin{array}{rl}
415-526.5 \mathrm{kHz} & \text { (Regions 1 and 3) } \\
415-525 \mathrm{kHz} & (\text { Region 2) } \\
1606.5-4000 \mathrm{kHz} & \text { (Regions 1 and 3) } \\
1605^{*}-4000 & \mathrm{kHz}
\end{array} \text { (Region 2) }
$$

* For the band 1605-1 625 kHz , see Nos. 480 and 481.


## CHAPTER XIII

## ARTICLE 69

## Entry into Force of the Radio Regulations

5187 § 1 These Regulations, which are annexed to the Interna-Orb-85 tional Telecommunication Convention, shall enter into force on 1 January 1982, except as specified in Nos. 5188, 5189 and 5193.

5188 § $2 . \quad$ Article 25 and Appendix 43 - but not Appendices 42 and 44 related to this Article - and Article 66 of these Regulations shall enter into force on 1 January 1981.
5189 § 3. The Frequency Allotment Plan for the Aeronautical Mobile (R) Service and the directly related provisions contained in Appendix 27 Aer2* of these Regulations shall enter into force at 0001 h UTC on 1 February 1983.
5190 § $4 . \quad$ On the date of entry into force of Article $\mathbf{2 5}$ and Article 66 of these Regulations, as specified in No. 5188 (1 January 1981), the provisions of the following Articles of the Radio Regulations, Geneva, 1959, as amended:
a) Article 19 - with the exception of provisions 745 to 747 thereof and the Appendices related thereto - and
b) Articles $38,39,40$ and 40 A - including the related Appendices 21, 21A and $22-$ as well as the Additional Radio Regulations
shall be abrogated and replaced respectively by the provisions of Articles $\mathbf{2 5}$ and $\mathbf{6 6}$ of these Regulations.

5191 § $5 . \quad$ On the date specified in No. 5187 (1 January 1982) all the other provisions of the Radio Regulations (Geneva, 1959), as partially revised by the:
a) Extraordinary Administrative Radio Conference to Allocate Frequency Bands for Space Radiocommunication Purposes, Geneva, 1963,

[^24]b) Extraordinary Administrative Radio Conference for the Preparation of a Revised Allotment Plan for the Aeronautical Mobile (R) Service, Geneva, 1966,
c) World Administrative Radio Conference to Deal with Matters Relating to the Maritime Mobile Service, Geneva, 1967,
d) World Administrative Radio Conference for Space Telecommunications, Geneva, 1971,
e) World Maritime Administrative Radio Conference, Geneva, 1974, and the
f) World Administrative Radio Conference on the Aeronautical Mobile (R) Service, Geneva, 1978,
shall be abrogated and replaced by the provisions of these Regulations.

5192 § $6 . \quad$ In accordance with the request by the World Administrative Radio Conference for the Planning of the BroadcastingSatellite Service in Frequency Bands 11.7 - 12.2 GHz (in Regions 2 and 3) and 11.7-12.5 GHz (in Region 1), Geneva, 1977, the provisions and associated Plan adopted by that Conference are, in the appropriate form and without affecting their content and integrity, included in these Regulations as Appendix $30^{*}$ and form an integral part of these Regulations.

5193 § 7. The partial revision of the Radio Regulations contained Orb-85 in the Final Acts of WARC Orb-85 shall enter into force on 30 October 1986 at 0001 hours UTC. ${ }^{1}$
5193.1

## Orb-85

1 For the provisional application of this partial revision, see Resolution 41 (Orb-85).
*: Note by the General Secretariat: Appendix $\mathbf{3 0}$ has been revised by the First Session of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It, Geneva, 1985, and becomes Appendix 30 (Orb-85).

## APPENDICES 1-24

## TO THE RADIO REGULATIONS

## APPENDIX 14

Mob-83

# Miscellaneous Abbreviations and Signals to Be Used for Radiocommunications in the Maritime Mobile Service 

(See Articles 37, 63 and 65)

Section I. Q Code

Introduction

1. The series of groups listed in this Appendix range from QOA to QUZ.
2. The QOA to QQZ series are reserved for the maritime mobile service.
3. Certain Q code abbreviations may be given an affirmative or negative sense by sending, immediately following the abbreviation, the letter C or the letters NO (in radiotelephony spoken as: CHARLIE or NO ).
4. The meanings assigned to Q code abbreviations may be amplified or completed by the appropriate addition of other groups, call signs, place names, figures, numbers, etc. It is optional to fill in the blanks shown in parentheses. Any data which are filled in where blanks appear shall be sent in the same order as shown in the text of the following tables.
5. $Q$ code abbreviations are given the form of a question when followed by a question mark in radiotelegraphy and RQ (ROMEO QUEBEC) in radiotelephony. When an abbreviation is used as a question and is followed by additional or complementary information, the question mark (or RQ) should follow this information.
6. $\quad \mathrm{Q}$ code abbreviations with numbered alternative significations shall be followed by the appropriate figure to indicate the exact meaning intended. This figure shall be sent immediately following the abbreviation.
7. All times shall be given in Coordinated Universal Time (UTC) unless otherwise indicated in the question or reply.
8. An asterisk * following a Q code abbreviation means that this signal has a meaning similar to a signal appearing in the International Code of Signals.

## Abbreviations Available for the Maritime Mobile Service

## A. List of Abbreviations in Alphabetical Order

| Abbreviation | Question | Answer or Advice |
| :---: | :---: | :---: |
| QOA | Can you communicate by radiotelegraphy ( 500 kHz )? | $l$ can communicate by radiotelegraphy ( 500 kHz ). |
| QOB | Can you communicate by radiotelephony ( 2182 kHz )? | I can communicate by radiotelephony ( 2182 kHz ). |
| QOC | Can you communicate by radiotelephony (channel 16 - frequency 156.80 MHz )? | I can communicate by radiotelephony (channel 16 - frequency 156.80 MHz ). |
| QOD | Can you communicate with me in | I can communicate with you in ... |
|  | 0. Dutch 5. Italian <br> 1. English 6. Japanese <br> 2. French 7. Norwegian <br> 3. German 8. Russian <br> 4. Greek 9. Spanish? | 0. Dutch 5. Italian <br> 1. English 6. Japanese <br> 2. French 7. Norwegian <br> 3. German 8. Russian <br> 4. Greek 9. Spanish. |
| QOE | Have you received the safety signal sent by ... (name and/or call sign)? | I have received the safety signal sent by ... (name and/or call sign). |
| QOF | What is the commercial quality of my signals? | The quality of your signals is ... <br> I. not commercial <br> 2. marginally commercial <br> 3. commercial. |
| QOG | How many tapes have you to send? | I have . . . tapes to send. |
| QOH | Shall I send a phasing signal for ... seconds? | Send a phasing signal for ... seconds. |
| QOI | Shall I send my tape? | Send your tape. |
| QOJ | Will you listen on $\ldots \mathrm{kHz}$ (or MHz ) for signals of emergency position-indicating radiobeacons? | I am listening on $\ldots \mathrm{kHz}$ (or MHz) for signals of emergency posi-tion-indicating radiobeacons. |

## SECTION C-2

Table of Single-Sideband Transmitting Frequencies (in $\mathbf{k H z}$ ) for Ship and Coast Stations in the Band 8100-8 195 kHz

Shared with the Fixed Service
(See paragraph 8 of this Appendix)

The frequencies in this Section may be used:

- for supplementing ship-to-shore and shore-to-ship channels for duplex operation in Section A;
- for intership simplex (single frequency) and cross-band operation;
- for cross-band working with ship stations on channels in Section C-1;
- for ship-to-shore or shore-to-ship simplex operation.

| Channel <br> No. | Carrier <br> Frequency | Assigned <br> Frequency | Channel <br> No. | Carrier <br> Frequency | Assigned <br> Frequency |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | 8101 | 8102.4 | 17 | 8149 | 8150.4 |
| 2 | 8104 | 8105.4 | 18 | 8152 | 8153.4 |
| 3 | 8107 | 8108.4 | 19 | 8155 | 8156.4 |
| 4 | 8110 | 8111.4 | 20 | 8158 | 8159.4 |
| 5 | 8113 | 8114.4 | 21 | 8161 | 8162.4 |
| 6 | 8116 | 8117.4 | 22 | 8164 | 8165.4 |
| 7 | 8119 | 8120.4 | 23 | 8167 | 8168.4 |
| 8 | 8122 | 8123.4 | 24 | 8170 | 8171.4 |
| 9 | 8125 | 8126.4 | 25 | 8173 | 8174.4 |
| 10 | 8128 | 8129.4 | 26 | 8176 | 8177.4 |
| 11 | 8131 | 8132.4 | 27 | 8179 | 8180.4 |
| 12 | 8134 | 8135.4 | 28 | 8182 | 8183.4 |
| 13 | 8137 | 8138.4 | 29 | 8185 | 8186.4 |
| 14 | 8140 | 8141.4 | 30 | 8188 | 8189.4 |
| 15 | 8143 | 8144.4 | 31 | 8191 | 8192.4 |
| 16 | 8146 | 8147.4 |  |  |  |

## INTERNATIONAL TELECOMMUNICATION UNION

## General Secretariat

## Radio Regulations

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Appendices 25-44 to the Radio Regulations.
Resolutions and
Recommendations.

## APPENDICES 25-44

TO THE RADIO REGULATIONS

APPENDIX 25

# Frequency Allotment Plan for Coast Radiotelephone Stations Operating in the Exclusive Maritime Mobile Bands Between 4000 kHz and 23000 kHz 

(See Nos. 4198 and 4212 of the Radio Regulations and Appendix 16)

Note $a$ ): The frequencies in Column 1 are assigned frequencies (see No. 142) as listed in Appendix 16 to the Radio Regulations. Each frequency is followed, in parentheses, by the carrier frequency and the channel number. (See Section A of Appendix 16 to the Radio Regulations.)

Note $b$ ): The coast radiotelephone stations operating in the exclusive maritime mobile bands between 4000 kHz and 23000 kHz must use the minimum power required to cover their service area. They may in no case use a peak envelope power above 10 kW per channel. (See No. 4373 of the Radio Regulations.)

[^25]AP25-2

Note c): The Plan contained in this Appendix is updated in accordance with the procedure defined in Article 16 of the Radio Regulations.

| Column 1 | Column 2 | Column 3 |
| :---: | :---: | :---: |
| Assigned frequency <br> (carrier frequency) <br> (channel number) | Country or area | Observations |

Column 3
Observations

ADD This allotment has been entered in the Plan as a result of the application of the procedure of Article 16. The basic characteristics of the allotment are given, as published in Part B of the relevant Special Section of the IFRB Circular, in the Table of allotments added to the Plan, pages AP25-97 to AP25-103.


| 1 | 2 | 3 |
| :---: | :---: | :---: |
| $\begin{gathered} 4361.9 \\ (4360.5) \end{gathered}$ |  |  |
| (Ch. No. 402) | Alaska Albania Argentina |  |
|  | Bangladesh <br> China <br> United States of America (Central) |  |
|  | United States of America (East) United States of America (West) United States of America (South) |  |
|  | Guam <br> Hawaii <br> Iran |  |
|  | Italy Japan Madagascar |  |
|  | Panama <br> Papua New Guinea Poland |  |
|  | Puerto Rico United Kingdom Thailand |  |
|  | Tunisia <br> U.S.S.R. (Southern Asia) <br> U.S.S.R. (North West) |  |
| $\begin{gathered} 4365 \\ (4363.6) \end{gathered}$ |  |  |
| (Ch. No. 403) | Argentina Canada (East) Canada (North) |  |
|  | Canada (West) <br> Denmark <br> Spain |  |
|  | United States of America (Central) <br> United States of America (East) <br> United States of America (West) |  |
|  | United States of America (South) Ethiopia Greece |  |





| 1 | 2 | 3 |
| :---: | :---: | :---: |
| $\begin{aligned} & 4377.4 \\ & (4376) \end{aligned}$ |  |  |
| (Ch. No. 407) (cont.) | Guam <br> Hawaii India (East) |  |
|  | Iran <br> Italy <br> Japan | ADD |
|  | Norway Netherlands Peru |  |
|  | Puerto Rico German Democratic Republic Singapore |  |
|  | South Africa <br> Turkey <br> U.S.S.R. (Northern Asia) | , |
|  | U.S.S.R. (North West) |  |
| $\begin{gathered} 4380.5 \\ (4379.1) \end{gathered}$ |  |  |
| (Ch. No. 408) | Alaska Netherlands Antilles Argentina |  |
|  | Belgium Brazil Canada (East) | ADD |
|  | Canada (West) <br> United States of America (East) <br> United States of America (West) |  |
|  | Guam <br> Hawaii <br> Indonesia |  |
|  | Iran <br> Italy <br> Japan |  |
|  | Liberia <br> Mexico <br> Mozambique |  |


| 1 | 2 | 3 |
| :---: | :---: | :---: |
| $\mathbf{4 3 8 0 . 5}$ $\mathbf{( 4 3 7 9 . 1 )}$ (Ch. No. 408) (cont.) | New Zealand <br> Poland <br> American Samoa <br> Switzerland <br> Yugoslavia | ADD |
|  <br> $\mathbf{4 3 8 3 . 6}$ <br> $\mathbf{( 4 3 8 2 . 2 )}$ <br>  <br> (Ch. No. 409) | Saudi Arabia <br> Brazil <br> China <br> Cuba <br> Denmark <br> United States of America (Central) <br> United States of America (East) <br> United States of America (West) <br> United States of America (South) <br> India (West) <br> Italy <br> Norway <br> Papua New Guinea <br> Philippines <br> Sweden <br> Thailand <br> Turkey <br> Zaire |  |
| 4386.7 <br> (4 385.3) <br> (Ch. No. 410) <br> (cont.) | Algeria <br> Argentina (South) <br> Bermuda <br> Canada (West) <br> Canary Islands <br> China <br> United States of America (East) <br> Greece <br> Guam |  |



| 1 | 2 | 3 |
| :---: | :---: | :---: |
| $\begin{gathered} 4392.9 \\ (4391.5) \end{gathered}$ |  |  |
| (Ch. No. 412) | Germany (Federal Republic of) Australia United States of America (East) |  |
|  | United States of America (West) United States of America (South) India (West) |  |
|  | Iraq <br> Italy <br> Japan |  |
|  | Peru <br> Philippines <br> Ukraine |  |
|  | U.S.S.R. (Far East) U.S.S.R. (Europe) <br> U.S.S.R. (North West) |  |
|  | Yemen (P.D.R. of) |  |
| $\begin{gathered} 4396 \\ (4394.6) \end{gathered}$ <br> (Ch. No. 413) |  |  |
|  | Azores <br> Alaska <br> Algeria |  |
|  | Germany (Federal Republic of) <br> Angola <br> Argentina |  |
|  | Bahrain <br> Bangladesh Canada (East) |  |
|  | Canada (West) <br> Cape Verde <br> United States of America (Central) |  |
|  | United States of America (East) United States of America (West) United States of America (South) |  |
|  | Finland <br> Greece <br> Guam |  |



| 1 | 2 | 3 |
| :---: | :---: | :---: |
| $\begin{gathered} 4402.2 \\ (4400.8) \end{gathered}$ |  |  |
| (Ch. No. 415)(cont.) | China <br> Denmark <br> United States of America (East) |  |
|  | United States of America (West) United States of America (South) France |  |
|  | Greece <br> Guam <br> Hawaii |  |
|  | Iran <br> Liberia Madagascar |  |
|  | Malaysia Norway Pakistan |  |
|  | Panama <br> Puerto Rico <br> Romania |  |
|  | U.S.S.R. (Europe) <br> U.S.S.R. (North West) |  |
| 4405.3 <br> (4 403.9) <br> (Ch. No. 416) <br> (cont.) |  |  |
|  | Alaska <br> Bangladesh <br> Brazil |  |
|  | United States of America (Central) <br> United States of America (East) <br> United States of America (West) |  |
|  | France Greece Hungary |  |
|  | Indonesia Iran Iceland |  |
|  | Jamaica <br> Japan <br> Mauritius |  |


| 1 | 2 | 3 |
| :---: | :---: | :---: |
| $\mathbf{4 4 0 5 . 3}$ $\mathbf{( 4 4 0 3 . 9 )}$ (Ch. No. 416) (cont.) | Peru <br> French Polynesia United Kingdom U.S.S.R. (Europe) |  |
|  <br> $\mathbf{4 4 4 0 8 . 4}$ <br> (Ch. No. 417) | Argentina <br> Australia <br> Belgium <br> United States of America (Central) <br> United States of America (East) <br> United States of America (West) <br> United States of America (South) <br> Finland <br> Hongkong <br> India (West) <br> Japan <br> Malaysia <br> Morocco <br> Papua New Guinea <br> United Kingdom <br> Tanzania <br> Czechoslovakia <br> Turkey <br> U.S.S.R. (Far East) <br> Yemen (P.D.R. of) <br> Yugoslavia | ADD |
| 4411.5 <br> (4 410.1) <br> (Ch. No. 418) <br> (cont.) | Argentina <br> Brazil <br> Bulgaria <br> Canada (East) <br> Canada (West) <br> Cuba | ADD |



| 1 | 2 | 3 |
| :---: | :---: | :---: |
| $\begin{gathered} 4414.6 \\ (4413.2) \\ \\ \begin{array}{c} \text { (Ch. No. 419) } \\ \text { (cont.) } \end{array} \end{gathered}$ | German Democratic Republic Tanzania Czechoslovakia <br> U.S.S.R. (North West) Yugoslavia | ADD |
|  <br> $\mathbf{4 4 1 7 . 7}$ <br> (Ch. No. 420) | Alaska <br> Bulgaria <br> Cameroon <br> Denmark <br> United States of America (East) <br> United States of America (West) <br> Guam <br> Hawaii <br> India (East) <br> Iran <br> Italy <br> Japan <br> Jordan <br> Malaysia <br> Morocco <br> Norway <br> Panama <br> Puerto Rico <br> Sweden <br> Turkey <br> U.S.S.R. (Southern Asia) <br> U.S.S.R. (Northern Asia) |  |
| 4423.9 <br> (4 422.5) <br> (Ch. No. 422) <br> (cont.) | Alaska <br> Belgium <br> Canada (West) |  |


| 1 | 2 | 3 |
| :---: | :---: | :---: |
| $\begin{gathered} 4423.9 \\ (4422.5) \end{gathered}$ |  |  |
| (Ch. No. 422) (cont.) | Canary Islands China Cuba |  |
|  | United States of America (East) United States of America (West) Finland |  |
|  | Greece <br> Guiana (French Dep. of) Hungary |  |
|  | Indonesia <br> Iraq <br> Japan |  |
|  | Liberia Libya Morocco |  |
|  | United Kingdom Switzerland U.S.S.R. (Europe) | ADD |
| $\begin{gathered} 4427 \\ (4425.6) \\ \text { (Ch. No. 423) } \end{gathered}$ |  |  |
|  | Alaska <br> Germany (Federal Republic of) Brazil | ADD |
|  | China <br> United States of America (Central) <br> United States of America (East) |  |
|  | United States of America (West) United States of America (South) Indonesia |  |
|  | Israel <br> Italy <br> Japan |  |
|  | Malta <br> Pakistan <br> Panama | ADD |
|  | Papua New Guinea Poland Qatar | ADD |


| 1 | 2 | 3 |
| :---: | :---: | :---: |
| $\begin{gathered} 4430.1 \\ (4428.7) \end{gathered}$ |  |  |
| (Ch. No. 424) | Alaska Algeria Argentina |  |
|  | Australia (East) Australia (West) China | ADD |
|  | Denmark <br> United States of America (Central) <br> United States of America (East) |  |
|  | United States of America (West) United States of America (South) Greece |  |
|  | Guadeloupe (French Dep. of) Guam Hawaii |  |
|  | Morocco <br> Martinique (French Dep. of) Norway |  |
|  | Puerto Rico Sweden Switzerland |  |
|  | Thailand |  |
| $\begin{gathered} 4433.2 \\ (4431.8) \end{gathered}$ |  |  |
| (Ch. No. 425) | Alaska <br> Belgium Brazil | ADD |
|  | Chile Denmark Spain |  |
|  | United States of America (Central) United States of America (East) United States of America (West) |  |
|  | United States of America (South) Greece Guam |  |


| 1 | 2 | 3 |
| :---: | :---: | :---: |
| $\begin{gathered} \hline 4433.2 \\ (4431.8) \end{gathered}$ |  |  |
| (Ch. No. 425) (cont.) | Hawaii <br> Hungary Japan |  |
|  | Jordan Kuwait Libya | ADD |
|  | Malaysia Norway New Zealand |  |
|  | Panama <br> Netherlands <br> Puerto Rico |  |
| $\begin{gathered} \hline 4436.3 \\ (4434.9) \end{gathered}$ |  |  |
| (Ch. No. 426) | Azores <br> Alaska <br> Algeria |  |
|  | Angola Argentina Bulgaria |  |
|  | Cape Verde China Cyprus |  |
|  | Denmark <br> United States of America (East) <br> United States of America (West) |  |
|  | United States of America (South) Guam Guinea-Bissau |  |
|  | Hawaii Japan Lebanon |  |
|  | Madeira Mozambique Norway |  |
|  | Panama <br> Puerto Rico <br> Portugal |  |


| 1 | 2 | 3 |
| :---: | :---: | :---: |
| $\begin{gathered} 4436.3 \\ (4434.9) \end{gathered}$ |  |  |
| (Ch. No. 426) (cont.) | United Kingdom <br> Thailand <br> Portuguese Timor |  |


| 1 | 2 | 3 |
| :---: | :---: | :---: |
| $\begin{gathered} 6507.8 \\ (6506.4) \end{gathered}$ |  |  |
| (Ch. No. 601) | Alaska <br> Algeria Germany (Federal Republic of) |  |
|  | Saudi Arabia <br> Argentina (Central) <br> Argentina (South) |  |
|  | Bangladesh Canada (West) Chile (Central) |  |
|  | Chile (North) China Congo |  |
|  | United States of America (Central) United States of America (East) United States of America (West) |  |
|  | United States of America (South) Greece <br> Guam |  |
|  | Hawaii Hungary Indonesia |  |
|  | Iran <br> Iraq Iceland |  |
|  | Japan <br> Libya <br> Malaysia |  |
|  | Mexico (East) Mexico (West) New Zealand |  |
|  | Peru <br> Puerto Rico <br> Romania |  |
|  | Sri Lanka Czechoslovakia Ukraine |  |
|  | U.S.S.R. (Southern Asia) <br> U.S.S.R. (Europe) <br> Yugoslavia |  |


| 1 | 2 | 3 |
| :---: | :---: | :---: |
| $\begin{gathered} 6510.9 \\ (6509.5) \end{gathered}$ |  |  |
| (Ch. No. 602) | Alaska <br> Bangladesh Belgium |  |
|  | Brazil Bulgaria Canada (East) | ADD |
|  | Canada (West) Korea Ivory Coast |  |
|  | United States of America (Central) United States of America (East) United States of America (West) |  |
|  | United States of America (South) Fiji Guam | ADD |
|  | Hawaii Indonesia Iran |  |
|  | Italy Kuwait Madagascar |  |
|  | Monaco Netherlands Peru |  |
|  | Poland <br> Puerto Rico Portugal |  |
|  | Singapore South Africa Tunisia |  |
|  | Turkey <br> U.S.S.R. (Southern Asia) <br> U.S.S.R. (Northern Asia) |  |
|  | U.S.S.R. (Europe) U.S.S.R. (Far East) Yugoslavia |  |
|  |  |  |


| 1 | 2 | 3 |
| :---: | :---: | :---: |
| $\begin{gathered} 6514 \\ (6512.6) \end{gathered}$ |  |  |
| (Ch. No. 603) | Alaska <br> Albania <br> Algeria |  |
|  | Saudi Arabia Argentina Australia | ADD |
|  | Bangladesh <br> Bermuda <br> Canada (North) |  |
|  | Canada (West) Cyprus Ivory Coast |  |
|  | Denmark <br> Spain <br> United States of America (Central) |  |
|  | United States of America (East) United States of America (West) United States of America (South) |  |
|  | Greece <br> Guam <br> Hawaii |  |
|  | Hungary India (East) Indonesia |  |
|  | Iran <br> Iraq <br> Iceland |  |
|  | Israel Japan Libya |  |
|  | Malta <br> Mauritania Mexico | ADD |
|  | Norway Peru Philippines |  |
|  | Puerto Rico <br> Romania <br> Western Samoa |  |


| 1 | 2 | 3 |
| :---: | :---: | :---: |
| $\begin{gathered} 6514 \\ (6512.6) \\ \\ \text { (Ch. No. 603) } \\ \text { (cont.) } \end{gathered}$ |  |  |
|  | Sweden <br> Thailand <br> Togo |  |
|  | Ukraine <br> U.S.S.R. (Far East) <br> U.S.S.R. (North West) |  |
| 6517.1 <br> (6515.7) <br> (Ch. No. 604) |  |  |
|  | Alaska <br> Netherlands Antilles <br> Australia | ADD |
|  | Bangladesh Brazil Bulgaria | ADD |
|  | Cameroon Canada (West) Chile |  |
|  | China <br> Spain <br> United States of America (Central) |  |
|  | United States of America (East) <br> United States of America (West) <br> United States of America (South) |  |
|  | Guam <br> Hawaii <br> Hongkong |  |
|  | Indonesia Iran Israel |  |
|  | Italy Madagascar Mauritania |  |
|  | Mexico <br> Pakistan <br> Papua New Guinea |  |
|  | Peru <br> Poland |  |
| (cont.) | Puerto Rico |  |



| 1 | 2 | 3 |
| :---: | :---: | :---: |
| $\begin{gathered} 6520.2 \\ (6518.8) \end{gathered}$ |  |  |
| (Ch. No. 605) (cont.) | Norway <br> New Zealand <br> Netherlands | ADD |
|  | Peru <br> Philippines <br> Puerto Rico |  |
|  | Sweden <br> Thailand Ukraine |  |
|  | Uruguay <br> U.S.S.R. (Far East) <br> Yugoslavia |  |


| 1 | 2 | 3 |
| :---: | :---: | :---: |
| $\begin{gathered} 8720.3 \\ (8718.9) \end{gathered}$ |  |  |
| (Ch. No. 801) | Alaska <br> Bahrain <br> Bangladesh |  |
|  | Chile Denmark Spain |  |
|  | United States of America (East) United States of America (West) United States of America (South) |  |
|  | Guam <br> Hawaii <br> Israel |  |
|  | Japan Malaysia Norway |  |
|  | Panama <br> Puerto Rico <br> Romania |  |
|  | South Africa <br> Sweden <br> U.S.S.R. (Northern Asia) |  |
| $\begin{aligned} & \hline 8723.4 \\ & (8722) \end{aligned}$ |  |  |
| (Ch. No. 802) | Azores <br> Alaska <br> Algeria |  |
|  | Angola Argentina Australia |  |
|  | Cape Verde <br> China <br> United States of America (East) |  |
|  | United States of America (South) Finland Greece |  |
|  | Guinea-Bissau Hawaii India (East) |  |


| 1 | 2 | 3 |
| :---: | :---: | :---: |
| 8723.4 <br> (8722) <br> (Ch. No. 802) (cont.) | Iraq <br> Madeira <br> Mozambique <br> Netherlands <br> Portugal <br> German Democratic Republic <br> United Kingdom <br> Sri Lanka |  |
|  <br> $\mathbf{8 7 2 6 . 5}$ <br> $\mathbf{( 8 7 2 5 . 1})$ <br>  <br> (Ch. No. 803) | Netherlands Antilles <br> Belgium <br> Canada (East) <br> Korea <br> Cuba <br> Spain <br> United States of America (Central) <br> Norway <br> Pakistan <br> Papua New Guinea <br> Senegal <br> South Africa <br> Sweden <br> Switzerland <br> Turkey <br> U.S.S.R. (Europe) <br> U.S.S.R. (Far East) <br> U.S.S.R. (North West) | ADD |
| 8729.6 <br> (8728.2) <br> (Ch. No. 804) <br> (cont.) | Argentina <br> Spain <br> United States of America (East) <br> United States of America (West) <br> United States of America (South) <br> Finland |  |


| 1 | 2 | 3 |
| :---: | :---: | :---: |
| $\begin{gathered} 8729.6 \\ (8728.2) \end{gathered}$ |  |  |
| (Ch. No. 804) (cont.) | Greece <br> Iraq <br> Japan |  |
|  | Jordan <br> Monaco <br> Peru | ADD |
|  | Poland Qatar Sierra Leone | ADD |
|  | Singapore <br> U.S.S.R. (Southern Asia) <br> U.S.S.R. (Northern Asia) |  |
|  | U.S.S.R. (Far East) |  |
| 8732.7$(8731.3)$(Ch. No. 805) |  |  |
|  | Albania <br> Belgium <br> Spain |  |
|  | United States of America (East) United States of America (West) United States of America (South) |  |
|  | Ethiopia Finland Iran |  |
|  | Iceland Israel Japan |  |
|  | Liberia <br> New Caledonia and Dependencies Papua New Guinea |  |
|  | Netherlands South Africa U.S.S.R. (Europe) |  |
|  | U.S.S.R. (Far East) |  |



| 1 | 2 | 3 |
| :---: | :---: | :---: |
| 8738.9 $(8737.5)$ (Ch. No. 807) (cont.) | New Zealand <br> S. Helena <br> Czechoslovakia <br> U.S.S.R. (Southern Asia) <br> U.S.S.R. (Northern Asia) <br> U.S.S.R. (Europe) |  |
| $8 \mathbf{8 7 4 2}$ $\mathbf{( 8 7 4 0 . 6 )}$ (Ch. No. 808) | Alaska <br> Saudi Arabia <br> Argentina <br> Bahamas <br> Denmark <br> Spain <br> United States of America (East) <br> United States of America (West) <br> Greece <br> Guam <br> Hawaii <br> Japan <br> Norway <br> Philippines <br> Romania <br> Sri Lanka <br> South Africa <br> Sweden |  |
| 8745.1 <br> (8743.7) <br> (Ch. No. 809) <br> (cont.) | Algeria <br> Australia (West) <br> Canary Islands <br> Chile <br> Cuba <br> United States of America (East) <br> United States of America (West) <br> Finland <br> Greece |  |




| 1 | 2 | 3 |
| :---: | :---: | :---: |
| $\begin{gathered} \hline 8754.4 \\ (8753) \\ \\ \text { (Ch. No. 812) } \\ (\text { cont.) } \end{gathered}$ | U.S.S.R. (Europe) <br> U.S.S.R. (North West) <br> Zaire |  |
| $\begin{gathered} \hline 8757.5 \\ (8756.1) \\ \\ \text { (Ch. No. 813) } \end{gathered}$ | Azores <br> Alaska <br> Algeria <br> Angola <br> Australia <br> Belgium <br> Cape Verde <br> Chile (North) <br> China <br> Denmark <br> United States of America (Central) <br> United States of America (East) <br> United States of America (West) <br> United States of America (South) <br> Greece <br> Guam <br> Guinea-Bissau <br> Hawaii <br> Hungary <br> India (West) <br> Madeira <br> Mozambique <br> Norway <br> Panama <br> Puerto Rico <br> Portugal |  |
| $\begin{gathered} 8760.6 \\ (8759.2) \end{gathered}$ <br> (Ch. No. 814) <br> (cont.) | Alaska <br> Argentina <br> Canada (West) |  |


| 1 | 2 | 3 |
| :---: | :---: | :---: |
| $\begin{gathered} 8760.6 \\ (8759.2) \end{gathered}$ |  |  |
| (Ch. No. 814) (cont.) | Cuba <br> United States of America (Central) United States of America (East) |  |
|  | United States of America (West) United States of America (South) Greece |  |
|  | Hawaii Indonesia Italy |  |
|  | Japan <br> Kiribati <br> Liberia | ADD |
|  | Pakistan Philippines Thailand |  |
|  | U.S.S.R. (Southern Asia) U.S.S.R. (Northern Asia) U.S.S.R. (Europe) |  |
|  | U.S.S.R. (Far East) |  |
| $\begin{gathered} \hline 8763.7 \\ (8762.3) \end{gathered}$ |  |  |
| (Ch. No. 815) | Germany (Federal Republic of) Australia (West) Belgium |  |
|  | Chile <br> China <br> United States of America (East) |  |
|  | United States of America (West) United States of America (South) Greece |  |
|  | Guiana (French Dep. of) Iraq Japan |  |
|  | Morocco <br> Singapore <br> U.S.S.R. (Europe) |  |


| 1 | 2 | 3 |
| :---: | :---: | :---: |
| $\mathbf{8 7 6 3 . 7}$ $\mathbf{( 8 7 6 2 . 3 )}$ (Ch. No. 815) (cont.) | U.S.S.R. (North West) Zaire |  |
| 8766.8 (8765.4) (Ch. No. 816) | Alaska <br> Argentina <br> Barbados <br> China <br> Congo <br> Spain <br> United States of America (East) <br> United States of America (West) <br> United States of America (South) <br> Greece <br> Guam <br> Hawaii <br> Indonesia <br> Pakistan <br> Puerto Rico <br> United Kingdom <br> Tunisia <br> U.S.S.R. (Europe) <br> U.S.S.R. (North West) |  |
| 8769.9 <br> (8768.5) <br> (Ch. No. 817) <br> (cont.) | Alaska <br> Germany (Federal Republic of) <br> Australia <br> Bangladesh <br> Bermuda <br> Canada (East) <br> Chile <br> Egypt <br> United States of America (Central) |  |


| 1 | 2 | 3 |
| :---: | :---: | :---: |
| $\begin{gathered} 8769.9 \\ (8768.5) \end{gathered}$ |  |  |
| (Ch. No. 817) (cont.) | United States of America (East) United States of America (West) United States of America (South) |  |
|  | France <br> Guam <br> Hawaii |  |
|  | Iran <br> Mexico <br> Nauru | ADD |
|  | Philippines <br> Puerto Rico <br> Romania |  |
|  | Thailand U.S.S.R. (Europe) U.S.S.R. (Far East) |  |
|  | Yemen (P.D.R. of) |  |
| $\begin{gathered} 8773 \\ (8771.6) \end{gathered}$ <br> (Ch. No. 818) |  |  |
|  | Alaska Argentina Bulgaria |  |
|  | Cameroon China Cyprus |  |
|  | Denmark <br> United States of America (East) United States of America (West) |  |
|  | Guam <br> Hawaii <br> Libya |  |
|  | Malaysia Norway Pakistan |  |
|  | Panama <br> Puerto Rico Seychelles (Republic of) |  |


| 1 | 2 | 3 |
| :---: | :---: | :---: |
| 8773 $(8771.6)$ (Ch. No. 818) (cont.) | Sweden <br> Ukraine |  |
| 8776.1 (8774.7) (Ch. No. 819) | Alaska <br> Brazil <br> Canada (West) <br> United States of America (Central) <br> United States of America (East) <br> United States of America (West) <br> United States of America (South) <br> Greece <br> Guam <br> Hawaii <br> Indonesia <br> Italy <br> Japan <br> Easter Island <br> Reunion (French Dep. of) <br> United Kingdom <br> Thailand <br> U.S.S.R. (Southern Asia) <br> U.S.S.R. (Northern Asia) <br> U.S.S.R. (Europe) <br> U.S.S.R. (North West) <br> Yemen (P.D.R. of) |  |
| 8779.2 <br> (8777.8) <br> (Ch. No. 820) <br> (cont.) | Alaska <br> Germany (Federal Republic of) <br> Argentina <br> Cyprus <br> United States of America (East) <br> United States of America (West) |  |



| 1 | 2 | 3 |
| :---: | :---: | :---: |
| $\begin{gathered} \hline 8788.5 \\ (8787.1) \end{gathered}$ |  |  |
| (Ch. No. 823) | Argentina Canada (East) Denmark |  |
|  | Greece India (West) Iraq |  |
|  | Italy Jamaica Japan |  |
|  | Norway Romania Sweden |  |
|  | Tanzania Portuguese Timor U.S.S.R. (Far East) | ADD |
|  | U.S.S.R. (North West) |  |
| $\mathbf{8 7 9 1 . 6}$$\mathbf{( 8 7 9 0 . 2 )}$(Ch. No. 824) |  |  |
|  | Germany (Federal Republic of) Brazil China |  |
|  | United States of America (East) United States of America (West) United States of America (South) |  |
|  | Greece <br> Iran <br> Jamaica |  |
|  | Morocco <br> Oman <br> Peru |  |
|  | Poland Reunion (French Dep. of) Singapore |  |
|  | Switzerland <br> Tunisia <br> U.S.S.R. (North West) |  |


| 1 | 2 | 3 |
| :---: | :---: | :---: |
| $\begin{gathered} \hline 8794.7 \\ (8793.3) \end{gathered}$ |  |  |
| (Ch. No. 825) | Alaska <br> Algeria Argentina |  |
|  | Barbados Canada (Central) Cook Islands |  |
|  | Denmark <br> United States of America (East) <br> United States of America (West) |  |
|  | United States of America (South) <br> France <br> Guadeloupe (French Dep. of) <br> Hungary <br> India (East) <br> Iran |  |
|  | Martinique (French Dep. of) Norway <br> Philippines |  |
|  | S. Paul and Amsterdam Islands Sweden <br> Ukraine | $\begin{aligned} & \text { ADD } \\ & \text { ADD } \end{aligned}$ |
|  | U.S.S.R. (Southern Asia) <br> U.S.S.R. (Far East) |  |
| $\begin{gathered} \hline 8797.8 \\ (8796.4) \end{gathered}$ |  |  |
| (Ch. No. 826) | Cameroon <br> Canada (West) <br> China |  |
|  | Colombia <br> United States of America (Central) United States of America (East) |  |
|  | Guam Indonesia Italy |  |
|  | Japan <br> Mexico <br> Netherlands |  |

\begin{tabular}{|c|c|c|}
\hline 1 \& 2 \& 3 \\
\hline \[
\begin{gathered}
8797.8 \\
(8796.4)
\end{gathered}
\] \& \& \\
\hline (Voie \(\mathrm{N}^{\mathrm{o}}{ }^{826)}\) (suite) \& German Democratic Republic United Kingdom Ukraine \& \\
\hline \multirow[t]{8}{*}{88800.9
\(\mathbf{( 8 7 9 9 . 5})\)
(Ch. No. 827)} \& \& \\
\hline \& \begin{tabular}{l}
Alaska \\
Argentina Bangladesh
\end{tabular} \& \\
\hline \& Korea Denmark Djibouti \& \\
\hline \& \begin{tabular}{l}
Spain \\
United States of America (East) \\
United States of America (West)
\end{tabular} \& \\
\hline \& \begin{tabular}{l}
Guam \\
Hawaii \\
Iran
\end{tabular} \& \\
\hline \& \begin{tabular}{l}
Israel \\
Macao \\
Niue Island
\end{tabular} \& \\
\hline \& Norway Panama Peru \& \\
\hline \& \begin{tabular}{l}
Puerto Rico \\
Sweden \\
Yugoslavia
\end{tabular} \& \\
\hline \[
\begin{gathered}
8804 \\
(8802.6)
\end{gathered}
\] \& \& \\
\hline \multirow[t]{3}{*}{(Ch. No. 828)

(cont.)} \& | Alaska |
| :--- |
| Albania Germany (Federal Republic of) | \& <br>

\hline \& | Brazil |
| :--- |
| United States of America (East) |
| United States of America (West) | \& <br>


\hline \& | France |
| :--- |
| Guadeloupe (French Dep. of) Guam | \& <br>

\hline
\end{tabular}

| 1 | 2 | 3 |
| :---: | :---: | :---: |
| $\begin{gathered} 8804 \\ (8802.6) \end{gathered}$ |  |  |
| (Ch. No. 828) (cont.) | Hawaii <br> Hungary <br> Indonesia |  |
|  | Japan <br> Lebanon <br> Morocco |  |
|  | Martinique (French Dep. of) Mauritius <br> Mauritania |  |
|  | Norway Panama Puerto Rico |  |
|  | Ukraine |  |
| $\begin{gathered} 88807.1 \\ \mathbf{( 8 8 0 5 . 7 )} \\ \\ \text { (Ch. No. 829) } \end{gathered}$ |  |  |
|  | Australia Bangladesh Belgium |  |
|  | China Cyprus Denmark |  |
|  | United States of America (East) United States of America (West) United States of America (South) |  |
|  | Finland <br> Gambia <br> Iran |  |
|  | Libya Mexico Norway |  |
|  | Paraguay <br> French Polynesia Sweden |  |
|  | Ukraine |  |






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| :---: | :---: | :---: |
| $\begin{gathered} 13117.7 \\ (13 \\ \hline 116.3) \end{gathered}$ |  |  |
| $\begin{aligned} & \text { (Ch. No. 1206) } \\ & \text { (cont.) } \end{aligned}$ | United States of America (South) Finland Iran |  |
|  | Iceland <br> Italy <br> Japan |  |
|  | Madagascar Morocco Peru |  |
|  | German Democratic Republic <br> United Kingdom <br> Turkey |  |
| 13120.8$(13119.4)$(Ch. No. 1207) |  |  |
|  | Azores <br> Algeria <br> Angola |  |
|  | Netherlands Antilles Belgium Canada (West) |  |
|  | Cape Verde China Greece |  |
|  | Iran <br> Israel Japan |  |
|  | Madeira <br> Mozambique Nauru | ADD |
|  | Netherlands <br> Portugal <br> Portuguese Timor |  |
|  | U.S.S.R. (North West) Yugoslavia |  |
|  |  |  |




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| :---: | :---: | :---: |
| 13133.2 $(13131.8)$ (Ch. No. 1211) (cont.) | Easter Island <br> Sweden <br> U.S.S.R. (Southern Asia) <br> U.S.S.R. (Northern Asia) |  |
| 13136.3 $(13134.9)$ (Ch. No. 1212) | Alaska <br> Germany (Federal Republic of) <br> Ivory Coast <br> United States of America (East) <br> United States of America (South) <br> Greece <br> Hawaii <br> Indonesia <br> Japan <br> Mauritius <br> Peru <br> Puerto Rico <br> U.S.S.R. (Europe) <br> U.S.S.R. (Far East) |  |
| 13139.4 <br> (13 138) <br> (Ch. No. 1213) <br> (cont.) | Argentina <br> Barbados <br> Belgium <br> Canada (East) <br> Canary Islands <br> China <br> Korea <br> Finland <br> Greece <br> India (East) <br> Iran <br> Iraq |  |



| 1 | 2 | 3 |
| :---: | :---: | :---: |
| $\begin{array}{r} 13145.6 \\ (13144.2) \end{array}$ |  |  |
| (Ch. No. 1215) (cont.) | Denmark <br> Spain <br> United States of America (West) |  |
|  | United States of America (South) Greece <br> India (West) |  |
|  | Iceland <br> Israel <br> Japan |  |
|  | Panama <br> Netherlands Peru |  |
|  | Puerto Rico <br> Romania <br> Seychelles (Republic of) |  |
|  | Sweden |  |
| 13148.7 <br> (13 147.3) <br> (Ch. No. 1216) <br> (cont.) |  |  |
|  | Alaska Albania Argentina |  |
|  | China <br> Egypt <br> United States of America (East) |  |
|  | United States of America (West) United States of America (South) Finland |  |
|  | Guam <br> Hawaii <br> Iran |  |
|  | Lebanon Malta Morocco | ADD |
|  | Panama <br> Poland <br> Puerto Rico |  |



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| :---: | :---: | :---: |
| 13154.9$(13153.5)$(Ch. No. 1218)(cont.) |  |  |
|  | United States of America (South) Guam Hawaii |  |
|  | Iran <br> Italy <br> Japan |  |
|  | Niue Island Norway Panama |  |
|  | Puerto Rico <br> Turkey U.S.S.R. (Europe) |  |
| 13158$(13156.6)$(Ch. No. 1219) |  |  |
|  | Alaska <br> Belgium <br> Brazil |  |
|  | Bulgaria <br> Denmark <br> United States of America (East) |  |
|  | United States of America (West) United States of America (South) Japan |  |
|  | Morocco <br> Norway Netherlands |  |
|  | Singapore Sweden Ukraine |  |
|  | U.S.S.R. (Europe) <br> U.S.S.R. (Far East) <br> U.S.S.R. (North West) |  |
| $\begin{array}{r} 13161.1 \\ (13159.7) \end{array}$ |  |  |
| (Ch. No. 1220) (cont.) | Alaska <br> Argentina <br> Bangladesh |  |





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| :---: | :---: | :---: |
| $\begin{gathered} 13182.8 \\ (13181.4) \end{gathered}$ |  |  |
| (Ch. No. 1227) (cont.) | United States of America (East) United States of America (West) Finland |  |
|  | Guam <br> Hawaii <br> India (East) |  |
|  | Kuwait <br> Panama <br> Poland |  |
|  | Puerto Rico Switzerland Tanzania | ADD. |
|  | U.S.S.R. (Far East) <br> Yugoslavia <br> Zaire |  |
| 13185.9$(13184.5)$(Ch. No. 1228) |  |  |
|  | Brazil <br> Chile <br> China |  |
|  | Cuba <br> United States of America (Central) United States of America (East) |  |
|  | United States of America (West) Hungary Norway |  |
|  | Pakistan United Kingdom Ukraine |  |
|  | U.S.S.R. (Europe) |  |
| $\begin{gathered} 13189 \\ (13187.6) \end{gathered}$ |  |  |
| (Ch. No. 1229) (cont.) | Argentina Australia Bulgaria |  |

\begin{tabular}{|c|c|c|}
\hline 1 \& 2 \& 3 \\
\hline \multirow[t]{5}{*}{13189
\((13187.6)\)
(Ch. No. 1229)
(cont.)} \& \& \\
\hline \& \begin{tabular}{l}
Canada (East) \\
Korea \\
United States of America (West)
\end{tabular} \& \\
\hline \& France Japan Poland \& \\
\hline \& \begin{tabular}{l}
Qatar \\
U.S.S.R. (Southern Asia) \\
U.S.S.R. (Northern Asia)
\end{tabular} \& ADD \\
\hline \& \begin{tabular}{l}
U.S.S.R. (Europe) \\
U.S.S.R. (North West) \\
Yugoslavia
\end{tabular} \& \\
\hline \multirow[t]{6}{*}{13192.1
\((13190.7)\)
(Ch. No. 1230)} \& \& \\
\hline \& Argentina Bangladesh Cyprus \& \\
\hline \& United States of America (East) United States of America (West) United States of America (South) \& \\
\hline \& \begin{tabular}{l}
Finland \\
Hawaii \\
Italy
\end{tabular} \& \\
\hline \& Japan Mauritania United Kingdom \& \\
\hline \& Switzerland Ukraine \& \\
\hline \multirow[t]{3}{*}{13195.2
\((13193.8)\)
(Ch. No. 1231)

(cont.)} \& \& <br>

\hline \& | Alaska |
| :--- |
| Australia |
| United States of America (East) | \& <br>

\hline \& United States of America (West) France Greece \& <br>
\hline
\end{tabular}

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| $\left.\begin{array}{cl} 13 & 195.2 \\ (13 & 193.8 \end{array}\right)$ |  |  |
| (Ch. No. 1231) (cont.) | Guam <br> Hawaii <br> Hongkong |  |
|  | Iran <br> Libya <br> Norway |  |
|  | Panama <br> Paraguay <br> Peru |  |
|  | Poland Puerto Rico |  |
| $\begin{gathered} 13198.3 \\ (13196.9) \\ \\ \text { (Ch. No. 1232) } \end{gathered}$ |  |  |
|  | Alaska Algeria Argentina |  |
|  | United States of America (East) United States of America (West) Greece |  |
|  | Guam <br> Hawaii <br> Japan |  |
|  | Mauritania <br> Pakistan <br> German Democratic Republic |  |
|  | United Kingdom <br> American Samoa <br> U.S.S.R. (Southern Asia) | ADD |



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| :---: | :---: | :---: |
| 17240.5 $(17239.1)$ (Ch. No. 1603) (cont.) | China <br> Cyprus <br> Denmark <br> United States of America (East) <br> United States of America (West) <br> United States of America (South) <br> Guadeloupe (French Dep. of) <br> Hungary <br> Italy <br> Malta <br> Martinique (French Dep. of) <br> Norway. <br> Sweden | ADD |
| 17243.6 $(17242.2)$ (Ch. No. 1604) | Australia <br> Canada (East) <br> France <br> Greece <br> Japan <br> Mexico <br> Norway <br> Romania |  |
| 17246.7 <br> (17245.3) <br> (Ch. No. 1605) <br> (cont.) | Denmark <br> United States of America (East) <br> United States of America (West) <br> France <br> India (West) <br> Iran <br> Japan <br> Norway <br> Philippines |  |


| 1 | 2 | 3 |
| :---: | :---: | :---: |
| 17246.7 $(17245.3)$ (Ch. No. 1605) (cont.) | French Polynesia <br> Sweden <br> Ukraine <br> U.S.S.R. (Europe) |  |
| 17249.8 $(17248.4)$ (Ch. No. 1606 ) | Bangladesh <br> Brazil <br> Cuba <br> United States of America (West) <br> United States of America (South) <br> Finland <br> Iceland <br> Italy <br> Japan <br> New Zealand <br> Puerto Rico <br> United Kingdom <br> Turkey <br> U.S.S.R. (Europe) |  |
| 17252.9 <br> (17 251.5) <br> (Ch. No. 1607) <br> (cont.) | Alaska <br> Netherlands Antilles <br> Canada (East) <br> United States of America (East) <br> United States of America (West) <br> United States of America (South) <br> Greece <br> India (East) <br> Iran <br> Liberia <br> Monaco <br> Norway |  |


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| 17252.9 $(17251.5)$ (Ch. No. 1607) (cont.) | Poland <br> U.S.S.R. (Far East) <br> U.S.S.R. (North West) |  |
| 17256 $(17254.6)$ (Ch. No. 1608) | Canada (West) <br> China <br> Denmark <br> Italy <br> Mauritania <br> Norway <br> Peru <br> South Africa <br> Sweden <br> Czechoslovakia <br> Turkey |  |
| 17259.1 $(17257.7)$ (Ch. No. 1609) | Saudi Arabia <br> Belgium <br> Cook Islands <br> Spain <br> United States of America (East) <br> United States of America (West) <br> United States of America (South) <br> Greece <br> India (East) <br> Israel <br> Japan <br> U.S.S.R. (North West) |  |
| 17262.2 <br> (17260.8) <br> (Ch. No. 1610) <br> (cont.) | Germany (Federal Republic of) Australia China |  |



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| :---: | :---: | :---: |
| 17268.4 $(17267)$ (Ch. No. 1612) (cont.) | Guam <br> Hawaii <br> Morocco <br> Pakistan <br> Puerto Rico <br> Ukraine <br> U.S.S.R. (Europe) <br> U.S.S.R. (Far East) <br> U.S.S.R. (North West) |  |
| 17271.5 $(17270.1)$ (Ch. No. 1613) | Alaska <br> Belgium <br> Brazil <br> Spain <br> United States of America (East) <br> United States of America (West) <br> United States of America (South) <br> Greece <br> Guam <br> Hawaii <br> Iran <br> Israel <br> Norway <br> Panama <br> Puerto Rico <br> Romania <br> Singapore <br> U.S.S.R. (Far East) |  |
| 17274.6 <br> (17 273.2) <br> (Ch. No. 1614) <br> (cont.) | Canada (West) <br> China <br> Denmark <br> Finland <br> Italy <br> Mexico |  |


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| :---: | :---: | :---: |
| 17274.6 $(17273.2)$ (Ch. No. 1614) (cont.) | Niue Island <br> Norway <br> Sweden U.S.S.R. (Northern Asia) |  |
| 17277.7 $(17276.3)$ (Ch. No. 1615) | Azores <br> Angola <br> Cape Verde <br> Finland <br> Guinea-Bissau <br> Iran <br> Iceland <br> Madeira <br> Mozambique <br> Portugal <br> United Kingdom <br> Switzerland <br> Portuguese Timor <br> U.S.S.R. (Far East) |  |
| 17280.8 $(17279.4)$ (Ch. No. 1616) | Alaska <br> Germany (Federal Republic of) <br> United States of America (East) <br> United States of America (West) <br> United States of America (South) <br> Hawaii <br> Iran <br> Italy <br> Japan <br> Morocco <br> Turkey <br> U.S.S.R. (North West) |  |


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| :---: | :---: | :---: |
| $\begin{array}{r} 17283.9 \\ (17282.5) \end{array}$ |  |  |
| (Ch. No. 1617) | Bangladesh Brazil Canary Islands |  |
|  | Denmark France Greece |  |
|  | Hungary Iran Israel |  |
|  | Mexico <br> Norway <br> Sweden |  |
|  | U.S.S.R. (Northern Asia) <br> U.S.S.R. (Far East) |  |
| $\begin{gathered} 17287 \\ (17285.6) \end{gathered}$ |  |  |
| (Ch. No. 1618) | Argentina <br> Bahrain <br> Bermuda |  |
|  | Denmark India (West) Japan |  |
|  | Morocco <br> Norway <br> United Kingdom |  |
|  | Sweden <br> Turkey Yugoslavia |  |
| $\begin{gathered} 17290.1 \\ (17288.7) \end{gathered}$ |  |  |
| (Ch. No. 1619) | Alaska <br> United States of America (East) <br> United States of America (West) |  |
|  | France <br> Greece <br> Guam |  |






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| :---: | :---: | :---: |
| 17324.2 $(17322.8)$ (Ch. No. 1630) (cont.) | U.S.S.R. (Europe) |  |
| 17327.3 $(17325.9)$ (Ch. No. 1631) | Algeria <br> Bulgaria <br> Chile <br> China <br> United States of America (East) <br> Greece <br> Iraq <br> Poland <br> Switzerland <br> Togo |  |
| 17330.4 $(17329)$ (Ch. No. 1632) | Azores <br> Alaska <br> Argentina <br> Bangladesh <br> Cyprus <br> United States of America (East) <br> United States of America (West) <br> United States of America (South) <br> Hungary <br> Japan <br> Madagascar <br> Madeira <br> Pakistan <br> Portugal <br> United Kingdom |  |
|  |  |  |



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| 17339.7 <br> $(17338.3)$ <br>  <br> (Ch. No. 1635) <br> (cont.) | Macao <br> Madeira <br> Mozambique <br> Norway <br> Portugal <br> Sweden <br> Portuguese Timor |  |
| 17342.8 $(17341.4)$ (Ch. No. 1636) | Alaska <br> Algeria <br> United States of America (East) <br> United States of America (West) <br> Finland <br> Greece <br> Guam <br> Hawaii <br> India (East) <br> Japan <br> Pakistan <br> Panama <br> Netherlands <br> Puerto Rico |  |
| 17345.9 $(17344.5)$ (Ch. No. 1637) | Korea <br> Spain <br> Hongkong $\qquad$ <br> Jamaica <br> Madagascar <br> New Zealand <br> United Kingdom <br> U.S.S.R. (Southern Asia) |  |


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| :---: | :---: | :---: |
| $\begin{gathered} 17349 \\ (17347.6) \end{gathered}$ |  |  |
| (Ch. No. 1638) | Alaska <br> Bulgaria <br> United States of America (East) |  |
|  | United States of America (West) Finland Guam |  |
|  | Hawaii Morocco Pakistan |  |
|  | Poland <br> American Samoa <br> Yugoslavia | ADD |
| 17352.1$(17350.7)$(Ch. No. 1639) |  |  |
|  | Alaska <br> Albania <br> Germany (Federal Republic of) |  |
|  | Spain <br> United States of America (East) <br> United States of America (West) |  |
|  | Guam <br> Hawaii <br> Panama |  |
|  | Netherlands Puerto Rico Zaire |  |
| 17355.2$(17353.8)$(Ch. No. 1640) |  |  |
|  | Barbados <br> Chile <br> Greece |  |
|  | Japan <br> German Democratic Republic United Kingdom |  |
|  | Sri Lanka Thailand U.S.S.R. (Europe) |  |




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| :---: | :---: | :---: |
|  <br> $\mathbf{2 2 6 0 6 . 7}$ <br> $\mathbf{( 2 2 6 0 5 . 3})$ <br> (Ch. No. 2204) | Argentina <br> Canada (North) <br> Finland <br> France <br> Israel <br> Kuwait <br> South Africa <br> U.S.S.R. (Far East) <br> U.S.S.R. (North West) <br> Yugoslavia |  |
| $\begin{gathered} 22609.8 \\ (22608.4) \\ \text { (Ch. No. 2205) } \end{gathered}$ | Algeria <br> Australia <br> United States of America (East) <br> United States of America (West) <br> United States of America (South) <br> Greece <br> Iran <br> Netherlands <br> U.S.S.R. (Europe) <br> U.S.S.R. (Far East) <br> U.S.S.R. (North West) |  |
| 22612.9 <br> (22 611.5) <br> (Ch. No. 2206) <br> (cont.) | Alaska <br> United States of America (East) <br> United States of America (West) <br> United States of America (South) <br> Guam <br> Hawaii <br> India (West) <br> Japan <br> Morocco |  |


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| :---: | :---: | :---: |
| 22612.9 $(22611.5)$ (Ch. No. 2206) (cont.) | Peru <br> Poland <br> Puerto Rico <br> United Kingdom <br> South Africa <br> Yugoslavia |  |
| $\begin{gathered} 22616 \\ (22614.6) \\ \text { (Ch. No. 2207) } \end{gathered}$ | Azores <br> Germany (Federal Republic of) <br> Bangladesh <br> Cape Verde <br> China <br> Israel <br> Madeira <br> Portugal <br> Portuguese Timor <br> Tunisia <br> U.S.S.R. (Europe) |  |
|  <br> $\mathbf{2 2 6 1 9 . 1}$ <br> $\mathbf{( 2 2 6 1 7 . 7 )}$ <br> (Ch. No. 2208) | Argentina (North) <br> Bulgaria <br> Denmark <br> India (East) <br> Japan <br> Morocco <br> Norway <br> Sweden |  |
| 22622.2 $\mathbf{( 2 2 6 2 0 . 8 )}$ <br> (Ch. No. 2209) (cont.) | Alaska <br> Belgium <br> Korea |  |


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| 22622.2 $(22620.8)$ (Ch. No. 2209) (cont.) | United States of America (East) <br> United States of America (West) <br> Greece <br> Guam <br> Hawaii <br> Morocco <br> Panama <br> Poland <br> Puerto Rico <br> U.S.S.R. (North West) |  |
|  <br> $\mathbf{2 2 6 2 5 . 3}$ <br> (22 623.9) <br>  <br> (Ch. No. 2210) | Bangladesh <br> Spain <br> United States of America (East) <br> Finland <br> Greece <br> Japan <br> Netherlands <br> Ukraine |  |
| 22628.4 (22 627) (Ch. No. 2211) | Cuba <br> Denmark <br> Italy <br> Japan <br> Norway <br> Sweden <br> Ukraine |  |
|  |  |  |



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| 22637.7 <br> $(22636.3)$ <br>  <br> (Ch. No. 2214) <br> (cont.) | Switzerland <br> Turkey <br> Uruguay <br> U.S.S.R. (North West) |  |
|  <br> $\mathbf{2 2 6 4 0 . 8}$ <br> (22 639.4) <br> (Ch. No. 2215) | United States of America (East) <br> United States of America (West) <br> United States of America (South) <br> France <br> Greece <br> Iraq <br> Japan <br> Norway <br> Peru <br> Poland |  |
|  <br> $\mathbf{2 2 6 4 3 . 9}$ <br> $(22642.5)$ <br>  <br> (Ch. No. 2216) | Canada (West) <br> Denmark <br> United States of America (East) <br> United States of America (South) <br> Greece <br> Guam <br> Italy <br> Japan <br> Kuwait <br> Mauritania <br> Norway |  |
|  |  |  |




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| 22665.6 $(22664.2)$ (Ch. No. 2223) | Alaska <br> Germany (Federal Republic of) <br> Australia <br> Bangladesh <br> United States of America (East) <br> United States of America (West) <br> Hawaii <br> Italy <br> Japan <br> Malta <br> Puerto Rico <br> Togo <br> Turkey | ADD |
| 22668.7 $(22667.3)$ (Ch. No. 2224) | Alaska <br> Spain <br> United States of America (East) <br> United States of America (West) <br> Greece <br> Guam <br> Hawaii <br> Iraq <br> Mauritius <br> Panama <br> Puerto Rico <br> German Democratic Republic |  |
| $\begin{gathered} 22671.8 \\ (22670.4) \end{gathered}$ <br> (Ch. No. 2225) <br> (cont.) | Algeria <br> Belgium <br> Chile <br> Ivory Coast <br> Greece <br> India (West) |  |



| 1 | 2 | 3 |
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| 22681.1 $(22679.7)$ (Ch. No. 2228) (cont.) | Morocco <br> Norway <br> Sweden <br> U.S.S.R. (Far East) |  |
| 22684.2 $(22682.8)$ (Ch. No. 2229) | Canada (East) <br> Spain <br> India (West) <br> Japan <br> United Kingdom <br> Thailand <br> Ukraine |  |
| 22687.3 $(22685.9)$ (Ch. No. 2230) | Alaska <br> Australia <br> Spain <br> United States of America (East) <br> United States of America (West) <br> Guam <br> Hawaii <br> Norway <br> Panama <br> Puerto Rico <br> German Democratic Republic <br> Sweden <br> Turkey <br> U.S.S.R. (Southern Asia) |  |
|  |  |  |


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|  <br> $\mathbf{2 2 6 9 0 . 4}$ <br> $\mathbf{( 2 2 6 8 9 )}$ <br> (Ch. No. 2231) | Alaska <br> Saudi Arabia <br> Canada (West) <br> United States of America (East) <br> United States of America (West) <br> United States of America (South) <br> Finland <br> France <br> Greece <br> Japan <br> Malaysia <br> Niue Island <br> U.S.S.R. (Europe) |  |
| $\begin{gathered} 22693.5 \\ (22692.1) \\ \\ \text { (Ch. No. 2232) } \end{gathered}$ | Cuba <br> Greece <br> Irag. $\qquad$ <br> Netherlands <br> Poland <br> Switzerland <br> U.S.S.R. (Europe) <br> U.S.S.R. (Far East) |  |
| $\begin{gathered} 22696.6 \\ (22695.2) \end{gathered}$ <br> (Ch. No. 2233) <br> (cont.) | Alaska <br> Bangladesh <br> Cook Islands <br> United States of America (East) <br> United States of America (West) <br> United States of America (South) <br> Greece <br> Guam <br> Hawaii | ADD |



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|  <br> $\mathbf{2 2 7 0 5 . 9}$ <br> $\mathbf{( 2 2 7 0 4 . 5 )}$ <br> (Ch. No. 2236) | Denmark <br> Spain <br> United States of America (East) <br> United States of America (West) <br> Greece <br> Iraq <br> Japan <br> Norway <br> New Zealand <br> Ukraine |  |
| 22709 $(22707.6)$ (Ch. No. 2237) | Azores <br> United States of America (East) <br> United States of America (West) <br> United States of America (South) <br> Iran <br> Italy <br> Japan <br> Madeira <br> Norway <br> Portugal <br> Romania |  |
| 22712.1 <br> (22 710.7) <br> (Ch. No. 2238) <br> (cont.) | Algeria <br> Germany (Federal Republic of) <br> Australia <br> Brazil <br> Greece <br> Hungary <br> Iraq <br> Japan <br> Mexico |  |


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| 22712.1 $(22710.7)$ (Ch. No. 2238) (cont.) | U.S.S.R. (Europe) |  |
| $\begin{gathered} 22715.2 \\ (22713.8) \\ \\ \text { (Ch. No. 2239) } \end{gathered}$ | Alaska <br> Belgium <br> Spain <br> United States of America (East) <br> United States of America (West) <br> Guam <br> Hawaii <br> India (East) <br> Iran <br> Norway <br> Panama <br> Puerto Rico <br> Yugoslavia |  |
| 22718.3 $(\mathbf{2 2} 716.9)$ (Ch. No. 2240) | Chile <br> Greece <br> Jamaica <br> Japan <br> Madagascar <br> Norway <br> Pakistan <br> Tunisia |  |

## TABLE OF ALLOTMENTS ADDED TO THE PLAN

## Column headings

1. Channel number (the corresponding carrier and assigned frequencies are indicated in Section A of Appendix 16 and in the present Appendix).
2. Country or area of allotment.
3.1 Main service area.

A number between 1 and 22 refers to a Zone defined on the Map of Maritime Zones appearing in the Preface to the International Frequency List.
3.2 Maximum length of circuit in kilometres.
4. Nature of service.
5. Class of emission.
6. Peak envelope power in kW .
7. Transmitting antenna characteristics.
7.1 In the case of a non-directional antenna, the symbol ND is entered in this column and columns 7.2a), b) and c) are left blank. In the case of a directional antenna, the symbol D is entered in this column and the characteristics are given in columns 7.2a), b) and c).
7.2a) Azimuth of maximum radiation. The symbol ROT entered in this column means that a rotatable antenna is used.
7.2b) Angular width of main lobe.
7.2c) Relative gain of the antenna in dB .
8. Planned scheduled hours of operation in the channel (UTC).
9.a) Estimated peak hours of traffic.
9.b) Estimated daily volume of traffic in minutes.
10. Special Section No./IFRB Circular No./Date (e.g. MAR/10/1305/280278).

| 1 | 2 | 3 |  | 4 | 5 | 6 | 7 |  |  |  | 8 | 9 |  | 10 |
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|  |  | 3.1 | 3.2 |  |  |  | 7.1 | $7.2$ <br> a) | $7.2$ <br> b) | $\begin{aligned} & \hline 7.2 \\ & \text { c) } \end{aligned}$ |  | 9a) | 9b) |  |
| 401 | AUS | GF CARPENTARIA | 800 | CV | J3E | 0.1 | ND |  |  |  | 2200-1000 | 2200-1000 | 30 | MAR/54/1640/021084 |
| 405 | USA | GREAT LAKES (CL USA) | 800 | CP | J3E | $\begin{gathered} 1 \\ 0.032 \end{gathered}$ | ND |  |  |  | $\begin{aligned} & 1100-2300 \\ & 2300-1100 \end{aligned}$ | 1200-1800 | 180 | MAR/50/1609/280284 |
| 407 | AUS | - | 800 | COCP | J3E R3E | 5 | ND |  |  |  | 0000-2400 |  |  | MAR/48/1602/100184 |
| 407 | I | 17 | 1200 | CO | J3E | 1.5 | ND |  |  |  | 0500-2200 | 0700-1100 | 60 | MAR/58/1682/300785 |
| 408 | B | - | 800 | CV | J3E | 0.15 | ND |  |  |  | 0000-2400 |  | 120 | MAR/69/1712/040386 |
| 408 | SMA | SO PACIF | 1000 | CP | J3E | 1 | ND |  |  |  | 1800-0400 |  | 30 | MAR/10/1305/280278 |
| 411 | AMS | 10 | - | CP | J3E R3E | 0.3 | ND |  |  |  | $\begin{aligned} & 0430-0445 \\ & 0830-0845 \\ & 1230-1245 \end{aligned}$ |  | 5-25 | MAR/15/1347/191278 |
| 411 | KIR | - | 500 | CP | J3E | 0.5 | ND |  |  |  | 0800-1800 |  |  | MAR/59/1686/270885 |
| 417 | TZA | 6, 10, 19, 21 | 3200 | COCP | J3E | 5 | ND |  |  |  | 0700-1800 | $\begin{array}{\|l} 0800-1000 \\ 1500-1700 \end{array}$ | 240 | MAR/66/1707/280186 |
| 418 | B | - | 800 | CV | J3E | 0.15 | ND |  |  |  | 0000-2400 | 0700-1100 | 240 | MAR/69/1712/040386 |
| 419 | TZA | 6,10,19, 21 | 3200 | COCP | J3E | 5 | ND |  |  |  | 0700-1800 | $\begin{aligned} & 0800-1000 \\ & 1500-1700 \end{aligned}$ | 240 | MAR/57/1680/160785 |
| 422 | SUI | 15,17 | 4000 | CP | J3E | 5 | D | ROT | 30 | 8 | 1900-0200 | 2000-2200 | 20 | MAR/62/1694/221085 |
| 423 | B | - | 800 | CV | J3E | 0.5 | ND |  |  |  | 0000-2400 |  |  | MAR/16/1350/160179 |
| 423 | MLT | MEDIT, NO E ATLANT, RED SEA, NO INDN OC | 3000 | CP | J3E R3E | 1.5 | ND |  |  |  | HN | 2000-2100 | 60 | MAR/41/1565/190483 |
| 423 | QAT | GULF, INDN OC GULF, INDN OC GULF, INDN OC GULF, INDN OC | $\begin{array}{r} 800 \\ 1500 \\ 1500 \\ 1500 \end{array}$ | CP | J3E R3E | $5\{$ | $\begin{array}{\|c} \hline \text { ND } \\ \mathrm{D} \\ \mathrm{D} \\ \mathrm{D} \end{array}$ | $\begin{aligned} & 130 \\ & 200 \\ & 310 \end{aligned}$ | $\begin{aligned} & 60 \\ & 60 \\ & 60 \end{aligned}$ | $\begin{aligned} & 9 \\ & 9 \\ & 9 \end{aligned}$ | 0000-2400 |  | 200 | MAR/23/1412/010480 |
| 424 | AUS | - | 800 | COCP | J3E R3E | 1 | ND |  |  |  | 0000-2400 |  |  | MAR/48/1602/100184 |
| 425 | B | - | 800 | CV | J3E | 0.5 | ND |  |  |  | 1000-2300 | 1900-2200 | 100 | MAR/16/1350/160179 |
| 425 | JOR | 6, 15, 17 | 5000 | CP | J3E R3E | 5 | ND |  |  |  | 1700-0500 |  |  | MAR/49/1604/240184 |
| 602 | B | - | 800 | CP | J3E | 1 | ND |  |  |  | 0000-2400 |  |  | MAR/69/1712/040386 |
| 602 | FJI | 12 | 1000 | CP | J3E | 1 | ND |  |  |  | 1800-0600 | 2000-0500 | 120 | MAR/37/1519/180582 |
| 603 | AUS | AUSTRALIAN COASTAL | 4000 | CP | J3E | 1 | ND |  |  |  | HX | HJ | 30 | MAR/55/1651/181284 |
| 603 | MLT | MEDIT, NO E ATLANT, RED SEA, NO INDN OC | 3000 | CP | J3E R3E | 1.5 | ND |  |  |  | HJ | 0900-1100 | 60 | MAR/41/1565/190483 |
| 604 | ATN | CL ATLANT, CARIB SEA, GF MEX | 1500 | CP | J3E R3E | 1 | ND |  |  |  | $\begin{aligned} & 0000-0200 \\ & 0600-1000 \end{aligned}$ |  | 120 | MAR/35/1495/171181 |


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|  |  | 3.1 | 3.2 |  |  |  | 7.1 | $7.2$ <br> a) | 7.2 b) | $7.2$ <br> c) |  | 9a) | 9b) |  |
| 604 | B | - | 800 | CP | J3E | 1 | ND |  |  |  | $\begin{aligned} & 1000-1300 \\ & 1700-2000 \end{aligned}$ |  |  | MAR/69/1712/040386 |
| 605 | B | - | 800 | CP | J3E | 1 | ND |  |  |  | $\begin{aligned} & 1000-1300 \\ & 1700-2000 \end{aligned}$ |  |  | MAR/69/1712/040386 |
| 605 | F | GOLFE DE GASCOGNE / BAY OF BISCAY / MAR CANTÁBRICO, MEDIT | 2500 | CP | J3E | 10 | ND |  |  |  | $\begin{aligned} & 0600-0900 \\ & 1700-2200 \end{aligned}$ | 1800-2200 | 300 | MAR/56/1679/090785 |
| 605 | NZL | 7, 8, 11, 12, 13 | 6000 | CP | J3E | 5 | ND |  |  |  | 0000-2400 | 0400-0900 | 90 | MAR/63/1695/291085 |
| 803 | SUI | 15, 16, 17, 18, 19 | 6000 | CP | J3E | 10 | D | ROT | 30 | 8 | 0600-0200 | $\begin{aligned} & 0600-1000 \\ & 1700-2200 \end{aligned}$ | 50 | MAR/62/1694/221085 |
| 804 | JOR | 6,15,17 | 5000 | CP | J3E R3E | 5 | ND |  |  |  | 0500-1700 |  |  | MAR/49/1604/240184 |
| 804 | QAT | GULF, RED SEA, INDN OC <br> GULF, INDN OC <br> GULF, RED SEA, INDN OC <br> GULF, RED SEA, INDN OC, MEDIT | $\begin{aligned} & 1500 \\ & 2500 \\ & 2500 \\ & 2500 \end{aligned}$ | $\left.\int\right\} \mathrm{CP}$ | J3E R3E | $5\{$ | $\begin{gathered} \mathrm{ND} \\ \mathrm{D} \\ \mathrm{D} \\ \mathrm{D} \end{gathered}$ | $\begin{aligned} & 130 \\ & 200 \\ & 310 \end{aligned}$ | $\begin{aligned} & 60 \\ & 60 \\ & 60 \end{aligned}$ | $\begin{aligned} & 10 \\ & 10 \\ & 10 \end{aligned}$ | 0000-2400 |  | 200 | MAR/23/1412/010480 |
| 806 | AUS | COTE / COAST / COSTA: AUS NW, W, SW | 2000 | CP | J3E | 1 | ND |  |  |  | 2100-0500 | 2100-0500 | 90 | MAR/52/1631/310784 |
| 806 | SMA | SO PACIF | 3000 | CP | J3E | 1 | ND |  |  |  | 1800-0400 |  | 30 | MAR/11/1310/040478 |
| 807 | MLT | MEDIT, NO E ATLANT, RED SEA, NO INDN OC | 3000 | CP | J3E R3E | 1.5 | ND |  |  |  | HJ | 0100-1100 | 60 | MAR/41/1565/190483 |
| 814 | KIR | - | 500 | CP | J3E | 0.5 | ND |  |  |  | 1800-0800 |  |  | MAR/65/1702/171285 |
| 817 | NRU | PACIF | 2500 | CP | J3E R3E | 1 | ND |  |  |  | $2030-0500$ |  | 3 | MAR/28/1440/141080 |
| 820 | TZA | 6, 10, 19, 21 | 3200 | COCP | J3E | 5 | ND |  |  |  | 0700-1800 | $\begin{aligned} & 0800-1000 \\ & 1500-1700 \end{aligned}$ | 240 | MAR/66/1707/280186 |
| 822 | AUS | COTE / COAST / COSTA: AUS N, NE | $3000$ | CP | $\mathrm{J} 3 \mathrm{E}$ | 1 | ND |  |  |  | HJ | HJ | 90 | MAR/64/1696/051185 |
| 823 | TZA | $6,10,19,21$ | 3200 | COCP | J3E | 1 | ND |  |  |  | 0700-1800 | $\begin{aligned} & 0800-1000 \\ & 1500-1700 \end{aligned}$ | 240 | MAR/66/1707/280186 |
| 825 | AMS | 10 | - | CP | J3E R3E | 0.3 | ND |  |  |  | $\begin{aligned} & 0445-0500 \\ & 0845-0900 \\ & 1245-1300 \end{aligned}$ |  | 5-25 | MAR/15/1347/191278 |
| 825 | S | $5,6,10,15,16,17,18,19,21$ |  | CP | J3E | 10 | D $\{$ | 10 50 130 170 210 250 310 | 60 | 11 | 0000-2400 | 0800-1000 | 90 | AR16/70/1730/080786 |


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|  |  | 3.1 | 3.2 |  |  |  | 7.1 | 7.2 a) | $7.2$ <br> b) | $\begin{aligned} & 7.2 \\ & \mathrm{c}) \end{aligned}$ |  | 9a) | 9b) |  |
| 1207 | NRU | CL PACIF | 3000 | CP | J3E R3E | 1 | ND |  |  |  | HX | 2000-0530 | 20 | MAR/34/1475/300681 |
| 1210 | SUI | $6,10,15,16,17,18,19,20,21$ | 9000 | CP | J3E | 10 | D | ROT | 30 | 8 | 0600-0200 | $\begin{aligned} & 0800-1200 \\ & 1600-2100 \end{aligned}$ | 60 | MAR/62/1694/221085 |
| 1216 | MLT | MEDIT, NO ATLANT | 3000 | CP | J3E R3E | 1.5 | ND |  |  |  | 0000-2400 |  |  | MAR/22/1399/030180 |
| 1220 | JOR | 6, 15, 17 | 5000 | CP | J3E R3E | 5 | ND |  |  |  | 0500-1700 |  |  | MAR/49/1604/240184 |
| 1226 | S | $5,6,10,15,16,17,18,19,21$ |  | CP | J3E | 10 |  | 10 50 |  |  | 0000-2400 | 0800-1000 | 90 | AR16/70/1730/080786 |
|  |  |  |  |  |  |  |  | 130 |  |  |  |  |  |  |
|  |  |  |  |  |  |  | D | 170 | 60 | 11 |  |  |  |  |
|  |  |  |  |  |  |  |  | 210 |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  | 250 310 |  |  |  |  |  |  |
| 1227 | TZA | 6,10,19, 21 | 3200 | COCP | J3E | 5 | ND |  |  |  | 0700-1800 | $\begin{aligned} & 0800-1000 \\ & 1500-1700 \end{aligned}$ | 240 | MAR/66/1707/280186 |
| 1229 | QAT | GULF, RED SEA, INDN OC, MEDIT GULF, INDN OC | $\begin{aligned} & 2000 \\ & 3000 \end{aligned}$ |  |  |  | $\begin{array}{\|c} \mathrm{ND} \\ \mathrm{D} \end{array}$ |  |  |  | 0400-0600 |  |  |  |
|  |  | GULF, RED SEA, INDN OC, MEDIT | 3000 | CP | J3E R3E | 5 | D | 130 200 | 60 | 11 | 1400-1600 |  | 200 | MAR/23/1412/010480 |
|  |  | GULF, RED SEA, INDN OC, MEDIT | 3000 |  |  |  | D |  |  | 11 |  |  |  |  |
| 1232 | SMA | SO PACIF | 3000 | CP | J3E | 1 | ND |  |  |  | 1800-0400 |  | 30 | MAR/11/1310/040478 |
| 1603 | MLT | MEDIT, NO ATLANT | 3000 | CP | J3E R3E | 1.5 | ND |  |  |  | 0000-1159 |  |  | MAR/21/1379/070879 |
| 1622 | SUI | $3,4,5,6,7,9,10, \frac{15}{21}, 16,17,18,19,20 \text {, }$ | 10000 | CP | J3E | 10 | D | ROT | 30 | 8 | 0600-0200 | 0800-1700 | 60 | MAR/62/1694/221085 |
| 1626 | QAT | INDN OC, RED SEA, MEDIT | 4000 |  |  |  | ND |  |  |  |  |  |  |  |
|  |  | INDN OC | $6000$ | CP | J3E R3E | 10 | D | 130 |  |  | 0600-0800 |  | 200 | MAR/23/1412/010480 |
|  |  | INDN OC, RED SEA, MEDIT | $6000$ | CP | J3E R3E | 10 | D | 200 | 60 | 11 | 1200-1400 |  | 200 | MAR/23/1412/010480 |
|  |  | RED SEA, MEDIT, ATLANT | 6000 |  |  |  | D | 310 | 60 | 11 |  |  |  |  |
| 1638 | SMA | SO PACIF | 4000 | CP | J3E | 1 | ND |  |  |  | 1800-0400 |  | 30 | MAR/10/1305/280278 |
| 2220 | SUI | 6, 10, 18, 20, 21 | 14000 | CP | J3E | 10 | D | ROT | 70 | 8,5 | 0600-1800 | 0900-1600 | 60 | MAR/27/1431/120880 |
| 2223 | MLT | MEDIT, NO ATLANT | 3000 | CP | J3E R3E | 1.5 | ND |  |  |  | 0000-1159 |  |  | MAR/20/1372/190679 |
| 2233 | GRC | 17 (MEDIT) | 2600 | CO | J3E | 1 | ND |  |  |  | 0500-2200 | $\begin{gathered} 0600,1000 \\ 2200 \end{gathered}$ | 30 | MAR/51/1621/220584 |
| 2235 | QAT | INDN OC, MEDIT | 5000 |  |  |  | ND |  |  |  |  |  |  |  |
|  |  | INDN OC | $8000$ | CP | J3E R3E | 10 | D |  |  |  | 0800-1200 |  | 200 | MAR/23/1412/010480 |
|  |  | INDN OC, MEDIT, ATLANT MEDIT, ATLANT | $\begin{aligned} & 8000 \\ & 8000 \end{aligned}$ | CP | JJE RJE | 10 | D D | $\begin{aligned} & 200 \\ & 310 \end{aligned}$ | $\begin{aligned} & 60 \\ & 60 \end{aligned}$ | 11 11 | -080-1200 |  | 200 | MAR/23/1412/010480 |

## Note by the General Secretariat

# Bringing up to date the Frequency Allotment Plan for Coast Radiotelephone Stations Operating in the Exclusive Maritime Mobile Band Between 4000 kHz and 23000 kHz 

(Article 16 of the Radio Regulations)

## June 1979 - First Revision

1. This revision of the Plan is published in accordance with No. 1722.
2. The present revision contains the following new allotments:
Symbol Country or area Channel(s)

AMS St Paul and Amsterdam Islands 411825
B Brazil ........................... . . 423425
MLT Malta .......................... . . . 16032223
SMA American Samoa ............. 40880612321638
3. The allotments of channels 411 and 825 to Kerguelen Islands have been deleted from the Plan at the request of the Administration concerned.
4. The present revision takes into account the deletion of the following allotments in application of No. 1720:

| Symbol | Country or area | Channel(s) |
| :---: | :---: | :---: |
| ASC | Ascension | 414808 |
| BEN | Benin | 412605809120116242209 |
| BER | Bermuda | 2204 |
| BHR | Bahrain | 415812818 |
| BOL | Bolivia | 402409602605801805120416032209 |

4. (cont.)

| Symbol | Country or area | Channel(s) |
| :---: | :---: | :---: |
| BRB | Barbados | 405412605822 |
| CNR | Canaries | 409416601804808818120816202226 2234 |
| COG | Congo (Brazzaville) | 120412161604160922052208 |
| COM | Comoro Islands | 414 |
| DOM | Dominican Republic | 819 |
| E | Spain | 1228 |
| EGY | Egypt | 408601807120316142233 |
| FJI | Fiji | 403410801816 |
| G | United Kingdom | 8098128148241212121412201222 16091626162916352202221422332240 |
| GIB | Gibraltar | 401404602807121216112212 |
| GIL | Gilbert and Ellice Islands | 41181412071607 |
| GUB | Guyana | 824 |
| HKG | Hongkong | 603805122716262218 |
| HND | Honduras. | 402 |
| IOB | Turks and Caicos Islands | 401816 |
| IRQ | Iraq. | 16341639 |
| KEN | Kenya | 40742360380480981482612081213 1229123016242228 |
| NHB | New Hebrides | 406808818 |
| PHL | Philippines.. | 4208062220 |
| SLM | Solomon Islands | 830 |

These deletions have been published in Sub-section C of Special Section No. MAR/21/1397 of 7 August 1979.
5. The present revision contains the following modification of country name or area:

| From |  | To |  | Channel(s) |
| :--- | :--- | :--- | :--- | :--- |
| AFI | French Territory of the <br> Afars and Issas | DJI | Djibouti | 4188271210 |

1. This revision of the Plan is published in accordance with No. 1722.
2. The present revision contains the following new allotments:

| Symbol | Country or area | Channel(s) |
| :---: | :---: | :---: |
| MLT | Malta | 1216 |
| NRU | Nauru | 817 |
| QAT | Qatar | 423804122916262235 |
| SUI | Switzerland | 2220 |

3. The present revision takes into account the deletion of the following allotments in application of No. 1720:

| Symbol | Country or area | Channel(s) |
| :---: | :---: | :---: |
| AGL | Angola | 22072222 |
| CBG | Khmer Republic | 406410604828830120616042203 |
| CLM | Colombia | 1615 |
| CTI | Ivory Coast | 16052203 |
| ETH | Ethiopia . | 413425602812827829120112041214 12281231160416111614162016271640 |
| GAB | Gabon | 401403602603806811120112101614 16172211 |
| GHA | Ghana | 402409601602823825120212241616 162222132215 |
| GMB | Gambia | 831 |
| GNB | Guinea-Bissau | 1207 |
| GTM | Guatemala | 402 |
| MOZ | Mozambique | 22072222 |
| NIG | Nigeria | 4144234256016046058018178191220 <br> 12251231162516271640220222042206 |
| PAK | Pakistan | $\begin{aligned} & 4034064144244266018078268281201 \\ & 12041207121516082201220922112218 \\ & 2220 \end{aligned}$ |
| PNR | Panama | 4014034246028178191204 |
| PRG | Paraguay | 410826121712271637 |
| PRU | Peru | 16172211 |
| STP | Sao Tome and Principe | 4134268028131203120716151635 |
| SUR | Surinam | 40880812071608 |


| Symbol | Country or area | Channel(s) |
| :---: | :---: | :---: |
| TGK | Tanzania (Tanganyika) | 4174198208231227 |
| TMP | Portuguese Timor | 802813 |
| TUR | Turkey | 82282812111227161516242239 |
| VEN | Venezuela | $\begin{aligned} & 4094196028278291203121916041622 \\ & 22032206 \end{aligned}$ |
| ZAN | Tanzania (Zanzibar). | 4174198208231227 |

These deletions have been published in Sub-section C of Special Sections Nos. MAR/22/1399 of 3 January 1980 and MAR/29/1441 of 21 October 1980.

## February 1984 - Third Revision

1. This revision of the Plan is published in accordance with No. 1722.
2. The present revision contains the following new allotments:

Symbol Country or area Channel(s)
ATN Netherlands Antilles . . . . . . . . . 604
AUS Australia ...................... 407424
FJI Fiji ............................... 602
JOR Jordan ......................... . . 4258041220
MLT Malta ........................... . . . 423603807
NRU Nauru......................... . . . 1207
USA United States of America . . . . . 405

July 1986 - Fourth Revision

1. This revision of the Plan is published in accordance with No. 1722.
2. The present revision contains the following new allotments:

| Symbol | Country or area | Channel(s) |
| :---: | :---: | :---: |
| AUS | Australia | 401603806822 |
| B | Brazil. | 408418602604605 |
| F | France | 605 |
| GRC | Greece | 2233 |
| I | Italy | 407 |
| KIR | Kiribati | 411814 |
| NZL | New Zealand | 605 |
| S | Sweden | 8251226 |
| SUI | Switzerland | $\begin{array}{lllll}422 & 803 & 1210 & 1622\end{array}$ |
| TZA | Tanzania.. | 4174198208231227 |

## Orb-85

> Provisions for All Services and Associated Plans for the Broadcasting-Satellite Service in the Frequency Bands $11.7-12.2$ GHz (in Region 3), 11.7-12.5 GHz (in Region 1) and $12.2-12.7 \mathrm{GHz}$ (in Region 2)
(See Article 15)

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## ARTICLE 1

## General Definitions

1. For the purposes of this Appendix the following terms shall have the meanings defined below:
1.1 1977 Conference: World Administrative Radio Conference for the Planning of the Broadcasting-Satellite Service in the Frequency Bands 11.7-12.2 GHz (in Regions 2 and 3) and 11.7-12.5 GHz (in Region 1), called in short World Broadcasting-Satellite Administrative Radio Conference, Geneva, 1977.
1.2 1983 Conference: Regional Administrative Radio Conference for the Planning in Region 2 of the Broadcasting-Satellite Service in the Frequency Band $12.2-12.7 \mathrm{GHz}$ and Associated Feeder Links in the Frequency Band 17.3-17.8 GHz, called in short Regional Administrative Conference for the Planning of the Broadcasting-Satellite Service in Region 2 (RARC Sat-R2), Geneva, 1983.
1.3 1985 Conference: First Session of the Word Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It, Geneva, 1985, called in short WARC Orb-85.
1.4 Regions 1 and 3 Plan: The Plan for the Broadcasting-Satellite Service in the Frequency Bands $11.7-12.2 \mathrm{GHz}$ in Region 3 and 11.7 12.5 GHz in Region 1 contained in this Appendix, together with any modifications resulting from the successful application of the procedures of Article 4 of this Appendix.
1.5 Region 2 Plan: The Plan for the Broadcasting-Satellite Service in the Frequency Band 12.2-12.7 GHz in Region 2 contained in this Appendix, together with any modifications resulting from the successful application of the procedures of Article 4 of this Appendix.
1.6 Frequency assignment in conformity with the Plan: Any frequency assignment which appears in the Regions 1 and 3 Plan or the Region 2 Plan or for which the procedure of Article 4 of this Appendix has been successfully applied.

## ARTICLE 2

## Frequency Bands

2.1 The provisions of this Appendix apply to the broadcasting-satellite service in the frequency bands between 11.7 GHz and 12.2 GHz in Region 3, between 11.7 GHz and 12.5 GHz in Region 1 and between 12.2 GHz and 12.7 GHz in Region 2 and to the other services to which these bands are allocated in Regions 1, 2 and 3, insofar as their relationship to the broadcasting-satellite service in these bands is concerned.

## ARTICLE 3

## Execution of the Provisions and Associated Plans

3.1 The Members of the Union in Regions 1, 2 and 3 shall adopt, for their broadcasting-satellite space stations ${ }^{1}$ operating in the frequency bands referred to in this Appendix, the characteristics specified in the appropriate Regional Plan and the associated provisions.
3.2 The Members of the Union shall not change the characteristics specified in the Regions 1 and 3 Plan or in the Region 2 Plan, or bring into use assignments to broadcasting-satellite space stations or to stations in the

[^26]other services to which these frequency bands are allocated, except as provided for in the Radio Regulations and the appropriate Articles and Annexes of this Appendix.

## ARTICLE 4

## Procedure for Modifications to the Plans

4.1 When an administration intends to make a modification ${ }^{1}$ to one of the Regional Plans, i.e. either:
a) to modify the characteristics of any of its frequency assignments to a space station ${ }^{2}$ in the broadcasting-satellite service which are shown in the appropriate Regional Plan, or for which the procedure in this Article has been successfully applied, whether or not the station has been brought into use; or
b) to include in the appropriate Regional Plan a new frequency assignment to a space station in the broadcasting-satellite service; or
c) to cancel a frequency assignment to a space station in the broadcasting-satellite service;
the following procedure shall be applied before any notification of the frequency assignment is made to the International Frequency Registration Board (see Article 5 of this Appendix);

[^27]4.1.1 Before an administration proposes to include in the Region 2 Plan under the provisions of paragraph 4.1 b ), a new frequency assignment to a space station or to include in the Plan new frequency assignments to a space station whose orbital position is not designated in the Plan for this administration, all of the assignments to the service area involved should normally have been brought into service or have been notified to the Board in accordance with Article 5 of this Appendix. Should this not be the case, the administration concerned shall inform the Board of the reasons therefor.
4.2 The term "frequency assignment in conformity with the Plan" used in this and the following Articles is defined in Article 1.
4.3 Proposed modifications to a frequency assignment in conformity with one of the Regional Plans or inclusion in that Plan of a new frequency assignment

## For Regions 1 and 3:

4.3.1 An administration proposing a modification to the characteristics of a frequency assignment in conformity with the Regions 1 and 3 Plan, or the inclusion of a new frequency assignment in that Plan, shall seek the agreement of those administrations:
4.3.1.1 of Regions 1 and 3 having a frequency assignment to a space station in the broadcasting-satellite service in the same or adjacent channel which is in conformity with the Regions 1 and 3 Plan, or in respect of which proposed modifications to that Plan have already been published by the Board in accordance with the provisions of paragraph 4.3.5.1 or 4.3.6 of this Article; or
4.3.1.2 of Region 2 having a frequency assignment to a space station in the broadcasting-satellite service with the necessary bandwidth, any portion of which falls within the necessary bandwidth of the proposed assignment, which is in conformity with the Region 2 Plan, or in respect of which proposed modifications to that Plan have already been published by the Board in accordance with the provisions of paragraph 4.3.5.1 or 4.3.6 of this Article; or
4.3.1.3 identified in accordance with resolves 2 of Resolution 43 (Orb-85); or
(Rev. 1986)
4.3.1.4 having no frequency assignment in the broadcasting-satellite service in the channel concerned but in whose territory the power flux-density value exceeds the prescribed limit as a result of the proposed modification or having an assignment whose associated service area does not cover the whole of the territory of the administration, and in whose territory outside that service area the power flux-density from the broadcasting-satellite space station subject to this modification exceeds the prescribed limit as a result of the proposed modification; or
4.3.1.5 having a frequency assignment in the band $11.7-12.2 \mathrm{GHz}$ in Region 2 or 12.2-12.5 GHz in Region 3 to a space station in the fixed-satellite service which is recorded in the Master Register or which has been coordinated or is being coordinated under the provisions of No. $\mathbf{1 0 6 0}$ of the Radio Regulations, or those of paragraph 7.2.1 of this Appendix;
4.3.1.6 whose services are considered to be affected.
4.3.2 The services of an administration are considered to be affected when the limits shown in Annex 1 are exceeded.

For Region 2:
4.3.3 An administration proposing a modification to the characteristics of a frequency assignment in conformity with the Region 2 Plan, or the inclusion of a new frequency assignment in that Plan, shall seek the agreement of those administrations:
4.3.3.1 of Region 2 having a frequency assignment in the Region 2 Plan to a space station in the broadcasting-satellite service in the same or adjacent channel which is in conformity with that Plan, or in respect of which proposed modifications to that Plan have already been published by the Board in accordance with the provisions of paragraph 4.3.5.1 or 4.3.6 of this Article; or
4.3.3.2 of Regions 1 and 3 having a frequency assignment to a space station in the broadcasting-satellite service with the necessary bandwidth, any portion of which falls within the necessary bandwidth of the proposed assignment, which is in conformity with the Regions 1 and 3 Plan, or in respect of which proposed modifications to that Plan have already been published by the Board in accordance with the provisions of paragraph 4.3.5.1 or 4.3.6 of this Article; or
4.3.3.3 identified in accordance with resolves 1 of Resolution 43 (Orb-85); or
4.3.3.4 having no frequency assignment in the broadcasting-satellite service in the channel concerned but in whose territory the power flux-density value exceeds the prescribed limit as a result of the proposed modification or having an assignment whose associated service area does not cover the whole of the territory of the administration, and in whose territory outside that service area the power flux-density from the broadcasting-satellite space station subject to this modification exceeds the prescribed limit as a result of the proposed modification; or
4.3.3.5 having a frequency assignment in the band $12.5-12.7 \mathrm{GHz}$ in Region 1 or $12.2-12.7 \mathrm{GHz}$ in Region 3 to a space station in the fixed-satellite service which is recorded in the Master Register or which has been coordinated or is being coordinated under the provisions of No. $\mathbf{1 0 6 0}$ of the Radio Regulations or those of paragraph 7.2.1 of this Appendix; or
4.3.3.6 having a frequency assignment to a space station in the broad-casting-satellite service in the band $12.5-12.7 \mathrm{GHz}$ in Region 3 with the necessary bandwidth, any portion of which falls within the necessary bandwidth of the proposed assignment and which
a) is recorded in the Master Register, or
b) has been coordinated or is being coordinated under the provisions of Resolution 33, or
c) appears in a Region 3 Plan to be adopted at a future administrative radio conference, taking account of modifications to that Plan which may be introduced in accordance with the Final Acts of the Conference;
4.3.3.7 whose services are considered to be affected.
4.3.4 The services of an administration are considered to be affected when the limits shown in Annex 1 are exceeded.

## For all Regions:

4.3.5 An administration intending to modify characteristics in one of the Regional Plans shall send to the Board, not earlier than five years but preferably not later than eighteen months before the date on which the
assignment is to be brought into use, the relevant information listed in Annex 2. Modifications to that Plan involving additions under paragraph 4.1 b) shall lapse if the assignment is not brought into use by that date.
4.3.5.1 Where as a result of the intended modification the limits defined in Annex 1 are not exceeded, this fact shall be indicated when submitting to the Board the information required by paragraph 4.3.5. The Board shall then publish this information in a special section of its weekly circular.
4.3.5.2 In all other cases the administration shall notify the Board of the names of the administrations whose agreement it considers should be sought in order to arrive at the agreement referred to in paragraph 4.3.1 or 4.3.3, as well as of those with which agreement has already been reached.
4.3.6 The Board shall determine on the basis of Annex 1 the administrations whose frequency assignments are considered to be affected within the meaning of paragraph 4.3.1 or 4.3.3. The Board shall include the names of those administrations with the information received under paragraph 4.3.5.2 and shall publish the complete information in a special section of its weekly circular. The Board shall immediately send the results of its calculations to the administration proposing the modification to the appropriate Regional Plan.
4.3.7 The Board shall send a telegram to the administrations listed in the special section of the weekly circular drawing their attention to the information it contains and shall send them the results of its calculations.
4.3.8 An administration which feels that it should have been included in the list of administrations whose services are considered to be affected may, giving the technical reasons for so doing, request the Board to include its name. The Board shall study this request on the basis of Annex 1 and shall send a copy of the request with an appropriate recommendation to the administration proposing the modification to the appropriate Regional Plan.
4.3.9 Any modification to a frequency assignment which is in conformity with the appropriate Regional Plan or any inclusion in that Plan of a new frequency assignment which would have the effect of exceeding the limits specified in Annex 1 shall be subject to the agreement of all administrations whose services are considered to be affected.
4.3.10 The administration seeking agreement or the administration with which agreement is sought may request any additional technical information it considers necessary. The administrations shall inform the Board of such requests.
4.3.11 Comments from administrations on the information published pursuant to paragraph 4.3 .6 should be sent either directly to the administration proposing the modification or through the Board. In any event the Board shall be informed that comments have been made.
4.3.12 An administration that has not notified its comments either to the administration seeking agreement or to the Board within a period of four months following the date of the weekly circular referred to in paragraph 4.3.5.1 or 4.3.6 shall be understood to have agreed to the proposed assignment. This time limit may be extended by up to three months for an administration that has requested additional information under paragraph 4.3.10 or for an administration that has requested the assistance of the Board under paragraph 4.3.20. In the latter case the Board shall inform the administrations concerned of this request.
4.3.13 If, in seeking agreement, an administration modifies its initial proposal, it shall again apply the provisions of paragraph 4.3.5 and the consequent procedure with respect to any other administration whose services might be affected as a result of modifications to the initial proposal.
4.3.14 If no comments have been received on the expiry of the periods specified in paragraph 4.3.12, or if agreement has been reached with the administrations which have made comments and with which agreement is necessary, the administration proposing the modification may continue with the appropriate procedure in Article 5 and shall inform the Board, indicating the final characteristics of the frequency assignment together with the names of the administrations with which agreement has been reached.
4.3.15 The agreement of the administrations affected may also be obtained in accordance with this Article, for a specified period.
4.3.16 When the proposed modification to the appropriate Regional Plan involves developing countries, administrations shall seek all practicable solutions conducive to the economical development of the broadcastingsatellite systems of these countries.
4.3.17 The Board shall publish in a special section of its weekly circular the information received under paragraph 4.3.14 together with the names of any administrations with which the provisions of this Article have been successfully applied. The frequency assignment concerned shall enjoy the same status as those appearing in the appropriate Regional Plan and will be considered as a frequency assignment in conformity with the Plan.
4.3.18 When an administration proposing to modify the characteristics of a frequency assignment or to make a new frequency assignment receives notice of disagreement from an administration whose agreement it has sought, it should first endeavour to solve the problem by exploring all possible means of meeting its requirement. If the problem still cannot be solved by such means, the administration whose agreement has been sought should endeavour to overcome the difficulties as far as possible, and shall state the technical reasons for any disagreement if the administration seeking the agreement requests it to do so.
4.3.19 If no agreement is reached between the administrations concerned, the Board shall carry out any study that may be requested by these administrations; the Board shall inform them of the result of the study and shall make such recommendations as it may be able to offer for the solution of the problem.
4.3.20 An administration may at any stage in the procedure described, or before applying it, request the assistance of the Board, particularly in seeking the agreement of another administration.
4.3.21 The relevant provisions of Article 5 of this Appendix shall be applied when frequency assignments are notified to the Board.

### 4.4 Cancellation of frequency assignments

When a frequency assignment in conformity with one of the Regional Plans is no longer required, whether or not as a result of a modification, the administration concerned shall immediately so inform the Board. The Board shall publish this information in a special section of its weekly circular and delete the assignment from the appropriate Regional Plan.

### 4.5 Master copy of the Plans

4.5.1 a) The Board shall maintain an up-to-date master copy of the Regions 1 and 3 Plan taking account of the application of the procedure specified in this Article. The Board shall prepare a document listing the amendments to be made to the Plan as a result of modifications made in accordance with the procedure in this Article.
b) The Board shall maintain an up-to-date master copy of the Region 2 Plan, including the overall equivalent protection margins of each assignment, taking account of the application of the procedure specified in this Article. This master copy shall contain the overall equivalent protection margins derived from the Plan as established by the 1983 Conference and those derived from all modifications to the Plan as a result of the successful completion of the modification procedure described in this Article. The Board shall prepare a document listing the amendments to be made to the Plan as a result of modifications made in accordance with the procedure described in this Article.
4.5.2 The Secretary-General shall be informed by the Board of any modifications made to the Regional Plans and shall publish an up-to-date version of those Plans in an appropriate form when justified by the circumstances.

## ARTICLE 5

Notification, Examination and Recording in the Master Register of Frequency Assignments
to Space Stations in the Broadcasting-Satellite Service

### 5.1 Notification

5.1.1 Whenever an administration intends to bring into use a frequency assignment to a space station in the broadcasting-satellite service, it shall
notify this frequency assignment to the Board. For this purpose, the notifying administration shall apply the following provisions.
5.1.2 For any notification under paragraph 5.1.1, an individual notice for each frequency assignment shall be drawn up as prescribed in Annex 2, the various sections of which specify the basic characteristics to be provided as appropriate. It is recommended that the notifying administration should also supply any other data it may consider useful.
5.1.3 Each notice must reach the Board not earlier than three years before the date on which the frequency assignment is to be brought into use. In any case, the notice must reach the Board not later than three months before that date ${ }^{1}$.
5.1.4 Any frequency assignment the notice of which reaches the Board after the applicable period specified in paragraph 5.1.3 shall, where it is to be recorded, bear a remark in the Master Register to indicate that it is not in conformity with paragraph 5.1.3.
5.1.5 Any notice made under paragraph 5.1.1 which does not contain the characteristics specified in Annex 2 shall be returned by the Board immediately by airmail to the notifying administration with the relevant reasons.
5.1.6 Upon receipt of a complete notice, the Board shall include its particulars, with the date of receipt, in its weekly circular, which shall contain the particulars of all such notices received since the publication of the previous circular.
5.1.7 The circular shall constitute the acknowledgement to the notifying administration of the receipt of a complete notice.

[^28]5.1.8 Complete notices shall be considered by the Board in order of receipt. The Board shall not postpone its finding unless it lacks sufficient data to reach a decision; moreover, the Board shall not act upon any notice which has a technical bearing on an earlier notice still under consideration by the Board until it has reached a finding with respect to such earlier notice.

### 5.2 Examination and recording

## 〔2.1 The Board shall examine each notice:

a) with respect to its conformity with the Convention and the relevant provisions of the Radio Regulations (with the exception of those relating to $b$ ), $c$ ) and $d$ ) below);
b) with respect to its conformity with the appropriate Regional Plan; or
c) with respect to its conformity with the appropriate Regional Plan, however, having characteristics differing from those in the appropriate Regional Plan in one or more of the following aspects:

- use of a reduced e.i.r.p.,
- use of a reduced coverage area entirely situated within the coverage area appearing in the appropriate Regional Plan,
- use of other modulating signals in accordance with the provisions of paragraph 3.1.3 of Annex 5,
- use of the assignment for transmission in the fixed-satellite service in accordance with No. 846 of the Radio Regulations,
- use of an orbital position under the conditions specified in paragraph B of Annex 7; or
d) with respect to its conformity with the provisions of Resolution 42 (Orb-85).
5.2.2 Where the Board reaches a favourable finding with respect to paragraphs 5.2.1 a) and 5.2.1 b), the frequency assignment of an administration shall be recorded in the Master Register. The date of receipt of the notice by the Board shall be entered in Column 2d. In relations between administrations, all frequency assignments brought into use in conformity with the appropriate Regional Plan and recorded in the Master Register shall be considered to have the same status irrespective of the dates entered in Column 2d for such frequency assignments.
5.2.2.1 Where the Board reaches a favourable finding with respect to paragraphs 5.2.1 a) and 5.2.1 c), the frequency assignment shall be recorded in the Master Register. The date of receipt of the notice by the Board shall be entered in Column 2d. In relations between administrations, all frequency assignments brought into use in conformity with the appropriate Regional Plan and recorded in the Master Register shall be considered to have the same status irrespective of the dates entered in Column 2d for such frequency assignments. When recording these assignments, the Board shall indicate by an appropriate symbol the characteristics having a value different from that appearing in the appropriate Regional Plan.
5.2.2.2 Where the Board reaches a favourable finding with respect to paragraph 5.2.1 a) but an unfavourable finding with respect to paragraphs 5.2.1 b) and 5.2.1 c), it shall examine the notice with respect to the successful application of the provisions of Resolution 42 (Orb-85). A frequency assignment for which the provisions of Resolution 42 (Orb-85) have been successfully applied shall be recorded in the Master Register with an appropriate symbol to indicate its interim status. The date of receipt of the notice by the Board shall be entered in Column 2d. In relations between administrations all frequency assignments brought into use following the successful application of the provisions of Resolution 42 (Orb-85) and recorded in the Master Register shall be considered to have the same status irrespective of the dates entered in Column 2d for such frequency assignments.
5.2.3 Whenever a frequency assignment is recorded in the Master Register, the finding reached by the Board shall be indicated by a symbol in Column 13a.
5.2.4 Where the Board reaches an unfavourable finding with respect to paragraphs 5.2.1 a), 5.2.1 b) and 5.2.1 c), the notice shall be returned immediately by airmail to the notifying administration with the reasons of the Board for this finding and with such suggestions as the Board may be able to offer with a view to a satisfactory solution of the problem.
5.2.5 Where the notifying administration resubmits the notice and the finding of the Board becomes favourable with respect to the appropriate parts of paragraph 5.2.1, the notice shall be treated as in paragraph 5.2.2, 5.2.2.1 or 5.2.2.2, as appropriate.
5.2.6 If the notifying administration resubmits the notice without modification and insists on its reconsideration, and if the Board's finding with respect to paragraph 5.2.1 remains unfavourable, the notice is returned to the notifying administration in accordance with paragraph 5.2.4. In this case, the notifying administration undertakes not to bring into use the frequency assignment until the condition specified in paragraph 5.2.5 is fulfilled. For Regions 1 and 3, in the event that the Board has been informed of agreement to modification of the Plan for a specified period of time in accordance with Article 4, the frequency assignment shall be recorded in the Master Register with a note indicating that the frequency assignment is valid only for the period specified. The notifying administration using the frequency assignment over a specified period shall not subsequently invoke this fact to justify the continued use of the frequency beyond the period specified unless it obtains the agreement of the administration(s) concerned.
5.2.7 If a frequency assignment notified in advance of bringing into use in conformity with paragraph 5.1.3 has received a favourable finding by the Board with respect to the provisions of paragraph 5.2.1, it shall be entered provisionally in the Master Register with a special symbol in the Remarks Column indicating the provisional nature of that entry.
5.2.8 When the Board has received confirmation that the frequency assignment has been brought into use, the Board shall remove the symbol in the Master Register.
5.2.9 The date in Column 2c shall be the date of bringing into use notified by the administration concerned. It is given for information only.


### 5.3 Cancellation of entries in the Master Register

5.3.1 If an administration has not confirmed the bringing into use of a frequency assignment under paragraph 5.2 .8 , the Board will make inquiries of the administration not earlier than six months after the expiry of the period specified in paragraph 5.1.3. On receipt of the relevant information, the Board will either modify the date of coming into use or cancel the entry.
5.3.2 If the use of any recorded frequency assignment is permanently discontinued, the notifying administration shall so inform the Board within three months, whereupon the entry shall be removed from the Master Register.

## ARTICLE 6

> Coordination, Notification and Recording in the Master International Frequency Register of Frequency Assignments to Terrestrial Stations Affecting Broadcasting-Satellite Frequency Assignments in the Frequency Bands $11.7-12.2 \mathrm{GHz}$ (in Region 3), $11.7-12.5 \mathrm{GHz}$ (in Region 1) and $12.2-12.7 \mathrm{GHz}$ (in Region 2)

## Section I. Coordination Procedure to Be Applied

6.1.1 Before notifying to the Board a frequency assignment to a terrestrial transmitting station, an administration shall initiate coordination with any other administration having a frequency assignment to a broadcasting-satellite station in conformity with the appropriate Regional Plan if:

- the necessary bandwidths of the two transmissions overlap; and

[^29]- the power flux-density which would be produced by the proposed terrestrial transmitting station exceeds the value derived in accordance with Annex 3 at one or more points on the edge of the service area which is within the coverage area of the broadcasting-satellite station of that administration.
6.1.2 For the purpose of effecting coordination, the administration responsible for the terrestrial station shall send to the administrations concerned, by the fastest possible means, a diagram drawn to an appropriate scale indicating the location of the terrestrial station and all other data of the proposed frequency assignment and the approximate date on which it is planned to bring the station into use.
6.1.3 An administration with which coordination is sought shall acknowledge receipt of the coordination data immediately by telegram. If no acknowledgement is received within fifteen days of dispatch, the administration seeking coordination may dispatch a telegram requesting acknowledgement of receipt of the coordination data, to which the receiving administration shall reply. Upon receipt of the coordination data, an administration with which coordination is sought shall promptly examine the matter with regard to interference ${ }^{1}$ which would be caused to its frequency assignments in conformity with the appropriate Regional Plan and shall, within an overall period of two months from dispatch of the coordination data, either notify the administration requesting coordination of its agreement to the proposed assignment or, if this is impossible, indicate the reasons therefor and make such suggestions as it may be able to offer with a view to a satisfactory solution of the problem.

[^30]6.1.4 No coordination is required when an administration proposes to change the characteristics of an existing assignment in such a way as not to increase the level of interference to the service to be rendered by the broadcasting-satellite stations of other administrations.
6.1.5 An administration seeking coordination may request the Board to endeavour to effect coordination where:
a) an administration with which coordination is sought fails to acknowledge receipt under paragraph 6.1 .3 within one month of dispatch of the coordination data;
b) an administration which has acknowledged receipt under paragraph 6.1.3 fails to give a decision within three months of dispatch of the coordination data;
c) the administration seeking coordination and an administration with which coordination is sought disagree on the acceptable level of interference; or
d) coordination is impossible for any other reason.

In so doing, the administration concerned shall provide the Board with the necessary information to enable it to endeavour to effect such coordination.
6.1.6 Either the administration seeking coordination or an administration with which coordination is sought, or the Board, may request any additional information which they may require to assess the level of interference to the services concerned.
6.1.7 Where the Board receives a request under paragraph 6.1.5 $a$ ), it shall forthwith send a telegram to the administration concerned requesting immediate acknowledgement.
6.1.8 Where the Board receives an acknowledgement following its action under paragraph 6.1.7 or receives a request under paragraph 6.1.5 b), it shall forthwith send a telegram to the administration concerned requesting an early decision on the matter.
6.1.9 Where the Board receives a request under paragraph 6.1.5 $d$ ), it shall endeavour to effect coordination in accordance with the provisions of paragraph 6.1.2. Where the Board receives no acknowledgement of its request for coordination within the period specified in paragraph 6.1.3, it shall act in accordance with paragraph 6.1.7.
6.1.10 Where an administration fails to reply within one month of dispatch of the Board's telegram sent under paragraph 6.1.7 requesting an acknowledgement or fails to give a decision on the matter within two months of dispatch of the Board's telegram of request sent under paragraph 6.1.8, the administration with which coordination was sought shall be considered to have undertaken that no complaint will be made in respect of any harmful interference which may be caused by the terrestrial station being coordinated to the service rendered or to be rendered by its satellite-broadcasting station.
6.1.11 Where necessary, as part of the procedure under paragraph 6.1.5, the Board shall assess the level of interference. In any case, the Board shall inform the administrations concerned of the results obtained.
6.1.12 In the event of continuing disagreement between one administration seeking to effect coordination and one with which coordination has been sought, the administrations concerned may explore the possibility of reaching an agreement on the use of the proposed frequency assignment for a specified period.

## Section II. Notification Procedure for Frequency Assignments

6.2.1 Any frequency assignment to a fixed, land or broadcasting station shall be notified to the International Frequency Registration Board if the use of the frequency concerned is capable of causing harmful interference to the service rendered or to be rendered by a broadcasting-satellite station of any other administration, or if it is desired to obtain international recognition of the use of the frequency ${ }^{1}$.
6.2.2 For this notification, an individual notice for each frequency assignment shall be drawn up as prescribed in Section A of Appendix 1 to the Radio Regulations, which specifies the basic characteristics to be furnished as required. It is recommended that the notifying administration should also supply the additional data called for in that Section, together with such further data as it may consider appropriate.
6.2.3 Whenever practicable, each notice should reach the Board before the date on which the assignment is brought into use. The notice made in accordance with paragraph 6.2.2 must reach the Board not earlier than three years and not later than three months before the date on which the assignment is to be brought into use.
6.2.4 Any frequency assignment, the notice of which reaches the Board less than three months before it is brought into use shall, where it is to be recorded, bear a remark in the Master Register to indicate that it is not in conformity with paragraph 6.2.3.

[^31]Section III. Procedure for the Examination of Notices and the Recording of Frequency Assignments in the Master Register
6.3.1 Whatever the means of communication, including telegraph, by which a notice is transmitted to the Board, it shall be considered complete if it contains at least the appropriate basic characteristics specified in Section A of Appendix 1 to the Radio Regulations.
6.3.2 Complete notices shall be considered by the Board in the order of their receipt.
6.3.3 Any incomplete notice shall be returned by the Board immediately, by airmail, to the notifying administration with the reasons therefor.
6.3.4 Upon receipt of a complete notice, the Board shall include the particulars thereof, with the date of receipt, in its weekly circular; this circular shall contain the particulars of all such notices received since publication of the previous circular.
6.3.5 The circular shall constitute the Board's acknowledgement to the notifying administration of the receipt of a complete notice.
6.3.6 Complete notices shall be considered by the Board in the order specified in paragraph 6.3.2. The Board may not postpone the formulation of a finding unless it lacks sufficient data to reach a decision; moreover, the Board shall not act upon any notice which has a technical bearing on an earlier notice still under consideration by the Board until it has reached a finding with respect to such earlier notice.

### 6.3.7 The Board shall examine each notice:

6.3.8 - with respect to its conformity with the Convention, the relevant provisions of the Radio Regulations and the provisions of this Appendix (with the exception of those relating to the coordination procedure and the probability of harmful interference);
6.3.9 - with respect to its conformity with the provisions of paragraph 6.1.1 relating to coordination of the use of the frequency assignment with the other administrations concerned;
6.3.10 - where appropriate, with respect to the probability of harmful interference to a broadcasting-satellite station whose frequency assignment is in conformity with the appropriate Regional Plan.
6.3.11 Depending upon the findings of the Board subsequent to the examination prescribed in paragraphs 6.3.8, 6.3.9 and 6.3.10, further action shall be as follows:

### 6.3.12 Finding unfavourable with respect to paragraph 6.3.8

6.3.13 Where the notice includes a specific reference to the fact that the station will be operated in accordance with the provisions of No. 342 of the Radio Regulations, it shall be examined immediately with respect to paragraphs 6.3.9 and 6.3.10.
6.3.14 If the finding is favourable with respect to paragraph 6.3 .9 or 6.3.10, as appropriate, the assignment shall be recorded in the Master Register. The date of receipt of the notice by the Board shall be entered in Column 2d.
6.3.15 If the finding is unfavourable with respect to paragraph 6.3.9 or 6.3.10, as appropriate, the notice shall be returned immediately by airmail to the notifying administration with the Board's reasons for this finding. In such case the notifying administration shall undertake not to bring into use the frequency assignment until the condition specified in paragraph 6.3.14 can be fulfilled. However, the administrations concerned may explore the possibility of reaching an agreement on the use of the proposed frequency assignment for a specified period.
6.3.16 Where the notice does not include a specific reference to the fact that the station will be operated in accordance with the provisions of No. 342 of the Radio Regulations, it shall be returned immediately by airmail to the notifying administration with the Board's reasons for this finding and with such suggestions as the Board may be able to offer with a view to a satisfactory solution of the problem.
6.3.17 If the notifying administration resubmits the notice unchanged, it shall be treated in accordance with the provisions of paragraph 6.3.16.
6.3.18 If the notifying administration resubmits the notice with a specific reference to the fact that the station will be operated in accordance with the provisions of No. 342 of the Radio Regulations, it shall be treated in accordance with the provisions of paragraphs 6.3.13 and 6.3.14 or 6.3.15, as appropriate.
6.3.19 If the notifying administration resubmits the notice with modifications which, after re-examination, result in a favourable finding by the Board with respect to paragraph 6.3.8, the notice shall be treated in accordance with the provisions of paragraphs 6.3.20 to 6.3.32. However, in any subsequent recording of the assignment, the date of receipt of the resubmitted notice by the Board shall be entered in Column 2d.

### 6.3.20 Finding favourable with respect to paragraph 6.3.8

6.3.21 Where the Board finds that the coordination procedure mentioned in paragraph 6.3.9 has been successfully applied with all administrations whose broadcasting-satellite services may be affected, the assignment shall be recorded in the Master Register. The date of receipt of the notice by the Board shall be entered in Column 2d.
6.3.22 Where the Board finds that the coordination procedure mentioned in paragraph 6.3.9 has not been applied, and the notifying administration requests the Board to effect the required coordination, the Board shall take the appropriate action and shall inform the administrations concerned of the results obtained. If the Board's efforts are successful, the notice shall be treated in accordance with the provisions of paragraph 6.3.21. If the Board's efforts are unsuccessful, the notice shall be examined by the Board with respect to the provisions of paragraph 6.3.10.
6.3.23 Where the Board finds that the coordination procedure mentioned in paragraph 6.3.9 has not been applied and the notifying administration does not request the Board to effect the required coordination, the notice shall be returned immediately by airmail to the notifying administration with the Board's reasons for this action and with such suggestions as the Board may be able to offer with a view to a satisfactory solution of the problem.
6.3.24 Where the notifying administration resubmits the notice and the Board finds that the coordination procedure mentioned in paragraph 6.3.9 has been successfully applied with all administrations whose broadcastingsatellite services may be affected, the assignment shall be recorded in the Master Register. The date of receipt of the original notice by the Board shall be entered in Column 2d. The date of the receipt of the resubmitted notice by the Board shall be entered in the Remarks Column.
6.3.25 Where the notifying administration resubmits the notice, requesting the Board to effect the required coordination, it shall be treated in accordance with the provisions of paragraph 6.3.22. However, in any subsequent recording of the assignment, the date of receipt of the resubmitted notice by the Board shall be entered in the Remarks Column.
6.3.2 Where the notifying administration resubmits the notice and states that it has been unsuccessful in its efforts to effect coordination, it shall be examined by the Board with respect to the provisions of paragraph 6.3.10. However, in any subsequent recording of the assignment, the date of receipt of the resubmitted notice by the Board shall be entered in the Remarks Column.
6.3.27 Finding favourable with respect to paragraphs 6.3.8 and 6.3.10
6.3.28 The assignment shall be recorded in the Master Register. The date of receipt by the Board of the notice shall be entered in Column 2d.
6.3.29 Finding favourable with respect to paragraph 6.3 .8 but unfavourable with respect to paragraph 6.3.10
6.3.30 The notice shall be returned immediately by airmail to the notifying administration with the Board's reasons for this finding and with such suggestions as the Board may be able to offer with a view to a satisfactory solution of the problem.
6.3.31 Should the notifying administration resubmit the notice with modifications which result, after re-examination, in a favourable finding by the Board with respect to paragraph 6.3.10, the assignment shall be recorded in the Master Register. The date of receipt of the original notice by the Board shall be entered in Column 2d. The date of receipt of the resubmitted notice by the Board shall be indicated in the Remarks Column.
6.3.32 Should the notifying administration resubmit the notice, either unchanged or with modifications which reduce the probability of harmful interference, but insufficiently to permit the provisions of paragraph 6.3.31 to be applied and should that administration insist upon reconsideration of the notice but the Board's finding remain unchanged, the notification shall again be returned to the notifying administration in accordance with paragraph 6.3.30. In such case, the notifying administration shall undertake not to bring into use the proposed frequency assignment until the condition specified in paragraph 6.3 .31 can be fulfilled. However, the administrations concerned may explore the possibility of reaching an agreement on the use of the frequency assignment for a specified period. In that event the Board shall be notified of the agreement and the frequency assignment shall be recorded in the Master Register with a note indicating that the assignment is valid only for the specified period. The notifying administration using the frequency assignment during a specified period shall not subsequently use this circumstance to justify continued use of the frequency beyond this period unless it obtains the agreement of the administration or administrations concerned.

### 6.3.33 Change in the basic characteristics of assignments already recorded in the Master Register

6.3.34 Any notice of a change in the basic characteristics of an assignment already recorded in the Master Register, as specified in Appendix 1 to the Radio Regulations (except those entered in Columns 2c, 3 and 4 a of the Master Register), shall be examined by the Board in accordance with the provisions of paragraphs 6.3.8 and 6.3.9 and, where appropriate, paragraph 6.3.10 and the provisions of paragraphs 6.3.12 to 6.3 .32 inclusive shall be applied. Where the change should be recorded, the original assignment shall be amended according to the notice.
6.3.35 However, in the event of a change in the basic characteristics of an assignment which is in conformity with paragraph 6.3.8, should the Board reach a favourable finding with respect to paragraph 6.3.9 and, if applicable, paragraph 6.3.10, or find that the change does not increase the probability of harmful interference to assignments already recorded, the amended assignment shall retain the original date in Column 2d. In addition, the date of receipt by the Board of the notice relating to the change shall be entered in the Remarks Column.
6.3.36 The planned date of bringing into use of a frequency assignment may be extended on request of the notifying administration by three months. Where the administration states that, due to exceptional circumstances, it needs a further extension of this period, such extension may be granted, but it shall in no case exceed six months from the original planned date of bringing into use.
6.3.37 In applying the provisions of this Section, any resubmitted notice which is received by the Board more than two years after the date of its return by the Board shall be considered as a new notice.
6.3.38 Recording of frequency assignments notified before being brought into use
6.3.39 If a frequency assignment notified prior to its bringing into use has received a favourable finding by the Board with respect to paragraphs 6.3.8 and 6.3.9, and, where appropriate, 6.3.10, it shall be entered provisionally in the Master Register with a special symbol in the Remarks Column indicating the provisional nature of that entry.
6.3.40 Within one month after the date of bringing into use, either as originally notified or as modified in application of paragraph 6.3.36, the notifying administration shall confirm that the frequency assignment has been brought into use. When the Board is informed that the assignment has been brought into use, the special symbol shall be deleted from the Remarks Column.
6.3.41 If the Board fails to receive this confirmation within the period referred to in paragraph 6.3.40, the entry concerned shall be cancelled. The Board shall consult the administration concerned before taking such action.

## ARTICLE 7

Procedures for Coordination, Notification and Recording in the Master International Frequency Register of Frequency Assignments to Stations in the Fixed-Satellite Service in the Frequency Bands 11.7-12.2 GHz (in Region 2), 12.2 - 12.7 GHz (in Region 3) and 12.5-12.7 GHz (in Region 1), When Frequency Assignments to Broadcasting-Satellite Stations in Conformity with the Regions 1 and 3 Plan, or the Region 2 Plan, Respectively, Are Involved ${ }^{1}$

Section I. Procedure for the Advance Publication of Information on Planned Fixed-Satellite Systems

## Publication of Information

7.1.1 An administration which intends to establish a fixed-satellite system shall, prior to the procedure described in paragraph 7.2.1, where applicable, send to the International Frequency Registration Board, not earlier than five years and preferably not later than two years before the date of bringing into service each satellite network of the planned system, the information listed in Appendix 4 to the Radio Regulations.
7.1.2 Any amendments to the information concerning a planned satellite system sent in accordance with paragraph 7.1.1 shall also be sent to the Board as soon as they become available.

[^32]7.1.3 The Board shall publish the information sent under paragraphs 7.1.1 and 7.1.2 in a special section of its weekly circular and shall also, when the weekly circular contains such information, so advise all administrations by circular telegram. The circular telegram shall include the frequency bands to be used and, in the case of a geostationary satellite, the orbital location of the space station.
7.1.3.1 If the information is found to be incomplete, the Board shall publish it under paragraph 7.1.3 and immediately seek, from the administration concerned, any clarification and information not provided. In such cases, the period of three months specified in paragraph 7.1.4 shall count from the date of publication, under paragraph 7.1.3, of the complete information.

## Comments on Published Information

7.1.4 If, after studying the information published under paragraph 7.1.3, any administration is of the opinion that interference which may be unacceptable may be caused to its frequency assignments in conformity with the appropriate Regional Plan, it shall, within three months after the date of the weekly circular publishing the information listed in Appendix 4 to the Radio Regulations, send its comments to the administration concerned. A copy of these comments shall also be sent to the Board. If no such comments are received from an administration within the period mentioned above, it may be assumed that that administration has no basic objections to the planned fixed-satellite network(s) of that system of which details have been published.

## Resolution of Difficulties

7.1.5 An administration receiving comments sent in accordance with paragraph 7.1.4 shall endeavour to resolve any difficulties that may arise without considering the possibility of adjustment to broadcasting-satellite stations of other administrations. If no such means can be found, the administration concerned is then free to apply to other administrations concerned in order to solve these difficulties, provided that any modifications which may result to the appropriate Regional Plan are in accordance with Article 4.
7.1.6 In their attempts to resolve the difficulties mentioned above, administrations may seek the assistance of the Board.

## Results of Advance Publication

7.1.7 An administration, on behalf of which details of planned satellite networks have been published in accordance with the provisions of paragraphs 7.1.1 and 7.1.2 shall, after the period of three months specified in paragraph 7.1.4, inform the Board whether or not comments provided for in paragraph 7.1.4 have been received and of the progress made in resolving any remaining difficulties. Additional information on the progress made in resolving any remaining difficulties shall be sent to the Board at intervals not exceeding six months prior to the commencement of coordination or the sending in of notices to the Board. The Board shall publish this information in a special section of its weekly circular and shall also, when the weekly circular contains such information, so inform all administrations by circular telegram.

## Commencement of Coordination or Notification Procedure

7.1.8 In complying with the provisions of paragraphs 7.1.5 and 7.1.6, an administration responsible for a planned fixed-satellite system shall, if necessary, defer its commencement of the coordination procedure of paragraph 7.2.1 or, where this is not applicable, the sending of its notices to the Board until five months after the date of the weekly circular containing the information listed in Appendix 4 to the Radio Regulations on the relevant satellite network. However, in respect of those administrations with which difficulties have been resolved or which have responded favourably, the coordination procedure, where applicable, may be commenced prior to the expiry of the five months mentioned above.

## Section II. Coordination Procedures to Be Applied in Appropriate Cases

7.2.1 Before an administration notifies to the Board or brings into use any frequency assignment to a space station in the fixed-satellite service, it shall seek the agreement of any other administration having a frequency assignment in conformity with the appropriate Regional Plan, if:
a) any portion of the necessary bandwidth proposed for the space station in the fixed-satellite service falls within the necessary bandwidth associated with the frequency assignment to the broadcasting-satellite station; and
b) the power flux-density which would be produced by the proposed fixed-satellite assignment exceeds the value specified in Annex 4.

For this purpose, the administration seeking agreement shall send to any other such administration the information listed in Appendix 3 to the Radio Regulations.
7.2.2 No additional agreement is necessary when an administration proposes to change the characteristics of an existing assignment in such a way as will, in respect of the broadcasting-satellite service of another administration, meet the requirements of paragraph 7.2.1 above, or when this assignment has previously been the subject of an agreement and when the change will not cause any increase in the interference potential specified in that agreement.
7.2.3 An administration seeking coordination under paragraph 7.2.1 shall at the same time send to the Board a copy of the request for coordination together with the information listed in Appendix 3 to the Radio Regulations and the name(s) of the administration(s) whose agreement is sought. The Board shall determine on the basis of Annex 4 which frequency assignments in conformity with the appropriate Regional Plan are considered to be affected. The Board shall include the names of those administrations with the information received from the administration seeking coordination and shall publish this information in a special section of its weekly circular, together with a reference to the weekly circular in which details of the satellite system were published in accordance with Section I of this Article. When the weekly circular contains such information, the Board shall so inform all administrations by circular telegram.
7.2.4 An administration believing that it should have been included in the procedure under paragraph 7.2 .1 shall have the right to request that it be brought into the procedure.
7.2.5 An administration whose agreement is sought under paragraph 7.2.1 shall acknowledge receipt of the coordination data immediately by telegram. If no acknowledgement is received within one month after the date of the weekly circular publishing the information under paragraph 7.2.3, the administration seeking coordination shall dispatch a telegram requesting acknowledgement, to which the receiving administration shall reply within a further period of one month. Upon receipt of the coordination data, an administration shall, having regard to the proposed date of bringing into use of the assignment for which agreement was requested, promptly examine the matter with regard to interference ${ }^{1}$ which would be caused to the service rendered by its stations in respect of which agreement is sought under paragraph 7.2.1, and shall, within three months from the date of the relevant weekly circular, notify its agreement to the requesting administration. If the administration with which coordination is sought does not agree, it shall, within the same period, send to the administration seeking coordination the technical details upon which its disagreement is based, and make such suggestions as it may be able to offer with a view to a satisfactory solution of the problem. A copy of these comments shall also be sent to the Board.
7.2.6 An administration seeking coordination may request the Board to endeavour to effect coordination in those cases where:
a) an administration whose agreement is sought under paragraph 7.2.1 fails to acknowledge receipt, under paragraph 7.2.5, within two months after the date of the weekly circular publishing the information relating to the request for coordination;
b) an administration has acknowledged receipt under paragraph 7.2.5, but fails to give a decision within three months from the date of the relevant weekly circular;

[^33]c) there is disagreement between the administration seeking coordination and an administration whose agreement is sought as to the acceptable level of interference; or
d) agreement between administrations is not possible for any other reason.

In so doing, it shall furnish the Board with the necessary information to enable it to endeavour to effect such coordination.

### 7.2.7 Either the administration seeking coordination or an administration

 whose agreement is sought, or the Board, may request additional information which they may require to assess the level of interference to the services concerned.7.2.8 Where the Board receives a request under paragraph 7.2.6 $a$ ), it shall forthwith send a telegram to the administration whose agreement is sought requesting immediate acknowledgement.
7.2.9 Where the Board receives an acknowledgement following its action under paragraph 7.2.8, or where the Board receives a request under paragraph 7.2.6 b), it shall forthwith send a telegram to the administration whose agreement is sought requesting an early decision on the matter.
7.2.10 Where the Board receives a request under paragraph 7.2.6 $d$ ), it shall endeavour to effect coordination in accordance with the provisions of paragraph 7.2.1. The Board shall also, where appropriate, act in accordance with paragraph 7.2.3. Where the Board receives no acknowledgement to its request for coordination within the periods specified in paragraph 7.2.5, it shall act in accordance with paragraph 7.2.8.
7.2.11 Where an administration fails to reply within one month of dispatch of the Board's telegram requesting an acknowledgement sent under paragraph 7.2.8, or fails to give a decision on the matter within one month of dispatch of the Board's telegram of request under paragraph 7.2.9, it shall be deemed that the administration whose agreement was sought has undertaken:
a) that no complaint will be made in respect of any harmful interference which may be caused to the services rendered by its
broadcasting-satellite stations by the use of the assignment for which coordination was requested;
b) that its broadcasting-satellite stations will not cause harmful interference to the use of the assignment for which coordination was requested.
7.2.12 Where necessary, as part of the procedure under paragraph 7.2.6, the Board shall assess the level of interference. In any case, the Board shall inform the administrations concerned of the results obtained.
7.2.13 In the event of continuing disagreement between one administration seeking to effect coordination and one whose agreement has been sought, provided that the assistance of the Board has been requested, the administration seeking coordination may, after five months from the date of the request for coordination, taking into consideration the provisions of paragraph 7.3.4, send its notice concerning the proposed assignment to the Board. In those circumstances the notifying administration shall undertake not to bring the frequency assignment into use until the condition in paragraph 7.4.11.2 can be fulfilled. But the administrations concerned may explore the possibility of reaching an agreement on the use of the proposed frequency assignment for a specified period.

## Section III. Notification of Frequency Assignments

7.3.1 Any frequency assignment to a space station in the fixed-satellite service shall be notified to the Board:
a) if the use of the frequency concerned is capable of causing harmful interference to a frequency assignment of another administration which is in conformity with the appropriate Regional Plan ${ }^{1}$; or
b) if it is desired to obtain international recognition of the use of the frequency.

[^34]7.3.2 Similar notice shall be given for any frequency to be used for reception by an earth station where one or more of the conditions specified in paragraph 7.3.1 are applicable.
7.3.3 For any notification under paragraph 7.3.1 or 7.3.2, an individual notice for each frequency assignment shall be drawn up as prescribed in Appendix 3 to the Radio Regulations, the various Sections of which specify the basic characteristics to be furnished according to the case. The notifying administration shall furnish such further data as it considers appropriate.
7.3.4 Each notice must reach the Board not earlier than three years before the date on which the assignment is to be brought into use. The notice must reach the Board in any case not later than three months ${ }^{1}$ before this date.
7.3.5 Any frequency assignment to an earth or space station, the notice of which reaches the Board after the applicable period specified in paragraph 7.3.4, shall, where it is to be recorded, bear a mark in the Master Register to indicate that it is not in conformity with paragraph 7.3.4.

## Section IV. Procedure for the Examination of Notices and the Recording of Frequency Assignments in the Master Register

7.4.1 Any notice which does not contain at least those basic characteristics specified in Appendix 3 to the Radio Regulations shall be returned by the Board immediately, by airmail, to the notifying administration with the reasons therefor.
7.4.2 Upon receipt of a complete notice, the Board shall include the particulars thereof, with the date of receipt, in its weekly circular which shall contain the particulars of all such notices received since the publication of the previous circular.

[^35](Rev. 1986)
7.4.3 The circular shall constitute the acknowledgement to the notifying administration of the receipt of a complete notice.
7.4.4 Complete notices shall be considered by the Board in the order of their receipt. The Board shall not postpone the formulation of a finding unless it lacks sufficient data to render a decision in connection therewith; moreover, the Board shall not act upon any notice which has a technical bearing on an earlier notice still under consideration by the Board, until it has reached a finding with respect to such earlier notice.

### 7.4.5 The Board shall examine each notice:

7.4.5.1 with respect to its conformity with the Convention, the relevant provisions of the Radio Regulations and the provisions of this Appendix (with the exception of those relating to the coordination procedures and the probability of harmful interference);
7.4.5.2 where appropriate, with respect to its conformity with the provisions of paragraph 7.2.1, relating to the coordination of the use of the frequency assignment with the other administrations concerned having a frequency assignment in conformity with the appropriate Regional Plan;
7.4.5.3 where appropriate, with respect to the probability of harmful interference to the service rendered or to be rendered by a broadcastingsatellite station whose frequency assignment is in conformity with the appropriate Regional Plan.
7.4.6 Depending upon the findings of the Board subsequent to the examination prescribed in paragraphs 7.4.5.1, 7.4.5.2 and 7.4.5.3, as appropriate, further action shall be as follows:

### 7.4.7 Finding favourable with respect to paragraph 7.4.5.1 in cases where the provisions of paragraph 7.4.5.2 are not applicable

7.4.7.1 The assignment shall be recorded in the Master Register. The date of receipt by the Board of the notice shall be entered in Column 2d.

### 7.4.8 Finding unfavourable with respect to paragraph 7.4.5.I

7.4.8.1 Where the notice includes a specific reference to the fact that the station will be operated in accordance with the provisions of No. 342 of the Radio Regulations and the finding is favourable with respect to paragraphs 7.4.5.2 and 7.4.5.3, as appropriate, the assignment shall be recorded in the Master Register. The date of receipt of notice by the Board shall be entered in Column 2d.
7.4.8.2 Where the notice includes a specific reference to the fact that the station will be operated in accordance with the provisions of No. 342 of the Radio Regulations and the finding is unfavourable with respect to paragraph 7.4.5.2 or 7.4.5.3, as appropriate, the notice shall be returned immediately by airmail to the notifying administration with the reasons of the Board for this finding. In those circumstances the notifying administration shall undertake not to bring into use the frequency assignment until the condition in paragraph 7.4.8.1 can be fulfilled. The agreement of the administrations affected can also be obtained in accordance with this Article for a specified period. In that event the Board shall be notified of the agreement and the frequency assignment shall be recorded in the Master Register with a note indicating that the frequency assignment is valid only for the period specified. The notifying administration using the frequency assignment over a specified period shall not subsequently use this circumstance to justify continued use of the frequency beyond the period specified if it does not obtain the agreement of the administration(s) concerned. The date of receipt by the Board of the original notice shall be entered in Column 2d.
7.4.8.3 Where the notice does not include a specific reference to the fact that the station will be operated in accordance with the provisions of No. 342 of the Radio Regulations, it shall be returned immediately by airmail to the notifying administration with the reasons of the Board for this finding and with such suggestions as the Board may be able to offer with a view to the satisfactory solution of the problem.
7.4.8.4 If the notifying administration resubmits the notice unchanged, it shall be treated in accordance with the provisions of paragraph 7.4.8.3. If it is resubmitted with a specific reference to the fact that the station will be operated in accordance with the provisions of No. 342 of the Radio Regulations, it shall be treated in accordance with the provisions of
paragraph 7.4.8.1 or 7.4.8.2, as appropriate. If it is resubmitted with modifications which, after re-examination, result in a favourable finding by the Board with respect to paragraph 7.4.5.1, it shall be treated as a new notice.

### 7.4.9 Finding favourable with respect to paragraph 7.4.5.1 in cases where the provisions of paragraph 7.4.5.2 are applicable

7.4.9.1 Where the Board finds that the coordination procedures mentioned in paragraph 7.4.5.2 have been successfully completed with all administrations whose frequency assignments in conformity with the appropriate Regional Plan may be affected, the frequency assignment shall be recorded in the Master Register. The date of receipt by the Board of the notice shall be entered in Column 2d.
7.4.9.2 Where the Board finds that the coordination procedure mentioned in paragraph 7.4.5.2 has not been applied, and the notifying administration requests the Board to effect the required coordination, the Board shall take appropriate action and shall inform the administrations concerned of the results obtained. If the Board's efforts are successful, the notice shall be treated in accordance with paragraph 7.4.9.1. If the Board's efforts are unsuccessful, the notice shall be examined by the Board with respect to the provisions of paragraph 7.4.5.3.
7.4.9.3 Where the Board finds that the coordination procedure mentioned in paragraph 7.4.5.2 has not been applied, and the notifying administration does not request the Board to effect the required coordination, the notice shall be returned immediately by airmail to the notifying administration with the reasons of the Board for this action and with such suggestions as the Board may be able to offer with a view to the satisfactory solution of the problem.
7.4.9.4 Where the notifying administration resubmits the notice and the Board finds that the coordination procedure mentioned in paragraph 7.4.5.2 has been successfully completed with all administrations whose frequency assignments in conformity with the appropriate Regional Plan may be affected, the frequency assignment shall be recorded in the Master Register. The date of receipt of the original notice by the Board shall be entered in Column 2d. The date of receipt by the Board of the resubmitted notice shall be entered in the Remarks Column.
7.4.9.5 Where the notifying administration resubmits the notice with a request that the Board effect the required coordination under paragraph 7.2.1, it shall be treated in accordance with the provisions of paragraph 7.4.9.2. However, in any subsequent recording of the assignment, the date of receipt by the Board of the resubmitted notice shall be entered in the Remarks Column.
7.4.9.6 Where the notifying administration resubmits the notice and states it has been unsuccessful in effecting the coordination, the Board shall inform the administrations concerned thereof. The notice shall be examined by the Board with respect to the provisions of paragraph 7.4.5.3. However, in any subsequent recording of the assignment, the date of receipt by the Board of the resubmitted notice shall be entered in the Remarks Column.
7.4.10 Finding favourable with respect to paragraphs 7.4.5.1 and 7.4.5.3
7.4.10.1 The assignment shall be recorded in the Master Register. The date of receipt by the Board of the notice shall be entered in Column 2d.

### 7.4.11 Finding favourable with respect to paragraph 7.4.5.1, but unfavourable with respect to paragraph 7.4.5.3

7.4.11.1 The notice shall be returned immediately by airmail to the notifying administration with the reasons of the Board for this finding and with such suggestions as the Board may be able to offer with a view to the satisfactory solution of the problem.
7.4.11.2 Should the notifying administration resubmit the notice with modifications which result, after re-examination, in a favourable finding by the Board with respect to paragraph 7.4.5.3, the assignment shall be recorded in the Master Register. The date of receipt by the Board of the original notice shall be entered in Column 2d. The date of receipt by the Board of the resubmitted notice shall be indicated in the Remarks Column.
7.4.11.3 Should the notifying administration resubmit the notice, either unchanged, or with modifications which decrease the probability of harmful
interference, but not sufficiently to permit the provisions of paragraph 7.4.11.2 to be applied, and should that administration insist upon reconsideration of the notice, but should the Board's finding remain unchanged, the notification shall again be returned to the notifying administration in accordance with paragraph 7.4.11.1. In those circumstances, the notifying administration shall undertake not to bring into use the proposed frequency assignment until the condition in paragraph 7.4.11.2 can be fulfilled. The agreement of the administrations affected can also be obtained in accordance with this Article for a specified period. In that event the Board shall be notified of the agreement and the frequency assignment shall be recorded in the Master Register with a note in the Remarks Column indicating that the assignment is valid only for the specified period. The notifying administration using the frequency assignment over a specified period shall not subsequently use this circumstance to justify continued use of the frequency beyond the period specified if it does not obtain the agreement of the administration(s) concerned. The date of receipt by the Board of the original notice shall be entered in Column 2d.

### 7.4.12 Change in the basic characteristics of assignments already recorded in the Master Register

7.4.12.1 A notice of a change in the basic characteristics of an assignment in the fixed-satellite service already recorded, as specified in Appendix 3 to the Radio Regulations (except the name of the station or the name of the locality in which it is situated or the date of bringing into use), shall be examined by the Board in conformity with paragraph 7.4.5.1 and, where appropriate, paragraphs 7.4.5.2 and 7.4.5.3, and the provisions of paragraphs 7.4.7 to 7.4.11.3 inclusive shall apply. Where the change should be recorded, the original assignment shall be amended accordingly.
7.4.12.2 However, in the case of a change in the characteristics of an assignment which is in conformity with paragraph 7.4.5.1, should the Board reach a favourable finding with respect to paragraphs 7.4.5.2 and 7.4.5.3, where appropriate, or find that the changes do not increase the probability of harmful interference to frequency assignments in conformity with the
appropriate Regional Plan, the amended assignment shall retain the original date in Column 2d. The date of receipt of the notice by the Board relating to the change shall be entered in the Remarks Column.
7.4.12.3 The projected date of bringing into use of a frequency assignment may be extended by four months at the request of the notifying administration. If the administration states that, due to exceptional circumstances, it needs a further extension of this period, such extension may be provided but it shall in no case exceed eighteen months from the original projected date of bringing into use.
7.4.12.4 In applying the provisions of this Section IV, any resubmitted notice which is received by the Board more than two years after the date of its return by the Board shall be considered as a new notice.

### 7.4.13 Recording of frequency assignments in the fixed-satellite service notified before being brought into use

7.4.13.1 If a frequency assignment notified in advance of bringing into use has received a favourable finding by the Board with respect to paragraph 7.4.5.1 and, where appropriate, paragraphs 7.4.5.2 and 7.4.5.3, it shall be entered provisionally in the Master Register with a special symbol in the Remarks Column indicating the provisional nature of that entry.
7.4.13.2 Within one month after the date of bringing into use, either as originally notified or as modified in application of paragraph 7.4.12.3, the notifying administration shall confirm that the frequency assignment has been brought into use. When the Board is informed that the assignment has been brought into use, the special symbol shall be deleted from the Remarks Column.
7.4.13.3 If the Board does not receive this confirmation within the period referred to in paragraph 7.4.13.2, the entry concerned shall be cancelled. The Board shall advise the administration concerned before taking such action.

## Section V. Recording of Findings in the Master Register

7.5 In any case where a frequency assignment is recorded in the Master Register, the finding reached by the Board shall be indicated by a symbol in Column 13a. In addition, a remark indicating the reasons for any unfavourable finding shall be inserted in the Remarks Column.

## Section VI. Categories of Frequency Assignments

7.6.1 The date in Column 2 c shall be the date of putting into use notified by the administration concerned. It is given for information only.
7.6.2 If harmful interference is actually caused to the reception of any broadcasting-satellite station whose frequency assignment is in conformity with the appropriate Regional Plan, by the use of a frequency assignment to a space radiocommunication station subsequently recorded in the Master Register in accordance with the provisions of paragraph 7.4.11.3, the station using the latter frequency assignment must, upon receipt of advice thereof, immediately eliminate this harmful interference.
7.6.3 If harmful interference to the reception of any broadcasting-satellite station whose frequency assignment is in conformity with the appropriate Regional Plan, is actually caused by the use of a frequency assignment which is not in conformity with paragraph 7.4.5.1, the station using the latter frequency assignment must, upon receipt of advice thereof, immediately eliminate this harmful interference.

## Section VII. Review of Findings

7.7.1 The review of a finding by the Board may be undertaken:
a) at the request of the notifying administration;
b) at the request of any other administration interested in the question, but only on the grounds of actual harmful interference;
c) on the initiative of the Board itself when it considers this is justified.
7.7.2 The Board, in the light of all the data at its disposal, shall review the matter, taking into account paragraph 7.4.5.1 and, where appropriate, paragraphs 7.4.5.2 and 7.4.5.3, and shall render an appropriate finding, informing the notifying administration prior either to the promulgation of its finding or to any recording action.
7.7.3 If the finding of the Board is then favourable it shall enter in the Master Register the changes that are required so that the entry shall appear in the future as if the original finding had been favourable.
7.7.4 If the finding with regard to the probability of harmful interference remains unfavourable, no change shall be made in the original entry.

## Section VIII. Modification, Cancellation and Review of Entries in the Master Register

7.8 The Board shall at intervals not exceeding two years request confirmation from the notifying administration that its assignment has been and will continue to be in regular use in accordance with its recorded characteristics.
7.8.1 Where the use of a recorded assignment to a station in the fixed-satellite service is suspended for a period of eighteen months, the notifying administration shall, within this eighteen-month period, inform the Board of the date on which such use was suspended and of the date on which the assignment is to be brought back into regular use.
7.8.2 Whenever it appears to the Board, whether or not as a result of action under paragraph 7.8.1, that a recorded assignment to a space station in the fixed-satellite service has not been in regular use for more than eighteen months, the Board shall inquire of the notifying administration as to when the assignment is to be brought back into regular use.
7.8.3 If no reply is received within six months of action by the Board under paragraph 7.8.2, or if the reply does not confirm that the assignment to a space station in the fixed-satellite service is to be brought back into regular use within this six-month limit, a mark should be entered against the entry in the Master Register.
7.8.4 In case of permanent discontinuance of the use of any recorded frequency assignment, the notifying administration shall inform the Board within three months of such discontinuance, whereupon the entry shall be removed from the Master Register.
7.8.5 Whenever it appears to the Board from the information available that a recorded assignment has not been brought into regular operation in accordance with the notified basic characteristics, or is not being used in accordance with those basic characteristics, the Board shall consult the notifying administration and, subject to its agreement, shall either cancel or suitably modify or retain the basic characteristics of the entry.
7.8.6 If, in connection with an inquiry by the Board under paragraph 7.8.5, the notifying administration has failed to supply the Board within three months with the necessary or pertinent information, the Board shall make suitable entries in the Remarks Column of the Master Register to indicate the situation.

## ARTICLE 8

## Miscellaneous Provisions Relating to the Procedures

8.1 If so requested by any administration, the Board, using such means at its disposal as are appropriate in the circumstances, shall conduct a study of cases of alleged contravention or non-observance of these provisions or of harmful interference.
8.2 The Board shall thereupon prepare and forward to the administration or administrations concerned a report containing its findings and recommendations for the solution of the problem.
8.3 On receiving the Board's recommendations for the solution of the problem, an administration shall promptly acknowledge their receipt by telegram and shall indicate the action it intends to take. Where the Board's suggestions or recommendations are unacceptable to the administrations concerned, further efforts should be made by the Board to find an acceptable solution to the problem.
8.4 Where, as a result of a study, the Board submits to one or more administrations suggestions or recommendations for the solution of a problem, and where no reply has been received from one or more of these administrations within a period of three months, the Board shall consider that the suggestions or recommendations concerned are unacceptable to the administrations which did not answer. If it was the requesting administration which failed to answer within this period, the Board shall discontinue the study.
8.5 If so requested by any administration, particularly by an administration of a country in need of special assistance, the Board, using such means at its disposal as are appropriate in the circumstances, shall render the following assistance:
a) computation necessary in the application of Annexes 1, 3 and 4;
b) any other assistance of a technical nature for completion of the procedures in this Appendix.
8.6 In making a request to the Board under paragraph 8.5, the administration shall provide the Board with the necessary information.

## ARTICLE 9

## Power Flux-Density Limits Between 12.2 GHz and 12.7 GHz to Protect Terrestrial Services in Regions 1 and $\mathbf{3}$ from Interference from Region 2 Broadcasting-Satellite Space Stations

9.1 The power flux-density at the Earth's surface in Regions 1 and 3, produced by emissions from a space station in the broadcasting-satellite service in Region 2 for all conditions and for all methods of modulation shall not exceed the values given in Section 5 of Annex 1 on the territory of any country unless the administration of that country so agrees.

# The Plan for the Broadcasting-Satellite Service in the Frequency Band 12.2-12.7 GHz in Region 2 

## 10.1

COLUMN HEADINGS OF THE PLAN

Col. 1 Beam identification (Column 1 contains the symbol designating the country or the geographical area taken from Table B. 1 of the Preface to the International Frequency List followed by the symbol designating the service area).

Col. 2 Nominal orbital position, in degrees and hundredths of a degree.
Col. 3 Channel number (see Table 4 showing channel numbers and corresponding assigned frequencies).

Col. 4. Boresight geographical coordinates, in degrees and hundredths of a degree.

Col. 5. Antenna beamwidth. This column contains two figures corresponding to the major axis and the minor axis respectively of the elliptical cross-section half-power beam, in degrees and hundredths of a degree.

Col. 6. Orientation of the ellipse determined as follows: in a plane normal to the beam axis, the direction of a major axis of the ellipse is specified as the angle measured anti-clockwise from a line parallel to the equatorial plane to the major axis of the ellipse to the nearest degree.

Col. 7. Polarization $(1=$ direct, $2=$ indirect $) .{ }^{1}$
Col. 8. E.i.r.p. in the direction of maximum radiation, in dBW.
Col. 9. Remarks.

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## 10.2

TEXT FOR SYMBOLS IN REMARKS COLUMN OF THE PLAN

1. Fast roll-off space station transmitting antenna as defined in Annex 5 (item 3.13.3).
2. Television standard with 625 lines using greater video bandwidth and necessary bandwidth of 27 MHz .

## 3. Not used

4. This assignment may be utilized in the geographical area of Anguilla (AIA) (which is in the beam area).
5. Feeder-link earth stations for this assignment may also be located in the territories of Puerto Rico and the United States Virgin Islands. Such operation shall not cause more interference nor require more protection than the assignment under the Plan.
6. Feeder-link earth stations for this assignment may also be located in the States of Alaska and Hawaii. Such operation shall not cause more interference nor require more protection than the assignment under the Plan.
7. The feeder-link earth station for this assignment may also be located at the point with geographical coordinates $3^{\circ} 31^{\prime}$ West, $48^{\circ} 46^{\prime}$ North. Such operation shall not cause more interference nor require more protection than the assignment under the Plan.
8. Feeder-link earth stations for this assignment may also be located at the points with the following geographical coordinates:

| $47^{\circ} 55^{\prime}$ West | $15^{\circ} 47^{\prime}$ South | $34^{\circ} 53^{\prime}$ West | $08^{\circ} 04^{\prime}$ South |
| :--- | :--- | :--- | :--- |
| $43^{\circ} 13^{\prime}$ West | $22^{\circ} 55^{\prime}$ South | $60^{\circ} 02^{\prime}$ West | $03^{\circ} 06^{\prime}$ South |
| $46^{\circ} 38^{\prime}$ West | $23^{\circ} 33^{\prime}$ South | $38^{\circ} 31^{\prime}$ West | $12^{\circ} 56^{\prime}$ South |
| $51^{\circ} 13^{\prime}$ West | $30^{\circ} 02^{\prime}$ South | $49^{\circ} 15^{\prime}$ West | $16^{\circ} 40^{\prime}$ South |

Such operation shall not cause more interference nor require more protection than the assignment under the Plan.

9/GR ... This assignment is part of a group, the number of which follows the symbol. The group consists of the beams and has the number of channels assigned to it as indicated in Table 1 below.
a) The overall equivalent protection margin to be used for the application of Article 4 and Resolution 42 (Orb-85) shall be calculated on the following basis:

- for the calculation of interference to assignments that are part of a group, only the interference contributions from assignments that are not part of the same group are to be included; and
- for the calculation of interference from assignments belonging to a group to assignments that are not part of that same group, only the worst interference contribution from that group shall be used on a test point to test point basis.
b) If an administration notifies the same frequency in more than one beam of a group for use at the same time, the aggregated $C / I$ produced by all emissions from that group shall not exceed the $C / I$ calculated on the basis of $a$ ) above.

10. This assignment shall be brought into use only when the limits given in Table 2 are not exceeded or with the agreement of the affected administration identified in Table 3.

These administrations shall be informed by the notifying administration of changes in characteristics before these beams are brought into use.

TABLE 1

| Group | Beams in the group | Number of channels assigned to the group |
| :---: | :---: | :---: |
| GR1 | ALS00002 HWA00002 USAPSA02 | 32 channels |
| GR2 | ALS00003 HWA00003 USAPSA03 | 32 channels |
| GR3 | ARGINSU4 ARGSUR04 | 16 channels |
| GR4 | ARGINSU5 ARGSUR05 | 12 channels |
| GR5 | BOLAND01 CLMAND01 EQACAND1 EQAGAND1 PRUAND02 VENAND03 | 16 channels |
| GR6 | B SU111 B SU211 | 32 channels |
| GR7 | B CE311 B CE411 B CE511 | 32 channels |
| GR8 | B NO611 B NO711 B NO811 | 32 channels |
| GR9 | B SU112 B SU212 B CE312 B CE412 | 32 channels |
| GR10 | CAN01101 CAN01201 | 32 channels |
| GR11 | Not used |  |
| GR12 | CAN01203 CAN01303 CAN01403 | 32 channels |
| GR13 | CAN01304 CAN01404 CAN01504 | 32 channels |
| GR14 | CAN01405 CAN01505 CAN01605 | 32 channels |
| GR15 | Not used |  |
| GR16 | CHLCONT4 CHLCONT6 | 16 channels |
| GR17 | CHLCONT5 PAQPAC01 CHLPAC02 | 16 channels |
| GR18 | CRBBER01 CRBBLZ01 CRBJMC01 CRBBAH01 CRBECO01 | 16 channels |
| GR19 | EQACOO01 EQAGOO01 | 16 channels |
| GR20 | PTRVIR01 USAEHO02 | 32 channels |
| GR21 | PTRVIR02 USAEHO03 | 32 channels |
| GR22 | VEN02VEN VEN11VEN | 4 channels |

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TABLE 2

APPLICABLE CRITERIA

| Symbol | P.F.D. Limit Criteria |
| :--- | :--- |
| a | Paragraph 3, Annex 1 |
| b | Paragraph 5 b), Annex 1 |
| c | Paragraph 5 c ), Annex 1 |
| d | Paragraph 5 d), Annex 1 |

11. 

This assignment shall be brought into use only when the e.i.r.p. in the direction of all points situated within the service area and within the -3 dB contour of the "Metropole" beam (space-to-Earth) in the VIDEO-SAT-3 network as described in IFRB Special Section AR11/C/766 to Weekly Circular No. 1678 of 2 July 1985 does not exceed the limit 26.8 dBW .
12. This assignment shall be brought into use only when the e.i.r.p. in the direction of all points situated within the service area and within the -3 dB contour of the "Metropole" beam (space-to-Earth) in the VIDEO-SAT-3 network as described in IFRB Special Section AR11/C/766 to Weekly Circular No. 1678 of 2 July 1985 does not exceed the limit 26.8 dBW , and when the e.i.r.p. in the direction of all points situated within the service area and also between the -3 dB and -6 dB contours of the same beam does not exceed the limit 29.5 dBW .

TABLE 3

| Beam <br> name | Channels | Lumıt <br> Crt. <br> Ref. <br> Table 2 | Countries or <br> geographical <br> areas affected |
| :---: | :--- | :---: | :--- |
| ALS00002 | $1,4,5,6,9,10,11,14,15,16$ <br> All channels <br> For channels 20 to 32 | a <br> c <br> d | URS <br> MNG/URS <br> URS |
| ALS00003 | $1,4,5,6,9,10,11,14,15,16$ <br> All channels <br> For channels 20 to 32 | a <br> c <br> d | URS <br> URS <br> URS |
| ARGINSU5 | $3,7,11,15,17,19$ | b | NOR |

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TABLE 3 (cont.)

| Beam <br> name | Channels | Limit <br> Crit <br> Ref. <br> Table 2 | Countries or <br> geographical <br> areas affected |
| :--- | :--- | :---: | :--- |
| B CE511 | For channels 1 to 20 | b | CAF/CME/COG/GAB/ <br> GNE/NIG/NMB/NOR/ <br> STP/ZAI |
| B NO611 | For channels 1 to 20 | b | BEN/GHA/TGO |$|$| B NO711 | For channels 1 to 20 |
| :--- | :--- |

TABLE 3 (cont.)

| Beam name | Channels | Lumit Crit. Ref. Table 2 | Countries or geographical areas affected |
| :---: | :---: | :---: | :---: |
| CAN01505 | For channels 1 to 20 | b | ALG/E/F/G/IRL/ISL/ MRC/POR |
| CAN01605 | For channels 1 to 20 | b | E/F/G/IRL/ISL/MRC/ POR |
| CAN01606 | For channels 1 to 20 | b | BEL/F/G/HOL/IRL/ ISL/LUX/NOR |
| CLMAND01 | 21, 23, 25, 27, 29, 31 | c | URS |
| CLM00001 | $\begin{aligned} & 1,3,5,7,9,11,13,15,17,19 \\ & 21,23,25,27,29,31 \end{aligned}$ | $\begin{aligned} & \mathrm{b} \\ & \mathrm{c} \end{aligned}$ | AZR/CPV <br> URS |
| CRBEC001 | $\begin{aligned} & 2,4,6,8,10,12,14,16,18, \\ & 20 \end{aligned}$ | b | ASC/AZR/GMB/GNB/ GUI/ISL/MTN/SEN/ SRL |
| FLKANT01 | $1,5,9,13$ | b | NOR |
| GRLDNK01 | 3, 7, 11, 15, 19 | b | D/DDR/DNK/G/HOL/ ISL/NOR/POL/S/TCH |
| GUFMGG02 | $4,8,12,16,20$ | b | NOR |
| HWA00002 | For channels 1 to 20 All channels | $\begin{aligned} & \mathrm{b} \\ & \mathrm{c} \end{aligned}$ | CHN/KRE MNG/URS |
| HWA00003 | For channels 1 to 20 All channels | $\begin{aligned} & \mathrm{b} \\ & \mathrm{c} \end{aligned}$ | CHN <br> MNG/URS |
| MEX02NTE | All channels | c | URS |
| MEX01SUR | $1,3,5,7,9,11,13,15,17,19$ | b | KIR |
| MEX02SUR | All channels | c | URS |
| PRU00004 | $\begin{aligned} & 2,4,6,8,10,12,14,16,18 \\ & 20 \end{aligned}$ | b | ALG/AOE/ASC/BFA/ CTI/E/G/GMB/GUI/ ISL/LBR/MLI/MRC/ MTN/POR/SEN/SHN/ SRL/TRC |

TABLE 3 (cont.)

| Beam <br> name | Channels | Limit <br> Crit. <br> Ref <br> rable 2 | Countries or <br> geographical <br> areas affected |
| :--- | :--- | :---: | :--- |
| SPMFRAN3 | $1,5,9,13,17$ | b | D/DDR/DNK/ISL/ <br> NOR/S |
| USAEH001 | For channels 1 to 20 | b | ALG/AUT/BEL/CVA/D/ <br> DDR/DNK/E/F/G/HOL/ <br> I/ISL/LBY/LIE/LUX/ <br> MCO/MLT/NGR/NIG/ <br> NOR/OCE/SMR/SUI/ <br> TCH/TUN/YUG |
| USAEH002 | For channels 1 to 20 <br> All channels | b <br> c | AZR/CPV/HWL <br> URS |
| USAEH003 | For channels 1 to 20 <br> All channels | b | MRL <br> c |
| URS |  |  |  |

## Country symbols

1. For the explanation of symbols designating countries or geographical areas in Region 2, see the Preface to the International Frequency List.
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2. One additional symbol, CRB, has been created for the purposes of the 1983 Conference only, to designate a geographical area in the Caribbean Area. The five Caribbean beams are identified as follows:

CRBBAH01, CRBBER01, CRBBLZ01, CRBEC001 and CRBJMC01 and are intended collectively to provide coverage for the following countries or geographical areas: AIA, ATG, BAH, BER, BLZ, BRB, CYM, DMA, GRD, GUY, JMC, LCA, MSR, SCN, SUR, TCA, TRD, VCT and VRG to be so used if approved by them.

TABLE 4
TABLE SHOWING CORRESPONDENCE BETWEEN CHANNEL NUMBERS AND ASSIGNED FREQUENCIES

| Channel <br> No. | Assigned frequency <br> (MHz) | Channel <br> No. | Assigned frequency <br> $(\mathrm{MHz})$ |
| :---: | :---: | :---: | :---: |
| 1 | 12224.00 | 17 | 12457.28 |
| 2 | 12238.58 | 18 | 12471.86 |
| 3 | 12253.16 | 19 | 12486.44 |
| 4 | 12267.74 | 20 | 12501.02 |
| 5 | 12282.32 | 21 | 12515.60 |
| 6 | 12296.90 | 22 | 12530.18 |
| 7 | 12311.48 | 23 | 12544.76 |
| 8 | 12326.06 | 24 | 12559.34 |
| 9 | 12340.64 | 25 | 12573.92 |
| 10 | 12355.22 | 26 | 12588.50 |
| 11 | 12369.80 | 27 | 12603.08 |
| 12 | 12384.38 | 28 | 12617.66 |
| 13 | 12398.96 | 29 | 12632.24 |
| 14 | 12413.54 | 30 | 12646.82 |
| 15 | 12428.12 | 31 | 12661.40 |
| 16 | 12442.70 | 32 | 12675.98 |

12224,00 MHz (1)

| $\mathbf{1}$ | $\mathbf{2}$ | $\mathbf{3}$ | $\mathbf{4}$ |  |  | $\mathbf{5}$ |  | $\mathbf{6}$ | $\mathbf{7}$ | $\mathbf{8}$ |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | :--- | :--- | :--- | :--- |

12224,00 MHz (1)

| CAN01303 | - 129.20 | 1 | - 102.42 | 5712 | 3.54 | 0.91 | 154 | 1 | 60.0 | 9/GR12 | 10 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CAN01304 | -91.20 | 1 | -99.12 | 57.36 | 1.98 | 1.72 | 2 | 1 | 59.8 | 9/GR13 |  |
| CAN01403 | - 129.20 | 1 | -89.75 | 52.02 | 4.68 | 0.80 | 148 | 1 | 61.8 | 9/GR12 | 10 |
| CAN01404 | -91.20 | 1 | -84.82 | 52.42 | 3.10 | 2.05 | 152 | 1 | 60.4 | 9/GR13 | 10 |
| CAN01405 | -8220 | 1 | -84.00 | 52.39 | 2.84 | 2.29 | 172 | 1 | 60.3 | 9/GR14 | 10 |
| CAN01504 | -91.20 | 1 | -72.66 | 53.77 | 3.57 | 1.67 | 156 | 1 | 60.2 | 9/GR13 | 10 |
| CAN01505 | -82.20 | 1 | -71.77 | 53.79 | 330 | 1.89 | 162 | 1 | 60.1 | 9/GR14 | 10 |
| CAN01605 | -82.20 | 1 | -61.50 | 49.55 | 2.65 | 1.40 | 143 | 1 | 60.3 | 9/GR14 | 10 |
| CAN01606 | -70.70 | 1 | -61.30 | 49.55 | 2.40 | 1.65 | 148 | 1 | 60.2 | 10 |  |
| CHLCONT5 | - 106.20 | 1 | -72.23 | -35.57 | 2.60 | 0.80 | 55 | 1 | 59.4 | 9/GR17 |  |
| CHLPAC02 | - 106.20 | 1 | -80.06 | -30.06 | 1.36 | 0.80 | 69 | 1 | 59.2 | 9/GR17 |  |
| CLMAND01 | -115.20 | 1 | -74.72 | 5.93 | 3.85 | 1.63 | 114 | 1 | 64.9 | 9/GR5 |  |
| CLM00001 | - 103.20 | 1 | -74.50 | 5.87 | 3.98 | 1.96 | 118 | 1 | 63.5 | 10 |  |
| EQACAND1 | - 115.20 | 1 | -78.40 | -1.61 | 137 | 0.95 | 75 | 1 | 64.0 | 9/GR5 |  |
| EQAGAND1 | - 115.20 | 1 | -90.34 | -0.62 | 0.90 | 081 | 89 | 1 | 61.3 | 9/GR5 |  |
| FLKANT01 | -57.20 | 1 | -44.54 | -60.13 | 3.54 | 0.80 | 12 | 1 | 59.3 | 2 | 10 |
| FLKFALKS | -31.00 | 1 | -59.90 | -51.64 | 0.80 | 0.80 | 90 | 1 | 58.1 | 2 |  |
| GRD00002 | -42.20 | 1 | -61.58 | 12.29 | 0.80 | 0.80 | 90 | 1 | 58.8 |  |  |
| HWA00002 | -166.20 | 1 | -165.79 | 23.42 | 4.20 | 0.80 | 160 | 1 | 58.8 | 9/GR1 | 10 |
| HWA00003 | -17520 | 1 | - 166.10 | 23.42 | 4.25 | 0.80 | 159 | 1 | 58.8 | 9/GR2 | 10 |
| MEX01NTE | -78.20 | 1 | - 105.81 | 26.01 | 2.89 | 2.08 | 155 | 1 | 60.5 | 1 |  |
| MEX01SUR | -69.20 | 1 | -94.84 | 19.82 | 3.05 | 2.09 | 4 | 1 | 62.2 | 1 | 10 |
| MEX02NTE | -136.20 | 1 | -107.21 | 26.31 | 3.84 | 1.55 | 148 | 1 | 61.2 | 1 | 10 |
| MEX02SUR | -127.20 | 1 | -96.39 | 19.88 | 3.18 | 1.87 | 157 | 1 | 62.5 | 1 | 10 |

12224,00 MHz (1)

| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| PAQPAC01 | - 106.20 | 1 | - 109.18 | -27.53 | 0.80 | 0.80 | 90 | 1 | 56.2 | 9/GR17 |  |
| PRG00002 | -99.20 | 1 | -58.66 | -23.32 | 1.45 | 1.04 | 76 | 1 | 60.2 |  |  |
| PRUAND02 | -115.20 | 1 | -74.69 | -8.39 | 3.41 | 1.79 | 95 | 1 | 63.9 | 9/GR5 |  |
| PTRVIR01 | -101.20 | 1 | -65.85 | 18.12 | 0.80 | 0.80 | 90 | 1 | 60.5 | 16 9/GR20 |  |
| PTRVIR02 | -110.20 | 1 | -65.86 | 18.12 | 080 | 0.80 | 90 | 1 | 61.0 | $169 / \mathrm{GR21}$ |  |
| SPMFRAN3 | -53.20 | 1 | -67.24 | 47.51 | 3.16 | 0.80 | 7 | 1 | 60.4 | 27 | 10 |
| TRD00001 | -84.70 | 1 | -61.23 | 10.70 | 0.80 | 0.80 | 90 | 1 | 59.4 |  |  |
| URG00001 | - 71.70 | 1 | -56.22 | - 32.52 | 1.02 | 0.89 | 11 | 1 | 60.0 |  |  |
| USAEH001 | -61.70 |  | -8519 | 36.21 | 5.63 | 3.33 | 22 | 1 | 61.8 | 156 | 10 |
| USAEH002 | -101.20 | 1 | -89.24 | 36.16 | 5.67 | 3.76 | 170 | 1 | 61.7 | 16 9/GR20 | 10 |
| USAEH003 | -11020 | 1 | -90.14 | 36.11 | 5.55 | 3.55 | 161 | 1 | 620 | 16 9/GR21 | 10 |
| USAEH004 | -11920 | 1 | -91.16 | 36.05 | 538 | 3.24 | 152 | 1 | 62.6 | 156 | 10 |
| USAPSA02 | -16620 | 1 | - 117.80 | 4058 | 4.03 | 0.82 | 135 | 1 | 63.2 | 9/GR1 |  |
| USAPSA03 | -175 20 | 1 | -118.27 | 40.12 | 3.62 | 0.80 | 136 | 1 | 65.0 | 9/GR2 |  |
| USAWH101 | -148.20 | 1 | - 109.65 | 38.13 | 5.53 | 1.95 | 142 | 1 | 62.1 | 10 |  |
| USAWH102 | -15720 | 1 | - 111.41 | 38.57 | 551 | 154 | 138 | 1 | 63.2 | 10 |  |
| VENAND03 | -115.20 | 1 | -67.04 | 6.91 | 2.37 | 1.43 | 111 | 1 | 67.2 | 9/GR5 |  |
| VRG00001 | -79.70 | 1 | -64.37 | 18.48 | 0.80 | 0.80 | 90 | 1 | 58.3 | 4 |  |

12238,58 MHz

| ALS00002 | -165.80 | 2 | - 14963 | 58.52 | 3.81 | 1.23 | 171 | 2 | 59.7 | 9/GR1 | 10 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALS00003 | - 174.80 | 2 | - 15095 | 58.54 | 3.77 | 1.11 | 167 | 2 | 60.0 | 9/GR2 | 10 |
| ARGNORT4 | -93.80 | 2 | -63.96 | -30.01 | 3.86 | 1.99 | 48 | 2 | 65.6 | 10 |  |
| ARGNORT5 | -5480 | 2 | -62 85 | -29.80 | 3.24 | 2.89 | 47 | 2 | 63.5 | 10 |  |
| ATNBEAM1 | -52.80 | 2 | -66.44 | 14.87 | 1.83 | 0.80 | 39 | 2 | 61.0 |  |  |
| B CE311 | -63.80 | 2 | -40.60 | -6.07 | 3.04 | 206 | 174 | 2 | 61.6 | 8 9/GR7 | 10 |
| B CE312 | -44.80 | 2 | -40.26 | -6.06 | 3.44 | 2.09 | 174 | 2 | 61.0 | 8 9/GR9 | 10 |
| B CE411 | -63.80 | 2 | -50.97 | -15.26 | 3.86 | 1.38 | 49 | 2 | 62.6 | 8 9/GR7 | 10 |
| B CE412 | -44.80 | 2 | - 50.71 | - 15.30 | 3.57 | 156 | 52 | 2 | 62.7 | 8 9/GR9 | 10 |
| B CE511 | -63.80 | 2 | -53.11 | -2.98 | 2.42 | 2.15 | 107 | 2 | 631 | 8 9/GR7 | 10 |
| B NO611 | -7380 | 2 | -59.60 | -11.62 | 2.86 | 1.69 | 165 | 1 | 62.8 | 8 9/GR8 | 10 |
| B NO711 | -73.80 | 2 | -60.70 | -1.78 | 3.54 | 1.78 | 126 | 1 | 62.8 | 8 9/GR8 | 10 |
| B NO811 | -73.80 | 2 | -68.75 | -4.71 | 2.37 | 1.65 | 73 | 1 | 62.8 | 8 9/GR8 |  |
| B SE911 | - 101.80 | 2 | -45.99 | -19.09 | 2.22 | 0.80 | 62 | 2 | 65.3 | 8 | 10 |
| B SU111 | -8080 | 2 | -51.10 | -25.64 | 2.76 | 1.06 | 50 | 2 | 62.8 | 8 9/GR6 | 10 |
| B SU112 | -44.80 | 2 | -50.76 | -2562 | 247 | 1.48 | 56 | 2 | 62.3 | 8 9/GR9 |  |
| B SU211 | -80.80 | 2 | -44.51 | - 16.94 | 3.22 | 1.37 | 60 | 2 | 62.5 | 8 9/GR6 | 10 |
| B SU212 | -44.80 | 2 | -43.99 | - 16.97 | 3.27 | 1.92 | 59 | 2 | 613 | 8 9/GR9 |  |
| CAN01101 | - 137.80 | 2 | -125.60 | 57.24 | 3.45 | 1.27 | 157 | 2 | 59.5 | 9/GR10 | 10 |
| CAN01201 | -137.80 | 2 | - 111.92 | 55.89 | 3.33 | 0.98 | 151 | 2 | 59.6 | 9/GR10 | 10 |
| CAN01202 | - 72.30 | 2 | -10764 | 55.62 | 2.75 | 1.11 | 32 | 2 | 59.6 |  |  |
| CAN01203 | -128.80 | 2 | - 111.43 | 55.56 | 3.07 | 1.15 | 151 | 2 | 59.5 | 9/GR12 | 10 |
| CAN01303 | - 128.80 | 2 | - 102.39 | 57.12 | 3.54 | 0.92 | 154 | 2 | 60.0 | 9/GR12 | 10 |
| CAN01304 | -90.80 | 2 | -99.00 | 57.33 | 1.96 | 1.73 | 1 | 2 | 59.8 | 9/GR13 |  |


| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CAN01403 | - 128.80 | 2 | -89.70 | 52.02 | 4.67 | 0.80 | 148 | 2 | 61.8 | 9/GR12 | 10 |
| CAN01404 | -90.80 | 2 | -84.78 | 52.41 | 3.09 | 2.06 | 153 | 2 | 60.4 | 9/GR13 | 10 |
| CAN01405 | -81.80 | 2 | -84.02 | 52.34 | 2.82 | 2.30 | 172 | 2 | 60.3 | 9/GR14 | 10 |
| CAN01504 | -90.80 | 2 | -72.68 | 53.78 | 3.57 | 1.67 | 157 | 2 | 60.2 | 9/GR13 | 10 |
| CAN01505 | -81.80 | 2 | -71.76 | 53.76 | 3.30 | 1.89 | 162 | 2 | 60.1 | 9/GR14 | 10 |
| CAN01605 | -81.80 | 2 | -61.54 | 49.50 | 2.66 | 1.39 | 144 | 2 | 60.3 | 9/GR14 | 10 |
| CAN01606 | - 70.30 | 2 | -61.32 | 49.51 | 2.41 | 1.65 | 148 | 2 | 60.2 | 10 |  |
| CHLCONT4 | - 105.80 | 2 | -69.59 | -23.20 | 2.21 | 0.80 | 68 | 2 | 59.1 | 9/GR16 |  |
| CHLCONT6 | - 105.80 | 2 | -73.52 | -55.52 | 3.65 | 1.31 | 39 | 2 | 59.6 | 9/GR16 |  |
| CRBBAH01 | -92.30 | 2 | -76.09 | 24.13 | 1.83 | 0.80 | 141 | 1 | 61.7 | 9/GR18 |  |
| CRBBER01 | -92.30 | 2 | -64.76 | 32.13 | 0.80 | 0.80 | 90 | 1 | 56.7 | 9/GR18 |  |
| CRBBLZ 01 | -92.30 | 2 | -88.61 | 17.26 | 0.80 | 0.80 | 90 | 1 | 58.6 | 9/GR18 |  |
| CRBEC001 | -92.30 | 2 | -60.07 | 8.26 | 4.20 | 0.86 | 115 | 1 | 64.2 | 9/GR18 | 10 |
| CRBJMC01 | -92.30 | 2 | - 79.45 | 17.97 | 099 | 0.80 | 151 | 1 | 61.1 | 9/GR18 |  |
| CTR00201 | - 130.80 | 2 | -84.33 | 9.67 | 0.82 | 0.80 | 119 | 2 | 65.6 |  |  |
| EQAC0001 | -94.80 | 2 | -78.31 | -1.52 | 1.48 | 1.15 | 65 | 1 | 63.0 | 9/GR19 |  |
| EQAG0001 | -94.80 | 2 | -90.36 | -0.57 | 0.94 | 0.89 | 99 | 1 | 61.0 | 9/GR19 |  |
| GUY00302 | -33.80 | 2 | -59.07 | 4.77 | 1.43 | 0.85 | 91 | 2 | 63.5 |  |  |
| HNDIFRB2 | -107.30 | 2 | -86.23 | 15.16 | 1.14 | 0.85 | 8 | 1 | 63.4 |  |  |
| HTI00002 | -83.30 | 2 | -73.28 | 18.96 | 0.82 | 0.80 | 11 | 2 | 60.9 |  |  |
| HWA00002 | -165.80 | 2 | - 165.79 | 23.32 | 4.20 | 0.80 | 160 | 2 | 58.8 | 9/GR1 | 10 |
| HWA00003 | - 174.80 | 2 | - 166.10 | 23.42 | 4.25 | 0.80 | 159 | 2 | 58.8 | 9/GR2 | 10 |
| MEX01NTE | -77.80 | 2 | - 105.80 | 25.99 | 2.88 | 2.07 | 155 | 2 | 60.5 | , |  |
| MEX02NTE | -135.80 | 2 | -107.36 | 26.32 | 3.80 | 1.57 | 149 | 2 | 61.2 | 1 | 10 |

12238,58 MHz (2)

| MEX02SUR | $-126.80$ | 2 | -96.39 | 19.88 | 3.19 | 1.87 | 158 | 2 | 62.5 | 1 | 10 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| PRU00004 | -85.80 | 2 | -74.19 | -8.39 | 3.74 | 2.45 | 112 | 2 | 62.8 | 10 |  |
| PTRVIR01 | -100.80 | 2 | -65 85 | 18.12 | 0.80 | 0.80 | 90 | 2 | 60.6 | 16 9/GR20 |  |
| PTRVIR02 | -109.80 | 2 | -65.85 | 18.12 | 0.80 | 0.80 | 90 | 2 | 61.1 | 16 9/GR21 |  |
| TCA00001 | -115.80 | 2 | -71.79 | 21.53 | 0.80 | 0.80 | 90 | 2 | 60.4 |  |  |
| USAEH001 | -61.30 | 2 | -85.16 | 3621 | 5.63 | 3.32 | 22 | 2 | 61.8 | 156 | 10 |
| USAEH002 | -100.80 | 2 | -89.28 | 36.16 | 5.65 | 3.78 | 170 | 2 | 61.7 | 16 9/GR20 | 10 |
| USAEH003 | -109.80 | 2 | -90.12 | 36.11 | 5.55 | 3.56 | 161 | 2 | 62.1 | 16 9/GR21 | 10 |
| USAEH004 | -118.80 | 2 | -91.16 | 36.05 | 5.38 | 3.24 | 153 | 2 | 62.6 | 156 | 10 |
| USAPSA02 | -165.80 | 2 | - 117.79 | 40.58 | 4.04 | 0.82 | 135 | 2 | 63.2 | 9/GR1 |  |
| USAPSA03 | - 174.80 | 2 | -118.20 | 40.15 | 3.63 | 0.80 | 136 | 2 | 64.9 | 9/GR2 |  |
| USAWH101 | - 147.80 | 2 | -109.70 | 38.13 | 5.52 | 1.96 | 142 | 2 | 62.1 | 10 |  |
| USAWH102 | -156.80 | 2 | - 111.40 | 38.57 | 5.51 | 1.55 | 138 | 2 | 63.2 | 10 |  |
| VCT00001 | -79.30 | 2 | -61.18 | 13.23 | 0.80 | 0.80 | 90 | 2 | 58.4 |  |  |
| VEN11VEN | -103.80 | 2 | -66.79 | 6.90 | 2.50 | 1.77 | 122 | 2 | 65.1 | 10 |  |

12253,16 MHz (3)

| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALS00002 | -166.20 | 3 | -149.66 | 58.37 | 3.76 | 1.24 | 170 | 1 | 59.8 | 9/GR1 | 10 |
| ALS00003 | - 175.20 | 3 | -150.98 | 58.53 | 3.77 | 1.11 | 167 | 1 | 60.0 | 9/GR2 | 10 |
| ARGINSU4 | -94.20 | 3 | -52.98 | -59.81 | 3.40 | 0.80 | 19 | 1 | 59.9 | 9/GR3 |  |
| ARGINSU5 | -55.20 | 3 | -44.17 | -59.91 | 3.77 | 0.80 | 13 | 1 | 59.3 | 9/GR4 | 10 |
| ARGSUR04 | -94.20 | 3 | -65.04 | -43.33 | 3.32 | 1.50 | 40 | 1 | 60.7 | 9/GR3 | 10 |
| ARGSUR05 | -55.20 | 3 | -63.68 | -43.01 | 2.54 | 2.38 | 152 | 1 | 60.1 | 9/GR4 | 10 |
| ATGSJN01 | -79.70 | 3 | -61.79 | 17.07 | 0.80 | 0.80 | 90 | 1 | 58.4 |  |  |
| B CE311 | -64.20 | 3 | -40.60 | -6.07 | 3.04 | 2.06 | 174 | 1 | 61.6 | 8 9/GR7 | 10 |
| B CE312 | -45.20 | 3 | -40.27 | -6.06 | 3.44 | 2.09 | 174 | 1 | 61.0 | 8 9/GR9 | 10 |
| B CE411 | -64.20 | 3 | -50.97 | - 15.27 | 3.86 | 1.38 | 49 | 1 | 62.6 | 8 9/GR7 | 10 |
| B CE412 | -45.20 | 3 | -50.71 | - 15.30 | 3.57 | 1.56 | 52 | 1 | 62.7 | 8 9/GR9 | 10 |
| B CE511 | -64.20 | 3 | -53.10 | -2.90 | 2.44 | 2.13 | 104 | 1 | 63.1 | 8 9/GR7 | 10 |
| B NO611 | -74.20 | 3 | -59.60 | -11.62 | 2.85 | 1.69 | 165 | 2 | 62.9 | 8 9/GR8 | 10 |
| B NO711 | -74.20 | 3 | -60.70 | -1.78 | 354 | 1.78 | 126 | 2 | 62.8 | 8 9/GR8 | 10 |
| B NO811 | -74.20 | 3 | -68.76 | -4.71 | 2.37 | 165 | 73 | 2 | 628 | 8 9/GR8 |  |
| B SU111 | -81.20 | 3 | -51.12 | -25.63 | 2.76 | 1.05 | 50 | 1 | 62.9 | 8 9/GR6 | 10 |
| B SU112 | -45.20 | 3 | -50.75 | -25 62 | 247 | 1.48 | 56 | 1 | 623 | 8 9/GR9 |  |
| B SU211 | -81.20 | 3 | -4451 | -16.95 | 3.22 | 136 | 60 | , | 625 | 8 9/GR6 | 10 |
| B SU212 | -45.20 | 3 | -44.00 | -16.87 | 320 | 1.96 | 58 | 1 | 61.3 | 8 9/GR9 |  |
| BERBERMU | -96.20 | 3 | -6477 | 32.32 | 0.80 | 0.80 | 90 | 2 | 56.8 |  |  |
| B OLAND01 | - 115.20 | 3 | -6504 | -1676 | 2.49 | 1.27 | 76 | , | 67.9 | 9/GR5 |  |
| B OL00001 | -87.20 | 3 | -64 61 | -16.71 | 2.52 | 2.19 | 85 | 1 | 63.8 | 10 |  |
| B RB00001 | -92.70 | 3 | -59 85 | 12.93 | 0.80 | 0.80 | 90 | 2 | 59.1 |  |  |
| CAN01101 | -138.20 | 3 | - 125.63 | 57.24 | 3.45 | 1.27 | 157 | 1 | 595 | 9/GR10 | 10 |

12253,16 MHz (3)

| CAN01201 | -138.20 | 3 | -112.04 | 55.95 | 3.35 | 0.97 | 151 | 1 | 59.6 | 9/GR10 | 10 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CAN01202 | - 72.70 | 3 | - 107.70 | 55.63 | 274 | 112 | 32 | 1 | 59.6 |  |  |
| CAN01203 | - 129.20 | 3 | -111.48 | 55.61 | 308 | 115 | 151 | 1 | 59.5 | 9/GR12 | 10 |
| CAN01303 | -129.20 | 3 | - 102.42 | 57.12 | 3.54 | 0.91 | 154 | 1 | 60.1 | 9/GR12 | 10 |
| CAN01304 | -91.20 | 3 | -99.12 | 57.36 | 1.98 | 1.72 | 2 | 1 | 59.8 | 9/GR13 |  |
| CAN01403 | - 129.20 | 3 | -89.75 | 52.02 | 468 | 0.80 | 148 | 1 | 61.8 | 9/GR12 | 10 |
| CAN01404 | -91.20 | 3 | -84.82 | 52.42 | 3.10 | 205 | 152 | 1 | 60.4 | 9/GR13 | 10 |
| CAN01405 | -8220 | 3 | -84.00 | 52.39 | 2.84 | 2.29 | 172 | 1 | 60.3 | 9/GR14 | 10 |
| CAN01504 | -91.20 | 3 | -72.66 | 53.77 | 3.57 | 1.67 | 156 | 1 | 60.2 | 9/GR13 | 10 |
| CAN01505 | -82.20 | 3 | -71.77 | 53.79 | 3.30 | 1.89 | 162 | 1 | 601 | 9/GR14 | 10 |
| CAN01605 | -82.20 | 3 | -61.50 | 49.55 | 2.65 | 1.40 | 143 | 1 | 60.3 | 9/GR14 | 10 |
| CAN01606 | -70 70 | 3 | -61.30 | 49.55 | 2.40 | 1.65 | 148 | 1 | 60.2 | 10 |  |
| CHLCONT5 | - 106.20 | 3 | -72.23 | -35.57 | 2.60 | 0.80 | 55 | 1 | 59.4 | 9/GR17 |  |
| CHLPAC02 | - 106.20 | 3 | -80.06 | -30.06 | 1.36 | 0.80 | 69 | 1 | 59.2 | 9/GR17 |  |
| CLMAND01 | -115.20 | 3 | -74.72 | 5.93 | 3.85 | 1.63 | 114 | 1 | 65.0 | 9/GR5 |  |
| CLM00001 | - 103.20 | 3 | -74.50 | 587 | 3.98 | 1.96 | 118 | 1 | 63.6 | 10 |  |
| CUB00001 | -89.20 | 3 | -79.81 | 21.62 | 2.24 | 0.80 | 168 | 1 | 61.1 |  |  |
| EQACAND1 | -115.20 | 3 | -78.40 | -1.61 | 1.37 | 0.95 | 75 | 1 | 64.1 | 9/GR5 |  |
| EQAGAND1 | -115.20 | 3 | -90.34 | -0.62 | 0.90 | 0.81 | 89 | 1 | 61.3 | 9/GR5 |  |
| GRD00002 | -42.20 | 3 | -61.58 | 12.29 | 0.80 | 0.80 | 90 | 1 | 58.8 |  |  |
| GRD00059 | -57.20 | 3 | -61.58 | 12.29 | 0.80 | 0.80 | 90 | 1 | 58.5 |  |  |
| GRLDNK01 | -53.20 | 3 | -44.89 | 66.56 | 2.70 | 0.82 | 173 | 1 | 60.0 | 2 | 10 |
| HWA00002 | - 166.20 | 3 | - 165.79 | 23.42 | 4.20 | 0.80 | 160 | 1 | 58.8 | 9/GR1 | 10 |
| HWA00003 | -175.20 | 3 | -166.10 | 23.42 | 4.25 | 0.80 | 159 | 1 | 58.8 | 9/GR2 | 10 |

12253, 16 MHz (3)

| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| MEX01NTE | -78.20 | 3 | - 105.81 | 26.01 | 2.89 | 2.08 | 155 | 1 | 60.5 | 1 |  |
| MEX01SUR | -69.20 | 3 | -94.84 | 19.82 | 3.05 | 2.09 | 4 | 1 | 62.3 | 1 | 10 |
| MEX02NTE | - 136.20 | 3 | -107.21 | 26.31 | 3.84 | 1.55 | 148 | 1 | 61.2 | 1 | 10 |
| MEX02SUR | - 127.20 | 3 | -96.39 | 19.88 | 3.18 | 1.87 | 157 | 1 | 62.6 | 1 | 10 |
| PAQPAC01 | -106.20 | 3 | - 109.18 | -27.53 | 0.80 | 0.80 | 90 | 1 | 56.2 | 9/GR17 |  |
| PRG00002 | -99.20 | 3 | -58.66 | -23.32 | 1.45 | 1.04 | 76 | 1 | 60.2 |  |  |
| PRUAND02 | - 115.20 | 3 | - 74.69 | -8.39 | 3.41 | 1.79 | 95 | 1 | 64.0 | 9/GR5 |  |
| PTRVIR01 | -101.20 | 3 | -65.85 | 18.12 | 0.80 | 0.80 | 90 | 1 | 60.6 | 16 9/GR20 |  |
| PTRVIR02 | - 110.20 | 3 | -65.86 | 18.12 | 0.80 | 0.80 | 90 | 1 | 61.0 | 16 9/GR21 |  |
| SURINAM2 | -84.70 | 3 | -55.69 | 4.35 | 1.00 | 0.80 | 86 | 1 | 63.2 |  |  |
| URG00001 | - 71.70 | 3 | -56.22 | -32.52 | 1.02 | 0.89 | 11 | 1 | 60.0 |  |  |
| USAEH001 | -61.70 | 3 | -85.19 | 36.21 | 5.63 | 3.33 | 22 | 1 | 618 | 156 | 10 |
| USAEH002 | -101.20 | 3 | -89.24 | 36.16 | 5.67 | 3.76 | 170 | 1 | 61.7 | 16 9/GR20 | 10 |
| USAEH003 | - 110.20 | 3 | -90.14 | 36.11 | 5.55 | 3.55 | 161 | 1 | 62.1 | 16 9/GR21 | 10 |
| USAEH004 | - 119.20 | 3 | -91.16 | 36.05 | 5.38 | 3.24 | 152 | 1 | 62.6 | 156 | 10 |
| USAPSA02 | - 166.20 | 3 | - 117.80 | 40.58 | 4.03 | 0.82 | 135 | 1 | 63.3 | 9/GR1 |  |
| USAPSA03 | - 175.20 | 3 | -11827 | 40.12 | 362 | 080 | 136 | 1 | 650 | 9/GR2 |  |
| USAWH101 | - 148.20 | 3 | -109.65 | 38.13 | 5.53 | 1.95 | 142 | 1 | 62.1 | 10 |  |
| USAWH102 | - 157.20 | 3 | - 111.41 | 38.57 | 5.51 | 1.54 | 138 | 1 | 63.2 | 10 |  |
| VENAND03 | - 115.20 | 3 | -67.04 | 6.91 | 2.37 | 1.43 | 111 | 1 | 67.3 | 9/GR5 |  |

12267,74 MHz
(4)

| ALS00002 | -165.80 | 4 | -149.63 | 58.52 | 3.81 | 1.23 | 171 | 2 | 59.8 | 9/GR1 | 10 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALS00003 | - 174.80 | 4 | - 150.95 | 58.54 | 3.77 | 1.11 | 167 | 2 | 60.0 | 9/GR2 | 10 |
| ARGNORT4 | -93.80 | 4 | -63.96 | -30.01 | 3.86 | 1.99 | 48 | 2 | 65.7 | 10 |  |
| ARGNORT5 | -54.80 | 4 | -62.85 | -29.80 | 3.24 | 2.89 | 47 | 2 | 63.5 | 10 |  |
| B CE311 | -63.80 | 4 | -40.60 | -6.07 | 3.04 | 2.06 | 174 | 2 | 61.6 | 8 9/GR7 | 10 |
| B CE312 | -44.80 | 4 | -40.26 | -6.06 | 3.44 | 2.09 | 174 | 2 | 61.0 | 8 9/GR9 | 10 |
| B CE411 | -63.80 | 4 | -50.97 | - 15.26 | 3.86 | 1.38 | 49 | 2 | 62.6 | 8 9/GR7 | 10 |
| B CE412 | -44.80 | 4 | -50.71 | - 15.30 | 3.57 | 1.56 | 52 | 2 | 62.8 | 8 9/GR9 | 10 |
| B CE511 | -63.80 | 4 | -53.11 | -2.98 | 2.42 | 2.15 | 107 | 2 | 63.1 | 8 9/GR7 | 10 |
| B NO611 | -7380 | 4 | -59.60 | -11.62 | 2.86 | 1.69 | 165 | 1 | 62.9 | 8 9/GR8 | 10 |
| B NO711 | -73.80 | 4 | -60.70 | -1.78 | 3.54 | 1.78 | 126 | 1 | 62.8 | 8 9/GR8 | 10 |
| B NO811 | -73.80 | 4 | -68.75 | -4.71 | 2.37 | 1.65 | 73 | 1 | 62.8 | 8 9/GR8 |  |
| B SE911 | -10180 | 4 | -45.99 | -19.09 | 2.22 | 0.80 | 62 | 2 | 65.3 | 8 | 10 |
| B SU111 | -80.80 | 4 | -51.10 | -25.64 | 2.76 | 1.06 | 50 | 2 | 62.9 | 8 9/GR6 | 10 |
| B SU112 | -44.80 | 4 | -50.76 | -25.62 | 2.47 | 1.48 | 56 | 2 | 62.3 | 8 9/GR9 |  |
| B SU211 | -80.80 | 4 | -44.51 | -16.94 | 3.22 | 1.37 | 60 | 2 | 62.5 | 8 9/GR6 | 10 |
| B SU212 | -44.80 | 4 | -43.99 | -16.97 | 327 | 1.92 | 59 | 2 | 61.3 | 8 9/GR9 |  |
| CAN01101 | -137.80 | 4 | - 125.60 | 57.24 | 3.45 | 1.27 | 157 | 2 | 59.5 | 9/GR10 | 10 |
| CAN01201 | - 137.80 | 4 | - 111.92 | 55.89 | 3.33 | 0.98 | 151 | 2 | 59.6 | 9/GR10 | 10 |
| CAN01202 | -72.30 | 4 | - 107.64 | 55.62 | 2.75 | 111 | 32 | 2 | 59.6 |  |  |
| CAN01203 | - 128.80 | 4 | -111.43 | 55.56 | 3.07 | 115 | 151 | 2 | 59.5 | 9/GR12 | 10 |
| CAN01303 | - 128.80 | 4 | - 102.39 | 57.12 | 3.54 | 0.92 | 154 | 2 | 60.1 | 9/GR12 | 10 |
| CAN01304 | -90.80 | 4 | -99.00 | 57.33 | 1.96 | 1.73 | 1 | 2 | 59.8 | 9/GR13 |  |
| CAN01403 | - 128.80 | 4 | -89.70 | 52.02 | 4.67 | 0.80 | 148 | 2 | 61.8 | 9/GR12 | 10 |

$12267,74 \mathrm{MHz}$ (4)

| $\mathbf{1}$ | $\mathbf{2}$ | $\mathbf{3}$ | $\mathbf{4}$ |  |  | $\mathbf{5}$ |  | $\mathbf{6}$ | $\mathbf{7}$ | $\mathbf{8}$ |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | :--- | :--- | :--- | :--- |

12267,74 MHz (4)

| MEX02SUR | -126.80 | 4 | -96.39 | 19.88 | 3.19 | 187 | 158 | 2 | 62.5 | 1 | 10 |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | :--- | :--- | :--- | :--- |
| PRU00004 | -85.80 | 4 | -74.19 | -8.39 | 3.74 | 2.45 | 112 | 2 | 62.9 | 10 | 10 |
| PTRVIR01 | -100.80 | 4 | -65.85 | 18.12 | 0.80 | 080 | 90 | 2 | 60.6 | $169 /$ GR20 |  |
| PTRVIR02 | -109.80 | 4 | -65.85 | 18.12 | 080 | 0.80 | 90 | 2 | 61.1 | $1699 /$ GR21 |  |
| SLVIFRB2 | -107.30 | 4 | -88.91 | 13.59 | 0.80 | 0.80 | 90 | 1 | 61.7 |  |  |
| USAEH001 | -61.30 | 4 | -85.16 | 36.21 | 5.63 | 3.32 | 22 | 2 | 61.9 | 156 | 10 |
| USAEH002 | -100.80 | 4 | -89.28 | 36.16 | 5.65 | 3.78 | 170 | 2 | 61.7 | $169 /$ GR20 | 10 |
| USAEH003 | -109.80 | 4 | -90.12 | 36.11 | 5.55 | 3.56 | 161 | 2 | 62.1 | $1699 /$ GR21 | 10 |
| USAEH004 | -118.80 | 4 | -91.16 | 36.05 | 5.38 | 3.24 | 153 | 2 | 62.6 | 15 | 6 |
| USAPSA02 | -165.80 | 4 | -117.79 | 40.58 | 4.04 | 0.82 | 135 | 2 | 63.3 | $9 /$ GR1 | 10 |
| USAPSA03 | -17480 | 4 | -11820 | 40.15 | 3.63 | 0.80 | 136 | 2 | 65.0 | $9 / G R 2$ |  |
| USAWH101 | -14780 | 4 | -109.70 | 38.13 | 5.52 | 1.96 | 142 | 2 | 6.1 | 10 |  |
| USAWH102 | -156.80 | 4 | -111.40 | 38.57 | 5.51 | 1.55 | 138 | 2 | 63.2 | 10 |  |
| VEN11VEN | -103.80 | 4 | -66.79 | 6.90 | 2.50 | 1.77 | 122 | 2 | 65.2 | 10 |  |


| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALS00002 | - 166.20 | 5 | -149.66 | 58.37 | 3.76 | 1.24 | 170 | 1 | 59.7 | 9/GR1 | 10 |
| ALS00003 | - 175.20 | 5 | -150.98 | 58.53 | 3.77 | 1.11 | 167 | 1 | 60.0 | 9/GR2 | 10 |
| ARGINSU4 | -94.20 | 5 | -52.98 | -59.81 | 3.40 | 0.80 | 19 | 1 | 59.9 | 9/GR3 |  |
| ARGSUR04 | -94.20 | 5 | -65.04 | -43.33 | 3.32 | 1.50 | 40 | 1 | 60.7 | 9/GR3 | 10 |
| B CE311 | -64.20 | 5 | -40.60 | -6.07 | 3.04 | 206 | 174 | 1 | 61.6 | 8 9/GR7 | 10 |
| B CE312 | -45.20 | 5 | -40.27 | -6.06 | 3.44 | 2.09 | 174 | 1 | 61.0 | 8 9/GR9 | 10 |
| B CE411 | -64.20 | 5 | -50.97 | - 15.27 | 3.86 | 138 | 49 | 1 | 62.6 | 8 9/GR7 | 10 |
| B CE412 | -45.20 | 5 | -50.71 | - 15.30 | 3.57 | 1.56 | 52 | 1 | 62.7 | 8 9/GR9 | 10 |
| B CE511 | -64.20 | 5 | -53.10 | -2.90 | 2.44 | 2.13 | 104 | 1 | 63.0 | $89 / \mathrm{GR} 7$ | 10 |
| B NO611 | -74.20 | 5 | -59.60 | -11.62 | 2.85 | 1.69 | 165 | 2 | 62.8 | 8 9/GR8 | 10 |
| B NO711 | -74.20 | 5 | -60.70 | -1.78 | 3.54 | 178 | 126 | 2 | 62.8 | 8 9/GR8 | 10 |
| B NO811 | -74.20 | 5 | -68.76 | -4.71 | 2.37 | 1.65 | 73 | 2 | 62.8 | 8 9/GR8 |  |
| B SU111 | -81.20 | 5 | -51.12 | -25.63 | 2.76 | 1.05 | 50 | 1 | 62.8 | 8 9/GR6 | 10 |
| B SU112 | -45.20 | 5 | -50.75 | -25.62 | 2.47 | 1.48 | 56 | 1 | 62.2 | 8 9/GR9 |  |
| B SU211 | -81.20 | 5 | -44.51 | - 16.95 | 3.22 | 1.36 | 60 | 1 | 62.5 | 8 9/GR6 | 10 |
| B SU212 | -45.20 | 5 | -44.00 | -16.87 | 3.20 | 1.96 | 58 | 1 | 61.3 | 8 9/GR9 |  |
| B AHIFRB1 | -87.20 | 5 | -76.06 | 24.16 | 1.81 | 0.80 | 142 | 1 | 61.6 |  |  |
| BERBERMU | -96.20 | 5 | -64.77 | 32.32 | 0.80 | 0.80 | 90 | 2 | 56.8 |  |  |
| B ERBER02 | -31.00 | 5 | -64.77 | 32.32 | 0.80 | 0.80 | 90 | 1 | 56.9 | 2 | 10 |
| B OLAND01 | - 115.20 | 5 | -65.04 | - 16.76 | 2.49 | 1.27 | 76 | 1 | 67.9 | 9/GR5 |  |
| CAN01101 | - 138.20 | 5 | -125.63 | 57.24 | 3.45 | 1.27 | 157 | 1 | 59.5 | 9/GR10 | 10 |
| CAN01201 | - 138.20 | 5 | -112.04 | 55.95 | 3.35 | 0.97 | 151 | 1 | 59.6 | 9/GR10 | 10 |
| CAN01202 | -7270 | 5 | -107.70 | 55.63 | 2.74 | 1.12 | 32 | 1 | 59.6 |  |  |
| CAN01203 | - 129.20 | 5 | -111.48 | 55.61 | 3.08 | 1.15 | 151 | 1 | 59.5 | 9/GR12 | 10 |

12282,32 MHz (5)

| CAN01303 | -12920 | 5 | - 102.42 | 57.12 | 3.54 | 0.91 | 154 | 1 | 60.0 | 9/GR12 | 10 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CAN01304 | -91.20 | 5 | -99.12 | 57.36 | 1.98 | 1.72 | 2 | 1 | 59.8 | 9/GR13 |  |
| CAN01403 | - 129.20 | 5 | -89.75 | 52.02 | 4.68 | 0.80 | 148 | 1 | 61.8 | 9/GR12 | 10 |
| CAN01404 | -91.20 | 5 | -84.82 | 52.42 | 3.10 | 2.05 | 152 | 1 | 60.4 | 9/GR13 | 10 |
| CAN01405 | -82.20 | 5 | -84.00 | 52.39 | 2.84 | 2.29 | 172 | 1 | 60.3 | 9/GR14 | 10 |
| CAN01504 | -91.20 | 5 | -72.66 | 53.77 | 3.57 | 1.67 | 156 | 1 | 60.2 | 9/GR13 | 10 |
| CAN01505 | -82.20 | 5 | -71.77 | 53.79 | 3.30 | 1.89 | 162 | 1 | 60.1 | 9/GR14 | 10 |
| CAN01605 | -82.20 | 5 | -61.50 | 49.55 | 2.65 | 1.40 | 143 | 1 | 60.3 | 9/GR14 | 10 |
| CAN01606 | -70.70 | 5 | -61.30 | 49.55 | 2.40 | 1.65 | 148 | 1 | 60.2 | 10 |  |
| CHLCONT5 | - 106.20 | 5 | -72.23 | -35.57 | 2.60 | 0.80 | 55 | 1 | 59.4 | 9/GR17 |  |
| CHLPAC02 | - 106.20 | 5 | -80.06 | -30.06 | 1.36 | 0.80 | 69 | 1 | 59.2 | 9/GR17 |  |
| CLMAND01 | - 115.20 | 5 | -74 72 | 5.93 | 3.85 | 1.63 | 114 | 1 | 64.9 | 9/GR5 |  |
| CLM00001 | -103.20 | 5 | -74.50 | 5.87 | 3.98 | 1.96 | 118 | 1 | 63.5 | 10 |  |
| EQACAND1 | -115.20 | 5 | - 78.40 | -1.61 | 1.37 | 0.95 | 75 | 1 | 64.0 | 9/GR5 |  |
| EQAGAND1 | -115.20 | 5 | -90.34 | -0.62 | 0.90 | 0.81 | 89 | 1 | 61.3 | 9/GR5 |  |
| FLKANT01 | -57.20 | 5 | -44.54 | -60.13 | 3.54 | 0.80 | 12 | 1 | 59.3 | 2 | 10 |
| FLKFALKS | -31.00 | 5 | -59.90 | -5164 | 0.80 | 0.80 | 90 | 1 | 58.1 | 2 |  |
| GRD00002 | -42.20 | 5 | -61.58 | 12.29 | 0.80 | 080 | 90 | 1 | 58.8 |  |  |
| HWA00002 | -166.20 | 5 | -165.79 | 23.42 | 4.20 | 0.80 | 160 | 1 | 58.8 | 9/GR1 | 10 |
| HWA00003 | -175.20 | 5 | -166.10 | 23.42 | 4.25 | 080 | 159 | 1 | 58.8 | 9/GR2 | 10 |
| MEX01NTE | - 78.20 | 5 | -105 81 | 26.01 | 2.89 | 2.08 | 155 | 1 | 60.5 | 1 |  |
| MEX01SUR | -69.20 | 5 | -94.84 | 19.82 | 305 | 209 | 4 | 1 | 62.2 | 1 | 10 |
| MEX02NTE | - 136.20 | 5 | -107.21 | 26.31 | 3.84 | 1.55 | 148 | 1 | 61.2 | 1 | 10 |
| MEX02SUR | -12720 | 5 | -96.39 | 19.88 | 3.18 | 1.87 | 157 | 1 | 62.5 | 1 | 10 |

12282,32 MHz (5)

| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| PAQPAC01 | - 106.20 | 5 | - 109.18 | -27.53 | 0.80 | 0.80 | 90 | 1 | 562 | 9/GR17 |  |
| PRG00002 | -99.20 | 5 | -58.66 | -23.32 | 1.45 | 1.04 | 76 | 1 | 60.2 |  |  |
| PRUAND02 | -115.20 | 5 | -74.69 | -8.39 | 3.41 | 1.79 | 95 | 1 | 63.9 | 9/GR5 |  |
| PTRVIR01 | -101.20 | 5 | -65.85 | 18.12 | 0.80 | 0.80 | 90 | 1 | 60.5 | 16 9/GR20 |  |
| PTRVIR02 | -110.20 | 5 | -65.86 | 18.12 | 0.80 | 0.80 | 90 | 1 | 61.0 | 16 9/GR21 |  |
| SPMFRAN3 | - 53.20 | 5 | -6724 | 47.51 | 3.16 | 0.80 | 7 | 1 | 60.4 | 27 | 10 |
| TRD00001 | -84.70 | 5 | -61.23 | 10.70 | 0.80 | 0.80 | 90 | 1 | 59.4 |  |  |
| URG00001 | -71.70 | 5 | -56.22 | -32.52 | 1.02 | 0.89 | 11 | 1 | 60.0 |  |  |
| USAEH001 | -61.70 | 5 | -85.19 | 36.21 | 5.63 | 3.33 | 22 | 1 | 61.8 | 156 | 10 |
| USAEH002 | -101.20 | 5 | -89.24 | 3616 | 5.67 | 3.76 | 170 | 1 | 61.7 | 16 9/GR20 | 10 |
| USAEH003 | -110.20 | 5 | -90.14 | 36.11 | 5.55 | 3.55 | 161 | 1 | 62.0 | 16 9/GR21 | 10 |
| USAEH004 | - 119.20 | 5 | -91.16 | 36.05 | 5.38 | 3.24 | 152 | 1 | 62.6 | 156 | 10 |
| USAPSA02 | -166.20 | 5 | - 117.80 | 40.58 | 4.03 | 0.82 | 135 | 1 | 63.2 | 9/GR1 |  |
| USAPSA03 | - 175.20 | 5 | -118.27 | 4012 | 3.62 | 0.80 | 136 | 1 | 65.0 | 9/GR2 |  |
| USAWH101 | - 148.20 | 5 | - 109.65 | 38.13 | 5.53 | 195 | 142 | 1 | 62.1 | 10 |  |
| USAWH102 | - 157.20 | 5 | - 111.41 | 38.57 | 5.51 | 1.54 | 138 | 1 | 63.2 | 10 |  |
| VENAND03 | -115.20 | 5 | -67.04 | 6.91 | 2.37 | 1.43 | 111 | 1 | 67.2 | 9/GR5 |  |
| VRG00001 | - 79.70 | 5 | -64.37 | 18.48 | 0.80 | 0.80 | 90 | 1 | 58.3 | 4 |  |

12296,90 MHz

| ALS00002 | -165.80 | 6 | -149.63 | 5852 | 3.81 | 123 | 171 | 2 | 59.7 | 9/GR1 | 10 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALS00003 | -174.80 | 6 | -150.95 | 58.54 | 3.77 | 1.11 | 167 | 2 | 60.0 | 9/GR2 | 10 |
| ARGNORT4 | -9380 | 6 | -6396 | -30.01 | 386 | 1.99 | 48 | 2 | 65.6 | 10 |  |
| ARGNORT5 | -54.80 | 6 | -62.85 | -29.80 | 324 | 2.89 | 47 | 2 | 63.5 | 10 |  |
| ATNBEAM1 | -52.80 | 6 | -66.44 | 1487 | 1.83 | 0.80 | 39 | 2 | 61.0 |  |  |
| B CE311 | -63.80 | 6 | -40.60 | -607 | 304 | 2.06 | 174 | 2 | 61.6 | 8 9/GR7 | 10 |
| B CE312 | -44.80 | 6 | -40.26 | -606 | 3.44 | 2.09 | 174 | 2 | 61.0 | 8 9/GR9 | 10 |
| B CE411 | -63.80 | 6 | -50.97 | -15.26 | 3.86 | 1.38 | 49 | 2 | 62.6 | 8 9/GR7 | 10 |
| B CE412 | -44.80 | 6 | -50.71 | -1530 | 3.57 | 1.56 | 52 | 2 | 62.7 | 8 9/GR9 | 10 |
| B CE511 | -63 80 | 6 | -53.11 | -2 98 | 2.42 | 215 | 107 | 2 | 63.1 | 8 9/GR7 | 10 |
| B NO611 | -7380 | 6 | -59.60 | -1162 | 286 | 169 | 165 | 1 | 62.8 | 8 9/GR8 | 10 |
| B NO711 | -7380 | 6 | -60.70 | -1.78 | 3.54 | 178 | 126 | 1 | 62.8 | 8 9/GR8 | 10 |
| B NO811 | -73.80 | 6 | -68.75 | -4.71 | 237 | 1.65 | 73 | 1 | 62.8 | 8 9/GR8 |  |
| B SE911 | - 101.80 | 6 | -4599 | - 19.09 | 2.22 | 0.80 | 62 | 2 | 65.3 | 8 | 10 |
| B SU111 | -80 80 | 6 | -51.10 | -2564 | 2.76 | 1.06 | 50 | 2 | 62.8 | 89/GR6 | 10 |
| B SU112 | -4480 | 6 | -50.76 | -25.62 | 2.47 | 1.48 | 56 | 2 | 62.3 | 8 9/GR9 |  |
| B SU211 | -8080 | 6 | -44.51 | -16.94 | 322 | 1.37 | 60 | 2 | 62.5 | 8 9/GR6 | 10 |
| B SU212 | -44.80 | 6 | -43.99 | -16.97 | 327 | 1.92 | 59 | 2 | 61.3 | 8 9/GR9 |  |
| CAN01101 | -13780 | 6 | -125.60 | 57.24 | 345 | 1.27 | 157 | 2 | 59.5 | 9/GR10 | 10 |
| CAN01201 | - 137.80 | 6 | -111.92 | 55.89 | 3.33 | 0.98 | 151 | 2 | 59.6 | 9/GR10 | 10 |
| CAN01202 | -7230 | 6 | - 107.64 | 55.62 | 275 | 1.11 | 32 | 2 | 59.6 |  |  |
| CAN01203 | - 128.80 | 6 | - 111.43 | 55.56 | 3.07 | 1.15 | 151 | 2 | 59.5 | 9/GR12 | 10 |
| CAN01303 | - 128.80 | 6 | -102.39 | 5712 | 3.54 | 0.92 | 154 | 2 | 60.0 | 9/GR12 | 10 |
| CAN01304 | -9080 | 6 | -99.00 | 5733 | 1.96 | 1.73 | 1 | 2 | 59.8 | 9/GR13 |  |

12296,90 MHz

| MEX02SUR | - 126.80 | 6 | -96.39 | 19.88 | 3.19 | 1.87 | 158 | 2 | 62.5 | 1 | 10 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| PRU00004 | -85.80 | 6 | -74.19 | -8.39 | 3.74 | 2.45 | 112 | 2 | 628 | 10 |  |
| PTRVIR01 | -100.80 | 6 | -65.85 | 18.12 | 0.80 | 0.80 | 90 | 2 | 60.6 | 16 9/GR20 |  |
| PTRVIR02 | - 109.80 | 6 | -65.85 | 18.12 | 0.80 | 0.80 | 90 | 2 | 61.1 | 16 9/GR21 |  |
| TCA00001 | - 115.80 | 6 | -71.79 | 21.53 | 0.80 | 0.80 | 90 | 2 | 60.4 |  |  |
| USAEH001 | -61.30 | 6 | -85 16 | 36.21 | 5.63 | 3.32 | 22 | 2 | 61.8 | 156 | 10 |
| USAEH002 | -100.80 | 6 | -89.28 | 36.16 | 5.65 | 3.78 | 170 | 2 | 61.7 | 16 9/GR20 | 10 |
| USAEH003 | - 109.80 | 6 | -90.12 | 3611 | 5.55 | 3.56 | 161 | 2 | 62.1 | $169 / \mathrm{GR} 21$ | 10 |
| USAEH004 | -118.80 | 6 | -91.16 | 36.05 | 5.38 | 3.24 | 153 | 2 | 62.6 | 156 | 10 |
| USAPSA02 | -165.80 | 6 | - 117.79 | 40.58 | 4.04 | 0.82 | 135 | 2 | 63.2 | 9/GR1 |  |
| USAPSA03 | - 174.80 | 6 | - 118.20 | 40.15 | 3.63 | 0.80 | 136 | 2 | 64.9 | 9/GR2 |  |
| USAWH101 | - 147.80 | 6 | - 109.70 | 38.13 | 5.52 | 1.96 | 142 | 2 | 62.1 | 10 |  |
| USAWH102 | - 156.80 | 6 | - 111.40 | 38.57 | 5.51 | 1.55 | 138 | 2 | 63.2 | 10 |  |
| VCT00001 | -79.30 | 6 | -61.18 | 13.23 | 0.80 | 0.80 | 90 | 2 | 58.4 |  |  |
| VEN11VEN | -103.80 | 6 | -66.79 | 6.90 | 2.50 | 1.77 | 122 | 2 | 65.1 | 10 |  |


| CAN01201 | -138.20 | 7 | -112.04 | 55.95 | 3.35 | 0.97 | 151 | 1 | 59.6 | 9/GR10 | 10 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CAN01202 | - 72.70 | 7 | -107.70 | 55.63 | 2.74 | 1.12 | 32 | 1 | 59.6 |  |  |
| CAN01203 | -129.20 | 7 | -11148 | 55.61 | 3.08 | 1.15 | 151 | 1 | 59.5 | 9/GR12 | 10 |
| CAN01303 | - 129.20 | 7 | -102 42 | 57.12 | 3.54 | 091 | 154 | 1 | 60.1 | 9/GR12 | 10 |
| CAN01304 | -91.20 | 7 | -99 12 | 57.36 | 1.98 | 1.72 | 2 | 1 | 59.8 | 9/GR13 |  |
| CAN01403 | -129 20 | 7 | -89.75 | 52.02 | 4.68 | 0.80 | 148 | 1 | 61.8 | 9/GR12 | 10 |
| CAN01404 | -9120 | 7 | -84.82 | 52.42 | 3.10 | 2.05 | 152 | 1 | 60.4 | 9/GR13 | 10 |
| CAN01405 | -82.20 | 7 | -84.00 | 5239 | 2.84 | 2.29 | 172 | 1 | 60.3 | 9/GR14 | 10 |
| CAN01504 | -91.20 | 7 | -7266 | 5377 | 3.57 | 1.67 | 156 | 1 | 60.2 | 9/GR13 | 10 |
| CAN01505 | -82.20 | 7 | -7177 | 53.79 | 3.30 | 1.89 | 162 | 1 | 60.1 | 9/GR14 | 10 |
| CAN01605 | -82.20 | 7 | -61.50 | 4955 | 2.65 | 140 | 143 | 1 | 60.3 | 9/GR14 | 10 |
| CAN01606 | - 70.70 | 7 | -61.30 | 49.55 | 2.40 | 1.65 | 148 | 1 | 60.2 | 10 |  |
| CHLCONT5 | - 106.20 | 7 | -72.23 | -35.57 | 2.60 | 0.80 | 55 | 1 | 59.4 | 9/GR17 |  |
| CHLPAC02 | -10620 | 7 | -80.06 | -30.06 | 1.36 | 0.80 | 69 | 1 | 59.2 | 9/GR17 |  |
| CLMAND01 | -115.20 | 7 | -74.72 | 593 | 3.85 | 1.63 | 114 | 1 | 65.0 | 9/GR5 |  |
| CLM00001 | - 103.20 | 7 | -74.50 | 587 | 3.98 | 1.96 | 118 | 1 | 63.6 | 10 |  |
| CUB00001 | -89.20 | 7 | -79.81 | 21.62 | 224 | 0.80 | 168 | 1 | 61.1 |  |  |
| EQACAND1 | -11520 | 7 | -78.40 | -1.61 | 1.37 | 0.95 | 75 | 1 | 64.1 | 9/GR5 |  |
| EQAGAND1 | -115.20 | 7 | -90.34 | -0.62 | 0.90 | 0.81 | 89 | 1 | 61.3 | 9/GR5 |  |
| GRD00002 | -42.20 | 7 | -61.58 | 12.29 | 0.80 | 0.80 | 90 | 1 | 58.8 |  |  |
| GRD00059 | - 57.20 | 7 | -61.58 | 12.29 | 0.80 | 0.80 | 90 | 1 | 58.5 |  |  |
| GRLDNK01 | -53.20 | 7 | -44.89 | 66.56 | 2.70 | 0.82 | 173 | , | 60.0 | 2 | 10 |
| HWA00002 | $-166.20$ | 7 | - 165.79 | 23.4? | 4.20 | 0.80 | 160 | 1 | 58.8 | 9/GR1 | 10 |
| HWA00003 | - 175.20 | 7 | -166.10 | 23.42 | 4.25 | 0.80 | 159 | 1 | 58.8 | 9/GR2 | 10 |

12311,48 MHz (7)

| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| MEX01NTE | -78.20 | 7 | - 105.81 | 26.01 | 2.89 | 2.08 | 155 | 1 | 60.5 | 1 |  |
| MEX01SUR | -69.20 | 7 | -94.84 | 19.82 | 3.05 | 2.09 | 4 | 1 | 62.3 | 1 | 10 |
| MEX02NTE | -136.20 | 7 | - 107.21 | 26.31 | 3.84 | 1.55 | 148 | 1 | 61.2 | 1 | 10 |
| MEX02SUR | - 127.20 | 7 | -9639 | 19.88 | 3.18 | 1.87 | 157 | 1 | 62.6 | 1 | 10 |
| PAQPAC01 | - 106.20 | 7 | - 109.18 | -27.53 | 0.80 | 0.80 | 90 | 1 | 56.2 | 9/GR17 |  |
| PRG00002 | -99.20 | 7 | -58.66 | -23.32 | 1.45 | 1.04 | 76 | 1 | 60.2 |  |  |
| PRUAND02 | -115.20 | 7 | -74.69 | -8.39 | 3.41 | 1.79 | 95 | 1 | 64.0 | 9/GR5 |  |
| PTRVIR01 | -101.20 | 7 | -65.85 | 18.12 | 0.80 | 0.80 | 90 | 1 | 60.6 | 16 9/GR20 |  |
| PTRVIR02 | - 110.20 | 7 | -65.86 | 18.12 | 0.80 | 0.80 | 90 | 1 | 61.0 | 16 9/GR21 |  |
| SURINAM2 | -84.70 | 7 | -55.69 | 4.35 | 1.00 | 0.80 | 86 | 1 | 63.2 |  |  |
| URG00001 | - 71.70 | 7 | -56.22 | -32.52 | 1.02 | 0.89 | 11 | 1 | 60.0 |  |  |
| USAEH001 | -61.70 | 7 | -85.19 | 3621 | 5.63 | 3.33 | 22 | 1 | 61.8 | 156 | 10 |
| USAEH002 | - 101.20 | 7 | -89.24 | 36.16 | 5.67 | 3.76 | 170 | 1 | 617 | 16 9/GR20 | 10 |
| USAEH003 | -110.20 | 7 | -90.14 | 3611 | 5.55 | 3.55 | 161 | 1 | 62.1 | 16 9/GR21 | 10 |
| USAEH004 | - 119.20 | 7 | -91.16 | 36.05 | 5.38 | 3.24 | 152 | 1 | 62.6 | 156 | 10 |
| USAPSA02 | -166.20 | 7 | - 117.80 | 40.58 | 4.03 | 0.82 | 135 | 1 | 63.3 | 9/GR1 |  |
| USAPSA03 | -175.20 | 7 | -118.27 | 40.12 | 3.62 | 0.80 | 136 | 1 | 65.0 | 9/GR2 |  |
| USAWH101 | - 148.20 | 7 | - 109.65 | 38.13 | 5.53 | 1.95 | 142 | 1 | 62.1 | 10 |  |
| USAWH102 | - 157.20 | 7 | - 111.41 | 38.57 | 5.51 | 1.54 | 138 | 1 | 63.2 | 10 |  |
| VENAND03 | - 115.20 | 7 | -67.04 | 6.91 | 2.37 | 1.43 | 111 | 1 | 67.3 | 9/GR5 |  |

12326,06 MHz

| ALS00002 | -165.80 | 8 | -149.63 | 58.52 | 3.81 | 1.23 | 171 | 2 | 59.8 | 9/GR1 | 10 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALS00003 | - 174.80 | 8 | -150.95 | 58.54 | 3.77 | 1.11 | 167 | 2 | 60.0 | 9/GR2 | 10 |
| ARGNORT4 | -93.80 | 8 | -63.96 | -30.01 | 3.86 | 1.99 | 48 | 2 | 65.7 | 10 |  |
| ARGNORT5 | -54.80 | 8 | -62.85 | -29.80 | 3.24 | 2.89 | 47 | 2 | 63.5 | 10 |  |
| B CE311 | -63.80 | 8 | -40.60 | -6 07 | 3.04 | 2.06 | 174 | 2 | 61.6 | 8 9/GR7 | 10 |
| B CE312 | -44.80 | 8 | -40.26 | -6.06 | 3.44 | 2.09 | 174 | 2 | 61.0 | 8 9/GR9 | 10 |
| B CE411 | -63.80 | 8 | -50.97 | -15.26 | 3.86 | 1.38 | 49 | 2 | 62.6 | 8 9/GR7 | 10 |
| B CE412 | -44.80 | 8 | -50.71 | -15.30 | 3.57 | 1.56 | 52 | 2 | 62.8 | 8 9/GR9 | 10 |
| B CE511 | -63.80 | 8 | -53.11 | -2.98 | 2.42 | 2.15 | 107 | 2 | 63.1 | 8 9/GR7 | 10 |
| B N0611 | -73.80 | 8 | -59 60 | -11.62 | 2.86 | 1.69 | 165 | 1 | 62.9 | 8 9/GR8 | 10 |
| B NO711 | -73.80 | 8 | -60.70 | -1.78 | 3.54 | 1.78 | 126 | 1 | 62.8 | 8 9/GR8 | 10 |
| B NO811 | - 73.80 | 8 | -68.75 | -4.71 | 2.37 | 1.65 | 73 | 1 | 62.8 | 8 9/GR8 |  |
| B SE911 | -101.80 | 8 | -45.99 | -19.09 | 2.22 | 0.80 | 62 | 2 | 65.3 | - | 10 |
| B SU111 | -80.80 | 8 | -51.10 | -25.64 | 2.76 | 1.06 | 50 | 2 | 62.9 | 8 9/GR6 | 10 |
| B SU112 | -44.80 | 8 | -50.76 | -25.62 | 2.47 | 1.48 | 56 | 2 | 62.3 | 8 9/GR9 |  |
| B SU211 | -80.80 | 8 | -44.51 | -16.94 | 3.22 | 1.37 | 60 | 2 | 62.5 | 8 9/GR6 | 10 |
| B SU212 | -44.80 | 8 | -43.99 | -16.97 | 3.27 | 1.92 | 59 | 2 | 61.3 | 8 9/GR9 |  |
| CAN01101 | -137.80 | 8 | -125 60 | 57.24 | 3.45 | 1.27 | 157 | 2 | 59.5 | 9/GR10 | 10 |
| CAN01201 | -137.80 | 8 | -111.92 | 55.89 | 3.33 | 098 | 151 | 2 | 59.6 | 9/GR10 | 10 |
| CAN01202 | -72.30 | 8 | -107.64 | 55.62 | 2.75 | 1.11 | 32 | 2 | 59.6 |  |  |
| CAN01203 | - 128.80 | 8 | -111.43 | 55.56 | 3.07 | 1.15 | 151 | 2 | 59.5 | 9/GR12 | 10 |
| CAN01303 | -128.80 | 8 | - 102.39 | 57.12 | 3.54 | 0.92 | 154 | 2 | 60.1 | 9/GR12 | 10 |
| CAN01304 | -90.80 | 8 | -99.00 | 57.33 | 1.96 | 1.73 | 1 | 2 | 59.8 | 9/GR13 |  |
| CAN01403 | -128.80 | 8 | -89.70 | 52.02 | 4.67 | 0.80 | 148 | 2 | 61.8 | 9/GR12 | 10 |

12326,06 MHz (8)

| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CAN01404 | -90.80 | 8 | -84.78 | 52.41 | 3.09 | 2.06 | 153 | 2 | 60.4 | 9/GR13 | 10 |
| CAN01405 | -81.80 | 8 | -84.02 | 52.34 | 2.82 | 2.30 | 172 | 2 | 60.3 | 9/GR14 | 10 |
| CAN01504 | -90.80 | 8 | -72.68 | 53.78 | 3.57 | 1.67 | 157 | 2 | 60.2 | 9/GR13 | 10 |
| CAN01505 | -81.80 | 8 | -71.76 | 53.76 | 3.30 | 1.89 | 162 | 2 | 60.2 | 9/GR14 | 10 |
| CAN01605 | -81.80 | 8 | -61.54 | 49.50 | 2.66 | 1.39 | 144 | 2 | 60.3 | 9/GR14 | 10 |
| CAN01606 | -70.30 | 8 | -61.32 | 49.51 | 2.41 | 1.65 | 148 | 2 | 60.2 | 10 |  |
| CHLCONT4 | -105.80 | 8 | -69.59 | -23.20 | 2.21 | 0.80 | 68 | 2 | 59.1 | 9/GR16 |  |
| CHLCONT6 | - 105.80 | 8 | -7352 | -55.52 | 3.65 | 1.31 | 39 | 2 | 59.6 | 9/GR16 |  |
| CRBBAH01 | -92.30 | 8 | -7609 | 24.13 | 1.83 | 0.80 | 141 | 1 | 61.7 | 9/GR18 |  |
| CRBBER01 | -92.30 | 8 | -64.76 | 32.13 | 0.80 | 0.80 | 90 | 1 | 56.8 | 9/GR18 |  |
| CRBBLZ01 | -92.30 | 8 | -88.61 | 17.26 | 0.80 | 0.80 | 90 | 1 | 58.7 | 9/GR18 |  |
| CRBEC001 | -92.30 | 8 | -60.07 | 8.26 | 4.20 | 0.86 | 115 | 1 | 64.3 | 9/GR18 | 10 |
| CRBJMC01 | -9230 | 8 | -79.45 | 17.97 | 0.99 | 0.80 | 151 | 1 | 61.1 | 9/GR18 |  |
| CYM00001 | -115.80 | 8 | -80.58 | 19.57 | 0.80 | 0.80 | 90 | 2 | 59.6 |  |  |
| DOMIFRB2 | -83.30 | 8 | - 70.51 | 18.79 | 098 | 0.80 | 167 | 2 | 61.1 |  |  |
| EQAC0001 | -94.80 | 8 | -7831 | -1.52 | 148 | 1.15 | 65 | , | 630 | 9/GR19 |  |
| EQAG0001 | -94.80 | 8 | -90.36 | -0.57 | 094 | 0.89 | 99 | 1 | 61.0 | 9/GR19 |  |
| GUFMGG02 | -52.80 | 8 | -56.42 | 8.47 | 4.16 | 0.81 | 123 | 2 | 62.7 | 27 | 10 |
| HWA00002 | - 165.80 | 8 | - 165.79 | 23.32 | 4.20 | 0.80 | 160 | 2 | 58.8 | 9/GR1 | 10 |
| HWA00003 | -174.80 | 8 | -166.10 | 23.42 | 4.25 | 080 | 159 | 2 | 58.8 | 9/GR2 | 10 |
| JMC00005 | -33.80 | 8 | -77.27 | 18.12 | 0.80 | 080 | 90 | 2 | 60.6 |  |  |
| LCAIFRB1 | -79.30 | 8 | -61.15 | 13.90 | 0.80 | 0.80 | 90 | 2 | 58.4 |  |  |
| MEX01NTE | -77.80 | 8 | - 105.80 | 25.99 | 2.88 | 207 | 155 | 2 | 60.5 | 1 |  |
| MEX02NTE | $-135.80$ | 8 | -107.36 | 26.32 | 380 | 1.57 | 149 | 2 | 61.2 | 1 | 10 |

12326,06 MHz (8)

| MEXO2SUR | -126.80 | 8 | -96.39 | 19.88 | 3.19 | 1.87 | 158 | 2 | 62.5 | 1 | 10 |
| :--- | ---: | :--- | ---: | ---: | ---: | ---: | ---: | :--- | :--- | :--- | :--- |
| PRU00004 | -85.80 | 8 | -74.19 | -8.39 | 3.74 | 2.45 | 112 | 2 | 62.9 | 10 | 10 |
| PTRVIR01 | -100.80 | 8 | -6585 | 1812 | 0.80 | 0.80 | 90 | 2 | 60.6 | $169 /$ GR20 |  |
| PTRVIR02 | -109.80 | 8 | -65.85 | 18.12 | 0.80 | 0.80 | 90 | 2 | 61.1 | 1699 GR21 |  |
| SLVIFRB2 | -107.30 | 8 | -88.91 | 1359 | 0.80 | 0.80 | 90 | 1 | 61.7 |  |  |
| USAEH001 | -61.30 | 8 | -85.16 | 3621 | 5.63 | 3.32 | 22 | 2 | 61.9 | 156 | 10 |
| USAEH002 | -100.80 | 8 | -89.28 | 36.16 | 5.65 | 3.78 | 170 | 2 | 61.7 | $169 /$ GR20 | 10 |
| USAEH003 | -109.80 | 8 | -90.12 | 36.11 | 5.55 | 3.56 | 161 | 2 | 62.1 | $1699 / G R 21$ | 10 |
| USAEH004 | -118.80 | 8 | -91.16 | 36.05 | 5.38 | 3.24 | 153 | 2 | 62.6 | 156 | 10 |
| USAPSA02 | -165.80 | 8 | -117.79 | 40.58 | 4.04 | 0.82 | 135 | 2 | 63.3 | $9 /$ GR1 |  |
| USAPSA03 | -174.80 | 8 | -118.20 | 40.15 | 3.63 | 0.80 | 136 | 2 | 650 | $9 / G R 2$ |  |
| USAWH101 | -147.80 | 8 | -109.70 | 38.13 | 5.52 | 1.96 | 142 | 2 | 62.1 | 10 |  |
| USAWH102 | -15680 | 8 | -111.40 | 38.57 | 551 | 1.55 | 138 | 2 | 63.2 | 10 |  |
| VEN11VEN | -103.80 | 8 | -66.79 | 6.90 | 2.50 | 1.77 | 122 | 2 | 65.2 | 10 |  |

12340,64 MHz

| CAN01303 | -129 20 | 9 | - 102.42 | 57.12 | 3.54 | 0.91 | 154 | 1 | 60.0 | 9/GR12 | 10 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CAN01304 | -91.20 | 9 | -99.12 | 57.36 | 1.98 | 1.72 | 2 | 1 | 59.8 | 9/GR13 |  |
| CAN01403 | - 129.20 | 9 | -89.75 | 52.02 | 4.68 | 0.80 | 148 | 1 | 61.8 | 9/GR12 | 10 |
| CAN01404 | -91.20 | 9 | -84.82 | 52.42 | 3.10 | 2.05 | 152 | 1 | 60.4 | 9/GR13 | 10 |
| CAN01405 | -82.20 | 9 | -84.00 | 52.39 | 2.84 | 2.29 | 172 | 1 | 60.3 | 9/GR14 | 10 |
| CAN01504 | -91.20 | 9 | -72.66 | 53.77 | 3.57 | 1.67 | 156 | 1 | 60.2 | 9/GR13 | 10 |
| CAN01505 | -82.20 | 9 | - 71.77 | 53.79 | 3.30 | 1.89 | 162 | 1 | 60.1 | 9/GR14 | 10 |
| CAN01605 | -82.20 | 9 | -61.50 | 49.55 | 2.65 | 1.40 | 143 | 1 | 60.3 | 9/GR14 | 10 |
| CAN01606 | -70.70 | 9 | -61.30 | 49.55 | 2.40 | 1.65 | 148 | 1 | 60.2 | 10 |  |
| CHLCONT5 | - 106.20 | 9 | -72.23 | -35.57 | 2.60 | 0.80 | 55 | 1 | 59.4 | 9/GR17 |  |
| CHLPAC02 | - 106.20 | 9 | -80.06 | -30 06 | 1.36 | 0.80 | 69 | 1 | 59.2 | 9/GR17 |  |
| CLMAND01 | -115.20 | 9 | -74.72 | 593 | 3.85 | 1.63 | 114 | 1 | 64.9 | 9/GR5 |  |
| CLM00001 | -103.20 | 9 | -7450 | 5.87 | 398 | 196 | 118 | 1 | 63.5 | 10 |  |
| EQACAND1 | -115.20 | 9 | -7840 | -1.61 | 137 | 095 | 75 | 1 | 64.0 | 9/GR5 |  |
| EQAGAND1 | - 115.20 | 9 | -9034 | -0.62 | 0.90 | 0.81 | 89 | 1 | 61.3 | 9/GR5 |  |
| FLKANT01 | -57.20 | 9 | -4454 | -60.13 | 3.54 | 0.80 | 12 | 1 | 59.3 | 2 | 10 |
| FLKFALKS | -31.00 | 9 | -59.90 | -5164 | 0.80 | 0.80 | 90 | 1 | 58.1 | 2 |  |
| GRD00002 | -42.20 | 9 | -61.58 | 1229 | 0.80 | 0.80 | 90 | 1 | 58.8 |  |  |
| HWA00002 | -166.20 | 9 | - 165.79 | 2342 | 4.20 | 0.80 | 160 | 1 | 58.8 | 9/GR1 | 10 |
| HWA00003 | -175.20 | 9 | - 166.10 | 23.42 | 4.25 | 0.80 | 159 | 1 | 58.8 | 9/GR2 | 10 |
| MEX01NTE | -78.20 | 9 | - 105.81 | 26.01 | 2.89 | 2.08 | 155 | 1 | 605 | 1 |  |
| MEX01SUR | -69.20 | 9 | -94.84 | 19.82 | 3.05 | 2.09 | 4 | 1 | 62.2 | , | 10 |
| MEX02NTE | -136.20 | 9 | -107.21 | 2631 | 3.84 | 1.55 | 148 | 1 | 61.2 | 1 | 10 |
| MEX02SUR | -12720 | 9 | -96.39 | 19.88 | 3.18 | 1.87 | 157 | 1 | 62.5 | 1 | 10 |

12340,64 MHz (9)

| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| PAOPAC01 | -106.20 | 9 | -109.18 | -27.53 | 0.80 | 0.80 | 90 | 1 | 56.2 | 9/GR17 |  |
| PRG00002 | -99.20 | 9 | -58.66 | -23.32 | 1.45 | 1.04 | 76 | 1 | 60.2 |  |  |
| PRUAND02 | -115.20 | 9 | -74.69 | -8.39 | 3.41 | 1.79 | 95 | 1 | 63.9 | 9/GR5 |  |
| PTRVIR01 | - 101.20 | 9 | -65.85 | 18.12 | 0.80 | 0.80 | 90 | 1 | 60.5 | 16 9/GR20 |  |
| PTRVIR02 | - 110.20 | 9 | -65.86 | 18.12 | 0.80 | 0.80 | 90 | 1 | 61.0 | 16 9/GR21 |  |
| SPMFRAN3 | -5320 | 9 | -67.24 | 47.51 | 3.16 | 0.80 | 7 | 1 | 60.4 | 27 | 10 |
| TRD00001 | -84.70 | 9 | -6123 | 10.70 | 0.80 | 080 | 90 | 1 | 59.4 |  |  |
| URG00001 | -71.70 | 9 | -56.22 | -32.52 | 1.02 | 0.89 | 11 | 1 | 60.0 |  |  |
| USAEH001 | -61.70 | 9 | -85.19 | 36.21 | 5.63 | 3.33 | 22 | 1 | 61.8 | 156 | 10 |
| USAEH002 | -101.20 | 9 | -89.24 | 36.16 | 5.67 | 3.76 | 170 | 1 | 61.7 | 16 9/GR20 | 10 |
| USAEH003 | -110.20 | 9 | -90.14 | 36.11 | 5.55 | 3.55 | 161 | 1 | 62.0 | 16 9/GR21 | 10 |
| USAEH004 | - 119.20 | 9 | -91.16 | 36.05 | 5.38 | 3.24 | 152 | 1 | 62.6 | 156 | 10 |
| USAPSA02 | -166.20 | 9 | - 117.80 | 40.58 | 403 | 0.82 | 135 | 1 | 63.2 | 9/GR1 |  |
| USAPSA03 | -175.20 | 9 | -118.27 | 40.12 | 3.62 | 0.80 | 136 | 1 | 65.0 | 9/GR2 |  |
| USAWH101 | - 148.20 | 9 | -109.65 | 38.13 | 5.53 | 1.95 | 142 | 1 | 62.1 | 10 |  |
| USAWH102 | - 157.20 | 9 | - 111.41 | 38.57 | 5.51 | 1.54 | 138 | 1 | 632 | 10 |  |
| VENAND03 | -115.20 | 9 | -67.04 | 6.91 | 2.37 | 1.43 | 111 | 1 | 67.2 | 9/GR5 |  |
| VRG00001 | -79.70 | 9 | -64.37 | 18.48 | 080 | 0.80 | 90 | 1 | 58.3 | 4 |  |

12355, 22 MHz (10)

| ALS00002 | -165 80 | 10 | - 149.63 | 58.52 | 3.81 | 1.23 | 171 | 2 | 59.7 | 9/GR1 | 10 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALS00003 | - 17480 | 10 | -150.95 | 58.54 | 3.77 | 1.11 | 167 | 2 | 600 | 9/GR2 | 10 |
| ARGNORT4 | -93.80 | 10 | -63.96 | -30.01 | 3.86 | 1.99 | 48 | 2 | 65.6 | 10 |  |
| ARGNORT5 | -54.80 | 10 | -62.85 | -29.80 | 3.24 | 2.89 | 47 | 2 | 63.5 | 10 |  |
| ATNBEAM1 | - 52.80 | 10 | -66.44 | 14.87 | 1.83 | 0.80 | 39 | 2 | 61.0 |  |  |
| B CE311 | -63.80 | 10 | -40.60 | -6.07 | 3.04 | 2.06 | 174 | 2 | 61.6 | 8 9/GR7 | 10 |
| B CE312 | -44.80 | 10 | -40.26 | -6.06 | 3.44 | 2.09 | 174 | 2 | 61.0 | 8 9/GR9 | 10 |
| B CE411 | -63.80 | 10 | -50.97 | -15.26 | 3.86 | 1.38 | 49 | 2 | 62.6 | 8 9/GR7 | 10 |
| B CE412 | -44.80 | 10 | -50.71 | - 15.30 | 3.57 | 1.56 | 52 | 2 | 62.7 | 8 9/GR9 | 10 |
| B CE511 | -63.80 | 10 | -5311 | -2.98 | 2.42 | 2.15 | 107 | 2 | 63.1 | 8 9/GR7 | 10 |
| B NO611 | -73.80 | 10 | -59.60 | -11.62 | 2.86 | 1.69 | 165 | 1 | 62.8 | 8 9/GR8 | 10 |
| B NO711 | -7380 | 10 | -60.70 | -1.78 | 3.54 | 1.78 | 126 | 1 | 62.8 | 8 9/GR8 | 10 |
| B N0811 | -73.80 | 10 | -68.75 | -4.71 | 237 | 1.65 | 73 | 1 | 62.8 | 8 9/GR8 |  |
| B SE911 | -10180 | 10 | -4599 | -19.09 | 2.22 | 0.80 | 62 | 2 | 65.3 | 8 | 10 |
| B SU111 | -8080 | 10 | -51.10 | -25.64 | 2.76 | 1.06 | 50 | 2 | 62.8 | 8 9/GR6 | 10 |
| B SU112 | -44.80 | 10 | -50.76 | - 25.62 | 2.47 | 1.48 | 56 | 2 | 62.3 | 8 9/GR9 |  |
| B SU211 | -80.80 | 10 | -44.51 | - 16.94 | 3.22 | 1.37 | 60 | 2 | 62.5 | 8 9/GR6 | 10 |
| B SU212 | -4480 | 10 | -43.99 | -16.97 | 3.27 | 192 | 59 | 2 | 61.3 | 8 9/GR9 |  |
| CAN01101 | -137.80 | 10 | - 125.60 | 57.24 | 3.45 | 1.27 | 157 | 2 | 59.5 | 9/GR10 | 10 |
| CAN01201 | -13780 | 10 | - 111.92 | 55.89 | 3.33 | 0.98 | 151 | 2 | 59.6 | 9/GR10 | 10 |
| CAN01202 | -72.30 | 10 | -10764 | 55.62 | 2.75 | 1.11 | 32 | 2 | 59.6 |  |  |
| CAN01203 | - 128.80 | 10 | -111.43 | 55.56 | 307 | 1.15 | 151 | 2 | 595 | 9/GR12 | 10 |
| CAN01303 | - 128.80 | 10 | - 102.39 | 57.12 | 3.54 | 0.92 | 154 | 2 | 600 | 9/GR12 | 10 |
| CAN01304 | -90.80 | 10 | -99.00 | 57.33 | 1.96 | 1.73 | 1 | 2 | 59.8 | 9/GR13 |  |


| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CAN01403 | -128.80 | 10 | -89.70 | 52.02 | 4.67 | 0.80 | 148 | 2 | 61.8 | 9/GR12 | 10 |
| CAN01404 | -90.80 | 10 | -84.78 | 52.41 | 3.09 | 2.06 | 153 | 2 | 60.4 | 9/GR13 | 10 |
| CAN01405 | -81.80 | 10 | -84.02 | 52.34 | 2.82 | 2.30 | 172 | 2 | 60.3 | 9/GR14 | 10 |
| CAN01504 | -90.80 | 10 | - 72.68 | 53.78 | 3.57 | 1.67 | 157 | 2 | 60.2 | 9/GR13 | 10 |
| CAN01505 | -81.80 | 10 | -71.76 | 53.76 | 3.30 | 1.89 | 162 | 2 | 60.1 | 9/GR14 | 10 |
| CAN01605 | -81.80 | 10 | -61 54 | 49.50 | 2.66 | 1.39 | 144 | 2 | 60.3 | 9/GR14 | 10 |
| CAN01606 | -70.30 | 10 | -61.32 | 49.51 | 2.41 | 1.65 | 148 | 2 | 60.2 | 10 |  |
| CHLCONT4 | - 105.80 | 10 | -69.59 | -23.20 | 2.21 | 0.80 | 68 | 2 | 59.1 | 9/GR16 |  |
| CHLCONT6 | - 105.80 | 10 | - 73.52 | -55.52 | 3.65 | 1.31 | 39 | 2 | 59.6 | 9/GR16 |  |
| CRBBAH01 | -92.30 | 10 | - 76.09 | 24.13 | 1.83 | 0.80 | 141 | 1 | 61.7 | 9/GR18 |  |
| Crbbero1 | -92.30 | 10 | -64.76 | 32.13 | 0.80 | 0.80 | 90 | 1 | 56.7 | 9/GR18 |  |
| CRBBLZ01 | -92.30 | 10 | -88.61 | 17.26 | 0.80 | 0.80 | 90 | 1 | 58.6 | 9/GR18 |  |
| CRBEC001 | -92.30 | 10 | -60.07 | 8.26 | 4.20 | 0.86 | 115 | 1 | 64.2 | 9/GR18 | 10 |
| CRBJMC01 | -92.30 | 10 | -79.45 | 17.97 | 0.99 | 0.80 | 151 | 1 | 61.1 | 9/GR18 |  |
| CTR00201 | - 130.80 | 10 | -84.33 | 967 | 0.82 | 0.80 | 119 | 2 | 65.6 |  |  |
| EQAC0001 | -94.80 | 10 | -78.31 | -1.52 | 1.48 | 1.15 | 65 | 1 | 63.0 | 9/GR19 |  |
| EQAG0001 | -94.80 | 10 | -90.36 | -0.57 | 0.94 | 0.89 | 99 | 1 | 61.0 | 9/GR19 |  |
| GUY00302 | - 33.80 | 10 | -59.07 | 4.77 | 1.43 | 085 | 91 | 2 | 63.5 |  |  |
| HNDIFRB2 | - 107.30 | 10 | -86.23 | 15.16 | 1.14 | 0.85 | 8 | 1 | 63.4 |  |  |
| HT100002 | -83.30 | 10 | -73.28 | 18.96 | 0.82 | 0.80 | 11 | 2 | 60.9 |  |  |
| HWA00002 | -165.80 | 10 | -165.79 | 23.32 | 4.20 | 0.80 | 160 |  | 58.8 | 9/GR1 | 10 |
| HWA00003 | - 174.80 | 10 | - 166.10 | 23.42 | 4.25 | 0.80 | 159 | 2 | 58.8 | 9/GR2 | 10 |
| MEX01NTE | -77.80 | 10 | -105.80 | 25.99 | 2.88 | 2.07 | 155 | 2 | 60.5 | 1 |  |
| MEX02NTE | -13580 | 10 | -107.36 | 26.32 | 3.80 | 1.57 | 149 | 2 | 61.2 | 1 | 10 |

12355,22 MHz

| MEX02SUR | -126.80 | 10 | -9639 | 1988 | 3.19 | 1.87 | 158 | 2 | 62.5 | 1 | 10 |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | :--- | :--- | :--- | :--- |
| PRU00004 | -85.80 | 10 | -74.19 | -8.39 | 3.74 | 245 | 112 | 2 | 62.8 | 10 |  |
| PTRVIR01 | -100.80 | 10 | -65.85 | 1812 | 0.80 | 080 | 90 | 2 | 60.6 | $169 /$ GR20 |  |
| PTRVIR02 | -109.80 | 10 | -6585 | 18.12 | 080 | 0.80 | 90 | 2 | 61.1 | $1699 /$ GR21 |  |
| TCA00001 | -115.80 | 10 | -71.79 | 21.53 | 080 | 0.80 | 90 | 2 | 60.4 |  |  |
| USAEH001 | -61.30 | 10 | -8516 | 36.21 | 5.63 | 3.32 | 22 | 2 | 61.8 | 156 | 10 |
| USAEH002 | -100.80 | 10 | -8928 | 3616 | 5.65 | 3.78 | 170 | 2 | 61.7 | $169 /$ GR20 | 10 |
| USAEH003 | -109.80 | 10 | -9012 | 36.11 | 5.55 | 356 | 161 | 2 | 62.1 | $1699 /$ GR21 | 10 |
| USAEH004 | -118.80 | 10 | -9116 | 36.05 | 5.38 | 3.24 | 153 | 2 | 62.6 | 156 | 10 |
| USAPSA02 | -165.80 | 10 | -11779 | 40.58 | 4.04 | 0.82 | 135 | 2 | 63.2 | $9 / G R 1$ |  |
| USAPSA03 | -17480 | 10 | -11820 | 4015 | 3.63 | 080 | 136 | 2 | 64.9 | $9 /$ GR2 |  |
| USAWH101 | -147.80 | 10 | -10970 | 38.13 | 552 | 1.96 | 142 | 2 | 62.1 | 10 |  |
| USAWH102 | -15680 | 10 | -111.40 | 38.57 | 5.51 | 1.55 | 138 | 2 | 63.2 | 10 |  |
| VCTOOOO1 | -7930 | 10 | -6118 | 1323 | 080 | 0.80 | 90 | 2 | 58.4 |  |  |
| VEN11VEN | -103.80 | 10 | -6679 | 690 | 2.50 | 177 | 122 | 2 | 651 | 10 |  |

12369,80 MHz (11)

| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALS00002 | -166.20 | 11 | - 149.66 | 58.37 | 3.76 | 1.24 | 170 | 1 | 59.8 | 9/GR1 | 10 |
| ALS00003 | - 175.20 | 11 | - 150.98 | 5853 | 3.77 | 1.11 | 167 | 1 | 60.0 | 9/GR2 | 10 |
| ARGINSU4 | -94.20 | 11 | -52.98 | -59.81 | 340 | 0.80 | 19 | 1 | 59.9 | 9/GR3 |  |
| ARGINSU5 | -55.20 | 11 | -44.17 | -59.91 | 3.77 | 0.80 | 13 | , | 59.3 | 9/GR4 | 10 |
| ARGSUR04 | -94.20 | 11 | -65.04 | -43.33 | 3.32 | 1.50 | 40 | 1 | 607 | 9/GR3 | 10 |
| ARGSUR05 | -55.20 | 11 | -63.68 | -43.01 | 2.54 | 2.38 | 152 | 1 | 60.1 | 9/GR4 | 10 |
| ATGSJN01 | -79.70 | 11 | -61.79 | 17.07 | 0.80 | 0.80 | 90 | 1 | 58.4 |  |  |
| B CE311 | -64.20 | 11 | -40.60 | -6.07 | 3.04 | 2.06 | 174 | 1 | 61.6 | 8 9/GR7 | 10 |
| B CE312 | -45.20 | 11 | -40.27 | -6.06 | 3.44 | 2.09 | 174 | 1 | 61.0 | 8 9/GR9 | 10 |
| B CE411 | -64.20 | 11 | -50.97 | -15.27 | 3.86 | 1.38 | 49 | 1 | 62.6 | 8 9/GR7 | 10 |
| B CE412 | -45.20 | 11 | -50.71 | -1530 | 3.57 | 1.56 | 52 | 1 | 62.7 | 8 9/GR9 | 10 |
| B CE511 | -64.20 | 11 | -53.10 | -290 | 2.44 | 2.13 | 104 |  | 63.1 | 8 9/GR7 | 10 |
| B N0611 | -74.20 | 11 | -59.60 | -11.62 | 2.85 | 1.69 | 165 | 2 | 62.9 | 8 9/GR8 | 10 |
| B N0711 | -74.20 | 11 | -60.70 | -1.78 | 3.54 | 178 | 126 | 2 | 62.8 | 8 9/GR8 | 10 |
| B N0811 | -74.20 | 11 | -68.76 | -471 | 2.37 | 1.65 | 73 | 2 | 62.8 | 8 9/GR8 |  |
| B SU111 | -81.20 | 11 | -51.12 | -25.63 | 2.76 | 1.05 | 50 | 1 | 62.9 | 8 9/GR6 | 10 |
| B SU112 | -45.20 | 11 | -50.75 | -25.62 | 2.47 | 1.48 | 56 | 1 | 62.3 | 8 9/GR9 |  |
| B SU211 | -81.20 | 11 | -44.51 | -16.95 | 3.22 | 1.36 | 60 | 1 | 62.5 | 8 9/GR6 | 10 |
| B SU212 | -45.20 | 11 | -44.00 | -16.87 | 3.20 | 1.96 | 58 | 1 | 61.3 | 8 9/GR9 |  |
| BERBERMU | -96.20 | 11 | -64.77 | 32.32 | 0.80 | 0.80 | 90 | 2 | 56.8 |  |  |
| B OLAND01 | - 115.20 | 11 | -65.04 | -16.76 | 2.49 | 1.27 | 76 | 1 | 67.9 | 9/GR5 |  |
| B OL00001 | -87.20 | 11 | -64.61 | - 16.71 | 2.52 | 219 | 85 | 1 | 63.8 | 10 |  |
| B RB00001 | -92.70 | 11 | -59.85 | 12.93 | 0.80 | 0.80 | 90 | 2 | 59.1 |  |  |
| CAN01101 | - 138.20 | 11 | - 125.63 | 57.24 | 345 | 1.27 | 157 | 1 | 59.5 | 9/GR10 | 10 |

12369,80 MHz (11)

| CAN01201 | $-138.20$ | 11 | -11204 | 55.95 | 3.35 | 0.97 | 151 | 1 | 59.6 | 9/GR10 | 10 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CAN01202 | - 72.70 | 11 | -107.70 | 5563 | 2.74 | 1.12 | 32 | 1 | 59.6 |  |  |
| CAN01203 | - 129.20 | 11 | -11148 | 55.61 | 308 | 1.15 | 151 | 1 | 59.5 | 9/GR12 | 10 |
| CAN01303 | - 12920 | 11 | - 102.42 | 57.12 | 354 | 0.91 | 154 | 1 | 60.1 | 9/GR12 | 10 |
| CAN01304 | -9120 | 11 | -9912 | 57.36 | 1.98 | 1.72 | 2 | 1 | 59.8 | 9/GR13 |  |
| CAN01403 | - 12920 | 11 | -8975 | 52.02 | 4.68 | 0.80 | 148 | 1 | 61.8 | 9/GR12 | 10 |
| CAN01404 | -91.20 | 11 | -84.82 | 52.42 | 3.10 | 205 | 152 | 1 | 60.4 | 9/GR13 | 10 |
| CAN01405 | -82.20 | 11 | -84.00 | 52.39 | 2.84 | 2.29 | 172 | 1 | 603 | 9/GR14 | 10 |
| CAN01504 | -9120 | 11 | - 72.66 | 5377 | 3.57 | 1.67 | 156 | 1 | 60.2 | 9/GR13 | 10 |
| CAN01505 | -82.20 | 11 | -71.77 | 53.79 | 3.30 | 1.89 | 162 | 1 | 60.1 | 9/GR14 | 10 |
| CAN01605 | -82.20 | 11 | -61.50 | 49.55 | 265 | 1.40 | 143 | 1 | 60.3 | 9/GR14 | 10 |
| CAN01606 | -70.70 | 11 | -6130 | 49.55 | 2.40 | 1.65 | 148 | 1 | 602 | 10 |  |
| CHLCONT5 | - 106.20 | 11 | -72.23 | -35.57 | 260 | 080 | 55 | 1 | 59.4 | 9/GR17 |  |
| CHLPAC02 | - 106.20 | 11 | -80.06 | -30.06 | 1.36 | 080 | 69 | 1 | 59.2 | 9/GR17 |  |
| CLMAND01 | - 115.20 | 11 | - 74.72 | 5.93 | 3.85 | 1.63 | 114 | 1 | 65.0 | 9/GR5 |  |
| CLM00001 | - 103.20 | 11 | -74.50 | 5.87 | 3.98 | 1.96 | 118 | 1 | 63.6 | 10 |  |
| CUB00001 | -89.20 | 11 | -79.81 | 21.62 | 2.24 | 0.80 | 168 | 1 | 61.1 |  |  |
| EQACAND1 | - 115.20 | 11 | -78.40 | -1.61 | 1.37 | 0.95 | 75 | 1 | 64.1 | 9/GR5 |  |
| EQAGAND1 | - 115.20 | 11 | -90.34 | -0.62 | 0.90 | 0.81 | 89 | 1 | 61.3 | 9/GR5 |  |
| GRD00002 | -42.20 | 11 | -61.58 | 12.29 | 0.80 | 0.80 | 90 | 1 | 58.8 |  |  |
| GRD00059 | -57.20 | 11 | -61.58 | 12.29 | 080 | 0.80 | 90 | 1 | 585 |  |  |
| GRLDNK01 | -53.20 | 11 | -44.89 | 66.56 | 2.70 | 0.82 | 173 | 1 | 60.0 | 2 | 10 |
| GUY00201 | -84.70 | 11 | -59.19 | 4.78 | 1.44 | 0.85 | 95 | 1 | 63.5 |  |  |
| HWA00002 | - 166.20 | 11 | -165.79 | 23.42 | 4.20 | 0.80 | 160 | 1 | 58.8 | 9/GR1 | 10 |

12369,80 MHz (11)

| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| HWA00003 | $-17520$ | 11 | - 166.10 | 23.42 | 4.25 | 0.80 | 159 | 1 | 58.8 | 9/GR2 | 10 |
| MEX01NTE | -78.20 | 11 | - 105.81 | 26.01 | 2.89 | 2.08 | 155 | 1 | 60.5 | 1 |  |
| MEX01SUR | -69.20 | 11 | -94.84 | 19.82 | 3.05 | 2.09 | 4 | 1 | 62.3 | 1 | 10 |
| MEX02NTE | - 136.20 | 11 | -107.21 | 26.31 | 3.84 | 1.55 | 148 | 1 | 61.2 | 1 | 10 |
| MEX02SUR | - 127.20 | 11 | -96.39 | 19.88 | 3.18 | 1.87 | 157 | 1 | 62.6 | 1 | 10 |
| PAQPAC01 | - 106.20 | 11 | - 109.18 | -27.53 | 0.80 | 0.80 | 90 | 1 | 56.2 | 9/GR17 |  |
| PRG00002 | -9920 | 11 | -58.66 | -23.32 | 1.45 | 1.04 | 76 | 1 | 60.2 |  |  |
| PRUAND02 | -115.20 | 11 | - 74.69 | -8.39 | 3.41 | 1.79 | 95 | 1 | 64.0 | 9/GR5 |  |
| PTRVIR01 | - 10120 | 11 | -65.85 | 18.12 | 0.80 | 0.80 | 90 | 1 | 60.6 | 16 9/GR20 |  |
| PTRVIR02 | - 110.20 | 11 | -65.86 | 18.12 | 0.80 | 0.80 | 90 | 1 | 61.0 | 16 9/GR21 |  |
| URG00001 | -71.70 | 11 | -56.22 | -32.52 | 1.02 | 0.89 | 11 | 1 | 60.0 |  |  |
| USAEH001 | -61.70 | 11 | -8519 | 36.21 | 5.63 | 3.33 | 22 | 1 | 61.8 | 156 | 10 |
| USAEH002 | - 101.20 | 11 | -89.24 | 36.16 | 5.67 | 3.76 | 170 | , | 61.7 | 16 9/GR20 | 10 |
| USAEH003 | - 110.20 | 11 | -90.14 | 36.11 | 5.55 | 3.55 | 161 | 1 | 62.1 | 16 9/GR21 | 10 |
| USAEH004 | - 119.20 | 11 | -91.16 | 36.05 | 5.38 | 3.24 | 152 | 1 | 62.6 | 156 | 10 |
| USAPSA02 | -16620 | 11 | -117.80 | 40.58 | 4.03 | 0.82 | 135 | 1 | 63.3 | 9/GR1 |  |
| USAPSA03 | - 175.20 | 11 | - 118.27 | 40.12 | 3.62 | 0.80 | 136 | , | 65.0 | 9/GR2 |  |
| USAWH101 | - 148.20 | 11 | - 109.65 | 38.13 | 5.53 | 1.95 | 142 | 1 | 62.1 | 10 |  |
| USAWH102 | - 157.20 | 11 | - 11141 | 38.57 | 5.51 | 1.54 | 138 | 1 | 63.2 | 10 |  |
| VENAND03 | - 115.20 | 11 | -67.04 | 6.91 | 2.37 | 1.43 | 111 | 1 | 67.3 | 9/GR5 |  |


| ALS00002 | -165 80 | 12 | -149.63 | 58.52 | 3.81 | 1.23 | 171 | 2 | 59.8 | 9/GR1 | 10 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALS00003 | -174.80 | 12 | - 150.95 | 5854 | 3.77 | 1.11 | 167 | 2 | 60.0 | 9/GR2 | 10 |
| ARGNORT4 | -93.80 | 12 | -63.96 | -30.01 | 3.86 | 1.99 | 48 | 2 | 65.7 | 10 |  |
| ARGNORT5 | -54.80 | 12 | -62.85 | -29.80 | 3.24 | 2.89 | 47 | 2 | 63.5 | 10 |  |
| B CE311 | -63.80 | 12 | -40.60 | -6.07 | 3.04 | 2.06 | 174 | 2 | 61.6 | 8 9/GR7 | 10 |
| B CE312 | -44.80 | 12 | -40.26 | -606 | 3.44 | 2.09 | 174 | 2 | 61.0 | 8 9/GR9 | 10 |
| B CE411 | -63.80 | 12 | -50.97 | - 15.26 | 3.86 | 1.38 | 49 | 2 | 62.6 | 8 9/GR7 | 10 |
| B CE412 | -44.80 | 12 | -50.71 | - 15.30 | 3.57 | 1.56 | 52 | 2 | 62.8 | 8 9/GR9 | 10 |
| B CE511 | -63.80 | 12 | -53.11 | -2.98 | 2.42 | 2.15 | 107 | 2 | 631 | 8 9/GR7 | 10 |
| B NO611 | -73.80 | 12 | -59.60 | -11.62 | 2.86 | 1.69 | 165 | 1 | 62.9 | 8 9/GR8 | 10 |
| B NO711 | -73.80 | 12 | -60.70 | -1.78 | 3.54 | 1.78 | 126 | 1 | 62.8 | 8 9/GR8 | 10 |
| B N0811 | - 73.80 | 12 | -68.75 | -471 | 2.37 | 1.65 | 73 | 1 | 62.8 | 8 9/GR8 |  |
| B SE911 | - 101.80 | 12 | -45.99 | -19.09 | 2.22 | 0.80 | 62 | 2 | 65.3 | 8 | 10 |
| B SU111 | -80.80 | 12 | -51.10 | -25.64 | 276 | 1.06 | 50 | 2 | 62.9 | 8 9/GR6 | 10 |
| B SU112 | -44.80 | 12 | -50.76 | -25.62 | 2.47 | 1.48 | 56 | 2 | 62.3 | 8 9/GR9 |  |
| B SU211 | -80.80 | 12 | -44.51 | - 16.94 | 3.22 | 1.37 | 60 | 2 | 62.5 | 8 9/GR6 | 10 |
| B SU212 | -44.80 | 12 | -43.99 | -16.97 | 3.27 | 1.92 | 59 | 2 | 61.3 | 8 9/GR9 |  |
| CAN01101 | - 137.80 | 12 | - 125.60 | 57.24 | 3.45 | 1.27 | 157 | 2 | 59.5 | 9/GR10 | 10 |
| CAN01201 | -137.80 | 12 | -111.92 | 55.89 | 3.33 | 0.98 | 151 | 2 | 59.6 | 9/GR10 | 10 |
| CAN01202 | - 72.30 | 12 | -107.64 | 55.62 | 2.75 | 1.11 | 32 | 2 | 59.6 |  |  |
| CAN01203 | -128.80 | 12 | -111.43 | 55.56 | 3.07 | 115 | 151 | 2 | 59.5 | 9/GR12 | 10 |
| CAN01303 | - 128.80 | 12 | -102.39 | 57.12 | 3.54 | 0.92 | 154 | 2 | 60.1 | 9/GR12 | 10 |
| CAN01304 | -90.80 | 12 | -99.00 | 57.33 | 1.96 | 1.73 | 1 |  | 59.8 | 9/GR13 |  |
| CAN01403 | - 128.80 | 12 | -89.70 | 52.02 | 4.67 | 0.80 | 148 | 2 | 61.8 | 9/GR12 | 10 |

12384,38 MHz

| MEXO2SUR | -126.80 | 12 | -96.39 | 19.88 | 3.19 | 1.87 | 158 | 2 | 62.5 | 1 |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | :--- | :--- | :--- | :--- |
| PRU00004 | -85.80 | 12 | -74.19 | -8.39 | 3.74 | 2.45 | 112 | 2 | 62.9 | 10 | 10 |
| PTRVIR01 | -100.80 | 12 | -6585 | 18.12 | 080 | 0.80 | 90 | 2 | 60.6 | $169 /$ GR20 |  |
| PTRVIR02 | -109.80 | 12 | -65.85 | 18.12 | 080 | 0.80 | 90 | 2 | 61.1 | $169 /$ GR21 |  |
| SLVIFRB2 | -107.30 | 12 | -8891 | 13.59 | 0.80 | 0.80 | 90 | 1 | 617 |  |  |
| USAEH001 | -61.30 | 12 | -85.16 | 36.21 | 5.63 | 3.32 | 22 | 2 | 61.9 | 156 | 10 |
| USAEH002 | -100.80 | 12 | -89.28 | 36.16 | 5.65 | 3.78 | 170 | 2 | 617 | $169 /$ GR20 | 10 |
| USAEH003 | -109.80 | 12 | -90.12 | 36.11 | 5.55 | 3.56 | 161 | 2 | 62.1 | $169 /$ GR21 | 10 |
| USAEH004 | -118.80 | 12 | -91.16 | 3605 | 5.38 | 3.24 | 153 | 2 | 62.6 | 156 | 10 |
| USAPSA02 | -165.80 | 12 | -117.79 | 40.58 | 4.04 | 0.82 | 135 | 2 | 63.3 | $9 / G R 1$ |  |
| USAPSA03 | -174.80 | 12 | -118.20 | 40.15 | 3.63 | 0.80 | 136 | 2 | 65.0 | $9 / G R 2$ |  |
| USAWH101 | -147.80 | 12 | -10970 | 38.13 | 5.52 | 1.96 | 142 | 2 | 62.1 | 10 |  |
| USAWH102 | -156.80 | 12 | -11.40 | 38.57 | 5.51 | 1.55 | 138 | 2 | 63.2 | 10 |  |
| VEN11VEN | -103.80 | 12 | -6679 | 6.90 | 2.50 | 1.77 | 122 | 2 | 65.2 | 10 |  |

12398,96 MHz (13)

| CAN01303 | - 129.20 | 13 | - 102.42 | 57.12 | 3.54 | 091 | 154 | 1 | 60.0 | 9/GR12 | 10 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CAN01304 | -91.20 | 13 | -99.12 | 57.36 | 1.98 | 1.72 | 2 | 1 | 59.8 | 9/GR13 |  |
| CAN01403 | - 129.20 | 13 | -89.75 | 52.02 | 4.68 | 0.80 | 148 | 1 | 61.8 | 9/GR12 | 10 |
| CAN01404 | -91.20 | 13 | -84.82 | 52.42 | 3.10 | 2.05 | 152 | 1 | 60.4 | 9/GR13 | 10 |
| CAN01405 | -8220 | 13 | -84.00 | 52.39 | 2.84 | 2.29 | 172 | 1 | 60.3 | 9/GR14 | 10 |
| CAN01504 | -91.20 | 13 | -7266 | 53.77 | 3.57 | 1.67 | 156 | 1 | 602 | 9/GR13 | 10 |
| CAN01505 | -82.20 | 13 | -7177 | 53.79 | 3.30 | 189 | 162 | 1 | 60.1 | 9/GR14 | 10 |
| CAN01605 | -82.20 | 13 | -61.50 | 49.55 | 265 | 140 | 143 | 1 | 60.3 | 9/GR14 | 10 |
| CAN01606 | -70.70 | 13 | -61.30 | 49.55 | 2.40 | 1.65 | 148 | 1 | 60.2 | 10 |  |
| CHLCONT5 | -106.20 | 13 | -72.23 | -35.57 | 2.60 | 0.80 | 55 | 1 | 59.4 | 9/GR17 |  |
| CHLPAC02 | - 106.20 | 13 | -80.06 | -30.06 | 136 | 0.80 | 69 | 1 | 59.2 | 9/GR17 |  |
| CLMAND01 | -115.20 | 13 | -74.72 | 5.93 | 3.85 | 1.63 | 114 | 1 | 64.9 | 9/GR5 |  |
| CLM00001 | - 103.20 | 13 | -74.50 | 5.87 | 3.98 | 1.96 | 118 | 1 | 63.5 | 10 |  |
| EQACAND1 | - 115.20 | 13 | -78.40 | -1.61 | 1.37 | 0.95 | 75 | 1 | 64.0 | 9/GR5 |  |
| EQAGAND1 | - 115.20 | 13 | -90.34 | -0.62 | 0.90 | 0.81 | 89 | 1 | 61.3 | 9/GR5 |  |
| FLKANT01 | -57.20 | 13 | -44.54 | -60.13 | 3.54 | 0.80 | 12 | 1 | 59.3 | 2 | 10 |
| FLKFALKS | -31.00 | 13 | -59.90 | -5164 | 0.80 | 080 | 90 | 1 | 58.1 | 2 |  |
| GRD00002 | -42.20 | 13 | -61.58 | 12.29 | 0.80 | 0.80 | 90 | 1 | 58.8 |  |  |
| HWA00002 | - 166.20 | 13 | - 165.79 | 23.42 | 4.20 | 0.80 | 160 | 1 | 58.8 | 9/GR1 | 10 |
| HWA00003 | -175.20 | 13 | -166.10 | 23.42 | 4.25 | 0.80 | 159 | 1 | 58.8 | 9/GR2 | 10 |
| MEX01NTE | -78.20 | 13 | - 105.81 | 26.01 | 2.89 | 2.08 | 155 | 1 | 60.5 | 1 |  |
| MEX01SUR | -69.20 | 13 | -94.84 | 19.82 | 3.05 | 2.09 | 4 | 1 | 62.2 | 1 | 10 |
| MEX02NTE | -136.20 | 13 | -107.21 | 26.31 | 3.84 | 1.55 | 148 | 1 | 61.2 | 1 | 10 |
| MEX02SUR | -127.20 | 13 | -96.39 | 19.88 | 3.18 | 1.87 | 157 | 1 | 62.5 | 1 | 10 |

12398,96 MHz (13)

| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| PAQPAC01 | -106.20 | 13 | - 109.18 | -27.53 | 0.80 | 0.80 | 90 | 1 | 56.2 | 9/GR17 |  |
| PRG00002 | -99.20 | 13 | -58.66 | -23.32 | 1.45 | 1.04 | 76 | 1 | 60.2 |  |  |
| PRUAND02 | -115.20 | 13 | -74.69 | -8.39 | 3.41 | 1.79 | 95 | 1 | 639 | 9/GR5 |  |
| PTRVIR01 | - 101.20 | 13 | -65.85 | 18.12 | 0.80 | 0.80 | 90 | 1 | 60.5 | 16 9/GR20 |  |
| PTRVIR02 | - 110.20 | 13 | -65.86 | 18.12 | 0.80 | 0.80 | 90 | 1 | 61.0 | 16 9/GR21 |  |
| SPMFRAN3 | -53.20 | 13 | -67.24 | 47.51 | 3.16 | 0.80 | 7 | 1 | 60.4 | 27 | 10 |
| TRD00001 | -84.70 | 13 | -61.23 | 10.70 | 0.80 | 0.80 | 90 | 1 | 59.4 |  |  |
| URG00001 | -71.70 | 13 | -56.22 | -32.52 | 1.02 | 0.89 | 11 | 1 | 60.0 |  |  |
| USAEH001 | -61.70 | 13 | -85.19 | 36.21 | 5.63 | 3.33 | 22 | 1 | 618 | 156 | 10 |
| USAEH002 | - 101.20 | 13 | -89.24 | 36.16 | 5.67 | 3.76 | 170 | 1 | 61.7 | 16 9/GR20 | 10 |
| USAEH003 | - 110.20 | 13 | -90 14 | 36.11 | 5.55 | 3.55 | 161 | 1 | 62.0 | 16 9/GR21 | 10 |
| USAEH004 | - 119.20 | 13 | -91.16 | 36.05 | 5.38 | 3.24 | 152 | 1 | 62.6 | 156 | 10 |
| USAPSA02 | - 166.20 | 13 | - 117.80 | 40.58 | 4.03 | 0.82 | 135 | 1 | 63.2 | 9/GR1 |  |
| USAPSA03 | - 175.20 | 13 | -118.27 | 40.12 | 3.62 | 0.80 | 136 | 1 | 65.0 | 9/GR2 |  |
| USAWH101 | - 148.20 | 13 | - 109.65 | 38.13 | 5.53 | 1.95 | 142 | 1 | 62.1 | 10 |  |
| USAWH102 | - 157.20 | 13 | - 111.41 | 38.57 | 5.51 | 1.54 | 138 | 1 | 63.2 | 10 |  |
| VENAND03 | - 115.20 | 13 | -67.04 | 6.91 | 2.37 | 1.43 | 111 | 1 | 67.2 | 9/GR5 |  |
| VRG00001 | -79.70 | 13 | -64 37 | 18.48 | 0.80 | 0.80 | 90 | 1 | 58.3 | 4 |  |

12413,54 MHz (14)

| ALS00002 | - 165.80 | 14 | -149.63 | 58.52 | 3.81 | 1.23 | 171 | 2 | 59.7 | 9/GR1 | 10 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALS00003 | - 174.80 | 14 | -150.95 | 58.54 | 3.77 | 1.11 | 167 | 2 | 60.0 | 9/GR2 | 10 |
| ARGNORT4 | -93.80 | 14 | -63.96 | -30.01 | 3.86 | 199 | 48 | 2 | 65.6 | 10 |  |
| ARGNORT5 | -54.80 | 14 | -62.85 | -29.80 | 3.24 | 2.89 | 47 | 2 | 635 | 10 |  |
| ATNBEAM1 | -52.80 | 14 | -66.44 | 14.87 | 1.83 | 0.80 | 39 | 2 | 610 |  |  |
| B CE311 | -63.80 | 14 | -4060 | -607 | 3.04 | 2.06 | 174 | 2 | 61.6 | 8 9/GR7 | 10 |
| B CE312 | -4480 | 14 | -40.26 | -6.06 | 3.44 | 2.09 | 174 | 2 | 61.0 | 8 9/GR9 | 10 |
| B CE411 | -6380 | 14 | -5097 | -15.26 | 3.86 | 1.38 | 49 | 2 | 62.6 | 8 9/GR7 | 10 |
| B CE412 | -44.80 | 14 | -50.71 | - 15.30 | 3.57 | 1.56 | 52 | 2 | 62.7 | 8 9/GR9 | 10 |
| B CE511 | -63.80 | 14 | -53.11 | -2.98 | 2.42 | 2.15 | 107 | 2 | 63.1 | 8 9/GR7 | 10 |
| B N0611 | -73.80 | 14 | -59.60 | -11.62 | 2.86 | 1.69 | 165 | 1 | 62.8 | 8 9/GR8 | 10 |
| B NO711 | -73.80 | 14 | -60.70 | -1.78 | 3.54 | 1.78 | 126 | 1 | 62.8 | 8 9/GR8 | 10 |
| B NO811 | -73.80 | 14 | -68.75 | -4.71 | 2.37 | 1.65 | 73 | 1 | 62.8 | 8 9/GR8 |  |
| B SE911 | - 101.80 | 14 | -45.99 | -19.09 | 2.22 | 0.80 | 62 | 2 | 65.3 | 8 | 10 |
| B SU111 | -80.80 | 14 | -51.10 | -25.64 | 2.76 | 1.06 | 50 | 2 | 62.8 | 8 9/GR6 | 10 |
| B SU112 | -44.80 | 14 | -50.76 | -25.62 | 2.47 | 1.48 | 56 | 2 | 62.3 | 8 9/GR9 |  |
| B SU211 | -80.80 | 14 | -44.51 | -16.94 | 3.22 | 1.37 | 60 | 2 | 62.5 | 8 9/GR6 | 10 |
| B SU212 | -44.80 | 14 | -43.99 | -16.97 | 3.27 | 1.92 | 59 | 2 | 61.3 | 8 9/GR9 |  |
| CAN01101 | -137.80 | 14 | - 125.60 | 57.24 | 3.45 | 1.27 | 157 | 2 | 59.5 | 9/GR10 | 10 |
| CAN01201 | - 137.80 | 14 | - 111.92 | 55.89 | 3.33 | 0.98 | 151 | 2 | 59.6 | 9/GR10 | 10 |
| CAN01202 | -72.30 | 14 | - 107.64 | 55.62 | 2.75 | 1.11 | 32 | 2 | 59.6 |  |  |
| CAN01203 | - 128.80 | 14 | - 111.43 | 55.56 | 3.07 | 1.15 | 151 | 2 | 59.5 | 9/GR12 | 10 |
| CAN01303 | - 128.80 | 14 | - 102.39 | 57.12 | 3.54 | 0.92 | 154 | 2 | 60.0 | 9/GR12 | 10 |
| CAN01304 | -90.80 | 14 | -99.00 | 57.33 | 1.96 | 1.73 | 1 | 2 | 59.8 | 9/GR13 |  |

12413,54 MHz

| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CANO1403 | - 128.80 | 14 | -89.70 | 52.02 | 4.67 | 0.80 | 148 | 2 | 61.8 | 9/GR12 | 10 |
| CAN01404 | -90.80 | 14 | -84.78 | 52.41 | 3.09 | 2.06 | 153 | 2 | 60.4 | 9/GR13 | 10 |
| CAN01405 | -81.80 | 14 | -84.02 | 52.34 | 2.82 | 2.30 | 172 | 2 | 60.3 | 9/GR14 | 10 |
| CAN01504 | -90.80 | 14 | -72.68 | 53.78 | 3.57 | 1.67 | 157 | 2 | 60.2 | 9/GR13 | 10 |
| CAN01505 | -81.80 | 14 | -71.76 | 53.76 | 3.30 | 1.89 | 162 | 2 | 60.1 | 9/GR14 | 10 |
| CAN01605 | -81.80 | 14 | -61.54 | 49.50 | 2.66 | 1.39 | 144 | 2 | 60.3 | 9/GR14 | 10 |
| CAN01606 | -70.30 | 14 | -61.32 | 49.51 | 2.41 | 1.65 | 148 | 2 | 60.2 | 10 |  |
| CHLCONT4 | - 105.80 | 14 | -69.59 | -23.20 | 2.21 | 0.80 | 68 | 2 | 59.1 | 9/GR16 |  |
| CHLCONT6 | - 105.80 | 14 | -73.52 | -55.52 | 3.65 | 1.31 | 39 | 2 | 59.6 | 9/GR16 |  |
| CRbBAH01 | -92.30 | 14 | -76.09 | 24.13 | 1.83 | 0.80 | 141 | 1 | 61.7 | 9/GR18 |  |
| CRBBER01 | -92.30 | 14 | -64.76 | 32.13 | 0.80 | 0.80 | 90 | 1 | 56.7 | 9/GR18 |  |
| CRBBLZ01 | -92.30 | 14 | -88.61 | 17.26 | 0.80 | 0.80 | 90 | 1 | 58.6 | 9/GR18 |  |
| CRBEC001 | -92.30 | 14 | -60.07 | 8.26 | 4.20 | 0.86 | 115 | 1 | 64.2 | 9/GR18 | 10 |
| CRBJMC01 | -92.30 | 14 | -79.45 | 17.97 | 0.99 | 0.80 | 151 | 1 | 61.1 | 9/GR18 |  |
| CTR00201 | - 130.80 | 14 | -84.33 | 9.67 | 0.82 | 0.80 | 119 | 2 | 65.6 |  |  |
| EQAC0001 | -94.80 | 14 | -7831 | -1.52 | 1.48 | 1.15 | 65 | 1 | 63.0 | 9/GR19 |  |
| EQAG0001 | -94.80 | 14 | -90 36 | -0.57 | 0.94 | 0.89 | 99 | 1 | 61.0 | 9/GR19 |  |
| GUY00302 | -33.80 | 14 | -59.07 | 4.77 | 1.43 | 0.85 | 91 | 2 | 63.5 |  |  |
| HNDIFRB2 | -107.30 | 14 | -86.23 | 15.16 | 1.14 | 0.85 | 8 | 1 | 63.4 |  |  |
| HT100002 | -83.30 | 14 | -73.28 | 18.96 | 0.82 | 0.80 | 11 | 2 | 60.9 |  |  |
| HWA00002 | -165.80 | 14 | -165.79 | 23.32 | 4.20 | 0.80 | 160 | 2 | 58.8 | 9/GR1 | 10 |
| HWA00003 | -174.80 | 14 | - 166.10 | 2342 | 4.25 | 0.80 | 159 | 2 | 58.8 | 9/GR2 | 10 |
| MEX01NTE | -77.80 | 14 | - 105.80 | 25.99 | 2.88 | 2.07 | 155 | 2 | 60.5 | 1 |  |
| MEX02NTE | -135.80 | 14 | - 107.36 | 26.32 | 3.80 | 1.57 | 149 | 2 | 61.2 | 1 | 10 |

12413,54 MHz
(14)

| MEX02SUR | - 126.80 | 14 | -96.39 | 19.88 | 3.19 | 1.87 | 158 | 2 | 62.5 | 1 | 10 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| PRU00004 | -85.80 | 14 | -7419 | -8.39 | 3.74 | 2.45 | 112 | 2 | 62.8 | 10 |  |
| PTRVIR01 | -100.80 | 14 | -65.85 | 18.12 | 0.80 | 0.80 | 90 | 2 | 60.6 | $169 / \mathrm{GR} 20$ |  |
| PTRVIR02 | -109.80 | 14 | -65.85 | 18.12 | 0.80 | 0.80 | 90 | 2 | 61.1 | 16 9/GR21 |  |
| TCA00001 | -115.80 | 14 | -71.79 | 21.53 | 0.80 | 0.80 | 90 | 2 | 60.4 |  |  |
| USAEH001 | -61.30 | 14 | -8516 | 36.21 | 5.63 | 3.32 | 22 | 2 | 61.8 | 156 | 10 |
| USAEH002 | - 100.80 | 14 | -89.28 | 36.16 | 5.65 | 3.78 | 170 | 2 | 61.7 | 16 9/GR20 | 10 |
| USAEH003 | - 109.80 | 14 | -90.12 | 36.11 | 5.55 | 3.56 | 161 | 2 | 62.1 | $169 / \mathrm{GR} 21$ | 10 |
| USAEH004 | -118.80 | 14 | -91.16 | 36.05 | 5.38 | 3.24 | 153 | 2 | 62.6 | 156 | 10 |
| USAPSA02 | -165.80 | 14 | - 117.79 | 40.58 | 4.04 | 0.82 | 135 | 2 | 63.2 | 9/GR1 |  |
| USAPSA03 | -174.80 | 14 | -118.20 | 40.15 | 3.63 | 0.80 | 136 | 2 | 64.9 | 9/GR2 |  |
| USAWH101 | - 147.80 | 14 | - 109.70 | 38.13 | 5.52 | 1.96 | 142 | 2 | 62.1 | 10 |  |
| USAWH102 | -156.80 | 14 | - 111.40 | 38.57 | 5.51 | 1.55 | 138 | 2 | 63.2 | 10 |  |
| VCT00001 | -79.30 | 14 | -61.18 | 13.23 | 0.80 | 0.80 | 90 | 2 | 58.4 |  |  |
| VEN11VEN | - 103.80 | 14 | -66.79 | 6.90 | 2.50 | 1.77 | 122 | 2 | 65.1 | 10 |  |


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| :---: | :---: |
|  <br>  | $N$ |
|  | $\omega$ |
| 䍐 <br>  స | A |
| $\omega \circ N \mathrm{NO} \omega \omega \mathrm{N} N \mathrm{~N} \omega \mathrm{~N} N \omega \omega \omega \omega$ ON $\omega \omega \omega \omega \omega$ <br>  <br>  <br>  | G |
|  | $\boldsymbol{\sigma}$ |
| －－－－－－－NN，－－－－－－－－ | $\checkmark$ |
|  <br>  | $\infty$ |
|  | $\omega$ |

[^37]12428, 12 MHz

| CAN01201 | -138.20 | 15 | -112.04 | 55.95 | 3.35 | 0.97 | 151 | 1 | 596 | 9/GR10 | 10 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CAN01202 | -72.70 | 15 | - 107.70 | 55.63 | 2.74 | 112 | 32 | 1 | 59.6 |  |  |
| CAN01203 | -129.20 | 15 | - 111.48 | 55.61 | 3.08 | 115 | 151 | 1 | 59.5 | 9/GR12 | 10 |
| CAN01303 | - 129.20 | 15 | - 102.42 | 57.12 | 3.54 | 0.91 | 154 | 1 | 60.1 | 9/GR12 | 10 |
| CAN01304 | -91.20 | 15 | -99.12 | 57.36 | 1.98 | 1.72 | 2 | 1 | 59.8 | 9/GR13 |  |
| CAN01403 | - 129.20 | 15 | -8975 | 52.02 | 4.68 | 0.80 | 148 | 1 | 61.8 | 9/GR12 | 10 |
| CAN01404 | -91.20 | 15 | -84.82 | 52.42 | 3.10 | 2.05 | 152 | 1 | 60.4 | 9/GR13 | 10 |
| CAN01405 | -82.20 | 15 | -84.00 | 52.39 | 2.84 | 2.29 | 172 | 1 | 60.3 | 9/GR14 | 10 |
| CAN01504 | -9120 | 15 | -72.66 | 53.77 | 3.57 | 1.67 | 156 | 1 | 60.2 | 9/GR13 | 10 |
| CAN01505 | -82.20 | 15 | -7177 | 53.79 | 3.30 | 1.89 | 162 | 1 | 60.1 | 9/GR14 | 10 |
| CAN01605 | -82.20 | 15 | -61.50 | 49.55 | 2.65 | 1.40 | 143 | 1 | 60.3 | 9/GR14 | 10 |
| CAN01606 | -70.70 | 15 | -6130 | 49.55 | 2.40 | 1.65 | 148 | 1 | 60.2 | 10 |  |
| CHLCONT5 | -10620 | 15 | -7223 | -35.57 | 2.60 | 0.80 | 55 | 1 | 59.4 | 9/GR17 |  |
| CHLPAC02 | -10620 | 15 | -80 06 | -30.06 | 1.36 | 080 | 69 | 1 | 59.2 | 9/GR17 |  |
| CLMAND01 | -115.20 | 15 | -74.72 | 5.93 | 3.85 | 163 | 114 | 1 | 65.0 | 9/GR5 |  |
| CLM00001 | -10320 | 15 | -74.50 | 5.87 | 3.98 | 1.96 | 118 | 1 | 63.6 | 10 |  |
| CUB00001 | -89.20 | 15 | -7981 | 2162 | 2.24 | 0.80 | 168 | 1 | 61.1 |  |  |
| EQACAND1 | - 115.20 | 15 | -78.40 | -1.61 | 137 | 095 | 75 | 1 | 641 | 9/GR5 |  |
| EQAGAND1 | - 115.20 | 15 | -90.34 | -0.62 | 0.90 | 0.81 | 89 | 1 | 61.3 | 9/GR5 |  |
| GRD00002 | -42.20 | 15 | -61.58 | 12.29 | 0.80 | 0.80 | 90 | 1 | 58.8 |  |  |
| GRD00059 | -57.20 | 15 | -6158 | 12.29 | 0.80 | 0.80 | 90 | 1 | 58.5 |  |  |
| GRLDNK01 | -53.20 | 15 | -44.89 | 66.56 | 2.70 | 0.82 | 173 | 1 | 60.0 | 2 | 10 |
| GUY00201 | -84.70 | 15 | -5919 | 4.78 | 1.44 | 0.85 | 95 | 1 | 635 |  |  |
| HWA00002 | -166.20 | 15 | -165 79 | 23.42 | 4.20 | 0.80 | 160 | 1 | 58.8 | 9/GR1 | 10 |

12428,12 MHz (15)

| $\mathbf{1}$ | $\mathbf{2}$ | $\mathbf{3}$ | $\mathbf{4}$ |  |  | $\mathbf{5}$ |  | $\mathbf{6}$ | $\mathbf{7}$ | $\mathbf{8}$ |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | :--- | :--- | :--- | :--- |

12442,70 MHz (16)

| ALS00002 | -165.80 | 16 | -149.63 | 58.52 | 3.81 | 1.23 | 171 | 2 | 59.8 | 9/GR1 | 10 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALS00003 | - 17480 | 16 | - 150.95 | 5854 | 3.77 | 1.11 | 167 | 2 | 60.0 | 9/GR2 | 10 |
| ARGNORT4 | -9380 | 16 | -63.96 | -30.01 | 3.86 | 1.99 | 48 | 2 | 65.7 | 10 |  |
| ARGNORT5 | -54.80 | 16 | -62.85 | -29.80 | 3.24 | 2.89 | 47 | 2 | 63.5 | 10 |  |
| B CE311 | -6380 | 16 | -40.60 | -6.07 | 304 | 2.06 | 174 | 2 | 61.6 | $89 / \mathrm{GR} 7$ | 10 |
| B CE312 | -44.80 | 16 | -4026 | -606 | 3.44 | 2.09 | 174 | 2 | 61.0 | 8 9/GR9 | 10 |
| B CE411 | -63.80 | 16 | -50 97 | -15.26 | 3.86 | 1.38 | 49 | 2 | 62.6 | 8 9/GR7 | 10 |
| B CE412 | -44.80 | 16 | -50 71 | - 15.30 | 3.57 | 1.56 | 52 | 2 | 62.8 | 8 9/GR9 | 10 |
| B CE511 | -63.80 | 16 | -53.11 | -298 | 2.42 | 2.15 | 107 | 2 | 63.1 | 8 9/GR7 | 10 |
| B NO611 | -73.80 | 16 | -5960 | -1162 | 286 | 1.69 | 165 | 1 | 62.9 | 8 9/GR8 | 10 |
| B NO711 | -73.80 | 16 | -60.70 | -1.78 | 354 | 178 | 126 | 1 | 62.8 | 8 9/GR8 | 10 |
| B NO811 | -73.80 | 16 | -6875 | -471 | 237 | 1.65 | 73 | 1 | 62.8 | 8 9/GR8 |  |
| B SE911 | - 101.80 | 16 | -4599 | -19.09 | 222 | 0.80 | 62 | 2 | 65.3 | 8 | 10 |
| B SU111 | -80.80 | 16 | -51.10 | -2564 | 2.76 | 1.06 | 50 |  | 62.9 | 8 9/GR6 | 10 |
| B SU112 | -44.80 | 16 | -50.76 | - 25.62 | 247 | 148 | 56 | 2 | 62.3 | 8 9/GR9 |  |
| B SU211 | -80.80 | 16 | -4451 | -16.94 | 322 | 1.37 | 60 | 2 | 62.5 | 8 9/GR6 | 10 |
| B SU212 | -44.80 | 16 | -43.99 | -16.97 | 327 | 1.92 | 59 | 2 | 61.3 | 8 9/GR9 |  |
| CAN01101 | - 137.80 | 16 | - 125.60 | 57.24 | 3.45 | 1.27 | 157 | 2 | 59.5 | 9/GR10 | 10 |
| CAN01201 | - 137.80 | 16 | -11192 | 55.89 | 333 | 0.98 | 151 | 2 | 59.6 | 9/GR10 | 10 |
| CAN01202 | - 72.30 | 16 | -107.64 | 55.62 | 2.75 | 1.11 | 32 | 2 | 59.6 |  |  |
| CAN01203 | - 128.80 | 16 | -11143 | 55.56 | 307 | 1.15 | 151 | 2 | 59.5 | 9/GR12 | 10 |
| CAN01303 | - 128.80 | 16 | - 102.39 | 57.12 | 354 | 0.92 | 154 | 2 | 601 | 9/GR12 | 10 |
| CAN01304 | -90.80 | 16 | -99.00 | 57.33 | 196 | 1.73 | 1 | 2 | 59.8 | 9/GR13 |  |
| CAN01403 | -128.80 | 16 | -89.70 | 52.02 | 4.67 | 0.80 | 148 | 2 | 61.8 | 9/GR12 | 10 |

12442,70 MHz (16)

| MEX02SUR | -126.80 | 16 | -9639 | 19.88 | 319 | 1.87 | 158 | 2 | 62.5 | 1 | 10 |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | :--- | :--- | :--- | :--- |
| PRU00004 | -8580 | 16 | -74.19 | -8.39 | 3.74 | 2.45 | 112 | 2 | 62.9 | 10 |  |
| PTRVIR01 | -10080 | 16 | -65.85 | 1812 | 0.80 | 0.80 | 90 | 2 | 60.6 | $169 /$ GR20 |  |
| PTRVIR02 | -10980 | 16 | -65.85 | 18.12 | 0.80 | 0.80 | 90 | 2 | 61.1 | $169 /$ GR21 |  |
| SLVIFRB2 | -10730 | 16 | -88.91 | 1359 | 080 | 0.80 | 90 | 1 | 61.7 |  |  |
| USAEH001 | -6130 | 16 | -85.16 | 36.21 | 5.63 | 3.32 | 22 | 2 | 61.9 | 156 | 10 |
| USAEH002 | -10080 | 16 | -89.28 | 36.16 | 5.65 | 3.78 | 170 | 2 | 61.7 | $169 /$ GR20 | 10 |
| USAEH003 | -10980 | 16 | -90.12 | 36.11 | 555 | 3.56 | 161 | 2 | 62.1 | $1699 /$ GR21 | 10 |
| USAEH004 | -11880 | 16 | -91.16 | 36.05 | 5.38 | 324 | 153 | 2 | 626 | 15 | 6 |
| USAPSA02 | -165.80 | 16 | -117.79 | 40.58 | 4.04 | 082 | 135 | 2 | 633 | $9 / G R 1$ | 10 |
| USAPSA03 | -174.80 | 16 | -11820 | 4015 | 3.63 | 0.80 | 136 | 2 | 65.0 | $9 / G R 2$ |  |
| USAWH101 | -14780 | 16 | -109.70 | 3813 | 5.52 | 1.96 | 142 | 2 | 62.1 | 10 |  |
| USAWH102 | -156.80 | 16 | -111.40 | 38.57 | 5.51 | 1.55 | 138 | 2 | 63.2 | 10 |  |
| VEN11VEN | -103.80 | 16 | -66.79 | 690 | 2.50 | 177 | 122 | 2 | 65.2 | 10 |  |

12457,28 MHz (17)

| $\mathbf{1}$ | $\mathbf{2}$ | $\mathbf{3}$ | $\mathbf{4}$ |  |  | $\mathbf{5}$ |  | $\mathbf{6}$ | $\mathbf{7}$ | $\mathbf{8}$ |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | :--- | :--- | :--- | :--- |

12457,28 MHz

| CAN01203 | -129.20 | 17 | -111.48 | 5561 | 3.08 | 1.15 | 151 | 1 | 59.7 | 9/GR12 | 10 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CAN01303 | - 129.20 | 17 | - 102.42 | 57.12 | 3.54 | 0.91 | 154 | 1 | 60.2 | 9/GR12 | 10 |
| CAN01304 | -91.20 | 17 | -99.12 | 57.36 | 1.98 | 1.72 | 2 | 1 | 60.0 | 9/GR13 |  |
| CAN01403 | - 129.20 | 17 | -89.75 | 52.02 | 4.68 | 0.80 | 148 | 1 | 62.1 | 9/GR12 | 10 |
| CAN01404 | -91.20 | 17 | -84.82 | 52.42 | 3.10 | 2.05 | 152 | 1 | 60.6 | 9/GR13 | 10 |
| CAN01405 | -82.20 | 17 | -84.00 | 52.39 | 2.84 | 229 | 172 | 1 | 60.5 | 9/GR14 | 10 |
| CAN01504 | -91.20 | 17 | -72.66 | 53.77 | 3.57 | 1.67 | 156 | 1 | 60.4 | 9/GR13 | 10 |
| CAN01505 | -82.20 | 17 | -71.77 | 53.79 | 3.30 | 1.89 | 162 | 1 | 60.3 | 9/GR14 | 10 |
| CAN01605 | -82.20 | 17 | -61.50 | 49.55 | 2.65 | 1.40 | 143 | 1 | 60.5 | 9/GR14 | 10 |
| CAN01606 | -70.70 | 17 | -61.30 | 49.55 | 2.40 | 1.65 | 148 | 1 | 60.4 | 10 |  |
| CHLCONT5 | - 106.20 | 17 | -72.23 | -35.57 | 2.60 | 0.80 | 55 | 1 | 59.6 | 9/GR17 |  |
| CHLPAC02 | - 106.20 | 17 | -80.06 | -30.06 | 1.36 | 0.80 | 69 | 1 | 59.4 | 9/GR17 |  |
| CLMAND01 | - 115.20 | 17 | - 74.72 | 5.93 | 3.85 | 1.63 | 114 | 1 | 65.3 | 9/GR5 |  |
| CLM00001 | -103.20 | 17 | -74.50 | 5.87 | 3.98 | 1.96 | 118 | 1 | 63.9 | 10 |  |
| EQACAND1 | -115.20 | 17 | -78.40 | -1.61 | 1.37 | 0.95 | 75 | 1 | 64.4 | 9/GR5 |  |
| EQAGAND1 | -115.20 | 17 | -90.34 | -0.62 | 0.90 | 0.81 | 89 | 1 | 61.5 | 9/GR5 |  |
| FLKFALKS | -31.00 | 17 | -59.90 | -51.64 | 0.80 | 0.80 | 90 | 1 | 58.2 | 2 |  |
| HWA00002 | - 166.20 | 17 | -165.79 | 23.42 | 4.20 | 0.80 | 160 | 1 | 59.0 | 9/GR1 | 10 |
| HWA00003 | -175.20 | 17 | -166.10 | 23.42 | 4.25 | 0.80 | 159 | 1 | 58.9 | 9/GR2 | 10 |
| JMC00002 | -92.70 | 17 | -77.30 | 18.12 | 0.80 | 0.80 | 90 | 2 | 60.1 |  |  |
| MEX01NTE | -78.20 | 17 | -105.81 | 26.01 | 2.89 | 2.08 | 155 | 1 | 60.7 | 1 |  |
| MEX01SUR | -69.20 | 17 | -94.84 | 19.82 | 3.05 | 2.09 | 4 | 1 | 62.5 | 1 | 10 |
| MEX02NTE | -136.20 | 17 | -107.21 | 26.31 | 3.84 | 1.55 | 148 | 1 | 61.4 | 1 | 10 |
| MEX02SUR | - 127.20 | 17 | -96.39 | 19.88 | 3.18 | 1.87 | 157 | 1 | 62.8 | 1 | 10 |

12457,28 MHz (17)

| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| PAQPAC01 | - 106.20 | 17 | - 109.18 | -27.53 | 0.80 | 0.80 | 90 | 1 | 56.4 | 9/GR17 |  |
| PRG00002 | -99.20 | 17 | -58.66 | -23.32 | 1.45 | 1.04 | 76 | 1 | 60.4 |  |  |
| PRUAND02 | -115.20 | 17 | -74.69 | -8.39 | 3.41 | 1.79 | 95 | 1 | 64.3 | 9/GR5 |  |
| PTRVIR01 | -101.20 | 17 | -65.85 | 18.12 | 0.80 | 0.80 | 90 | 1 | 60.8 | 16 9/GR20 |  |
| PTRVIR02 | - 110.20 | 17 | -65.86 | 18.12 | 0.80 | 0.80 | 90 | 1 | 61.3 | 16 9/GR21 |  |
| SCN00001 | -79.70 | 17 | -62.46 | 17.44 | 0.80 | 0.80 | 90 | 1 | 58.6 |  |  |
| SPMFRAN3 | -53.20 | 17 | -67.24 | 47.51 | 3.16 | 0.80 | 7 | 1 | 60.6 | 27 | 10 |
| SURINAM2 | -84.70 | 17 | -55.69 | 4.35 | 100 | 0.80 | 86 | 1 | 63.5 |  |  |
| URG00001 | -71.70 | 17 | -56.22 | -32.52 | 1.02 | 0.89 | 11 | 1 | 60.2 |  |  |
| USAEH001 | -61.70 | 17 | -85.19 | 36.21 | 5.63 | 3.33 | 22 | 1 | 62.1 | 156 | 10 |
| USAEH002 | - 101.20 | 17 | -89.24 | 36.16 | 5.67 | 3.76 | 170 | 1 | 62.0 | 16 9/GR20 | 10 |
| USAEH003 | - 110.20 | 17 | -90.14 | 36.11 | 5.55 | 3.55 | 161 | 1 | 62.3 | 16 9/GR21 | 10 |
| USAEH004 | -119.20 | 17 | -91.16 | 36.05 | 5.38 | 3.24 | 152 | 1 | 62.9 | 156 | 10 |
| USAPSA02 | -166.20 | 17 | - 117.80 | 40.58 | 4.03 | 0.82 | 135 | 1 | 63.5 | 9/GR1 |  |
| USAPSA03 | -175.20 | 17 | - 118.27 | 4012 | 3.62 | 0.80 | 136 | 1 | 65.3 | 9/GR2 |  |
| USAWH101 | -148.20 | 17 | - 109.65 | 38.13 | 5.53 | 1.95 | 142 | 1 | 62.3 | 10 |  |
| USAWH102 | -157.20 | 17 | - 111.41 | 38.57 | 5.51 | 154 | 138 | 1 | 63.5 | 10 |  |
| VENAND03 | - 115.20 | 17 | -67.04 | 6.91 | 2.37 | 1.43 | 111 | 1 | 67.6 | 9/GR5 |  |


| ALS00002 | - 165.80 | 18 | -149.63 | 58.52 | 3.81 | 1.23 | 171 | 2 | 59.9 | 9/GR1 | 10 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALS00003 | -174.80 | 18 | -150.95 | 58.54 | 3.77 | 1.11 | 167 | 2 | 60.2 | 9/GR2 | 10 |
| ARGNORT4 | -93.80 | 18 | -63.96 | -3001 | 3.86 | 1.99 | 48 | 2 | 66.0 | 10 |  |
| ARGNORT5 | -54.80 | 18 | -62.85 | -2980 | 3.24 | 2.89 | 47 | 2 | 63.8 | 10 |  |
| ATNBEAM1 | -52.80 | 18 | -66.44 | 14.87 | 1.83 | 0.80 | 39 | 2 | 61.3 |  |  |
| B CE311 | -63.80 | 18 | -40.60 | -6.07 | 3.04 | 2.06 | 174 | 2 | 61.9 | 8 9/GR7 | 10 |
| B CE312 | -44.80 | 18 | -40.26 | -6.06 | 344 | 2.09 | 174 | 2 | 61.2 | 8 9/GR9 | 10 |
| B CE411 | -63.80 | 18 | -50.97 | -15.26 | 3.86 | 1.38 | 49 | 2 | 62.9 | 8 9/GR7 | 10 |
| B CE412 | -44.80 | 18 | -50.71 | -15.30 | 3.57 | 1.56 | 52 | 2 | 63.0 | 8 9/GR9 | 10 |
| B CE511 | -63.80 | 18 | -53.11 | -2.98 | 2.42 | 2.15 | 107 | 2 | 63.4 | 8 9/GR7 | 10 |
| B N0611 | -73.80 | 18 | -59.60 | - 11.62 | 2.86 | 1.69 | 165 | 1 | 63.1 | 8 9/GR8 | 10 |
| B NO711 | -73.80 | 18 | -60.70 | -1.78 | 3.54 | 1.78 | 126 | 1 | 63.1 | 8 9/GR8 | 10 |
| B NO811 | -73.80 | 18 | -68.75 | -4.71 | 2.37 | 1.65 | 73 | 1 | 63.1 | 8 9/GR8 |  |
| B SE911 | - 101.80 | 18 | -45.99 | -19.09 | 2.22 | 0.80 | 62 | 2 | 65.7 | 8 | 10 |
| B SU111 | -80.80 | 18 | -51.10 | -25.64 | 2.76 | 1.06 | 50 | 2 | 63.1 | 8 9/GR6 | 10 |
| B SU112 | -44.80 | 18 | -50.76 | -25.62 | 2.47 | 1.48 | 56 | 2 | 62.6 | 8 9/GR9 |  |
| B SU211 | -80.80 | 18 | -44.51 | - 16.94 | 3.22 | 1.37 | 60 | 2 | 62.8 | 8 9/GR6 | 10 |
| B SU212 | -44.80 | 18 | -43.99 | - 16.97 | 3.27 | 1.92 | 59 | 2 | 61.6 | 8 9/GR9 |  |
| B LZ00001 | - 115.80 | 18 | -88.68 | 17.27 | 0.80 | 0.80 | 90 | 2 | 59.2 |  |  |
| CAN01101 | - 137.80 | 18 | - 125.60 | 57.24 | 3.45 | 1.27 | 157 | 2 | 59.7 | 9/GR10 | 10 |
| CAN01201 | -137.80 | 18 | -111.92 | 55.89 | 3.33 | 0.98 | 151 | 2 | 59.8 | 9/GR10 | 10 |
| CAN01202 | -72.30 | 18 | -107.64 | 55.62 | 2.75 | 1.11 | 32 | 2 | 59.8 |  |  |
| CAN01203 | -128.80 | 18 | -111.43 | 55.56 | 3.07 | 1.15 | 151 | 2 | 59.7 | 9/GR12 | 10 |
| CAN01303 | -128.80 | 18 | -102.39 | 57.12 | 3.54 | 0.92 | 154 | 2 | 60.3 | 9/GR12 | 10 |


| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CAN01304 | -90.80 | 18 | -99.00 | 57.33 | 1.96 | 1.73 | 1 | 2 | 60.0 | 9/GR13 |  |
| CAN01403 | - 128.80 | 18 | -89.70 | 52.02 | 4.67 | 0.80 | 148 | 2 | 62.1 | 9/GR12 | 10 |
| CAN01404 | -90.80 | 18 | -84.78 | 52.41 | 3.09 | 2.06 | 153 | 2 | 60.6 | 9/GR13 | 10 |
| CAN01405 | -81.80 | 18 | -84.02 | 52.34 | 2.82 | 2.30 | 172 | 2 | 60.5 | 9/GR14 | 10 |
| CAN01504 | -90.80 | 18 | -72.68 | 53.78 | 3.57 | 1.67 | 157 | 2 | 60.4 | 9/GR13 | 10 |
| CAN01505 | -81.80 | 18 | - 71.76 | 53.76 | 3.30 | 1.89 | 162 | 2 | 60.3 | 9/GR14 | 10 |
| CAN01605 | -81.80 | 18 | -61.54 | 49.50 | 2.66 | 1.39 | 144 | 2 | 60.5 | 9/GR14 | 10 |
| CAN01606 | - 70.30 | 18 | -61.32 | 49.51 | 2.41 | 1.65 | 148 | 2 | 60.4 | 10 |  |
| CHLCONT4 | - 105.80 | 18 | -69.59 | -23.20 | 2.21 | 0.80 | 68 | 2 | 59.3 | 9/GR16 |  |
| CHLCONT6 | - 105.80 | 18 | -73.52 | -55.52 | 3.65 | 1.31 | 39 | 2 | 59.7 | 9/GR16 |  |
| CRBBAH01 | -92.30 | 18 | -76.09 | 24.13 | 1.83 | 0.80 | 141 | 1 | 61.9 | 9/GR18 |  |
| CRBBER01 | -92.30 | 18 | -64.76 | 32.13 | 0.80 | 0.80 | 90 | 1 | 56.9 | 9/GR18 |  |
| CRBBLZ01 | -92.30 | 18 | -88.61 | 17.26 | 0.80 | 0.80 | 90 | 1 | 58.9 | 9/GR18 |  |
| CRBEC001 | -92.30 | 18 | -60.07 | 8.26 | 4.20 | 0.86 | 115 | 1 | 64.6 | 9/GR18 | 10 |
| CRBJMC01 | -92.30 | 18 | - 79.45 | 17.97 | 0.99 | 0.80 | 151 | 1 | 61.3 | 9/GR18 |  |
| CTR00201 | - 130.80 | 18 | -84.33 | 9.67 | 0.82 | 0.80 | 119 | 2 | 66.0 |  |  |
| DMAIFRB1 | - 79.30 | 18 | -61.30 | 15.35 | 0.80 | 0.80 | 90 | 2 | 58.7 |  |  |
| EQAC0001 | -94.80 | 18 | -78.31 | -1.52 | 1.48 | 1.15 | 65 | 1 | 63.3 | 9/GR19 |  |
| EQAG0001 | -94.80 | 18 | -90.36 | -0.57 | 0.94 | 0.89 | 99 | 1 | 61.2 | 9/GR19 |  |
| HWA00002 | - 165.80 | 18 | - 165.79 | 23.32 | 4.20 | 0.80 | 160 | 2 | 59.0 | 9/GR1 | 10 |
| HWA00003 | - 174.80 | 18 | - 166.10 | 23.42 | 4.25 | 0.80 | 159 | 2 | 59.0 | 9/GR2 | 10 |
| MEX01NTE | -77.80 | 18 | - 105.80 | 25.99 | 2.88 | 2.07 | 155 | 2 | 60.7 | 1 |  |
| MEX02NTE | -135.80 | 18 | - 107.36 | 26.32 | 3.80 | 1.57 | 149 | 2 | 61.4 | 1 | 10 |
| MEX02SUR | -126.80 | 18 | -96.39 | 19.88 | 319 | 1.87 | 158 | 2 | 62.8 | 1 | 10 |

12471,86 MHz (18)

| NCG00003 | -107.30 | 18 | -84.99 | 12.90 | 1.05 | 1.01 | 176 | 1 | 63.6 |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | :--- | :--- | :--- | :--- |
| PRU00004 | -85.80 | 18 | -74.19 | -8.39 | 3.74 | 2.45 | 112 | 2 | 63.1 | 10 |  |
| PTRVIR01 | -100.80 | 18 | -65.85 | 18.12 | 0.80 | 0.80 | 90 | 2 | 60.8 | $1699 /$ GR20 |  |
| PTRVIR02 | -109.80 | 18 | -65.85 | 18.12 | 0.80 | 0.80 | 90 | 2 | 61.4 | $1699 /$ GR21 |  |
| USAEH001 | -61.30 | 18 | -85.16 | 36.21 | 5.63 | 3.32 | 22 | 2 | 62.1 | 156 | 10 |
| USAEH002 | -100.80 | 18 | -89.28 | 36.16 | 5.65 | 3.78 | 170 | 2 | 62.0 | $169 /$ GR20 | 10 |
| USAEH003 | -109.80 | 18 | -90.12 | 36.11 | 5.55 | 3.56 | 161 | 2 | 62.3 | $169 /$ GR21 | 10 |
| USAEH004 | -118.80 | 18 | -91.16 | 36.05 | 5.38 | 3.24 | 153 | 2 | 62.9 | 156 | 10 |
| USAPSA02 | -165.80 | 18 | -117.79 | 40.58 | 4.04 | 0.82 | 135 | 2 | 63.5 | $9 / G R 1$ |  |
| USAPSA03 | -174.80 | 18 | -118.20 | 40.15 | 3.63 | 0.80 | 136 | 2 | 65.3 | $9 /$ GR2 |  |
| USAWH101 | -147.80 | 18 | -109.70 | 38.13 | 5.52 | 1.96 | 142 | 2 | 62.3 | 10 |  |
| USAWH102 | -156.80 | 18 | -111.40 | 38.57 | 5.51 | 1.55 | 138 | 2 | 63.5 | 10 |  |
| VEN11VEN | -103.80 | 18 | -66.79 | 6.90 | 2.50 | 1.77 | 122 | 2 | 65.5 | 10 |  |

12486,44 MHz (19)

| $\mathbf{1}$ | $\mathbf{2}$ | $\mathbf{3}$ | $\mathbf{4}$ |  |  | $\mathbf{5}$ |  | $\mathbf{6}$ | $\mathbf{7}$ | $\mathbf{8}$ |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | :--- | :--- | :--- | :--- |

12486,44 MHz (19)

| CAN01202 | -72.70 | 19 | -107.70 | 55.63 | 2.74 | 1.12 | 32 | 1 | 59.8 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CAN01203 | -129.20 | 19 | -111.48 | 55.61 | 3.08 | 1.15 | 151 | 1 | 59.7 | 9/GR12 | 10 |
| CAN01303 | - 129.20 | 19 | - 102.42 | 57.12 | 3.54 | 0.91 | 154 | 1 | 60.3 | 9/GR12 | 10 |
| CAN01304 | -91.20 | 19 | -99.12 | 57.36 | 1.98 | 1.72 | 2 | 1 | 60.1 | 9/GR13 |  |
| CAN01403 | - 129.20 | 19 | -89.75 | 52.02 | 4.68 | 0.80 | 148 | 1 | 62.1 | 9/GR12 | 10 |
| CAN01404 | -91.20 | 19 | -84.82 | 52.42 | 310 | 2.05 | 152 | 1 | 60.6 | 9/GR13 | 10 |
| CAN01405 | -82.20 | 19 | -84.00 | 52.39 | 2.84 | 2.29 | 172 | 1 | 60.5 | 9/GR14 | 10 |
| CAN01504 | -91.20 | 19 | -72.66 | 53.77 | 3.57 | 1.67 | 156 | 1 | 60.4 | 9/GR13 | 10 |
| CAN01505 | -82.20 | 19 | -71.77 | 53.79 | 3.30 | 1.89 | 162 | 1 | 60.4 | 9/GR14 | 10 |
| CAN01605 | -82.20 | 19 | -61.50 | 49.55 | 2.65 | 1.40 | 143 | 1 | 60.5 | 9/GR14 | 10 |
| CAN01606 | -70.70 | 19 | -61.30 | 49.55 | 2.40 | 1.65 | 148 | 1 | 60.5 | 10 |  |
| CHLCONT5 | -106.20 | 19 | -72.23 | -35.57 | 2.60 | 0.80 | 55 | 1 | 59.6 | 9/GR17 |  |
| CHLPAC02 | -106.20 | 19 | -80.06 | -30.06 | 1.36 | 0.80 | 69 | 1 | 59.4 | 9/GR17 |  |
| CLMAND01 | -115.20 | 19 | -74.72 | 5.93 | 3.85 | 1.63 | 114 | 1 | 65.4 | 9/GR5 |  |
| CLM00001 | - 103.20 | 19 | -74.50 | 5.87 | 3.98 | 1.96 | 118 | 1 | 63.9 | 10 |  |
| CUB00001 | -89.20 | 19 | -79.81 | 21.62 | 2.24 | 0.80 | 168 | 1 | 61.3 |  |  |
| EQACAND1 | -115.20 | 19 | -78.40 | -1.61 | 1.37 | 0.95 | 75 | 1 | 64.4 | 9/GR5 |  |
| EQAGAND1 | - 115.20 | 19 | -90.34 | -0.62 | 0.90 | 0.81 | 89 | , | 61.6 | 9/GR5 |  |
| GRD00059 | -57.20 | 19 | -61.58 | 12.29 | 0.80 | 0.80 | 90 | 1 | 58.7 |  |  |
| GRLDNK01 | -53.20 | 19 | -44.89 | 66.56 | 2.70 | 0.82 | 173 | 1 | 60.2 | 2 | 10 |
| GUY00201 | -84.70 | 19 | -59.19 | 4.78 | 1.44 | 0.85 | 95 | 1 | 63.8 |  |  |
| HWA00002 | -166.20 | 19 | - 165.79 | 23.42 | 4.20 | 0.80 | 160 | 1 | 59.0 | 9/GR1 | 10 |
| HWA00003 | -175.20 | 19 | - 166.10 | 23.42 | 4.25 | 0.80 | 159 | 1 | 59.0 | 9/GR2 | 10 |
| MEX01NTE | -78.20 | 19 | - 105.81 | 26.01 | 2.89 | 2.08 | 155 | 1 | 60.8 | 1 |  |

12486,44 MHz (19)

| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| MEX01SUR | -69.20 | 19 | -94.84 | 19.82 | 3.05 | 2.09 | 4 | 1 | 62.5 | 1 | 10 |
| MEX02NTE | -136.20 | 19 | - 107.21 | 26.31 | 3.84 | 1.55 | 148 | 1 | 61.5 | 1 | 10 |
| MEX02SUR | - 127.20 | 19 | -96.39 | 19.88 | 3.18 | 1.87 | 157 | 1 | 62.8 | 1 | 10 |
| MSR00001 | -79.70 | 19 | -61.73 | 16.75 | 0.80 | 0.80 | 90 | 1 | 58.9 | 4 |  |
| PAQPAC01 | - 106.20 | 19 | - 109.18 | -27.53 | 0.80 | 0.80 | 90 | 1 | 56.4 | 9/GR17 |  |
| PRG00002 | -99.20 | 19 | -58.66 | -23.32 | 1.45 | 1.04 | 76 | 1 | 60.5 |  |  |
| PRUAND02 | - 115.20 | 19 | -74.69 | -8.39 | 3.41 | 1.79 | 95 | 1 | 64.3 | 9/GR5 |  |
| PTRVIR01 | -101.20 | 19 | -65.85 | 18.12 | 0.80 | 0.80 | 90 | 1 | 60.8 | 16 9/GR20 |  |
| PTRVIR02 | -110.20 | 19 | -65.86 | 18.12 | 0.80 | 0.80 | 90 | 1 | 61.3 | 16 9/GR21 |  |
| URG00001 | - 71.70 | 19 | -56.22 | -32.52 | 1.02 | 0.89 | 11 | 1 | 60.2 |  |  |
| USAEH001 | -61.70 | 19 | -85.19 | 36.21 | 5.63 | 3.33 | 22 | 1 | 62.1 | 156 | 10 |
| USAEH002 | - 101.20 | 19 | -89.24 | 36.16 | 5.67 | 3.76 | 170 | 1 | 62.0 | 16 9/GR20 | 10 |
| USAEH003 | - 110.20 | 19 | -90.14 | 36.11 | 5.55 | 3.55 | 161 | 1 | 62.4 | 16 9/GR21 | 10 |
| USAEH004 | - 119.20 | 19 | -91.16 | 36.05 | 5.38 | 3.24 | 152 | 1 | 62.9 | 156 | 10 |
| USAPSA02 | - 166.20 | 19 | -117.80 | 40.58 | 4.03 | 0.82 | 135 | 1 | 63.6 | 9/GR1 |  |
| USAPSA03 | -175.20 | 19 | -118.27 | 40.12 | 3.62 | 0.80 | 136 | 1 | 65.4 | 9/GR2 |  |
| USAWH101 | - 148.20 | 19 | - 109.65 | 38.13 | 5.53 | 1.95 | 142 | 1 | 62.4 | 10 |  |
| USAWH102 | - 157.20 | 19 | - 111.41 | 38.57 | 5.51 | 1.54 | 138 | 1 | 63.5 | 10 |  |
| VENAND03 | - 115.20 | 19 | -67.04 | 6.91 | 2.37 | 1.43 | 111 | 1 | 67.7 | 9/GR5 |  |

12501,02 MHz

| ALS00002 | -165.80 | 20 | - 149.63 | 58.52 | 3.81 | 1.23 | 171 | 2 | 59.9 | 9/GR1 | 10 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALS00003 | -174.80 | 20 | -150.95 | 58.54 | 3.77 | 1.11 | 167 | 2 | 60.2 | 9/GR2 | 10 |  |
| ARGNORT4 | -93.80 | 20 | -63.96 | -30.01 | 3.86 | 1.99 | 48 | 2 | 66.1 | 10 |  |  |
| ARGNORT5 | -54.80 | 20 | -62.85 | -29.80 | 3.24 | 2.89 | 47 | 2 | 63.9 | 10 |  |  |
| B CE311 | -63.80 | 20 | -40.60 | -6.07 | 3.04 | 2.06 | 174 | 2 | 61.9 | 8 9/GR7 | 10 |  |
| B CE312 | -44.80 | 20 | -40.26 | -6.06 | 3.44 | 2.09 | 174 | 2 | 61.3 | 8 9/GR9 | 10 | 11 |
| B CE411 | -63.80 | 20 | -50.97 | -15.26 | 3.86 | 1.38 | 49 | 2 | 62.9 | 8 9/GR7 | 10 |  |
| B CE412 | -44.80 | 20 | -50.71 | - 15.30 | 357 | 1.56 | 52 | 2 | 63.1 | 8 9/GR9 | 10 | 12 |
| B CE511 | -63.80 | 20 | -53.11 | -2.98 | 2.42 | 2.15 | 107 | 2 | 63.4 | 8 9/GR7 | 10 |  |
| B N0611 | -73.80 | 20 | -59.60 | -11.62 | 2.86 | 1.69 | 165 | 1 | 63.2 | 8 9/GR8 | 10 |  |
| B N0711 | -73.80 | 20 | -60.70 | -1.78 | 3.54 | 1.78 | 126 | 1 | 63.2 | 8 9/GR8 | 10 |  |
| B N0811 | - 73.80 | 20 | -68.75 | -4.71 | 2.37 | 1.65 | 73 | 1 | 63.2 | 8 9/GR8 |  |  |
| B SE911 | -101.80 | 20 | -45.99 | -19.09 | 2.22 | 0.80 | 62 | 2 | 65.7 | 8 | 10 |  |
| B SU111 | -80.80 | 20 | -51.10 | - 25.64 | 2.76 | 1.06 | 50 | 2 | 63.2 | 8 9/GR6 | 10 |  |
| B SU112 | -44.80 | 20 | -50.76 | -25.62 | 2.47 | 1.48 | 56 | 2 | 62.6 | 8 9/GR9 | 11 |  |
| B SU211 | -80.80 | 20 | -44.51 | - 16.94 | 3.22 | 1.37 | 60 | 2 | 62.8 | 8 9/GR6 | 10 |  |
| B SU212 | -44.80 | 20 | -43.99 | -16.97 | 3.27 | 1.92 | 59 | 2 | 61.6 | 8 9/GR9 | 12 |  |
| CAN01101 | -137.80 | 20 | - 125.60 | 57.24 | 3.45 | 1.27 | 157 | 2 | 59.7 | 9/GR10 | 10 |  |
| CAN01201 | -137.80 | 20 | -111.92 | 55.89 | 3.33 | 0.98 | 151 | 2 | 59.8 | 9/GR10 | 10 |  |
| CAN01202 | -72.30 | 20 | - 107.64 | 55.62 | 2.75 | 1.11 | 32 | 2 | 59.8 |  |  |  |
| CAN01203 | -128.80 | 20 | -111.43 | 55.56 | 3.07 | 1.15 | 151 | 2 | 59.7 | 9/GR12 | 10 |  |
| CAN01303 | -128.80 | 20 | - 102.39 | 57.12 | 3.54 | 0.92 | 154 | 2 | 60.3 | 9/GR12 | 10 |  |
| CAN01304 | -90.80 | 20 | -99.00 | 57.33 | 1.96 | 1.73 | 1 | 2 | 60.0 | 9/GR13 |  |  |
| CAN01403 | -128.80 | 20 | -89.70 | 52.02 | 4.67 | 0.80 | 148 | 2 | 62.1 | 9/GR12 | 10 |  |

12501,02 MHz

| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CAN01404 | -90.80 | 20 | -84.78 | 52.41 | 3.09 | 2.06 | 153 | 2 | 60.6 | 9/GR13 | 10 |
| CAN01405 | -81.80 | 20 | -84.02 | 52.34 | 2.82 | 2.30 | 172 | 2 | 60.5 | 9/GR14 | 10 |
| CAN01504 | -90.80 | 20 | -72.68 | 53.78 | 3.57 | 1.67 | 157 | 2 | 60.4 | 9/GR13 | 10 |
| CAN01505 | -81.80 | 20 | - 71.76 | 53.76 | 3.30 | 1.89 | 162 | 2 | 60.4 | 9/GR14 | 10 |
| CAN01605 | -81.80 | 20 | -61.54 | 49.50 | 2.66 | 1.39 | 144 | 2 | 60.5 | 9/GR14 | 10 |
| CAN01606 | -70.30 | 20 | -61.32 | 49.51 | 2.41 | 1.65 | 148 | 2 | 60.5 | 10 |  |
| CHLCONT4 | -105.80 | 20 | -69.59 | -23.20 | 2.21 | 0.80 | 68 | 2 | 59.3 | 9/GR16 |  |
| CHLCONT6 | -105.80 | 20 | - 73.52 | -55.52 | 3.65 | 1.31 | 39 | 2 | 59.8 | 9/GR16 |  |
| CRBBAH01 | -92.30 | 20 | -76.09 | 24.13 | 1.83 | 0.80 | 141 | 1 | 62.0 | 9/GR18 |  |
| CRBBER01 | -92.30 | 20 | -64.76 | 32.13 | 0.80 | 0.80 | 90 | 1 | 57.0 | 9/GR18 |  |
| CRBBLZ01 | -92.30 | 20 | -88.61 | 17.26 | 0.80 | 0.80 | 90 | 1 | 58.9 | 9/GR18 |  |
| CRBEC001 | -92.30 | 20 | -60.07 | 8.26 | 4.20 | 0.86 | 115 | 1 | 64.6 | 9/GR18 | 10 |
| CRBJMC01 | -92.30 | 20 | -79.45 | 17.97 | 0.99 | 0.80 | 151 | 1 | 61.4 | 9/GR18 |  |
| EQAC0001 | -94.80 | 20 | -78.31 | -1.52 | 1.48 | 1.15 | 65 | 1 | 63.3 | 9/GR19 |  |
| EQAG0001 | -94.80 | 20 | -90.36 | -0.57 | 0.94 | 0.89 | 99 | 1 | 61.3 | 9/GR19 |  |
| GRD00003 | -79.30 | 20 | -61.62 | 12.34 | 0.80 | 0.80 | 90 | 2 | 58.9 |  |  |
| GTMIFRB2 | -107.30 | 20 | -90.50 | 15.64 | 1.03 | 0.80 | 84 | 1 | 61.4 |  |  |
| GUFMGG02 | -52.80 | 20 | -56.42 | 8.47 | 4.16 | 0.81 | 123 | 2 | 63.0 | 27 | 10 |
| HWA00002 | -165.80 | 20 | - 165.79 | 23.32 | 4.20 | 0.80 | 160 | 2 | 59.0 | 9/GR1 | 10 |
| HWA00003 | -174.80 | 20 | -166.10 | 23.42 | 4.25 | 0.80 | 159 | 2 | 59.0 | 9/GR2 | 10 |
| MEX01NTE | -77.80 | 20 | -105.80 | 25.99 | 2.88 | 2.07 | 155 | 2 | 60.8 | 1 |  |
| MEX02NTE | - 135.80 | 20 | -107.36 | 26.32 | 3.80 | 1.57 | 149 | 2 | 61.5 | 1 | 10 |
| MEX02SUR | -126.80 | 20 | -96.39 | 19.88 | 3.19 | 1.87 | 158 | 2 | 62.8 | 1 | 10 |
| PNRIFRB2 | - 121.00 | 20 | -80.15 | 8.46 | 1.01 | 0.80 | 170 | 1 | 65.1 |  |  |

12501,02 MHz

| PRUO0004 | -85.80 | 20 | -74.19 | -8.39 | 3.74 | 2.45 | 112 | 2 | 63.2 | 10 |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | :--- | :--- | :--- | :--- |
| PTRVIR01 | -100.80 | 20 | -65.85 | 18.12 | 0.80 | 0.80 | 90 | 2 | 60.9 | $1699 /$ GR20 |  |
| PTRVIR02 | -109.80 | 20 | -65.85 | 18.12 | 0.80 | 0.80 | 90 | 2 | 61.4 | $1699 /$ GR21 |  |
| USAEH001 | -61.30 | 20 | -85.16 | 36.21 | 5.63 | 3.32 | 22 | 2 | 62.1 | 156 | 10 |
| USAEH002 | -100.80 | 20 | -89.28 | 36.16 | 5.65 | 3.78 | 170 | 2 | 62.0 | $1699 /$ GR20 | 10 |
| USAEH003 | -109.80 | 20 | -90.12 | 36.11 | 5.55 | 3.56 | 161 | 2 | 62.4 | $169 /$ GR21 | 10 |
| USAEH004 | -118.80 | 20 | -91.16 | 36.05 | 5.38 | 3.24 | 153 | 2 | 62.9 | 15 | 6 |
| USAPSA02 | -165.80 | 20 | -117.79 | 40.58 | 4.04 | 0.82 | 135 | 2 | 63.6 | $9 /$ GR1 | 10 |
| USAPSA03 | -174.80 | 20 | -118.20 | 40.15 | 3.63 | 0.80 | 136 | 2 | 65.3 | $9 /$ GR2 |  |
| USAWH101 | -147.80 | 20 | -109.70 | 38.13 | 5.52 | 1.96 | 142 | 2 | 62.4 | 10 |  |
| USAWH102 | -156.80 | 20 | -111.40 | 38.57 | 5.51 | 1.55 | 138 | 2 | 63.5 | 10 |  |
| VENO2VEN | -103.80 | 20 | -63.50 | 15.50 | 0.80 | 0.80 | 90 | 2 | 60.1 | $9 /$ GR22 |  |
| VEN11VEN | -103.80 | 20 | -66.79 | 6.90 | 2.50 | 1.77 | 122 | 2 | 65.6 | $9 /$ GR22 | 10 |

12515,60 MHz

| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALS00002 | -166.20 | 21 | - 149.66 | 58.37 | 3.76 | 1.24 | 170 | 1 | 59.9 | 9/GR1 | 10 |
| ALS00003 | - 175.20 | 21 | -150.98 | 58.53 | 3.77 | 1.11 | 167 | 1 | 60.2 | 9/GR2 | 10 |
| ARGINSU4 | -94.20 | 21 | -52.98 | -59.81 | 3.40 | 0.80 | 19 | 1 | 60.1 | 9/GR3 |  |
| ARGINSU5 | -55.20 | 21 | -44.17 | -59.91 | 3.77 | 0.80 | 13 | 1 | 59.5 | 9/GR4 |  |
| ARGSUR04 | -94.20 | 21 | -65.04 | -43.33 | 3.32 | 1.50 | 40 | 1 | 60.9 | 9/GR3 |  |
| ARGSUR05 | -55.20 | 21 | -63.68 | -43.01 | 2.54 | 2.38 | 152 | 1 | 60.2 | 9/GR4 |  |
| B CE311 | -64.20 | 21 | -40.60 | -6.07 | 3.04 | 2.06 | 174 | 1 | 61.9 | 8 9/GR7 |  |
| B CE312 | -45.20 | 21 | -40.27 | -6.06 | 3.44 | 2.09 | 174 | 1 | 61.2 | 8 9/GR9 | 1011 |
| B CE411 | -64.20 | 21 | -50.97 | -15.27 | 3.86 | 1.38 | 49 | 1 | 62.9 | 8 9/GR7 |  |
| B CE412 | -45.20 | 21 | -50.71 | -15.30 | 3.57 | 1.56 | 52 | 1 | 63.0 | 8 9/GR9 | 1012 |
| B CE511 | -64.20 | 21 | -53.10 | -2.90 | 2.44 | 2.13 | 104 | 1 | 63.4 | 8 9/GR7 |  |
| B N0611 | - 74.20 | 21 | -59.60 | -11.62 | 2.85 | 1.69 | 165 | 2 | 63.1 | 8 9/GR8 |  |
| B NO711 | -74.20 | 21 | -60.70 | -1.78 | 3.54 | 1.78 | 126 | 2 | 63.1 | 8 9/GR8 |  |
| B NO811 | -74.20 | 21 | -68.76 | -4.71 | 2.37 | 1.65 | 73 | 2 | 63.1 | 8 9/GR8 |  |
| B SU111 | -81.20 | 21 | -51.12 | -25.63 | 2.76 | 1.05 | 50 | 1 | 63.2 | 8 9/GR6 |  |
| B SU112 | -45.20 | 21 | -50.75 | -25.62 | 2.47 | 1.48 | 56 | 1 | 62.5 | 8 9/GR9 | 11 |
| B SU211 | -81.20 | 21 | -44.51 | -16.95 | 3.22 | 1.36 | 60 | 1 | 62.8 | 8 9/GR6 |  |
| B SU212 | -45.20 | 21 | -44.00 | -16.87 | 3.20 | 1.96 | 58 | 1 | 61.6 | 8 9/GR9 | 12 |
| BERBERMU | -96.20 | 21 | -64.77 | 32.32 | 0.80 | 0.80 | 90 | 2 | 57.0 |  |  |
| B OLAND01 | - 115.20 | 21 | -65.04 | -16.76 | 2.49 | 1.27 | 76 | 1 | 68.0 | 9/GR5 |  |
| CAN01101 | - 138.20 | 21 | -125.63 | 57.24 | 3.45 | 1.27 | 157 | 1 | 59.7 | 9/GR10 | 10 |
| CAN01201 | - 138.20 | 21 | -11204 | 55.95 | 3.35 | 0.97 | 151 | 1 | 59.8 | 9/GR10 | 10 |
| CAN01202 | -72.70 | 21 | -107.70 | 55.63 | 2.74 | 1.12 | 32 | 1 | 59.8 |  |  |
| CAN01203 | -129.20 | 21 | -111.48 | 55.61 | 3.08 | 1.15 | 151 | 1 | 59.7 | 9/GR12 | 10 |

12515,60 MHz (21)

| CAN01303 | - 129.20 | 21 | -102 42 | 57.12 | 3.54 | 0.91 | 154 | 1 | 60.2 | 9/GR12 | 10 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CAN01304 | -91.20 | 21 | -99.12 | 57.36 | 1.98 | 1.72 | 2 | 1 | 60.0 | 9/GR13 |  |
| CAN01403 | - 129.20 | 21 | -89.75 | 52.02 | 4.68 | 0.80 | 148 | , | 62.1 | 9/GR12 | 10 |
| CAN01404 | -9120 | 21 | -84.82 | 52.42 | 3.10 | 2.05 | 152 | 1 | 60.6 | 9/GR13 |  |
| CAN01405 | -82 20 | 21 | -84.00 | 52.39 | 2.84 | 2.29 | 172 | 1 | 60.5 | 9/GR14 |  |
| CAN01504 | -91.20 | 21 | -72.66 | 53.77 | 3.57 | 1.67 | 156 | 1 | 60.4 | 9/GR13 |  |
| CAN01505 | -82.20 | 21 | -71.77 | 53.79 | 330 | 1.89 | 162 | 1 | 60.3 | 9/GR14 |  |
| CAN01605 | -82.20 | 21 | -61.50 | 49.55 | 2.65 | 1.40 | 143 | 1 | 60.5 | 9/GR14 |  |
| CAN01606 | -70 70 | 21 | -61.30 | 49.55 | 2.40 | 1.65 | 148 | 1 | 60.4 |  |  |
| CHLCONT5 | - 106.20 | 21 | -72.23 | -35.57 | 2.60 | 0.80 | 55 | 1 | 59.6 | 9/GR17 |  |
| CHLPAC02 | - 106.20 | 21 | -80.06 | -30.06 | 1.36 | 0.80 | 69 | 1 | 59.4 | 9/GR17 |  |
| CLMAND01 | - 115.20 | 21 | -74.72 | 5.93 | 3.85 | 1.63 | 114 | 1 | 65.3 | 9/GR5 | 10 |
| CLM00001 | - 103.20 | 21 | -74.50 | 5.87 | 3.98 | 1.96 | 118 | 1 | 63.9 | 10 |  |
| EQACAND1 | - 115.20 | 21 | -78.40 | -1.61 | 1.37 | 0.95 | 75 | 1 | 64.4 | 9/GR5 |  |
| EQAGAND1 | - 115.20 | 21 | -90.34 | -0.62 | 0.90 | 0.81 | 89 | 1 | 615 | 9/GR5 |  |
| HWA00002 | - 166.20 | 21 | - 165.79 | 23.42 | 4.20 | 0.80 | 160 | 1 | 59.0 | 9/GR1 | 10 |
| HWA00003 | - 175.20 | 21 | - 166.10 | 23.42 | 4.25 | 0.80 | 159 | 1 | 58.9 | 9/GR2 | 10 |
| JMC00002 | -92.70 | 21 | -77.30 | 18.12 | 0.80 | 0.80 | 90 | 2 | 60.1 |  |  |
| MEX01NTE | -78.20 | 21 | - 105.81 | 26.01 | 2.89 | 2.08 | 155 | 1 | 60.7 | 1 |  |
| MEX01SUR | -69.20 | 21 | -94.84 | 19.82 | 3.05 | 2.09 | 4 | 1 | 62.5 | 1 |  |
| MEX02NTE | - 136.20 | 21 | - 107.21 | 26.31 | 3.84 | 1.55 | 148 | 1 | 61.4 | 1 | 10 |
| MEX02SUR | - 127.20 | 21 | -96.39 | 19.88 | 3.18 | 1.87 | 157 | 1 | 62.8 | 1 | 10 |
| PAQPAC01 | - 106.20 | 21 | - 109.18 | -27.53 | 0.80 | 0.80 | 90 | 1 | 56.4 | 9/GR17 |  |
| PRG00002 | -99.20 | 21 | -58.66 | -23.32 | 1.45 | 1.04 | 76 | 1 | 60.4 |  |  |

12515,60 MHz (21)

| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| PRUAND02 | -115.20 | 21 | -74.69 | -8.39 | 3.41 | 1.79 | 95 | 1 | 64.3 | 9/GR5 |  |
| PTRVIR01 | - 101.20 | 21 | -65.85 | 18.12 | 0.80 | 0.80 | 90 | 1 | 60.8 | $169 / \mathrm{GR} 20$ |  |
| PTRVIR02 | -110.20 | 21 | -65.86 | 18.12 | 0.80 | 0.80 | 90 | 1 | 61.3 | 16 9/GR21 |  |
| SCN00001 | -79.70 | 21 | -62.46 | 17.44 | 0.80 | 0.80 | 90 | 1 | 58.6 |  |  |
| SPMFRAN3 | -53.20 | 21 | -67.24 | 47.51 | 3.16 | 0.80 | 7 | 1 | 60.6 | 27 |  |
| SURINAM2 | -84.70 | 21 | -55.69 | 4.35 | 1.00 | 0.80 | 86 | 1 | 63.5 |  |  |
| URG00001 | -71.70 | 21 | -56.22 | -32.52 | 1.02 | 0.89 | 11 | 1 | 60.2 |  |  |
| USAEH001 | -61.70 | 21 | -85.19 | 36.21 | 5.63 | 3.33 | 22 | 1 | 62.1 | 156 |  |
| USAEH002 | - 101.20 | 21 | -89.24 | 36.16 | 5.67 | 3.76 | 170 | 1 | 62.0 | 16 9/GR20 | 10 |
| USAEH003 | -110.20 | 21 | -9014 | 36.11 | 5.55 | 3.55 | 161 | 1 | 62.3 | 16 9/GR21 | 10 |
| USAEH004 | - 119.20 | 21 | -91.16 | 36.05 | 5.38 | 3.24 | 152 | 1 | 62.9 | 156 | 10 |
| USAPSA02 | - 166.20 | 21 | -117.80 | 40.58 | 4.03 | 0.82 | 135 | 1 | 63.5 | 9/GR1 |  |
| USAPSA03 | -175.20 | 21 | -118.27 | 40.12 | 3.62 | 0.80 | 136 | 1 | 65.3 | 9/GR2 |  |
| USAWH101 | - 148.20 | 21 | - 109.65 | 38.13 | 5.53 | 1.95 | 142 | 1 | 62.3 | 10 |  |
| USAWH102 | -157.20 | 21 | - 111.41 | 38.57 | 5.51 | 1.54 | 138 | 1 | 635 | 10 |  |
| VENAND03 | -115.20 | 21 | -67.04 | 6.91 | 2.37 | 1.43 | 111 | 1 | 67.6 | 9/GR5 | 10 |

12530,18 MHz (22)

| ALS00002 | - 165.80 | 22 | - 149.63 | 58.52 | 3.81 | 1.23 | 171 | 2 | 59.9 | 9/GR1 | 10 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALS00003 | - 174.80 | 22 | - 150.95 | 58.54 | 3.77 | 1.11 | 167 | 2 | 60.2 | 9/GR2 | 10 |
| ARGNORT4 | -93.80 | 22 | -63.96 | -30.01 | 3.86 | 1.99 | 48 | 2 | 66.0 |  |  |
| ARGNORT5 | -54.80 | 22 | -62.85 | -2980 | 3.24 | 2.89 | 47 | 2 | 63.8 |  |  |
| ATNBEAM1 | -52.80 | 22 | -66.44 | 14.87 | 1.83 | 0.80 | 39 | 2 | 61.3 |  |  |
| B CE311 | -63.80 | 22 | -40.60 | -6.07 | 3.04 | 2.06 | 174 | 2 | 61.9 | 8 9/GR7 |  |
| B CE312 | -44.80 | 22 | -40.26 | -606 | 3.44 | 209 | 174 | 2 | 61.2 | 8 9/GR9 | 1011 |
| B CE411 | -63.80 | 22 | -50.97 | -15.26 | 3.86 | 1.38 | 49 | 2 | 62.9 | 8 9/GR7 |  |
| B CE412 | -44.80 | 22 | -50.71 | -15.30 | 3.57 | 1.56 | 52 | 2 | 63.0 | 8 9/GR9 | 1012 |
| B CE511 | -63.80 | 22 | -53.11 | -2.98 | 2.42 | 2.15 | 107 | 2 | 63.4 | 8 9/GR7 |  |
| B NO611 | -73.80 | 22 | -59.60 | - 1162 | 2.86 | 1.69 | 165 | 1 | 63.1 | 8 9/GR8 |  |
| B NO711 | -73.80 | 22 | -60.70 | -1.78 | 3.54 | 1.78 | 126 | 1 | 63.1 | 8 9/GR8 |  |
| B NO811 | -73.80 | 22 | -68.75 | -4.71 | 2.37 | 1.65 | 73 | 1 | 63.1 | 8 9/GR8 |  |
| B SE911 | -101.80 | 22 | -45.99 | -19.09 | 2.22 | 0.80 | 62 | 2 | 65.7 | 8 |  |
| B SU111 | -80.80 | 22 | -51.10 | -25.64 | 2.76 | 1.06 | 50 | 2 | 63.1 | 8 9/GR6 |  |
| B SU112 | -44.80 | 22 | -50.76 | -25.62 | 2.47 | 1.48 | 56 | 2 | 62.6 | 8 9/GR9 | 11 |
| B SU211 | -80.80 | 22 | -44.51 | -1694 | 3.22 | 1.37 | 60 | 2 | 62.8 | 8 9/GR6 |  |
| B SU212 | -44.80 | 22 | -43.99 | - 16.97 | 3.27 | 1.92 | 59 | 2 | 61.6 | 8 9/GR9 | 12 |
| B LZ00001 | -115.80 | 22 | -88.68 | 17.27 | 0.80 | 0.80 | 90 | 2 | 59.2 |  |  |
| CAN01101 | -137.80 | 22 | $-125.60$ | 57.24 | 3.45 | 1.27 | 157 | 2 | 59.7 | 9/GR10 | 10 |
| CAN01201 | -137.80 | 22 | - 111.92 | 55.89 | 3.33 | 0.98 | 151 | 2 | 59.8 | 9/GR10 | 10 |
| CAN01202 | -72.30 | 22 | -10764 | 55.62 | 2.75 | 1.11 | 32 | 2 | 59.8 |  |  |
| CAN01203 | -128.80 | 22 | -111.43 | 55.56 | 3.07 | 1.15 | 151 | 2 | 59.7 | 9/GR12 | 10 |
| CAN01303 | - 128.80 | 22 | -102.39 | 57.12 | 3.54 | 0.92 | 154 | 2 | 60.3 | 9/GR12 | 10 |

12530, 18 MHz

| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CAN01304 | -90.80 | 22 | -99.00 | 57.33 | 1.96 | 1.73 | 1 | 2 | 60.0 | 9/GR13 |  |
| CAN01403 | - 128.80 | 22 | -89.70 | 52.02 | 4.67 | 0.80 | 148 | 2 | 62.1 | 9/GR12 | 10 |
| CAN01404 | -90.80 | 22 | -84.78 | 52.41 | 3.09 | 2.06 | 153 | 2 | 606 | 9/GR13 |  |
| CAN01405 | -81.80 | 22 | -84.02 | 52.34 | 2.82 | 2.30 | 172 | 2 | 60.5 | 9/GR14 |  |
| CAN01504 | -90.80 | 22 | -72.68 | 53.78 | 3.57 | 1.67 | 157 | 2 | 60.4 | 9/GR13 |  |
| CAN01505 | -81.80 | 22 | -71.76 | 53.76 | 3.30 | 1.89 | 162 | 2 | 60.3 | 9/GR14 |  |
| CAN01605 | -81.80 | 22 | -61.54 | 49.50 | 2.66 | 1.39 | 144 | 2 | 60.5 | 9/GR14 |  |
| CAN01606 | -70.30 | 22 | -61.32 | 49.51 | 2.41 | 1.65 | 148 | 2 | 60.4 |  |  |
| CHLCONT4 | -105.80 | 22 | -69.59 | -23.20 | 2.21 | 0.80 | 68 | 2 | 59.3 | 9/GR16 |  |
| CHLCONT6 | - 105.80 | 22 | -73.52 | -55.52 | 3.65 | 1.31 | 39 | 2 | 59.7 | 9/GR16 |  |
| CRBBAH01 | -92.30 | 22 | -76.09 | 24.13 | 1.83 | 0.80 | 141 | 1 | 61.9 | 9/GR18 |  |
| CRBBER01 | -92.30 | 22 | -64.76 | 32.13 | 0.80 | 0.80 | 90 | 1 | 56.9 | 9/GR18 |  |
| CRBBLZ01 | -92.30 | 22 | -8861 | 17.26 | 0.80 | 0.80 | 90 | 1 | 58.9 | 9/GR18 |  |
| CRBEC001 | -92.30 | 22 | -60.07 | 8.26 | 4.20 | 0.86 | 115 | 1 | 64.6 | 9/GR18 |  |
| CRBJMC01 | -92.30 | 22 | -79.45 | 17.97 | 0.99 | 0.80 | 151 | 1 | 61.3 | 9/GR18 |  |
| CTR00201 | -130.80 | 22 | -84.33 | 9.67 | 0.82 | 0.80 | 119 | 2 | 66.0 |  |  |
| DMAIFRB1 | -79.30 | 22 | -61.30 | 15.35 | 0.80 | 0.80 | 90 | 2 | 58.7 |  |  |
| EQAC0001 | -94.80 | 22 | - 78.31 | -1.52 | 1.48 | 1.15 | 65 | 1 | 63.3 | 9/GR19 |  |
| EQAG0001 | -94.80 | 22 | -9036 | -0.57 | 0.94 | 0.89 | 99 | 1 | 61.2 | 9/GR19 |  |
| HWA00002 | - 165.80 | 22 | -165.79 | 23.32 | 4.20 | 0.80 | 160 | 2 | 59.0 | 9/GR1 | 10 |
| HWA00003 | - 174.80 | 22 | - 166.10 | 23.42 | 4.25 | 0.80 | 159 | 2 | 59.0 | 9/GR2 | 10 |
| MEX01NTE | -77.80 | 22 | - 105.80 | 25.99 | 2.88 | 2.07 | 155 | 2 | 60.7 | , |  |
| MEX02NTE | - 135.80 | 22 | -107.36 | 26.32 | 3.80 | 1.57 | 149 | 2 | 61.4 | 1 | 10 |
| MEX02SUR | - 126.80 | 22 | -96.39 | 19.88 | 3.19 | 1.87 | 158 | 2 | 62.8 | 1 | 10 |

12530,18 MHz (22)

| NCG00003 | -107.30 | 22 | -84.99 | 12.90 | 1.05 | 1.01 | 176 | 1 | 63.6 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| PRU00004 | -85.80 | 22 | -7419 | -8.39 | 3.74 | 245 | 112 | 2 | 63.1 |  |
| PTRVIR01 | -100.80 | 22 | -6585 | 18.12 | 0.80 | 0.80 | 90 | 2 | 60.8 | 16 9/GR20 |
| PTRVIR02 | -109.80 | 22 | -65.85 | 1812 | 0.80 | 080 | 90 | 2 | 61.4 | 16 9/GR21 |
| USAEH001 | -6130 | 22 | -85.16 | 3621 | 5.63 | 332 | 22 | 2 | 621 | 156 |
| USAEH002 | - 100.80 | 22 | -89.28 | 3616 | 5.65 | 3.78 | 170 | 2 | 62.0 | $169 / \mathrm{GR20} 10$ |
| USAEH003 | -109.80 | 22 | -90.12 | 36.11 | 5.55 | 3.56 | 161 | 2 | 62.3 | 16 9/GR21 10 |
| USAEH004 | -118.80 | 22 | -91.16 | 36.05 | 5.38 | 3.24 | 153 | 2 | 62.9 | 15610 |
| USAPSA02 | - 165.80 | 22 | -117.79 | 40.58 | 4.04 | 082 | 135 | 2 | 63.5 | 9/GR1 |
| USAPSA03 | - 174.80 | 22 | -118.20 | 40.15 | 3.63 | 0.80 | 136 | 2 | 65.3 | 9/GR2 |
| USAWH101 | - 147.80 | 22 | -109.70 | 38.13 | 5.52 | 1.96 | 142 | 2 | 62.3 | 10 |
| USAWH102 | - 156.80 | 22 | - 111.40 | 38.57 | 5.51 | 1.55 | 138 | 2 | 63.5 | 10 |
| VEN11VEN | - 103.80 | 22 | -66.79 | 6.90 | 2.50 | 1.77 | 122 | 2 | 65.5 | 10 |

12544,76 MHz (23)

| CAN01202 | -72.70 | 23 | -107.70 | 55.63 | 2.74 | 1.12 | 32 | 1 | 59.8 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CAN01203 | - 129.20 | 23 | -111.48 | 55.61 | 3.08 | 1.15 | 151 | 1 | 59.7 | 9/GR12 | 10 |
| CAN01303 | - 129.20 | 23 | - 102.42 | 57.12 | 3.54 | 0.91 | 154 | 1 | 60.3 | 9/GR12 | 10 |
| CAN01304 | -91.20 | 23 | -99.12 | 57.36 | 1.98 | 1.72 | 2 | 1 | 60.1 | 9/GR13 |  |
| CAN01403 | - 129.20 | 23 | -89.75 | 52.02 | 4.68 | 0.80 | 148 | 1 | 62.1 | 9/GR12 | 10 |
| CAN01404 | -91.20 | 23 | -84.82 | 52.42 | 3.10 | 2.05 | 152 | 1 | 60.6 | 9/GR13 |  |
| CAN01405 | -82.20 | 23 | -84.00 | 52.39 | 2.84 | 2.29 | 172 | 1 | 60.5 | 9/GR14 |  |
| CAN01504 | -91.20 | 23 | -72.66 | 53.77 | 3.57 | 1.67 | 156 | 1 | 60.4 | 9/GR13 |  |
| CAN01505 | -82.20 | 23 | - 71.77 | 53.79 | 3.30 | 1.89 | 162 | 1 | 60.4 | 9/GR14 |  |
| CAN01605 | -82.20 | 23 | -61.50 | 49.55 | 2.65 | 1.40 | 143 | 1 | 60.5 | 9/GR14 |  |
| CAN01606 | - 70.70 | 23 | -61.30 | 49.55 | 2.40 | 1.65 | 148 | 1 | 60.5 |  |  |
| CHLCONT5 | - 106.20 | 23 | - 72.23 | -35.57 | 2.60 | 0.80 | 55 | 1 | 59.6 | 9/GR17 |  |
| CHLPAC02 | -106.20 | 23 | -80.06 | -30.06 | 1.36 | 0.80 | 69 | 1 | 59.4 | 9/GR17 |  |
| CLMAND01 | -115.20 | 23 | -74.72 | 5.93 | 3.85 | 1.63 | 114 | 1 | 65.4 | 9/GR5 | 10 |
| CLM00001 | -10320 | 23 | -74.50 | 5.87 | 3.98 | 1.96 | 118 | 1 | 63.9 | 10 |  |
| CUB00001 | -89.20 | 23 | -79.81 | 21.62 | 2.24 | 0.80 | 168 | 1 | 61.3 |  |  |
| EQACAND1 | -115.20 | 23 | -78.40 | -1.61 | 1.37 | 0.95 | 75 | 1 | 64.4 | 9/GR5 |  |
| EQAGAND1 | -115.20 | 23 | -90.34 | -0.62 | 0.90 | 0.81 | 89 | 1 | 61.6 | 9/GR5 |  |
| GRD00059 | -57.20 | 23 | -61.58 | 12.29 | 0.80 | 0.80 | 90 | 1 | 58.7 |  |  |
| GRLDNK01 | -53.20 | 23 | -44.89 | 66.56 | 2.70 | 0.82 | 173 | 1 | 60.2 | 2 |  |
| GUY00201 | -84.70 | 23 | -59.19 | 4.78 | 1.44 | 0.85 | 95 | 1 | 63.8 |  |  |
| HWA00002 | -166.20 | 23 | - 165.79 | 23.42 | 4.20 | 0.80 | 160 | 1 | 59.0 | 9/GR1 | 10 |
| HWA00003 | -175.20 | 23 | - 166.10 | 23.42 | 4.25 | 0.80 | 159 | 1 | 59.0 | 9/GR2 | 10 |
| MEX01NTE | -78.20 | 23 | -105.81 | 26.01 | 2.89 | 2.08 | 155 | 1 | 60.8 | 1 |  |

12544, 76 MHz (23)

| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| MEX01SUR | -69.20 | 23 | -94.84 | 19.82 | 3.05 | 2.09 | 4 | 1 | 62.5 | 1 |  |
| MEX02NTE | -136.20 | 23 | -107.21 | 26.31 | 3.84 | 1.55 | 148 | 1 | 61.5 | 1 | 10 |
| MEX02SUR | - 127.20 | 23 | -96.39 | 19.88 | 3.18 | 1.87 | 157 | 1 | 628 | 1 | 10 |
| MSR00001 | -79.70 | 23 | -61.73 | 16.75 | 0.80 | 0.80 | 90 | 1 | 58.9 | 4 |  |
| PAQPAC01 | -10620 | 23 | - 109.18 | -27.53 | 0.80 | 0.80 | 90 | 1 | 56.4 | 9/GR17 |  |
| PRG00002 | -99.20 | 23 | -58.66 | -23.32 | 1.45 | 1.04 | 76 | 1 | 60.5 |  |  |
| PRUAND02 | - 115.20 | 23 | -74.69 | -8.39 | 3.41 | 1.79 | 95 | 1 | 64.3 | 9/GR5 |  |
| PTRVIR01 | - 101.20 | 23 | -65 85 | 18.12 | 0.80 | 0.80 | 90 | 1 | 60.8 | 16 9/GR20 |  |
| PTRVIR02 | - 110.20 | 23 | -65.86 | 18.12 | 0.80 | 0.80 | 90 | 1 | 61.3 | 16 9/GR21 |  |
| URG00001 | -71.70 | 23 | -56.22 | -3252 | 1.02 | 0.89 | 11 | 1 | 602 |  |  |
| USAEH001 | -61.70 | 23 | -85.19 | 36.21 | 5.63 | 3.33 | 22 | 1 | 62.1 | 156 |  |
| USAEH002 | -101.20 | 23 | -89.24 | 36.16 | 5.67 | 3.76 | 170 | 1 | 62.0 | 16 9/GR20 | 10 |
| USAEH003 | - 110.20 | 23 | -90.14 | 36.11 | 5.55 | 3.55 | 161 | 1 | 62.4 | 16 9/GR21 | 10 |
| USAEH004 | - 119.20 | 23 | -91.16 | 36.05 | 5.38 | 3.24 | 152 | 1 | 62.9 | 156 | 10 |
| USAPSA02 | - 166.20 | 23 | - 117.80 | 40.58 | 4.03 | 0.82 | 135 | 1 | 63.6 | 9/GR1 |  |
| USAPSA03 | -175.20 | 23 | - 118.27 | 40.12 | 362 | 0.80 | 136 | 1 | 65.4 | 9/GR2 |  |
| USAWH101 | -148.20 | 23 | - 109.65 | 38.13 | 553 | 1.95 | 142 | 1 | 62.4 | 10 |  |
| USAWH102 | -157.20 | 23 | - 11141 | 38.57 | 551 | 1.54 | 138 | 1 | 63.5 | 10 |  |
| VENAND03 | - 115.20 | 23 | -67.04 | 6.91 | 237 | 1.43 | 111 | 1 | 67.7 | 9/GR5 | 10 |

12559,34 MHz
(24)

| ALS00002 | -165.80 | 24 | -149.63 | 58.52 | 381 | 1.23 | 171 | 2 | 59.9 | 9/GR1 | 10 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALS00003 | - 174.80 | 24 | -150.95 | 58.54 | 3.77 | 1.11 | 167 | 2 | 60.2 | 9/GR2 | 10 |
| ARGNORT4 | -93.80 | 24 | -63.96 | -30.01 | 3.86 | 1.99 | 48 | 2 | 66.1 |  |  |
| ARGNORT5 | -54.80 | 24 | -62.85 | -29.80 | 3.24 | 2.89 | 47 | 2 | 639 |  |  |
| B CE311 | -63.80 | 24 | -40.60 | -607 | 304 | 2.06 | 174 | 2 | 61.9 | 8 9/GR7 |  |
| B CE312 | -44.80 | 24 | -40.26 | -6.06 | 344 | 2.09 | 174 | 2 | 61.3 | 8 9/GR9 | $10 \quad 11$ |
| B CE411 | -63.80 | 24 | -50.97 | - 15.26 | 3.86 | 1.38 | 49 | 2 | 62.9 | 8 9/GR7 |  |
| B CE412 | -44.80 | 24 | -50.71 | -15.30 | 3.57 | 1.56 | 52 | 2 | 63.1 | 8 9/GR9 | $10 \quad 12$ |
| B CE511 | $-63.80$ | 24 | -53.11 | -2.98 | 2.42 | 2.15 | 107 | 2 | 63.4 | 8 9/GR7 |  |
| B NO611 | -73.80 | 24 | -59.60 | - 11.62 | 2.86 | 1.69 | 165 | 1 | 63.2 | 8 9/GR8 |  |
| B NO711 | -73.80 | 24 | -60.70 | -1.78 | 3.54 | 1.78 | 126 | 1 | 63.2 | 8 9/GR8 |  |
| B NO811 | -73.80 | 24 | -68.75 | -4.71 | 2.37 | 1.65 | 73 | 1 | 63.2 | 8 9/GR8 |  |
| B SE911 | - 101.80 | 24 | -45.99 | -19.09 | 2.22 | 0.80 | 62 | 2 | 65.7 | 8 |  |
| B SU111 | -80.80 | 24 | -51.10 | -25.64 | 2.76 | 1.06 | 50 | 2 | 63.2 | 8 9/GR6 |  |
| B SU112 | -44.80 | 24 | -50.76 | -25.62 | 2.47 | 1.48 | 56 | 2 | 62.6 | 8 9/GR9 | 11 |
| B SU211 | -80.80 | 24 | -44.51 | -16.94 | 3.22 | 1.37 | 60 | 2 | 62.8 | 8 9/GR6 |  |
| B SU212 | -44.80 | 24 | -43.99 | -16.97 | 3.27 | 1.92 | 59 | 2 | 61.6 | 8 9/GR9 | 12 |
| CAN01101 | - 137.80 | 24 | - 125.60 | 57.24 | 3.45 | 1.27 | 157 | 2 | 59.7 | 9/GR10 | 10 |
| CAN01201 | - 137.80 | 24 | - 111.92 | 5589 | 3.33 | 0.98 | 151 | 2 | 59.8 | 9/GR10 | 10 |
| CAN01202 | -72.30 | 24 | -107.64 | 55.62 | 2.75 | 1.11 | 32 | 2 | 59.8 |  |  |
| CAN01203 | - 128.80 | 24 | -111.43 | 55.56 | 3.07 | 1.15 | 151 | 2 | 59.7 | 9/GR12 | 10 |
| CAN01303 | - 128.80 | 24 | -102.39 | 57.12 | 3.54 | 0.92 | 154 | 2 | 60.3 | 9/GR12 | 10 |
| CAN01304 | -90.80 | 24 | -99.00 | 57.33 | 1.96 | 1.73 | 1 | 2 | 60.0 | 9/GR13 |  |
| CAN01403 | -128.80 | 24 | -89.70 | 52.02 | 4.67 | 0.80 | 148 | 2 | 62.1 | 9/GR12 | 10 |

12559,34 MHz (24)

| PRU00004 | -85.80 | 24 | -74.19 | -839 | 3.74 | 2.45 | 112 | 2 | 63.2 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| PTRVIR01 | -100.80 | 24 | -65.85 | 1812 | 0.80 | 0.80 | 90 | 2 | 60.9 | 16 9/GR20 |  |
| PTRVIR02 | -109.80 | 24 | -65.85 | 18.12 | 0.80 | 0.80 | 90 | 2 | 61.4 | 16 9/GR21 |  |
| USAEH001 | -61.30 | 24 | -85.16 | 36.21 | 5.63 | 3.32 | 22 | 2 | 62.1 | 156 |  |
| USAEH002 | -100.80 | 24 | -89.28 | 36.16 | 5.65 | 3.78 | 170 | 2 | 62.0 | 16 9/GR20 | 10 |
| USAEH003 | -109.80 | 24 | -90.12 | 36.11 | 5.55 | 3.56 | 161 | 2 | 62.4 | $169 / \mathrm{GR} 21$ | 10 |
| USAEH004 | -118.80 | 24 | -91.16 | 36.05 | 538 | 3.24 | 153 | 2 | 62.9 | 156 | 10 |
| USAPSA02 | -165 80 | 24 | -117.79 | 40.58 | 4.04 | 0.82 | 135 | 2 | 63.6 | 9/GR1 |  |
| USAPSA03 | - 174.80 | 24 | -11820 | 40.15 | 3.63 | 0.80 | 136 | 2 | 65.3 | 9/GR2 |  |
| USAWH101 | - 147.80 | 24 | -109.70 | 38.13 | 5.52 | 1.96 | 142 | 2 | 62.4 | 10 |  |
| USAWH102 | - 156.80 | 24 | - 111.40 | 38.57 | 5.51 | 1.55 | 138 | 2 | 63.5 | 10 |  |
| VEN02VEN | - 103.80 | 24 | -63.50 | 15.50 | 0.80 | 0.80 | 90 | 2 | 60.1 | 9/GR22 |  |
| VEN11VEN | -103.80 | 24 | -66.79 | 6.90 | 2.50 | 1.77 | 122 | 2 | 65.6 | 9/GR22 | 10 |

12573,92 MHz (25)

| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALS00002 | -166.20 | 25 | -149.66 | 58.37 | 3.76 | 1.24 | 170 | 1 | 59.9 | 9/GR1 | 10 |  |
| ALS00003 | -175.20 | 25 | -150.98 | 58.53 | 3.77 | 1.11 | 167 | 1 | 60.2 | 9/GR2 | 10 |  |
| ARGINSU4 | -94.20 | 25 | -52.98 | -59.81 | 3.40 | 0.80 | 19 | 1 | 60.1 | 9/GR3 |  |  |
| ARGINSU5 | -55.20 | 25 | -44.17 | -59.91 | 3.77 | 0.80 | 13 | 1 | 59.5 | 9/GR4 |  |  |
| ARGSUR04 | -94.20 | 25 | -65.04 | -43.33 | 3.32 | 1.50 | 40 | 1 | 60.9 | 9/GR3 |  |  |
| ARGSUR05 | -55.20 | 25 | -63.68 | -43.01 | 2.54 | 2.38 | 152 | 1 | 60.2 | 9/GR4 |  |  |
| B CE311 | -64.20 | 25 | -40.60 | -6.07 | 3.04 | 2.06 | 174 | 1 | 61.9 | 8 9/GR7 |  |  |
| B CE312 | -45.20 | 25 | -40.27 | -6.06 | 3.44 | 2.09 | 174 | 1 | 61.2 | 8 9/GR9 | 10 | 11 |
| B CE411 | -64.20 | 25 | -50.97 | - 15.27 | 3.86 | 1.38 | 49 | 1 | 62.9 | 8 9/GR7 |  |  |
| B CE412 | -45.20 | 25 | -50.71 | - 15.30 | 3.57 | 1.56 | 52 | 1 | 63.0 | 8 9/GR9 | 10 | 12 |
| B CE511 | -64.20 | 25 | -53.10 | -2.90 | 2.44 | 2.13 | 104 | 1 | 63.4 | 8 9/GR7 |  |  |
| B NO611 | -74.20 | 25 | -59.60 | -11.62 | 2.85 | 1.69 | 165 | 2 | 63.1 | 8 9/GR8 |  |  |
| B NO711 | -74.20 | 25 | -60.70 | -1.78 | 354 | 1.78 | 126 | 2 | 63.1 | 8 9/GR8 |  |  |
| B N0811 | -74.20 | 25 | -68.76 | -4.71 | 2.37 | 1.65 | 73 | 2 | 63.1 | 8 9/GR8 |  |  |
| B SU111 | -81.20 | 25 | -51.12 | -25.63 | 276 | 1.05 | 50 | 1 | 63.2 | 8 9/GR6 |  |  |
| B SU112 | -45.20 | 25 | -50.75 | -25.62 | 2.47 | 1.48 | 56 | 1 | 62.5 | 8 9/GR9 | 11 |  |
| B SU211 | -81.20 | 25 | -4451 | -16.95 | 3.22 | 1.36 | 60 | 1 | 62.8 | 8 9/GR6 |  |  |
| B SU212 | -45.20 | 25 | -4400 | - 16.87 | 3.20 | 1.96 | 58 | 1 | 61.6 | 8 9/GR9 | 12 |  |
| BERBERMU | -96.20 | 25 | -6477 | 32.32 | 0.80 | 0.80 | 90 | 2 | 57.0 |  |  |  |
| B OLAND01 | - 115.20 | 25 | -65.04 | -16.76 | 2.49 | 1.27 | 76 | 1 | 68.0 | 9/GR5 |  |  |
| CAN01101 | - 138.20 | 25 | - 125.63 | 57.24 | 3.45 | 1.27 | 157 | 1 | 59.7 | 9/GR10 | 10 |  |
| CAN01201 | - 138.20 | 25 | -112.04 | 55.95 | 335 | 0.97 | 151 | 1 | 59.8 | 9/GR10 | 10 |  |
| CAN01202 | - 72.70 | 25 | - 107.70 | 55.63 | 2.74 | 1.12 | 32 | 1 | 59.8 |  |  |  |
| CAN01203 | - 129.20 | 25 | -111.48 | 55.61 | 3.08 | 1.15 | 151 | 1 | 59.7 | 9/GR12 | 10 |  |

12573,92 MHz

| CAN01303 | - 129.20 | 25 | - 102.42 | 57.12 | 354 | 0.91 | 154 | 1 | 60.2 | 9/GR12 | 10 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CAN01304 | -91.20 | 25 | -99.12 | 57.36 | 198 | 1.72 | 2 | 1 | 60.0 | 9/GR13 |  |
| CAN01403 | - 129.20 | 25 | -89.75 | 52.02 | 468 | 0.80 | 148 | 1 | 62.1 | 9/GR12 | 10 |
| CAN01404 | -91.20 | 25 | -84.82 | 52.42 | 310 | 2.05 | 152 | 1 | 60.6 | 9/GR13 |  |
| CAN01405 | -82.20 | 25 | -84.00 | 52.39 | 284 | 2.29 | 172 | 1 | 60.5 | 9/GR14 |  |
| CAN01504 | -91.20 | 25 | -72.66 | 5377 | 357 | 1.67 | 156 | 1 | 60.4 | 9/GR13 |  |
| CAN01505 | -82.20 | 25 | - 71.77 | 53.79 | 3.30 | 1.89 | 162 | 1 | 60.3 | 9/GR14 |  |
| CAN01605 | -82.20 | 25 | -61.50 | 49.55 | 2.65 | 1.40 | 143 | 1 | 60.5 | 9/GR14 |  |
| CAN01606 | -70.70 | 25 | -61.30 | 49.55 | 2.40 | 1.65 | 148 | 1 | 60.4 |  |  |
| CHLCONT5 | -106.20 | 25 | - 72.23 | -35.57 | 2.60 | 0.80 | 55 | 1 | 596 | 9/GR17 |  |
| CHLPAC02 | -106.20 | 25 | -8006 | -30.06 | 136 | 0.80 | 69 | 1 | 59.4 | 9/GR17 |  |
| CLMAND01 | -115.20 | 25 | - 74.72 | 593 | 3.85 | 1.63 | 114 | 1 | 65.3 | 9/GR5 | 10 |
| CLM00001 | - 103.20 | 25 | - 74.50 | 587 | 3.98 | 1.96 | 118 | 1 | 63.9 | 10 |  |
| EQACAND1 | -115.20 | 25 | -78.40 | -161 | 1.37 | 0.95 | 75 | 1 | 64.4 | 9/GR5 |  |
| EQAGAND1 | -115.20 | 25 | -90.34 | -0.62 | 0.90 | 0.81 | 89 | 1 | 61.5 | 9/GR5 |  |
| HWA00002 | -166.20 | 25 | - 165.79 | 23.42 | 4.20 | 0.80 | 160 | 1 | 59.0 | 9/GR1 | 10 |
| HWA00003 | - 175.20 | 25 | - 166.10 | 23.42 | 4.25 | 0.80 | 159 | 1 | 58.9 | 9/GR2 | 10 |
| JMC00002 | -92.70 | 25 | -77.30 | 18.12 | 0.80 | 0.80 | 90 | 2 | 60.1 |  |  |
| MEX01NTE | -78.20 | 25 | - 105.81 | 26.01 | 2.89 | 2.08 | 155 | 1 | 60.7 | 1 |  |
| MEX01SUR | -69.20 | 25 | -94.84 | 19.82 | 3.05 | 2.09 | 4 | 1 | 62.5 | , |  |
| MEX02NTE | -136.20 | 25 | -107.21 | 26.31 | 3.84 | 1.55 | 148 | 1 | 61.4 | 1 | 10 |
| MEX02SUR | - 127.20 | 25 | -96.39 | 19.88 | 3.18 | 1.87 | 157 | 1 | 62.8 | 1 | 10 |
| PAQPAC01 | - 106.20 | 25 | - 109.18 | -27.53 | 0.80 | 0.80 | 90 | 1 | 56.4 | 9/GR17 |  |
| PRG00002 | -99.20 | 25 | -58.66 | -23.32 | 1.45 | 1.04 | 76 | 1 | 60.4 |  |  |

12573,92 MHz (25)

| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| PRUAND02 | -115.20 | 25 | -74.69 | -8.39 | 3.41 | 1.79 | 95 | 1 | 64.3 | 9/GR5 |  |
| PTRVIR01 | - 101.20 | 25 | -65.85 | 18.12 | 0.80 | 0.80 | 90 | 1 | 60.8 | 16 9/GR20 |  |
| PTRVIR02 | - 110.20 | 25 | -65.86 | 18.12 | 0.80 | 0.80 | 90 | 1 | 61.3 | 16 9/GR21 |  |
| SCN00001 | -79.70 | 25 | -62.46 | 17.44 | 0.80 | 0.80 | 90 | 1 | 58.6 |  |  |
| SPMFRAN3 | -53.20 | 25 | -67.24 | 47.51 | 3.16 | 0.80 | 7 | 1 | 60.6 | 27 |  |
| SURINAM2 | -84.70 | 25 | -55.69 | 4.35 | 1.00 | 0.80 | 86 | 1 | 635 |  |  |
| URG00001 | -71.70 | 25 | -56.22 | -32.52 | 102 | 0.89 | 11 | 1 | 60.2 |  |  |
| USAEH001 | -61.70 | 25 | -85.19 | 36.21 | 5.63 | 3.33 | 22 | 1 | 62.1 | 156 |  |
| USAEH002 | - 101.20 | 25 | -89.24 | 36.16 | 5.67 | 3.76 | 170 | 1 | 62.0 | 16 9/GR20 | 10 |
| USAEH003 | -110.20 | 25 | -90.14 | 36.11 | 5.55 | 3.55 | 161 | 1 | 62.3 | 16 9/GR21 | 10 |
| USAEH004 | - 119.20 | 25 | -91.16 | 36.05 | 5.38 | 3.24 | 152 | 1 | 62.9 | 156 | 10 |
| USAPSA02 | -166.20 | 25 | -117.80 | 40.58 | 4.03 | 0.82 | 135 | 1 | 63.5 | 9/GR1 |  |
| USAPSA03 | - 175.20 | 25 | -118.27 | 40.12 | 3.62 | 0.80 | 136 | 1 | 65.3 | 9/GR2 |  |
| USAWH101 | - 148.20 | 25 | - 109.65 | 38.13 | 5.53 | 1.95 | 142 | 1 | 62.3 | 10 |  |
| USAWH102 | - 157.20 | 25 | - 111.41 | 38.57 | 5.51 | 1.54 | 138 | 1 | 63.5 | 10 |  |
| VENAND03 | - 115.20 | 25 | -67.04 | 6.91 | 2.37 | 1.43 | 111 | 1 | 67.6 | 9/GR5 | 10 |

12588,50 MHz (26)

| ALS00002 | -165.80 | 26 | -149.63 | 58.52 | 3.81 | 1.23 | 171 | 2 | 59.9 | 9/GR1 | 10 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALS00003 | - 174.80 | 26 | - 150.95 | 58.54 | 3.77 | 1.11 | 167 | 2 | 60.2 | 9/GR2 | 10 |  |
| ARGNORT4 | -93.80 | 26 | -6396 | -30.01 | 3.86 | 1.99 | 48 | 2 | 66.0 |  |  |  |
| ARGNORT5 | -54.80 | 26 | -62.85 | -29.80 | 3.24 | 2.89 | 47 | 2 | 638 |  |  |  |
| ATNBEAM1 | -52.80 | 26 | -66.44 | 1487 | 1.83 | 0.80 | 39 | 2 | 61.3 |  |  |  |
| B CE311 | -63.80 | 26 | -4060 | -6.07 | 3.04 | 2.06 | 174 | 2 | 619 | 8 9/GR7 |  |  |
| B CE312 | -4480 | 26 | -40.26 | -6.06 | 3.44 | 2.09 | 174 | 2 | 61.2 | 8 9/GR9 | 10 | 11 |
| B CE411 | -63.80 | 26 | -50.97 | - 15.26 | 3.86 | 1.38 | 49 | 2 | 62.9 | 8 9/GR7 |  |  |
| B CE412 | -44.80 | 26 | -50 71 | -15.30 | 3.57 | 1.56 | 52 | 2 | 63.0 | 8 9/GR9 | 10 | 12 |
| B CE511 | -63.80 | 26 | -53.11 | -2.98 | 2.42 | 2.15 | 107 | 2 | 63.4 | 8 9/GR7 |  |  |
| B NO611 | -73.80 | 26 | -59.60 | -11.62 | 2.86 | 1.69 | 165 | 1 | 63.1 | 8 9/GR8 |  |  |
| B NO711 | -73.80 | 26 | -60 70 | -1.78 | 3.54 | 178 | 126 | 1 | 63.1 | 8 9/GR8 |  |  |
| B NO811 | -73.80 | 26 | -68.75 | -4.71 | 2.37 | 1.65 | 73 | 1 | 63.1 | 8 9/GR8 |  |  |
| B SE911 | - 101.80 | 26 | -4599 | - 19.09 | 2.22 | 080 | 62 | 2 | 65.7 | 8 |  |  |
| B SU111 | -80.80 | 26 | -51.10 | -25.64 | 2.76 | 1.06 | 50 | 2 | 63.1 | 8 9/GR6 |  |  |
| B SU112 | -44.80 | 26 | -50.76 | -25.62 | 2.47 | 1.48 | 56 | 2 | 62.6 | 8 9/GR9 | 11 |  |
| B SU211 | -80.80 | 26 | -44.51 | -16.94 | 3.22 | 1.37 | 60 | 2 | 628 | 8 9/GR6 |  |  |
| B SU212 | -44.80 | 26 | -43.99 | -16.97 | 3.27 | 1.92 | 59 | 2 | 61.6 | 8 9/GR9 | 12 |  |
| B LZ00001 | - 115.80 | 26 | -88.68 | 17.27 | 0.80 | 0.80 | 90 | 2 | 59.2 |  |  |  |
| CAN01101 | -137.80 | 26 | -125.60 | 57.24 | 3.45 | 1.27 | 157 | 2 | 59.7 | 9/GR10 | 10 |  |
| CAN01201 | - 137.80 | 26 | -111.92 | 5589 | 3.33 | 0.98 | 151 | 2 | 59.8 | 9/GR10 | 10 |  |
| CAN01202 | -72.30 | 26 | -107.64 | 5562 | 2.75 | 1.11 | 32 | 2 | 59.8 |  |  |  |
| CAN01203 | -128.80 | 26 | -111.43 | 5556 | 3.07 | 1.15 | 151 | 2 | 59.7 | 9/GR12 | 10 |  |
| CAN01303 | -128.80 | 26 | -102.39 | 57.12 | 3.54 | 0.92 | 154 | 2 | 60.3 | 9/GR12 | 10 |  |

12588,50 MHz (26)

| NCG00003 | -107.30 | 26 | -84.99 | 12.90 | 105 | 1.01 | 176 | 1 | 63.6 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| PRU00004 | -85.80 | 26 | - 74.19 | -8.39 | 374 | 245 | 112 | 2 | 63.1 |  |
| PTRVIR01 | -100.80 | 26 | -65.85 | 1812 | 0.80 | 080 | 90 | 2 | 60.8 | 16 9/GR20 |
| PTRVIR02 | - 109.80 | 26 | -65.85 | 18.12 | 0.80 | 080 | 90 | 2 | 61.4 | 16 9/GR21 |
| USAEH001 | -61.30 | 26 | -8516 | 36.21 | 5.63 | 332 | 22 | 2 | 62.1 | 156 |
| USAEH002 | - 100.80 | 26 | -89.28 | 36.16 | 5.65 | 378 | 170 | 2 | 62.0 | $169 / \mathrm{GR20} 10$ |
| USAEH003 | -109.80 | 26 | -90.12 | 36.11 | 555 | 356 | 161 | 2 | 62.3 | $169 / \mathrm{GR} 2110$ |
| USAEH004 | -118.80 | 26 | -91.16 | 36.05 | 5.38 | 3.24 | 153 | 2 | 62.9 | 15610 |
| USAPSA02 | -165.80 | 26 | -11779 | 40.58 | 4.04 | 082 | 135 | 2 | 63.5 | 9/GR1 |
| USAPSA03 | -174.80 | 26 | -118.20 | 40.15 | 3.63 | 0.80 | 136 | 2 | 65.3 | 9/GR2 |
| USAWH101 | - 147.80 | 26 | - 10970 | 3813 | 5.52 | 1.96 | 142 | 2 | 62.3 | 10 |
| USAWH102 | -156.80 | 26 | - 111.40 | 3857 | 5.51 | 1.55 | 138 | 2 | 63.5 | 10 |
| VEN11VEN | -103.80 | 26 | -66.79 | 6.90 | 2.50 | 1.77 | 122 | 2 | 65.5 | 10 |


| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALS00002 | - 166.20 | 27 | - 149.66 | 58.37 | 3.76 | 1.24 | 170 | 1 | 60.0 | 9/GR1 | 10 |  |
| ALS00003 | - 175.20 | 27 | - 150.98 | 58.53 | 3.77 | 1.11 | 167 | 1 | 60.2 | 9/GR2 | 10 |  |
| ARGINSU4 | -94.20 | 27 | -52.98 | -59.81 | 3.40 | 0.80 | 19 | 1 | 60.1 | 9/GR3 |  |  |
| ARGINSU5 | -55.20 | 27 | -44.17 | -59.91 | 3.77 | 0.80 | 13 | 1 | 59.5 | 9/GR4 |  |  |
| ARGSUR04 | -94.20 | 27 | -65.04 | -43.33 | 3.32 | 1.50 | 40 | 1 | 60.9 | 9/GR3 |  |  |
| ARGSUR05 | -55.20 | 27 | -63.68 | -43.01 | 2.54 | 2.38 | 152 | 1 | 60.3 | 9/GR4 |  |  |
| B CE311 | -64.20 | 27 | -40.60 | -6.07 | 3.04 | 2.06 | 174 | 1 | 61.9 | 8 9/GR7 |  |  |
| B CE312 | -45.20 | 27 | -40.27 | -6.06 | 344 | 2.09 | 174 | 1 | 61.3 | 8 9/GR9 | 10 | 11 |
| B CE411 | -64 20 | 27 | -50.97 | -15.27 | 3.86 | 138 | 49 | 1 | 62.9 | 8 9/GR7 |  |  |
| B CE412 | -4520 | 27 | -50.71 | -15.30 | 3.57 | 1.56 | 52 | 1 | 63.1 | 8 9/GR9 | 10 | 12 |
| B CE511 | -64.20 | 27 | -53.10 | -2.90 | 2.44 | 2.13 | 104 | 1 | 63.4 | 8 9/GR7 |  |  |
| B NO611 | -74.20 | 27 | -59.60 | -11.62 | 2.85 | 1.69 | 165 | 2 | 63.2 | 8 9/GR8 |  |  |
| B NO711 | -74.20 | 27 | -60.70 | - 1.78 | 3.54 | 1.78 | 126 | 2 | 63.2 | 8 9/GR8 |  |  |
| B NO811 | -74.20 | 27 | -68.76 | -4.71 | 2.37 | 1.65 | 73 | 2 | 63.1 | 8 9/GR8 |  |  |
| B SU111 | -81.20 | 27 | -51.12 | -2563 | 2.76 | 1.05 | 50 | 1 | 63.2 | 8 9/GR6 |  |  |
| B SU112 | -4520 | 27 | -50.75 | -25.62 | 2.47 | 1.48 | 56 | 1 | 62.6 | 8 9/GR9 | 11 |  |
| B SU211 | -81.20 | 27 | -44.51 | -16.95 | 3.22 | 1.36 | 60 | 1 | 62.8 | 8 9/GR6 |  |  |
| B SU212 | -45.20 | 27 | -44.00 | -16.87 | 3.20 | 1.96 | 58 | 1 | 61.6 | 8 9/GR9 | 12 |  |
| BERBERMU | -96.20 | 27 | -64.77 | 32.32 | 0.80 | 0.80 | 90 | 2 | 570 |  |  |  |
| B OLAND01 | -11520 | 27 | -65.04 | -16.76 | 2.49 | 1.27 | 76 | 1 | 68.1 | 9/GR5 |  |  |
| B OL00001 | -87.20 | 27 | -64.61 | - 16.71 | 2.52 | 2.19 | 85 | 1 | 64.2 |  |  |  |
| B RB00001 | -92.70 | 27 | -59.85 | 12.93 | 080 | 0.80 | 90 | 2 | 59.4 |  |  |  |
| CAN01101 | - 138.20 | 27 | -125.63 | 57.24 | 3.45 | 1.27 | 157 | 1 | 59.7 | 9/GR10 | 10 |  |
| CAN01201 | -138.20 | 27 | - 112.04 | 55.95 | 3.35 | 0.97 | 151 | 1 | 59.8 | 9/GR10 | 10 |  |

12603,08 MHz (27)

| CAN01202 | -7270 | 27 | $-107.70$ | 55.63 | 2.74 | 1.12 | 32 | 1 | 59.8 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CAN01203 | - 129.20 | 27 | -111.48 | 55.61 | 308 | 1.15 | 151 | 1 | 59.7 | 9/GR12 | 10 |
| CAN01303 | -129 20 | 27 | -- 102.42 | 57.12 | 3.54 | 0.91 | 154 | 1 | 60.3 | 9/GR12 | 10 |
| CAN01304 | -9120 | 27 | -99.12 | 57.36 | 1.98 | 1.72 | 2 | 1 | 60.1 | 9/GR13 |  |
| CAN01403 | -129 20 | 27 | -89.75 | 52.02 | 4.68 | 0.80 | 148 | 1 | 62.1 | 9/GR12 | 10 |
| CAN01404 | -9120 | 27 | -84.82 | 52.42 | 3.10 | 2.05 | 152 | 1 | 60.6 | 9/GR13 |  |
| CAN01405 | -82.20 | 27 | -84.00 | 5239 | 2.84 | 2.29 | 172 | 1 | 605 | 9/GR14 |  |
| CAN01504 | -91.20 | 27 | - 72.66 | 53.77 | 3.57 | 1.67 | 156 | 1 | 60.4 | 9/GR13 |  |
| CAN01505 | -82.20 | 27 | -71.77 | 53.79 | 3.30 | 1.89 | 162 | 1 | 60.4 | 9/GR14 |  |
| CAN01605 | -8220 | 27 | -61.50 | 49.55 | 2.65 | 1.40 | 143 | 1 | 60.5 | 9/GR14 |  |
| CAN01606 | -70 70 | 27 | -61.30 | 4955 | 2.40 | 1.65 | 148 | 1 | 60.5 |  |  |
| CHLCONT5 | - 106.20 | 27 | -72.23 | -35.57 | 2.60 | 0.80 | 55 | 1 | 59.6 | 9/GR17 |  |
| CHLPAC02 | - 106.20 | 27 | -80.06 | -30 06 | 1.36 | 0.80 | 69 | 1 | 59.4 | 9/GR17 |  |
| CLMAND01 | - 115.20 | 27 | -7472 | 5.93 | 3.85 | 1.63 | 114 | 1 | 65.4 | 9/GR5 | 10 |
| CLM00001 | -10320 | 27 | -74.50 | 5.87 | 3.98 | 1.96 | 118 | 1 | 63.9 | 10 |  |
| CUB00001 | -89.20 | 27 | -79 81 | 21.62 | 2.24 | 0.80 | 168 | 1 | 61.3 |  |  |
| EQACAND1 | - 115.20 | 27 | -78.40 | -1.61 | 1.37 | 0.95 | 75 | 1 | 64.4 | 9/GR5 |  |
| EQAGAND1 | -115.20 | 27 | -90.34 | -0.62 | 0.90 | 0.81 | 89 | 1 | 616 | 9/GR5 |  |
| GRD00059 | -57.20 | 27 | -61.58 | 12.29 | 0.80 | 0.80 | 90 | 1 | 58.7 |  |  |
| GRLDNK01 | -53.20 | 27 | -44.89 | 66.56 | 2.70 | 0.82 | 173 | 1 | 60.2 | 2 |  |
| GUY00201 | -8470 | 27 | -59.19 | 4.78 | 1.44 | 0.85 | 95 | 1 | 63.8 |  |  |
| HWA00002 | -16620 | 27 | - 165.79 | 23.42 | 420 | 0.80 | 160 | 1 | 59.0 | 9/GR1 | 10 |
| HWA00003 | -175.20 | 27 | -166.10 | 2342 | 4.25 | 0.80 | 159 | 1 | 59.0 | 9/GR2 | 10 |
| MEX01NTE | -78.20 | 27 | -105.81 | 26.01 | 2.89 | 2.08 | 155 | 1 | 60.8 | / |  |

12603,08 MHz (27)

| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| MEX01SUR | -69.20 | 27 | -94.84 | 19.82 | 3.05 | 2.09 | 4 | 1 | 62.5 | 1 |  |
| MEX02NTE | -136.20 | 27 | - 107.21 | 26.31 | 3.84 | 1.55 | 148 | 1 | 61.5 | 1 | 10 |
| MEX02SUR | - 127.20 | 27 | -96.39 | 19.88 | 318 | 187 | 157 | 1 | 62.8 | 1 | 10 |
| MSR00001 | -79.70 | 27 | -61.73 | 16.75 | 0.80 | 0.80 | 90 | 1 | 58.9 | 4 |  |
| PAQPAC01 | - 106.20 | 27 | -109 18 | -27.53 | 0.80 | 0.80 | 90 | 1 | 56.4 | 9/GR17 |  |
| PRG00002 | -99.20 | 27 | -58.66 | -23.32 | 1.45 | 1.04 | 76 | 1 | 60.5 |  |  |
| PRUAND02 | -115.20 | 27 | -74.69 | -8.39 | 3.41 | 1.79 | 95 | 1 | 64.3 | 9/GR5 |  |
| PTRVIR01 | - 101.20 | 27 | -65.85 | 18.12 | 0.80 | 0.80 | 90 | 1 | 60.8 | 16 9/GR20 |  |
| PTRVIR02 | - 110.20 | 27 | -65.86 | 18.12 | 0.80 | 080 | 90 | 1 | 61.3 | 16 9/GR21 |  |
| URG00001 | -71.70 | 27 | -56.22 | - 32.52 | 1.02 | 0.89 | 11 | 1 | 60.2 |  |  |
| USAEH001 | -61.70 | 27 | -85.19 | 36.21 | 5.63 | 3.33 | 22 | 1 | 62.1 | 156 |  |
| USAEH002 | -101.20 | 27 | -89.24 | 36.16 | 5.67 | 3.76 | 170 | 1 | 62.0 | 16 9/GR20 | 10 |
| USAEH003 | -110.20 | 27 | -90.14 | 36.11 | 5.55 | 3.55 | 161 | 1 | 62.4 | 16 9/GR21 | 10 |
| USAEH004 | -119.20 | 27 | -91.16 | 36.05 | 5.38 | 3.24 | 152 | 1 | 62.9 | 156 | 10 |
| USAPSA02 | -166.20 | 27 | - 117.80 | 40.58 | 4.03 | 0.82 | 135 | 1 | 63.6 | 9/GR1 |  |
| USAPSA03 | - 175.20 | 27 | - 118.27 | 40.12 | 3.62 | 0.80 | 136 | 1 | 65.4 | 9/GR2 |  |
| USAWH101 | - 148.20 | 27 | - 109.65 | 38.13 | 5.53 | 1.95 | 142 | 1 | 62.4 | 10 |  |
| USAWH102 | - 157.20 | 27 | - 111.41 | 38.57 | 5.51 | 1.54 | 138 | 1 | 63.5 | 10 |  |
| VENAND03 | - 115.20 | 27 | -6704 | 6.91 | 2.37 | 1.43 | 111 | 1 | 67.7 | 9/GR5 | 10 |

12617,66 MHz (28)

| ALS00002 | - 165.80 | 28 | -149 63 | 58.52 | 3.81 | 1.23 | 171 | 2 | 59.9 | 9/GR1 | 10 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALS00003 | - 174.80 | 28 | - 150.95 | 5854 | 3.77 | 1.11 | 167 | 2 | 60.2 | 9/GR2 | 10 |
| ARGNORT4 | -93.80 | 28 | -63.96 | -30.01 | 3.86 | 1.99 | 48 | 2 | 66.1 |  |  |
| ARGNORT5 | -54.80 | 28 | -62.85 | -29.80 | 3.24 | 2.89 | 47 | 2 | 63.9 |  |  |
| B CE311 | -63.80 | 28 | -40.60 | -6.07 | 3.04 | 206 | 174 | 2 | 61.9 | 8 9/GR7 |  |
| B CE312 | -44.80 | 28 | -40.26 | -6.06 | 3.44 | 2.09 | 174 | 2 | 61.3 | 8 9/GR9 | $10 \quad 11$ |
| B CE411 | -63.80 | 28 | -50.97 | -15.26 | 3.86 | 1.38 | 49 | 2 | 62.9 | 8 9/GR7 |  |
| B CE412 | -44.80 | 28 | -50.71 | -15.30 | 3.57 | 1.56 | 52 | 2 | 63.1 | 8 9/GR9 | $10 \quad 12$ |
| B CE511 | -63.80 | 28 | -53.11 | -2.98 | 2.42 | 2.15 | 107 | 2 | 63.4 | 8 9/GR7 |  |
| B NO611 | -73.80 | 28 | -59.60 | -11.62 | 2.86 | 1.69 | 165 | 1 | 63.2 | 8 9/GR8 |  |
| B N0711 | -73.80 | 28 | -60.70 | -1.78 | 3.54 | 1.78 | 126 | 1 | 63.2 | 8 9/GR8 |  |
| B N0811 | -73.80 | - 28 | -68.75 | -4.71 | 2.37 | 1.65 | 73 | 1 | 63.2 | 8 9/GR8 |  |
| B SE911 | - 101.80 | 28 | -45.99 | -19.09 | 2.22 | 0.80 | 62 | 2 | 65.7 | 8 |  |
| B SU111 | -80.80 | 28 | -51.10 | -2564 | 2.76 | 1.06 | 50 | 2 | 63.2 | 8 9/GR6 |  |
| B SU112 | -44.80 | 28 | -50.76 | -25.62 | 2.47 | 1.48 | 56 | 2 | 62.6 | 8 9/GR9 | 11 |
| B SU211 | -80.80 | 28 | -44.51 | -16.94 | 3.22 | 1.37 | 60 | 2 | 62.8 | 8 9/GR6 |  |
| B SU212 | -44.80 | 28 | -43.99 | -16.97 | 3.27 | 1.92 | 59 | 2 | 61.6 | 8 9/GR9 | 12 |
| CAN01101 | - 137.80 | 28 | - 125.60 | 57.24 | 3.45 | 1.27 | 157 | 2 | 59.7 | 9/GR10 | 10 |
| CAN01201 | -137.80 | 28 | - 111.92 | 55.89 | 3.33 | 0.98 | 151 | 2 | 59.8 | 9/GR10 | 10 |
| CAN01202 | -72.30 | 28 | -107.64 | 55.62 | 2.75 | 1.11 | 32 | 2 | 59.8 |  |  |
| CAN01203 | - 128.80 | 28 | -111.43 | 55.56 | 3.07 | 1.15 | 151 | 2 | 59.7 | 9/GR12 | 10 |
| CAN01303 | - 128.80 | 28 | - 102.39 | 57.12 | 3.54 | 0.92 | 154 | 2 | 60.3 | 9/GR12 | 10 |
| CAN01304 | -90.80 | 28 | -99 00 | 57.33 | 1.96 | 1.73 | 1 | 2 | 60.0 | 9/GR13 |  |
| CAN01403 | -128.80 | 28 | -89.70 | 52.02 | 4.67 | 0.80 | 148 | 2 | 62.1 | 9/GR12 | 10 |


| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CAN01404 | -90.80 | 28 | -84.78 | 52.41 | 3.09 | 2.06 | 153 | 2 | 60.6 | 9/GR13 |  |
| CAN01405 | -81.80 | 28 | -84.02 | 52.34 | 2.82 | 2.30 | 172 | 2 | 60.5 | 9/GR14 |  |
| CAN01504 | -90.80 | 28 | -72.68 | 53.78 | 357 | 1.67 | 157 | 2 | 60.4 | 9/GR13 |  |
| CAN01505 | -81.80 | 28 | -71.76 | 53.76 | 3.30 | 1.89 | 162 | 2 | 60.4 | 9/GR14 |  |
| CAN01605 | -81.80 | 28 | -61.54 | 49.50 | 2.66 | 1.39 | 144 | 2 | 60.5 | 9/GR14 |  |
| CAN01606 | -70.30 | 28 | -61.32 | 49.51 | 241 | 1.65 | 148 | 2 | 605 |  |  |
| CHLCONT4 | - 105.80 | 28 | -69.59 | -23.20 | 2.21 | 0.80 | 68 | 2 | 59.3 | 9/GR16 |  |
| CHLCONT6 | - 105.80 | 28 | - 73.52 | -55.52 | 365 | 1.31 | 39 | 2 | 59.8 | 9/GR16 |  |
| CRBBAH01 | -92.30 | 28 | -76.09 | 24.13 | 1.83 | 0.80 | 141 | 1 | 62.0 | 9/GR18 |  |
| CRBBER01 | -92.30 | 28 | -64.76 | 32.13 | 0.80 | 0.80 | 90 | 1 | 57.0 | 9/GR18 |  |
| CRBBLZ01 | -92.30 | 28 | -88.61 | 17.26 | 0.80 | 0.80 | 90 | 1 | 58.9 | 9/GR18 |  |
| CRBEC001 | -9230 | 28 | -60.07 | 8.26 | 4.20 | 0.86 | 115 | 1 | 64.6 | 9/GR18 |  |
| CRBJMC01 | -9230 | 28 | -79.45 | 17.97 | 0.99 | 0.80 | 151 | 1 | 61.4 | 9/GR18 |  |
| EQAC0001 | -94.80 | 28 | - 78.31 | -1.52 | 1.48 | 1.15 | 65 | 1 | 63.3 | 9/GR19 |  |
| EQAG0001 | -94.80 | 28 | -90.36 | -0.57 | 0.94 | 0.89 | 99 | 1 | 61.3 | 9/GR19 |  |
| GRD00003 | -79.30 | 28 | -61.62 | 12.34 | 0.80 | 0.80 | 90 | 2 | 58.9 |  |  |
| GTMIFRB2 | -107.30 | 28 | -90.50 | 15.64 | 1.03 | 0.80 | 84 | 1 | 61.4 |  |  |
| GUFMGG02 | -52.80 | 28 | -56.42 | 8.47 | 4.16 | 0.81 | 123 | 2 | 63.0 | 27 |  |
| HWA00002 | -165.80 | 28 | - 165.79 | 23.32 | 4.20 | 0.80 | 160 | 2 | 59.0 | 9/GR1 | 10 |
| HWA00003 | -174.80 | 28 | - 16610 | 23.42 | 4.25 | 0.80 | 159 | 2 | 59.0 | 9/GR2 | 10 |
| MEX01NTE | -77.80 | 28 | - 105.80 | 25.99 | 2.88 | 2.07 | 155 | 2 | 60.8 | 1 |  |
| MEX02NTE | - 135.80 | 28 | - 107.36 | 26.32 | 3.80 | 1.57 | 149 | 2 | 61.5 | 1 | 10 |
| MEX02SUR | - 126.80 | 28 | -96.39 | 19.88 | 3.19 | 1.87 | 158 | 2 | 62.8 | 1 | 10 |
| PNRIFRB2 | - 121.00 | 28 | -80.15 | 8.46 | 1.01 | 0.80 | 170 | 1 | 65.1 |  |  |

12617,66 MHz (28)

| PRU00004 | -85.80 | 28 | -74.19 | -8.39 | 3.74 | 2.45 | 112 | 2 | 63.2 |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | :--- | :--- | :--- | :--- |
| PTRVIR01 | -100.80 | 28 | -65.85 | 18.12 | 0.80 | 0.80 | 90 | 2 | 60.9 | $169 /$ GR20 |  |
| PTRVIR02 | -109.80 | 28 | -65.85 | 18.12 | 0.80 | 0.80 | 90 | 2 | 61.4 | $1699 /$ GR21 |  |
| USAEH001 | -6130 | 28 | -85.16 | 36.21 | 563 | 3.32 | 22 | 2 | 62.1 | 156 |  |
| USAEH002 | -100.80 | 28 | -89.28 | 36.16 | 565 | 3.78 | 170 | 2 | 62.0 | $169 /$ GR20 | 10 |
| USAEH003 | -109.80 | 28 | -90.12 | 36.11 | 555 | 3.56 | 161 | 2 | 62.4 | $169 /$ GR21 | 10 |
| USAEH004 | -118.80 | 28 | -91.16 | 36.05 | 5.38 | 3.24 | 153 | 2 | 62.9 | 156 | 10 |
| USAPSA02 | -165.80 | 28 | -117.79 | 40.58 | 4.04 | 0.82 | 135 | 2 | 63.6 | $9 /$ GR1 |  |
| USAPSA03 | -174.80 | 28 | -118.20 | 40.15 | 3.63 | 0.80 | 136 | 2 | 65.3 | $9 /$ GR2 |  |
| USAWH101 | -147.80 | 28 | -109.70 | 38.13 | 5.52 | 1.96 | 142 | 2 | 62.4 | 10 |  |
| USAWH102 | -156.80 | 28 | -111.40 | 3857 | 5.51 | 1.55 | 138 | 2 | 63.5 | 10 |  |
| VENO2VEN | -103.80 | 28 | -63.50 | 15.50 | 0.80 | 0.80 | 90 | 2 | 60.1 | $9 /$ GR22 |  |
| VEN11VEN | -103.80 | 28 | -66.79 | 6.90 | 2.50 | 1.77 | 122 | 2 | 65.6 | $9 /$ GR22 | 10 |

$12632,24 \mathrm{MHz}$ (29)

| CAN01303 | - 129.20 | 29 | - 102.42 | 57.12 | 3.54 | 0.91 | 154 | 1 | 60.2 | 9/GR12 | 10 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CAN01304 | -91.20 | 29 | -99.12 | 57.36 | 1.98 | 1.72 | 2 | 1 | 60.0 | 9/GR13 |  |
| CAN01403 | - 129.20 | 29 | -8975 | 52.02 | 4.68 | 0.80 | 148 | 1 | 62.1 | 9/GR12 | 10 |
| CAN01404 | -91.20 | 29 | -84.82 | 52.42 | 3.10 | 2.05 | 152 | 1 | 60.6 | 9/GR13 |  |
| CAN01405 | -82.20 | 29 | -84.00 | 52.39 | 2.84 | 2.29 | 172 | 1 | 60.5 | 9/GR14 |  |
| CAN01504 | -91.20 | 29 | -7266 | 53.77 | 3.57 | 1.67 | 156 | 1 | 60.4 | 9/GR13 |  |
| CAN01505 | -82.20 | 29 | -71.77 | 53.79 | 3.30 | 1.89 | 162 | 1 | 60.3 | 9/GR14 |  |
| CAN01605 | -82.20 | 29 | -61.50 | 49.55 | 2.65 | 1.40 | 143 | 1 | 60.5 | 9/GR14 |  |
| CAN01606 | -70.70 | 29 | -61.30 | 49.55 | 2.40 | 1.65 | 148 | 1 | 60.4 |  |  |
| CHLCONT5 | -106.20 | 29 | - 72.23 | -35.57 | 2.60 | 0.80 | 55 | 1 | 59.6 | 9/GR17 |  |
| CHLPAC02 | -106.20 | 29 | -80.06 | -30.06 | 1.36 | 0.80 | 69 | 1 | 59.4 | 9/GR17 |  |
| CLMAND01 | - 115.20 | 29 | -74.72 | 5.93 | 3.85 | 1.63 | 114 | 1 | 65.3 | 9/GR5 | 10 |
| CLM00001 | - 103.20 | 29 | -74.50 | 5.87 | 3.98 | 1.96 | 118 | 1 | 63.9 | 10 |  |
| EQACAND1 | -115.20 | 29 | -78.40 | -1.61 | 1.37 | 0.95 | 75 | 1 | 64.4 | 9/GR5 |  |
| EQAGAND1 | -115.20 | 29 | -90.34 | -0.62 | 0.90 | 0.81 | 89 | 1 | 61.5 | 9/GR5 |  |
| HWA00002 | -166.20 | 29 | - 165.79 | 23.42 | 4.20 | 0.80 | 160 | 1 | 59.0 | 9/GR1 | 10 |
| HWA00003 | -175.20 | 29 | - 166.10 | 23.42 | 4.25 | 0.80 | 159 | 1 | 58.9 | 9/GR2 | 10 |
| JMC00002 | -92.70 | 29 | -77.30 | 18.12 | 0.80 | 0.80 | 90 | 2 | 60.1 |  |  |
| MEX01NTE | -78.20 | 29 | - 105.81 | 26.01 | 2.89 | 2.08 | 155 | 1 | 60.7 | 1 |  |
| MEX01SUR | -69.20 | 29 | -94.84 | 19.82 | 3.05 | 2.09 | 4 | 1 | 62.5 | 1 |  |
| MEX02NTE | -136.20 | 29 | - 107.21 | 26.31 | 3.84 | 1.55 | 148 | 1 | 61.4 | 1 | 10 |
| MEX02SUR | -127.20 | 29 | -96.39 | 19.88 | 318 | 1.87 | 157 | 1 | 62.8 | 1 | 10 |
| PAQPAC01 | - 106.20 | 29 | - 109.18 | -27.53 | 0.80 | 0.80 | 90 | 1 | 56.4 | 9/GR17 |  |
| PRG00002 | -99.20 | 29 | -58.66 | -23.32 | 1.45 | 1.04 | 76 | 1 | 60.4 |  |  |

$12632,24 \mathrm{MHz}$ (29)

| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| PRUAND02 | -11520 | 29 | -74.69 | -8.39 | 3.41 | 1.79 | 95 | 1 | 64.3 | 9/GR5 |  |
| PTRVIR01 | -101.20 | 29 | -65.85 | 18.12 | 0.80 | 0.80 | 90 | 1 | 60.8 | 16 9/GR20 |  |
| PTRVIR02 | - 110.20 | 29 | -65.86 | 18.12 | 0.80 | 0.80 | 90 | 1 | 61.3 | 16 9/GR21 |  |
| SCN00001 | - 79.70 | 29 | -62.46 | 17.44 | 0.80 | 0.80 | 90 | 1 | 58.6 |  |  |
| SPMFRAN3 | -5320 | 29 | -67.24 | 47.51 | 3.16 | 0.80 | 7 | 1 | 60.6 | 27 |  |
| SURINAM2 | -84.70 | 29 | -55.69 | 4.35 | 1.00 | 0.80 | 86 | 1 | 635 |  |  |
| URG00001 | -71.70 | 29 | -56.22 | -32.52 | 1.02 | 0.89 | 11 | 1 | 60.2 |  |  |
| USAEH001 | -61.70 | 29 | -85.19 | 36.21 | 5.63 | 3.33 | 22 | 1 | 62.1 | 156 |  |
| USAEH002 | - 101.20 | 29 | -89.24 | 36.16 | 5.67 | 3.76 | 170 | 1 | 62.0 | 16 9/GR20 | 10 |
| USAEH003 | -110.20 | 29 | -90.14 | 36.11 | 5.55 | 3.55 | 161 | 1 | 62.3 | 16 9/GR21 | 10 |
| USAEH004 | - 119.20 | 29 | -91.16 | 36.05 | 5.38 | 3.24 | 152 | 1 | 62.9 | 156 | 10 |
| USAPSA02 | - 166.20 | 29 | - 117.80 | 40.58 | 4.03 | 0.82 | 135 | 1 | 63.5 | 9/GR1 |  |
| USAPSA03 | - 175.20 | 29 | - 118.27 | 40.12 | 3.62 | 0.80 | 136 | 1 | 65.3 | 9/GR2 |  |
| USAWH101 | - 148.20 | 29 | -109.65 | 38.13 | 5.53 | 1.95 | 142 | 1 | 62.3 | 10 |  |
| USAWH102 | - 157.20 | 29 | -111.41 | 38.57 | 5.51 | 154 | 138 | 1 | 63.5 |  |  |
| VENAND03 | -115.20 | 29 | -67.04 | 6.91 | 2.37 | 1.43 | 111 | 1 | 67.6 | 9/GR5 | 10 |

12646,82 MHz
(30)

| ALS00002 | -165.80 | 30 | -149.63 | 58.52 | 3.81 | 1.23 | 171 | 2 | 59.9 | 9/GR1 | 10 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALS00003 | - 174.80 | 30 | - 150.95 | 58.54 | 3.77 | 1.11 | 167 | 2 | 60.2 | 9/GR2 | 10 |
| ARGNORT4 | -93.80 | 30 | -63.96 | -30.01 | 3.86 | 1.99 | 48 | 2 | 66.0 |  |  |
| ARGNORT5 | -54.80 | 30 | -62.85 | -29.80 | 3.24 | 2.89 | 47 | 2 | 63.8 |  |  |
| ATNBEAM1 | -52.80 | 30 | -66.44 | 14.87 | 1.83 | 0.80 | 39 | 2 | 61.3 |  |  |
| B CE311 | -63.80 | 30 | -40.60 | -6.07 | 304 | 2.06 | 174 | 2 | 61.9 | 8 9/GR7 |  |
| B CE312 | -44.80 | 30 | -40.26 | -6.06 | 3.44 | 2.09 | 174 | 2 | 61.2 | 8 9/GR9 | 1011 |
| B CE411 | -63.80 | 30 | -50.97 | -15.26 | 3.86 | 1.38 | 49 | 2 | 62.9 | 8 9/GR7 |  |
| B CE412 | -44.80 | 30 | -50.71 | -15.30 | 3.57 | 1.56 | 52 | 2 | 63.0 | 8 9/GR9 | 1012 |
| B CE511 | -63.80 | 30 | -53.11 | -2.98 | 2.42 | 2.15 | 107 | 2 | 63.4 | 8 9/GR7 |  |
| B NO611 | -73.80 | 30 | -59.60 | -11.62 | 2.86 | 1.69 | 165 | 1 | 63.1 | 8 9/GR8 |  |
| B NO711 | -73.80 | 30 | -60.70 | -178 | 3.54 | 1.78 | 126 | 1 | 63.1 | 8 9/GR8 |  |
| B NO811 | -73.80 | 30 | -6875 | -4.71 | 2.37 | 1.65 | 73 | 1 | 63.1 | 8 9/GR8 |  |
| B SE911 | - 101.80 | 30 | -45.99 | -19.09 | 2.22 | 080 | 62 | 2 | 65.7 | 8 |  |
| B SU111 | -80.80 | 30 | -51.10 | -2564 | 2.76 | 1.06 | 50 | 2 | 63.1 | 8 9/GR6 |  |
| B SU112 | -44.80 | 30 | -50.76 | -25.62 | 2.47 | 148 | 56 | 2 | 62.6 | 8 9/GR9 | 11 |
| B SU211 | -80.80 | 30 | -44.51 | -16.94 | 3.22 | 1.37 | 60 | 2 | 62.8 | 8 9/GR6 |  |
| B SU212 | -44.80 | 30 | -43.99 | -16.97 | 3.27 | 1.92 | 59 | 2 | 61.6 | 8 9/GR9 | 12 |
| B LZ00001 | - 115.80 | 30 | -88.68 | 17.27 | 0.80 | 0.80 | 90 | 2 | 59.2 |  |  |
| CAN01101 | - 137.80 | 30 | - 125.60 | 57.24 | 3.45 | 127 | 157 | 2 | 59.7 | 9/GR10 | 10 |
| CAN01201 | - 137.80 | 30 | - 111.92 | 55.89 | 3.33 | 0.98 | 151 | 2 | 59.8 | 9/GR10 | 10 |
| CAN01202 | -72.30 | 30 | - 107.64 | 55.62 | 2.75 | 1.11 | 32 | 2 | 59.8 |  |  |
| CAN01203 | - 128.80 | 30 | -111.43 | 55.56 | 3.07 | 1.15 | 151 | 2 | 59.7 | 9/GR12 | 10 |
| CAN01303 | - 128.80 | 30 | -10239 | 57.12 | 3.54 | 092 | 154 | 2 | 60.3 | 9/GR12 | 10 |

12646,82 MHz (30)

| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CAN01304 | -90.80 | 30 | -99.00 | 57.33 | 1.96 | 1.73 | 1 | 2 | 60.0 | 9/GR13 |  |
| CAN01403 | - 128.80 | 30 | -89.70 | 52.02 | 4.67 | 0.80 | 148 | 2 | 62.1 | 9/GR12 | 10 |
| CAN01404 | -90.80 | 30 | -84.78 | 52.41 | 3.09 | 2.06 | 153 | 2 | 60.6 | 9/GR13 |  |
| CAN01405 | -81.80 | 30 | -84.02 | 52.34 | 2.82 | 2.30 | 172 | 2 | 60.5 | 9/GR14 |  |
| CAN01504 | -90.80 | 30 | -72.68 | 53.78 | 3.57 | 1.67 | 157 | 2 | 60.4 | 9/GR13 |  |
| CAN01505 | -81.80 | 30 | - 71.76 | 53.76 | 3.30 | 1.89 | 162 | 2 | 60.3 | 9/GR14 |  |
| CAN01605 | -81.80 | 30 | -61.54 | 49.50 | 2.66 | 1.39 | 144 | 2 | 60.5 | 9/GR14 |  |
| CAN01606 | -70.30 | 30 | -61.32 | 49.51 | 2.41 | 1.65 | 148 | 2 | 60.4 |  |  |
| CHLCONT4 | - 105.80 | 30 | -69.59 | -23.20 | 2.21 | 0.80 | 68 | , | 59.3 | 9/GR16 |  |
| CHLCONT6 | - 105.80 | 30 | -73.52 | -55.52 | 3.65 | 1.31 | 39 | 2 | 59.7 | 9/GR16 |  |
| CRBBAH01 | -92.30 | 30 | -76.09 | 24.13 | 1.83 | 0.80 | 141 | , | 61.9 | 9/GR18 |  |
| CRBBER01 | -92.30 | 30 | -64.76 | 3213 | 0.80 | 0.80 | 90 | , | 56.9 | 9/GR18 |  |
| CRBBLZ01 | -92.30 | 30 | -88.61 | 17.26 | 0.80 | 0.80 | 90 | 1 | 58.9 | 9/GR18 |  |
| CRBEC001 | -92.30 | 30 | -60.07 | 8.26 | 4.20 | 0.86 | 115 | 1 | 64.6 | 9/GR18 |  |
| CRBJMC01 | -92.30 | 30 | - 79.45 | 17.97 | 0.99 | 0.80 | 151 | 1 | 61.3 | 9/GR18 |  |
| CTR00201 | - 130.80 | 30 | -84.33 | 9.67 | 0.82 | 0.80 | 119 | 2 | 66.0 |  |  |
| DMAIFRB1 | -79.30 | 30 | -61.30 | 15.35 | 0.80 | 0.80 | 90 | 2 | 58.7 |  |  |
| EQAC0001 | -94.80 | 30 | -78.31 | -1.52 | 1.48 | 1.15 | 65 | 1 | 63.3 | 9/GR19 |  |
| EQAG0001 | -94.80 | 30 | -90.36 | -0.57 | 0.94 | 0.89 | 99 | 1 | 61.2 | 9/GR19 |  |
| HWA00002 | - 165.80 | 30 | - 165.79 | 23.32 | 4.20 | 0.80 | 160 | 2 | 59.0 | 9/GR1 | 10 |
| HWA00003 | - 174.80 | 30 | - 166.10 | 23.42 | 4.25 | 0.80 | 159 | 2 | 59.0 | 9/GR2 | 10 |
| MEX01NTE | -77.80 | 30 | - 105.80 | 25.99 | 2.88 | 2.07 | 155 | 2 | 60.7 | 1 |  |
| MEX02NTE | - 135.80 | 30 | -107.36 | 26.32 | 3.80 | 1.57 | 149 | 2 | 61.4 |  | 10 |
| MEX02SUR | - 126.80 | 30 | -96.39 | 19.88 | 3.19 | 1.87 | 158 | 2 | 62.8 | 1 | 10 |

12646,82 MHz

| NCG00003 | -107.30 | 30 | -8499 | 12.90 | 1.05 | 1.01 | 176 | 1 | 63.6 |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | :--- | :--- | :--- | :--- |
| PRU00004 | -85.80 | 30 | -74.19 | -8.39 | 3.74 | 245 | 112 | 2 | 63.1 |  |  |
| PTRVIR01 | -100.80 | 30 | -6585 | 18.12 | 0.80 | 080 | 90 | 2 | 608 | $169 /$ GR20 |  |
| PTRVIR02 | -109.80 | 30 | -65.85 | 18.12 | 0.80 | 0.80 | 90 | 2 | 61.4 | $1699 /$ GR21 |  |
| USAEH001 | -61.30 | 30 | -85.16 | 36.21 | 5.63 | 3.32 | 22 | 2 | 62.1 | 156 |  |
| USAEH002 | -100.80 | 30 | -89.28 | 3616 | 5.65 | 3.78 | 170 | 2 | 62.0 | $169 /$ GR20 | 10 |
| USAEH003 | -109.80 | 30 | -90.12 | 36.11 | 5.55 | 3.56 | 161 | 2 | 62.3 | $169 /$ GR21 | 10 |
| USAEH004 | -118.80 | 30 | -91.16 | 36.05 | 5.38 | 3.24 | 153 | 2 | 629 | 156 | 10 |
| USAPSA02 | -165.80 | 30 | -117.79 | 40.58 | 4.04 | 0.82 | 135 | 2 | 63.5 | $9 /$ GR1 |  |
| USAPSA03 | -174.80 | 30 | -118.20 | 40.15 | 3.63 | 0.80 | 136 | 2 | 65.3 | $9 /$ GR2 |  |
| USAWH101 | -14780 | 30 | -109.70 | 38.13 | 5.52 | 1.96 | 142 | 2 | 62.3 | 10 |  |
| USAWH102 | -156.80 | 30 | -111.40 | 38.57 | 5.51 | 1.55 | 138 | 2 | 63.5 | 10 |  |
| VEN11VEN | -103.80 | 30 | -66.79 | 6.90 | 2.50 | 1.77 | 122 | 2 | 65.5 | 10 |  |

12661,40 MHz (31)

| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALS00002 | -166.20 | 31 | -149.66 | 58.37 | 3.76 | 1.24 | 170 | 1 | 60.0 | 9/GR1 | 10 |  |
| ALS00003 | -175.20 | 31 | - 150.98 | 58.53 | 3.77 | 1.11 | 167 | 1 | 60.2 | 9/GR2 | 10 |  |
| ARGINSU4 | -94.20 | 31 | -52.98 | -59.81 | 3.40 | 0.80 | 19 | 1 | 60.1 | 9/GR3 |  |  |
| ARGINSU5 | -55.20 | 31 | -44.17 | -59.91 | 3.77 | 0.80 | 13 | 1 | 59.5 | 9/GR4 |  |  |
| ARGSUR04 | -94.20 | 31 | -65.04 | -43.33 | 3.32 | 1.50 | 40 | 1 | 60.9 | 9/GR3 |  |  |
| ARGSUR05 | -55.20 | 31 | -63.68 | -43.01 | 2.54 | 2.38 | 152 | 1 | 60.3 | 9/GR4 |  |  |
| B CE311 | -64.20 | 31 | -40.60 | -6.07 | 3.04 | 2.06 | 174 | 1 | 61.9 | 8 9/GR7 |  |  |
| B CE312 | -45.20 | 31 | -40.27 | -6.06 | 3.44 | 2.09 | 174 | 1 | 61.3 | 8 9/GR9 | 10 | 11 |
| B CE411 | -64.20 | 31 | -50.97 | -15.27 | 3.86 | 1.38 | 49 | 1 | 62.9 | 8 9/GR7 |  |  |
| B CE412 | -45.20 | 31 | -50.71 | - 15.30 | 3.57 | 1.56 | 52 | 1 | 63.1 | 8 9/GR9 | 10 | 12 |
| B CE511 | -64.20 | 31 | -53.10 | -2.90 | 244 | 2.13 | 104 | 1 | 63.4 | 8 9/GR7 |  |  |
| B N0611 | -74.20 | 31 | -59.60 | -11.62 | 2.85 | 1.69 | 165 | 2 | 63.2 | 8 9/GR8 |  |  |
| B N0711 | -74.20 | 31 | -60.70 | -1.78 | 3.54 | 1.78 | 126 | 2 | 63.2 | 8 9/GR8 |  |  |
| B N0811 | -74.20 | 31 | -68.76 | -4.71 | 2.37 | 1.65 | 73 | 2 | 63.1 | 8 9/GR8 |  |  |
| B SU111 | -81.20 | 31 | -51.12 | -25.63 | 2.76 | 1.05 | 50 | 1 | 63.2 | 8 9/GR6 |  |  |
| B SU112 | -45.20 | 31 | -50.75 | -25.62 | 2.47 | 1.48 | 56 | 1 | 62.6 | 8 9/GR9 | 11 |  |
| B SU211 | -81.20 | 31 | -44.51 | -16.95 | 3.22 | 1.36 | 60 | 1 | 62.8 | 8 9/GR6 |  |  |
| B SU212 | -45.20 | 31 | -44.00 | -16.87 | 3.20 | 1.96 | 58 | 1 | 61.6 | 8 9/GR9 | 12 |  |
| BERBERMU | -96.20 | 31 | -64.77 | 3232 | 0.80 | 0.80 | 90 | 2 | 57.0 |  |  |  |
| B OLAND01 | - 115.20 | 31 | -65.04 | -16.76 | 2.49 | 1.27 | 76 | 1 | 68.1 | 9/GR5 |  |  |
| B OL00001 | -87.20 | 31 | -64.61 | - 16.71 | 2.52 | 2.19 | 85 | 1 | 64.2 |  |  |  |
| B RB00001 | -92.70 | 31 | -59.85 | 12.93 | 0.80 | 0.80 | 90 | 2 | 59.4 |  |  |  |
| CAN01101 | - 138.20 | 31 | -125.63 | 57.24 | 3.45 | 1.27 | 157 | 1 | 59.7 | 9/GR10 | 10 |  |
| CAN01201 | -13820 | 31 | -112.04 | 55.95 | 3.35 | 0.97 | 151 | 1 | 59.8 | 9/GR10 | 10 |  |

12661,40 MHz (31)

| CAN01202 | - 72.70 | 31 | -107.70 | 5563 | 2.74 | 1.12 | 32 | 1 | 59.8 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CAN01203 | -129.20 | 31 | -111.48 | 55.61 | 3.08 | 115 | 151 | 1 | 59.7 | 9/GR12 | 10 |
| CAN01303 | - 129.20 | 31 | - 102.42 | 57.12 | 3.54 | 0.91 | 154 | 1 | 60.3 | 9/GR12 | 10 |
| CAN01304 | -91.20 | 31 | -99.12 | 5736 | 1.98 | 172 | 2 | 1 | 60.1 | 9/GR13 |  |
| CAN01403 | - 129.20 | 31 | -89.75 | 52.02 | 4.68 | 0.80 | 148 | 1 | 62.1 | 9/GR12 | 10 |
| CAN01404 | -91.20 | 31 | -84.82 | 52.42 | 3.10 | 2.05 | 152 | 1 | 60.6 | 9/GR13 |  |
| CAN01405 | -82.20 | 31 | -84.00 | 52.39 | 2.84 | 2.29 | 172 | 1 | 60.5 | 9/GR14 |  |
| CAN01504 | -91.20 | 31 | - 72.66 | 53.77 | 3.57 | 1.67 | 156 | 1 | 60.4 | 9/GR13 |  |
| CAN01505 | -82.20 | 31 | -71.77 | 53.79 | 3.30 | 1.89 | 162 | 1 | 60.4 | 9/GR14 |  |
| CAN01605 | -82.20 | 31 | -61.50 | 49.55 | 2.65 | 1.40 | 143 | 1 | 60.5 | 9/GR14 |  |
| CAN01606 | - 70.70 | 31 | -61.30 | 49.55 | 2.40 | 1.65 | 148 | 1 | 60.5 |  |  |
| CHLCONT5 | - 106.20 | 31 | - 72.23 | -35.57 | 260 | 0.80 | 55 | 1 | 59.6 | 9/GR17 |  |
| CHLPAC02 | - 106.20 | 31 | -80.06 | -30.06 | 1.36 | 0.80 | 69 | 1 | 59.4 | 9/GR17 |  |
| CLMAND01 | - 115.20 | 31 | - 74.72 | 5.93 | 3.85 | 1.63 | 114 | 1 | 65.4 | 9/GR5 | 10 |
| CLM00001 | - 10320 | 31 | -74.50 | 5.87 | 3.98 | 1.96 | 118 | 1 | 63.9 | 10 |  |
| CUB00001 | -8920 | 31 | - 79.81 | 21.62 | 2.24 | 0.80 | 168 | 1 | 61.3 |  |  |
| EQACAND1 | -115.20 | 31 | - 78.40 | -1.61 | 1.37 | 0.95 | 75 | 1 | 64.4 | 9/GR5 |  |
| EQAGAND1 | -115.20 | 31 | -90.34 | -0.62 | 0.90 | 0.81 | 89 | 1 | 61.6 | 9/GR5 |  |
| GRD00059 | -57.20 | 31 | -61.58 | 12.29 | 0.80 | 0.80 | 90 | 1 | 58.7 |  |  |
| GRLDNK01 | -53.20 | 31 | -44.89 | 66.56 | 2.70 | 0.82 | 173 | 1 | 60.2 | 2 |  |
| GUY00201 | -84.70 | 31 | -59 19 | 478 | 1.44 | 0.85 | 95 | 1 | 63.8 |  |  |
| HWA00002 | -166.20 | 31 | -165.79 | 23.42 | 4.20 | 0.80 | 160 | 1 | 59.0 | 9/GR1 | 10 |
| HWA00003 | -175.20 | 31 | -16610 | 23.42 | 4.25 | 0.80 | 159 | 1 | 59.0 | 9/GR2 | 10 |
| MEX01NTE | - 78.20 | 31 | -105.81 | 26.01 | 2.89 | 2.08 | 155 | 1 | 60.8 | 1 |  |

12661,40 MHz (31)

| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| MEX01SUR | -69.20 | 31 | -94.84 | 19.82 | 3.05 | 2.09 | 4 | 1 | 62.5 | 1 |  |
| MEX02NTE | - 136.20 | 31 | - 107.21 | 26.31 | 3.84 | 1.55 | 148 | 1 | 61.5 | 1 | 10 |
| MEX02SUR | -127.20 | 31 | -96.39 | 19.88 | 3.18 | 1.87 | 157 | 1 | 62.8 | 1 | 10 |
| MSR00001 | -79.70 | 31 | -61.73 | 16.75 | 0.80 | 0.80 | 90 | 1 | 58.9 | 4 |  |
| PAQPAC01 | - 106.20 | 31 | - 109.18 | -27.53 | 0.80 | 0.80 | 90 | 1 | 56.4 | 9/GR17 |  |
| PRG00002 | -99.20 | 31 | -58.66 | -23.32 | 1.45 | 1.04 | 76 | 1 | 60.5 |  |  |
| PRUAND02 | - 115.20 | 31 | -74.69 | -8.39 | 3.41 | 1.79 | 95 | 1 | 64.3 | 9/GR5 |  |
| PTRVIR01 | - 101.20 | 31 | -65.85 | 18.12 | 0.80 | 0.80 | 90 | 1 | 60.8 | 16 9/GR20 |  |
| PTRVIR02 | - 110.20 | 31 | -65.86 | 18.12 | 0.80 | 080 | 90 | 1 | 61.3 | 16 9/GR21 |  |
| URG00001 | -71.70 | 31 | -56.22 | - 32.52 | 1.02 | 0.89 | 11 | 1 | 60.2 |  |  |
| USAEH001 | -61.70 | 31 | -85.19 | 36.21 | 5.63 | 3.33 | 22 | 1 | 62.1 | 156 |  |
| USAEH002 | - 101.20 | 31 | -89.24 | 36.16 | 5.67 | 3.76 | 170 | 1 | 62.0 | 16 9/GR20 | 10 |
| USAEH003 | -110.20 | 31 | -90.14 | 36.11 | 5.55 | 3.55 | 161 | 1 | 62.4 | 16 9/GR21 | 10 |
| USAEH004 | - 119.20 | 31 | -91.16 | 36.05 | 5.38 | 3.24 | 152 | 1 | 62.9 | 156 | 10 |
| USAPSA02 | - 166.20 | 31 | -117.80 | 40.58 | 403 | 0.82 | 135 | 1 | 63.6 | 9/GR1 |  |
| USAPSA03 | - 175.20 | 31 | -118.27 | 40.12 | 3.62 | 0.80 | 136 | 1 | 65.4 | 9/GR2 |  |
| USAWH101 | - 148.20 | 31 | - 109.65 | 38.13 | 5.53 | 1.95 | 142 | 1 | 62.4 | 10 |  |
| USAWH102 | - 157.20 | 31 | -11141 | 38.57 | 551 | 1.54 | 138 | 1 | 63.5 | 10 |  |
| VENAND03 | - 115.20 | 31 | -67.04 | 6.91 | 2.37 | 1.43 | 111 | 1 | 67.7 | 9/GR5 | 10 |

12675,98 MHz (32)

| ALS00002 | -165 80 | 32 | - 149.63 | 5852 | 3.81 | 1.23 | 171 | 2 | 59.9 | 9/GR1 | 10 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALS00003 | - 174.80 | 32 | -150.95 | 5854 | 3.77 | 111 | 167 | 2 | 60.2 | 9/GR2 | 10 |  |
| ARGNORT4 | -93.80 | 32 | -6396 | -30.01 | 3.86 | 199 | 48 | 2 | 66.1 |  |  |  |
| ARGNORT5 | - 54.80 | 32 | -62.85 | -29.80 | 3.24 | 2.89 | 47 | 2 | 63.9 |  |  |  |
| B CE311 | -63.80 | 32 | -4060 | -6.07 | 304 | 2.06 | 174 | 2 | 61.9 | 8 9/GR7 |  |  |
| B CE312 | -44.80 | 32 | -4026 | -6.06 | 344 | 2.09 | 174 | 2 | 61.3 | 8 9/GR9 | 10 | 11 |
| B CE411 | -6380 | 32 | -50.97 | -1526 | 3.86 | 138 | 49 | 2 | 62.9 | 8 9/GR7 |  |  |
| B CE412 | -44.80 | 32 | -50.71 | - 15.30 | 3.57 | 1.56 | 52 | 2 | 63.1 | 8 9/GR9 | 10 | 12 |
| B CE511 | -63.80 | 32 | -5311 | -2.98 | 242 | 2.15 | 107 | 2 | 63.4 | 8 9/GR7 |  |  |
| B NO611 | -73.80 | 32 | -59.60 | - 11.62 | 286 | 1.69 | 165 | 1 | 632 | 8 9/GR8 |  |  |
| B N0711 | -7380 | 32 | -60.70 | -178 | 3.54 | 1.78 | 126 | 1 | 63.2 | 8 9/GR8 |  |  |
| B NO811 | -7380 | 32 | -68.75 | -471 | 2.37 | 1.65 | 73 | 1 | 63.2 | 8 9/GR8 |  |  |
| B SE911 | - 101.80 | 32 | -45.99 | - 19.09 | 2.22 | 0.80 | 62 | 2 | 65.7 | 8 |  |  |
| B SU111 | -80.80 | 32 | -51.10 | -25.64 | 2.76 | 1.06 | 50 | 2 | 63.2 | 8 9/GR6 |  |  |
| B SU112 | -4480 | 32 | -50.76 | -2562 | 247 | 1.48 | 56 | 2 | 62.6 | 8 9/GR9 | 1 |  |
| B SU211 | -80.80 | 32 | -44.51 | -16.94 | 3.22 | 1.37 | 60 | 2 | 62.8 | 8 9/GR6 |  |  |
| B SU212 | -44.80 | 32 | -43.99 | -16.97 | 3.27 | 1.92 | 59 | 2 | 61.6 | 8 9/GR9 | 12 |  |
| CAN01101 | -137.80 | 32 | -125.60 | 57.24 | 3.45 | 1.27 | 157 | 2 | 59.7 | 9/GR10 | 10 |  |
| CAN01201 | - 137.80 | 32 | -111.92 | 55.89 | 3.33 | 0.98 | 151 | 2 | 59.8 | 9/GR10 | 10 |  |
| CAN01202 | -7230 | 32 | -107.64 | 55.62 | 2.75 | 1.11 | 32 | 2 | 59.8 |  |  |  |
| CAN01203 | - 128.80 | 32 | -111.43 | 55.56 | 3.07 | 1.15 | 151 | 2 | 59.7 | 9/GR12 | 10 |  |
| CAN01303 | - 128.80 | 32 | -102 39 | 57.12 | 3.54 | 0.92 | 154 | 2 | 60.3 | 9/GR12 | 10 |  |
| CAN01304 | -90.80 | 32 | -99.00 | 57.33 | 1.96 | 1.73 | 1 | 2 | 60.0 | 9/GR13 |  |  |
| CAN01403 | - 128.80 | 32 | -8970 | 5202 | 4.67 | 0.80 | 148 | 2 | 62.1 | 9/GR12 | 10 |  |

12675,98 MHz (32)

| PRU00004 | -85.80 | 32 | $-74.19$ | -8.39 | 3.74 | 2.45 | 112 | 2 | 63.2 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| PTRVIR01 | $-100.80$ | 32 | -65.85 | 18.12 | 0.80 | 0.80 | 90 | 2 | 609 | 16 9/GR20 |
| PTRVIR02 | $-109.80$ | 32 | -65 85 | 18.12 | 080 | 0.80 | 90 | 2 | 61.4 | 16 9/GR21 |
| USAEH001 | -61.30 | 32 | -85 16 | 36.21 | 5.63 | 3.32 | 22 | 2 | 62.1 | 156 |
| USAEH002 | $-100.80$ | 32 | -89 28 | 36.16 | 5.65 | 3.78 | 170 | 2 | 62.0 | $169 / \mathrm{GR20} 10$ |
| USAEH003 | $-109.80$ | 32 | -9012 | 36.11 | 5.55 | 3.56 | 161 | 2 | 62.4 | $169 / \mathrm{GR} 2110$ |
| USAEH004 | - 118.80 | 32 | -91.16 | 36.05 | 5.38 | 3.24 | 153 | 2 | 62.9 | 15610 |
| USAPSA02 | $-165.80$ | 32 | -117.79 | 4058 | 4.04 | 082 | 135 | 2 | 63.6 | 9/GR1 |
| USAPSA03 | $-174.80$ | 32 | $-118.20$ | 40.15 | 3.63 | 0.80 | 136 | 2 | 65.3 | 9/GR2 |
| USAWH101 | $-147.80$ | 32 | $-109.70$ | 38.13 | 5.52 | 196 | 142 | 2 | 624 | 10 |
| USAWH102 | $-156.80$ | 32 | $-111.40$ | 38.57 | 5.51 | 1.55 | 138 | 2 | 63.5 | 10 |
| VEN02VEN | $-103.80$ | 32 | -63.50 | 15.50 | 080 | 0.80 | 90 | 2 | 60.1 | 9/GR22 |
| VEN11VEN | $-103.80$ | 32 | -66.79 | 6.90 | 2.50 | 1.77 | 122 | 2 | 65.6 | 9/GR22 10 |

## ARTICLE 11

## The Plan for the Broadcasting-Satellite Service in the Frequency Bands 11.7-12.2 GHz in Region 3 and 11.7-12.5 GHz in Region 1

## 11.1 <br> COLUMN HEADINGS OF THE PLAN

Col. 1. Country symbol and IFRB Serial Number (Column 1 contains the symbol designating the country or the geographical area taken from Table No. 1 of the Preface to the International Frequency List).

Col. 2. Nominal orbital position, in degrees.
Col. 3. Channel number (see table showing channel numbers and corresponding assigned frequencies).

Col. 4. Boresight geographical coordinates, in degrees and tenths of a degree.

Col. 5. Antenna beamwidth. This column contains two figures corresponding to the major axis and the minor axis respectively of the elliptical cross-section half-power beam, in degrees and tenths of a degree.

Col. 6. Orientation of the ellipse determined as follows: in a plane normal to the beam axis, the direction of a major axis of the ellipse is specified as the angle measured anti-clockwise from a line parallel to the equatorial plane to the major axis of the ellipse to the nearest degree.

Col. 7. Polarization $(1=\text { direct, } 2=\text { indirect })^{1}$.
Col. 8. E.i.r.p. in the direction of maximum radiation in dBW.
Col. 9. Remarks.

[^38]
## 11.2 <br> NOTES RELATING TO THE PLAN

1. The $\Delta G$ of this assignment is $\ldots \mathrm{dB}$.
2. To be dedicated to the Islamic programme envisaged in the Conference ${ }^{1}$ documents.
3. 

This assignment results from a common requirement of the Administrations of Denmark and Iceland. The service area includes the Faeroe Islands and Iceland. The assignment may, after consultations between the two Administrations, be used by either of them.
4. IFB - IFRB. This assignment has been included in the Plan by the Conference.
5. Assignment intended to ensure coverage of Algeria, Libya, Morocco, Mauritania and Tunisia, with the agreement of the countries concerned. If required, this assignment may be used with the characteristics of the beam TUN 150 .
6.

Assignments appearing in the Plan for Somalia should be coordinated with each country concerned and in particular with Ethiopia.

[^39]11.3

TABLE SHOWING CORRESPONDENCE BETWEEN CHANNEL NUMBERS AND ASSIGNED FREQUENCIES

| Channel No. | Assigned frequency (MHz) | Channel No. | Assigned frequency (MHz) |
| :---: | :---: | :---: | :---: |
| 1 | 11727.48 | 21 | 12111.08 |
| 2 | 11746.66 | 22 | 12130.26 |
| 3 | 11765.84 | 23 | 12149.44 |
| 4 | 11785.02 | 24 | 12168.62 |
| 5 | 11804.20 | 25 | 12187.80 |
| 6 | 11823.38 | 26 | 12206.98 |
| 7 | 11842.56 | 27 | 12226.16 |
| 8 | 11861.74 | 28 | 12245.34 |
| 9 | 11880.92 | 29 | 12264.52 |
| 10 | 11900.10 | 30 | 12283.70 |
| 11 | 11919.28 | 31 | 12302.88 |
| 12 | 11938.46 | 32 | 12322.06 |
| 13 | 11957.64 | 33 | 12341.24 |
| 14 | 11976.82 | 34 | 12360.42 |
| 15 | 11996.00 | 35 | 12379.60 |
| 16 | 12015.18 | 36 | 12398.78 |
| 17 | 12034.36 | 37 | 12417.96 |
| 18 | 12053.54 | 38 | 12437.14 |
| 19 | 12072.72 | 39 | 12456.32 |
| 20 | 12091.90 | 40 | 12475.50 |

(Rev. 1986)

| $\mathbf{1}$ | $\mathbf{2}$ | $\mathbf{3}$ | $\mathbf{4}$ |  |  | $\mathbf{5}$ |  | $\mathbf{6}$ | $\mathbf{7}$ | $\mathbf{8}$ |  |
| :--- | :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| AFG | 246A | 50.0 | 1 | 64.5 | 33.1 | 1.44 | 1.40 | 21 | 1 | 63.4 |  |
| AUS | 005A | 98.0 | 1 | 133.5 | -18.8 | 2.70 | 1.40 | 76 | 2 | 64.3 |  |
| CAR | 338A | 122.0 | 1 | 149.5 | 8.0 | 5.36 | 0.77 | 178 | 1 | 62.5 |  |
| CHN | 155A | 62.0 | 1 | 88.3 | 31.5 | 3.38 | 1.45 | 162 | 2 | 62.9 |  |
| CHN | 162A | 92.0 | 1 | 115.9 | 21.0 | 2.74 | 2.42 | 23 | 2 | 63.9 |  |
| CHN | 163A | 80.0 | 1 | 116.0 | 39.2 | 1.20 | 0.80 | 132 | 1 | 64.4 |  |
| CME | 300A | -13.0 | 1 | 12.7 | 6.2 | 2.54 | 1.68 | 87 | 1 | 63.4 |  |
| F | 093A | -19.0 | 1 | 2.6 | 45.9 | 2.50 | 0.98 | 160 | 1 | 63.8 |  |
| FJI | 193A | 152.0 | 1 | 179.4 | -17.9 | 1.04 | 0.98 | 67 | 1 | 63.7 |  |
| GUI | 192A | -37.0 | 1 | -11.0 | 10.2 | 1.58 | 1.04 | 147 | 2 | 63.4 |  |
| IND | 039A | 56.0 | 1 | 727 | 11.2 | 1.26 | 0.60 | 107 | 1 | 63.1 |  |
| IND | 044A | 68.0 | 1 | 79.5 | 22.3 | 2.19 | 1.42 | 146 | 1 | 63.3 |  |
| INS | 035A | 104.0 | 1 | 124.3 | -3.2 | 3.34 | 1.94 | 82 | 1 | 63.2 |  |
| J | 111A | 110.0 | 1 | 134.5 | 31.5 | 3.52 | 3.30 | 68 | 1 | 63.2 |  |
| LBY | 280A | -25.0 | 1 | 21.4 | 26.0 | 2.50 | 1.04 | 119 | 2 | 63.5 |  |
| MDG | 236A | 29.0 | 1 | 46.6 | -18.8 | 2.72 | 1.14 | 65 | 2 | 633 |  |
| NZL | 055A | 158.0 | 1 | 172.3 | -39.7 | 2.88 | 1.56 | 47 | 1 | 633 |  |
| PLM | 337A | 170.0 | 1 | -1614 | 7.0 | 0.60 | 0.60 | 0 | 1 | 624 |  |
| POL | 132A | -1.0 | 1 | 19.3 | 51.8 | 1.46 | 0.64 | 162 | 2 | 641 |  |
| QAT | 247A | 17.0 | 1 | 51.1 | 25.3 | 0.60 | 0.60 | 0 | 1 | 61.8 | $1 / 16$ |
| SMA | 335A | 170.0 | 1 | -1701 | -14.2 | 0.60 | 0.60 | 0 | 2 | 611 | $1 / 0.9$ |
| SMR | 311A | -37.0 | 1 | 12.6 | 437 | 0.60 | 0.60 | 0 | 1 | 624 | $1 / 08$ |
| SWZ | 313A | -1.0 | 1 | 31.5 | -265 | 0.62 | 0.60 | 66 | 1 | 62.8 | $1 / 17$ |
| THA | 142A | 74.0 | 1 | 100.7 | 132 | 2.82 | 1.54 | 106 | 2 | 636 |  |
| TUR | 145A | 5.0 | 1 | 344 | 38.9 | 2.68 | 1.04 | 168 | 1 | 63.7 |  |
| URS | 064A | 23.0 | 1 | 45.6 | 408 | 216 | 0.60 | 163 | 2 | 63.9 |  |
| URS | 067A | 44.0 | 1 | 62.4 | 58.5 | 320 | 1.52 | 169 | 1 | 663 |  |
| WAK | 334A | 140.0 | 1 | 1665 | 19.2 | 0.60 | 0.60 | 0 | 1 | 63.6 |  |
| YMS | 267A | 11.0 | 1 | 48.8 | 152 | 176 | 1.54 | 176 | 2 | 62.8 |  |

11 746,66 MHz (2)
(986I ^^әу)

| ALG | 251A | -25.0 | 2 | 42 | 332 | 245 | 1.25 | 172 | 1 | 634 |  |
| :--- | :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| ARS | 275A | 17.0 | 2 | 48.3 | 246 | 384 | 120 | 138 | 2 | 627 |  |
| AUS | 006A | 98.0 | 2 | 135.4 | -30.3 | 2.00 | 140 | 44 | 1 | 632 |  |
| AUS | 008A | 1280 | 2 | 145.9 | -215 | 2.90 | 200 | 120 | 2 | 63.7 |  |
| BOT | 297A | -1.0 | 2 | 23.3 | -222 | 2.13 | 150 | 36 | 2 | 637 |  |
| CHN | 154A | 62.0 | 2 | 83.9 | 40.5 | 2.75 | 205 | 177 | 1 | 63.2 |  |
| CHN | 161A | 92.0 | 2 | 1181 | 311 | 2.49 | 169 | 117 | 1 | 644 |  |
| CKH | 052A | 158.0 | 2 | -161.0 | -19.8 | 102 | 0.64 | 132 | 2 | 64.6 |  |
| CLN | 219A | 500 | 2 | 806 | 77 | 1.18 | 060 | 106 | 1 | 63.6 |  |
| D | 087A | -19.0 | 2 | 96 | 499 | 162 | 072 | 147 | 2 | 65.5 |  |
| FNL | 103A | 5.0 | 2 | 22.5 | 64.5 | 1.38 | 076 | 171 | 2 | 677 |  |
| GNP | 304A | -310 | 2 | -15.0 | 120 | 090 | 060 | 172 | 2 | 63.1 |  |
| GUM | 331A | 122.0 | 2 | 144.5 | 131 | 060 | 060 | 0 | 2 | 633 |  |
| IND | 037A | 680 | 2 | 93.0 | 25.5 | 146 | 1.13 | 40 | 2 | 63.9 |  |
| IND | 045A | 560 | 2 | 76.2 | 19.5 | 1.58 | 158 | 21 | 2 | 635 |  |
| INS | 028A | 80.0 | 2 | 101.5 | 00 | 3.00 | 120 | 133 | 2 | 633 |  |
| IRL | 211A | -31.0 | 2 | -8.2 | 53.2 | 0.84 | 060 | 162 | 1 | 642 |  |
| KOR | 112A | 1100 | 2 | 127.5 | 360 | 124 | 1.02 | 168 | 2 | 63.6 |  |
| LAO | 284A | 74.0 | 2 | 103.7 | 18.1 | 216 | 078 | 133 | 1 | 638 |  |
| MAU | 242A | 29.0 | 2 | 59.8 | -18.9 | 1.62 | 1.24 | 55 | 1 | 640 |  |
| MLA | 228A | 86.0 | 2 | 114.1 | 3.9 | 234 | 1.12 | 45 | 1 | 63.6 |  |
| MLI | 327A | -37.0 | 2 | -2.0 | 19.0 | 2.66 | 1.26 | 127 | 1 | 63.2 |  |
| MRL | 333A | 146.0 | 2 | 166.7 | 79 | 1.50 | 150 | 177 | 1 | 63.3 |  |
| NCL | 100A | 140.0 | 2 | 1660 | -21.0 | 1.14 | 072 | 146 | 1 | 63.7 |  |
| PAK | 127A | 38.0 | 2 | 69.6 | 29.5 | 230 | 2.16 | 14 | 1 | 63.9 |  |
| PNG | 131A | 10.0 | 2 | 147.7 | -6.3 | 2.50 | 218 | 169 | 1 | 64.4 |  |
| ROU | 136A | -1.0 | 2 | 25.0 | 45.7 | 1.38 | 0.66 | 155 | 1 | 63.8 |  |
| TCD | 143A | -13.0 | 2 | 18.1 | 155 | 3.40 | 1.72 | 107 | 2 | 64.0 |  |
| TGO | 226A | -25.0 | 2 | 0 | 0.8 | 8.6 | 1.52 | 0.60 | 105 | 2 | 63.4 |
| WAL | 102A | 140.0 | 2 | -176.8 | -14.0 | 0.74 | 0.60 | 29 | 1 | 64.4 |  |
| YEM | 266A | 11.0 | 2 | 44.3 | 15.1 | 1.14 | 0.70 | 109 | 1 | 62.6 |  |
| ZAI | 323A | -19.0 | 2 | 21.3 | -6.8 | 2.80 | 1.52 | 149 | 1 | 64.6 |  |

$6 乌 I-(\varsigma 8-q 1 O) 0 \varepsilon d \forall$

11 765,84 MHz (3)


11 785,02 MHz (4)

|  | ALG | 252A | -250 | 4 | 1.6 | 25.5 | 3.64 | 216 | 152 | 1 | 62.8 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | AND | 341A | -37.0 | 4 | 1.6 | 42.5 | 0.60 | 0.60 | 0 | 2 | 61.5 | 1/0.5 |
|  | ARS | 003A | 17.0 | 4 | 41.1 | 23.8 | 3.52 | 1.68 | 134 | 2 | 62.7 |  |
|  | AUS | 007A | 128.0 | 4 | 145.0 | - 38.1 | 1.83 | 1.39 | 134 | 2 | 63.3 |  |
|  | AUT | 016A | - 19.0 | 4 | 122 | 47.5 | 1.14 | 0.63 | 166 | 2 | 64.1 |  |
|  | BUL | 020A | -1.0 | 4 | 25.0 | 43.0 | 1.04 | 060 | 165 | 1 | 63.6 |  |
|  | CHN | 156A | 620 | 4 | 97.8 | 36.3 | 2.56 | 158 | 157 | 1 | 635 |  |
|  | CHN | 161B | 92.0 | 4 | 118.1 | 31.1 | 2.49 | 1.69 | 117 | 1 | 64.4 |  |
|  | CKN | 053A | 158.0 | 4 | -1630 | - 11.2 | 1.76 | 072 | 30 | 2 | 64.3 |  |
|  | CPV | 301A | -310 | 4 | -24.0 | 16.0 | 0.86 | 070 | 144 | 2 | 62.2 |  |
|  | EGY | 026A | -7.0 | 4 | 29.7 | 26.8 | 2.33 | 1.72 | 136 | 2 | 63.1 |  |
|  | G | 027A | - 31.0 | 4 | -3.5 | 53.8 | 1.84 | 0.72 | 142 | 1 | 65.0 |  |
|  | IND | 040A | 56.0 | 4 | 73.0 | 25.0 | 1.82 | 1.48 | 58 | 2 | 63.6 |  |
|  | IND | 048A | 68.0 | 4 | 86.2 | 25.0 | 1.56 | 090 | 120 | 2 | 63.7 |  |
|  | INS | 028B | 80.0 | 4 | 101.5 | 0.0 | 3.00 | 120 | 133 | 2 | 63.3 |  |
|  | KOR | 112B | 110.0 | 4 | 127.5 | 36.0 | 1.24 | 1.02 | 168 | 2 | 63.6 |  |
|  | LAO | 284B | 74.0 | 4 | 103.7 | 18.1 | 2.16 | 0.78 | 133 | 1 | 63.8 |  |
|  | MAU | 243A | 29.0 | 4 | 56.8 | -13.9 | 1.56 | 1.38 | 65 | 1 | 63.7 |  |
|  | MLA | 228B | 86.0 | 4 | 114.1 | 3.9 | 2.34 | 1.12 | 45 | 1 | 63.6 |  |
|  | MLI | 328A | -37.0 | 4 | -7.6 | 13.2 | 1.74 | 1.24 | 171 | 1 | 63.7 |  |
|  | MLT | 147A | - 13.0 | 4 | 14.3 | 35.9 | 0.60 | 060 | 0 | 1 | 61.0 | 1/0.7 |
|  | MOZ | 307A | -1.0 | 4 | 34.0 | - 18.0 | 3.57 | 1.38 | 55 | 2 | 64.2 |  |
|  | OCE | 101A | -160.0 | 4 | - 145.0 | -16.3 | 4.34 | 3.54 | 4 | 2 | 63.5 |  |
|  | PAK | 283A | 38.0 | 4 | 74.7 | 33.9 | 1.34 | 1.13 | 160 | 1 | 64.3 |  |
|  | PNG | 271A | 128.0 | 4 | 148.0 | -6.7 | 2.80 | 2.05 | 155 | 1 | 63.4 |  |
|  | RRW | 310A | 11.0 | 4 | 30.0 | -2.1 | 0.66 | 0.60 | 42 | 2 | 64.8 |  |
|  | S | 138A | 5.0 | 4 | 16.2 | 61.0 | 1.04 | 0.98 | 14 | 2 | 67.1 |  |
| 0 | STP | 241A | -13.0 | 4 | 7.0 | 0.8 | 0.60 | 0.60 | 0 | 2 | 61.4 | 1/1.3 |
| $\stackrel{\square}{6}$ | TON | 215A | 170.0 | 4 | - 174.7 | -18.0 | 1.41 | 0.68 | 85 | 1 | 63.3 |  |
|  | URS | 060A | 23.0 | 4 | $4{ }^{1.5}$ | 57.4 | 3.08 | 1.56 | 153 | 1 | 66.7 |  |
| $\stackrel{\rightharpoonup}{\infty}$ | ZAI | 322A | -19.0 | 4 | 22.4 | 0.0 | 2.16 | 1.88 | 48 | 1 | 64.7 |  |


|  | ALG | 252A | -250 | 4 | 1.6 | 25.5 | 3.64 | 216 | 152 | 1 | 62.8 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | AND | 341A | -37.0 | 4 | 1.6 | 42.5 | 0.60 | 0.60 | 0 | 2 | 61.5 | 1/0.5 |
|  | ARS | 003A | 17.0 | 4 | 41.1 | 23.8 | 3.52 | 1.68 | 134 | 2 | 62.7 |  |
|  | AUS | 007A | 128.0 | 4 | 145.0 | - 38.1 | 1.83 | 1.39 | 134 | 2 | 63.3 |  |
|  | AUT | 016A | - 19.0 | 4 | 122 | 47.5 | 1.14 | 0.63 | 166 | 2 | 64.1 |  |
|  | BUL | 020A | -1.0 | 4 | 25.0 | 43.0 | 1.04 | 060 | 165 | 1 | 63.6 |  |
|  | CHN | 156A | 620 | 4 | 97.8 | 36.3 | 2.56 | 158 | 157 | 1 | 635 |  |
|  | CHN | 161B | 92.0 | 4 | 118.1 | 31.1 | 2.49 | 1.69 | 117 | 1 | 64.4 |  |
|  | CKN | 053A | 158.0 | 4 | -1630 | - 11.2 | 1.76 | 072 | 30 | 2 | 64.3 |  |
|  | CPV | 301A | -310 | 4 | -24.0 | 16.0 | 0.86 | 070 | 144 | 2 | 62.2 |  |
|  | EGY | 026A | -7.0 | 4 | 29.7 | 26.8 | 2.33 | 1.72 | 136 | 2 | 63.1 |  |
|  | G | 027A | - 31.0 | 4 | -3.5 | 53.8 | 1.84 | 0.72 | 142 | 1 | 65.0 |  |
|  | IND | 040A | 56.0 | 4 | 73.0 | 25.0 | 1.82 | 1.48 | 58 | 2 | 63.6 |  |
|  | IND | 048A | 68.0 | 4 | 86.2 | 25.0 | 1.56 | 090 | 120 | 2 | 63.7 |  |
|  | INS | 028B | 80.0 | 4 | 101.5 | 0.0 | 3.00 | 120 | 133 | 2 | 63.3 |  |
|  | KOR | 112B | 110.0 | 4 | 127.5 | 36.0 | 1.24 | 1.02 | 168 | 2 | 63.6 |  |
|  | LAO | 284B | 74.0 | 4 | 103.7 | 18.1 | 2.16 | 0.78 | 133 | 1 | 63.8 |  |
|  | MAU | 243A | 29.0 | 4 | 56.8 | -13.9 | 1.56 | 1.38 | 65 | 1 | 63.7 |  |
|  | MLA | 228B | 86.0 | 4 | 114.1 | 3.9 | 2.34 | 1.12 | 45 | 1 | 63.6 |  |
|  | MLI | 328A | -37.0 | 4 | -7.6 | 13.2 | 1.74 | 1.24 | 171 | 1 | 63.7 |  |
|  | MLT | 147A | - 13.0 | 4 | 14.3 | 35.9 | 0.60 | 060 | 0 | 1 | 61.0 | 1/0.7 |
|  | MOZ | 307A | -1.0 | 4 | 34.0 | - 18.0 | 3.57 | 1.38 | 55 | 2 | 64.2 |  |
|  | OCE | 101A | -160.0 | 4 | - 145.0 | -16.3 | 4.34 | 3.54 | 4 | 2 | 63.5 |  |
|  | PAK | 283A | 38.0 | 4 | 74.7 | 33.9 | 1.34 | 1.13 | 160 | 1 | 64.3 |  |
|  | PNG | 271A | 128.0 | 4 | 148.0 | -6.7 | 2.80 | 2.05 | 155 | 1 | 63.4 |  |
|  | RRW | 310A | 11.0 | 4 | 30.0 | -2.1 | 0.66 | 0.60 | 42 | 2 | 64.8 |  |
|  | S | 138A | 5.0 | 4 | 16.2 | 61.0 | 1.04 | 0.98 | 14 | 2 | 67.1 |  |
| 0 | STP | 241A | -13.0 | 4 | 7.0 | 0.8 | 0.60 | 0.60 | 0 | 2 | 61.4 | 1/1.3 |
| $\stackrel{\square}{6}$ | TON | 215A | 170.0 | 4 | - 174.7 | -18.0 | 1.41 | 0.68 | 85 | 1 | 63.3 |  |
|  | URS | 060A | 23.0 | 4 | $4{ }^{1.5}$ | 57.4 | 3.08 | 1.56 | 153 | 1 | 66.7 |  |
| $\stackrel{\rightharpoonup}{\infty}$ | ZAI | 322A | -19.0 | 4 | 22.4 | 0.0 | 2.16 | 1.88 | 48 | 1 | 64.7 |  |


|  | ALG | 252A | -250 | 4 | 1.6 | 25.5 | 3.64 | 216 | 152 | 1 | 62.8 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | AND | 341A | -37.0 | 4 | 1.6 | 42.5 | 0.60 | 0.60 | 0 | 2 | 61.5 | 1/0.5 |
|  | ARS | 003A | 17.0 | 4 | 41.1 | 23.8 | 3.52 | 1.68 | 134 | 2 | 62.7 |  |
|  | AUS | 007A | 128.0 | 4 | 145.0 | - 38.1 | 1.83 | 1.39 | 134 | 2 | 63.3 |  |
|  | AUT | 016A | - 19.0 | 4 | 122 | 47.5 | 1.14 | 0.63 | 166 | 2 | 64.1 |  |
|  | BUL | 020A | -1.0 | 4 | 25.0 | 43.0 | 1.04 | 060 | 165 | 1 | 63.6 |  |
|  | CHN | 156A | 620 | 4 | 97.8 | 36.3 | 2.56 | 158 | 157 | 1 | 635 |  |
|  | CHN | 161B | 92.0 | 4 | 118.1 | 31.1 | 2.49 | 1.69 | 117 | 1 | 64.4 |  |
|  | CKN | 053A | 158.0 | 4 | -1630 | - 11.2 | 1.76 | 072 | 30 | 2 | 64.3 |  |
|  | CPV | 301A | -310 | 4 | -24.0 | 16.0 | 0.86 | 070 | 144 | 2 | 62.2 |  |
|  | EGY | 026A | -7.0 | 4 | 29.7 | 26.8 | 2.33 | 1.72 | 136 | 2 | 63.1 |  |
|  | G | 027A | - 31.0 | 4 | -3.5 | 53.8 | 1.84 | 0.72 | 142 | 1 | 65.0 |  |
|  | IND | 040A | 56.0 | 4 | 73.0 | 25.0 | 1.82 | 1.48 | 58 | 2 | 63.6 |  |
|  | IND | 048A | 68.0 | 4 | 86.2 | 25.0 | 1.56 | 090 | 120 | 2 | 63.7 |  |
|  | INS | 028B | 80.0 | 4 | 101.5 | 0.0 | 3.00 | 120 | 133 | 2 | 63.3 |  |
|  | KOR | 112B | 110.0 | 4 | 127.5 | 36.0 | 1.24 | 1.02 | 168 | 2 | 63.6 |  |
|  | LAO | 284B | 74.0 | 4 | 103.7 | 18.1 | 2.16 | 0.78 | 133 | 1 | 63.8 |  |
|  | MAU | 243A | 29.0 | 4 | 56.8 | -13.9 | 1.56 | 1.38 | 65 | 1 | 63.7 |  |
|  | MLA | 228B | 86.0 | 4 | 114.1 | 3.9 | 2.34 | 1.12 | 45 | 1 | 63.6 |  |
|  | MLI | 328A | -37.0 | 4 | -7.6 | 13.2 | 1.74 | 1.24 | 171 | 1 | 63.7 |  |
|  | MLT | 147A | - 13.0 | 4 | 14.3 | 35.9 | 0.60 | 060 | 0 | 1 | 61.0 | 1/0.7 |
|  | MOZ | 307A | -1.0 | 4 | 34.0 | - 18.0 | 3.57 | 1.38 | 55 | 2 | 64.2 |  |
|  | OCE | 101A | -160.0 | 4 | - 145.0 | -16.3 | 4.34 | 3.54 | 4 | 2 | 63.5 |  |
|  | PAK | 283A | 38.0 | 4 | 74.7 | 33.9 | 1.34 | 1.13 | 160 | 1 | 64.3 |  |
|  | PNG | 271A | 128.0 | 4 | 148.0 | -6.7 | 2.80 | 2.05 | 155 | 1 | 63.4 |  |
|  | RRW | 310A | 11.0 | 4 | 30.0 | -2.1 | 0.66 | 0.60 | 42 | 2 | 64.8 |  |
|  | S | 138A | 5.0 | 4 | 16.2 | 61.0 | 1.04 | 0.98 | 14 | 2 | 67.1 |  |
| 0 | STP | 241A | -13.0 | 4 | 7.0 | 0.8 | 0.60 | 0.60 | 0 | 2 | 61.4 | 1/1.3 |
| $\stackrel{\square}{6}$ | TON | 215A | 170.0 | 4 | - 174.7 | -18.0 | 1.41 | 0.68 | 85 | 1 | 63.3 |  |
|  | URS | 060A | 23.0 | 4 | $4{ }^{1.5}$ | 57.4 | 3.08 | 1.56 | 153 | 1 | 66.7 |  |
| $\stackrel{\rightharpoonup}{\infty}$ | ZAI | 322A | -19.0 | 4 | 22.4 | 0.0 | 2.16 | 1.88 | 48 | 1 | 64.7 |  |

$$
\begin{array}{r}
25.5 \\
42.5 \\
23.8 \\
-38.1 \\
47.5 \\
43.0 \\
36.3 \\
31.1 \\
-11.2 \\
16.0 \\
26.8 \\
53.8 \\
25.0 \\
25.0 \\
0.0 \\
36.0 \\
18.1 \\
-13.9 \\
3.9 \\
13.2 \\
35.9 \\
-18.0 \\
-16.3 \\
33.9 \\
-6.7 \\
-2.1 \\
61.0 \\
0.8 \\
-18.0 \\
57.4
\end{array}
$$

|  | ALG | 252A | -250 | 4 | 1.6 | 25.5 | 3.64 | 216 | 152 | 1 | 62.8 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | AND | 341A | -37.0 | 4 | 1.6 | 42.5 | 0.60 | 0.60 | 0 | 2 | 61.5 | 1/0.5 |
|  | ARS | 003A | 17.0 | 4 | 41.1 | 23.8 | 3.52 | 1.68 | 134 | 2 | 62.7 |  |
|  | AUS | 007A | 128.0 | 4 | 145.0 | - 38.1 | 1.83 | 1.39 | 134 | 2 | 63.3 |  |
|  | AUT | 016A | - 19.0 | 4 | 122 | 47.5 | 1.14 | 0.63 | 166 | 2 | 64.1 |  |
|  | BUL | 020A | -1.0 | 4 | 25.0 | 43.0 | 1.04 | 060 | 165 | 1 | 63.6 |  |
|  | CHN | 156A | 620 | 4 | 97.8 | 36.3 | 2.56 | 158 | 157 | 1 | 635 |  |
|  | CHN | 161B | 92.0 | 4 | 118.1 | 31.1 | 2.49 | 1.69 | 117 | 1 | 64.4 |  |
|  | CKN | 053A | 158.0 | 4 | -1630 | - 11.2 | 1.76 | 072 | 30 | 2 | 64.3 |  |
|  | CPV | 301A | -310 | 4 | -24.0 | 16.0 | 0.86 | 070 | 144 | 2 | 62.2 |  |
|  | EGY | 026A | -7.0 | 4 | 29.7 | 26.8 | 2.33 | 1.72 | 136 | 2 | 63.1 |  |
|  | G | 027A | - 31.0 | 4 | -3.5 | 53.8 | 1.84 | 0.72 | 142 | 1 | 65.0 |  |
|  | IND | 040A | 56.0 | 4 | 73.0 | 25.0 | 1.82 | 1.48 | 58 | 2 | 63.6 |  |
|  | IND | 048A | 68.0 | 4 | 86.2 | 25.0 | 1.56 | 090 | 120 | 2 | 63.7 |  |
|  | INS | 028B | 80.0 | 4 | 101.5 | 0.0 | 3.00 | 120 | 133 | 2 | 63.3 |  |
|  | KOR | 112B | 110.0 | 4 | 127.5 | 36.0 | 1.24 | 1.02 | 168 | 2 | 63.6 |  |
|  | LAO | 284B | 74.0 | 4 | 103.7 | 18.1 | 2.16 | 0.78 | 133 | 1 | 63.8 |  |
|  | MAU | 243A | 29.0 | 4 | 56.8 | -13.9 | 1.56 | 1.38 | 65 | 1 | 63.7 |  |
|  | MLA | 228B | 86.0 | 4 | 114.1 | 3.9 | 2.34 | 1.12 | 45 | 1 | 63.6 |  |
|  | MLI | 328A | -37.0 | 4 | -7.6 | 13.2 | 1.74 | 1.24 | 171 | 1 | 63.7 |  |
|  | MLT | 147A | - 13.0 | 4 | 14.3 | 35.9 | 0.60 | 060 | 0 | 1 | 61.0 | 1/0.7 |
|  | MOZ | 307A | -1.0 | 4 | 34.0 | - 18.0 | 3.57 | 1.38 | 55 | 2 | 64.2 |  |
|  | OCE | 101A | -160.0 | 4 | - 145.0 | -16.3 | 4.34 | 3.54 | 4 | 2 | 63.5 |  |
|  | PAK | 283A | 38.0 | 4 | 74.7 | 33.9 | 1.34 | 1.13 | 160 | 1 | 64.3 |  |
|  | PNG | 271A | 128.0 | 4 | 148.0 | -6.7 | 2.80 | 2.05 | 155 | 1 | 63.4 |  |
|  | RRW | 310A | 11.0 | 4 | 30.0 | -2.1 | 0.66 | 0.60 | 42 | 2 | 64.8 |  |
|  | S | 138A | 5.0 | 4 | 16.2 | 61.0 | 1.04 | 0.98 | 14 | 2 | 67.1 |  |
| 0 | STP | 241A | -13.0 | 4 | 7.0 | 0.8 | 0.60 | 0.60 | 0 | 2 | 61.4 | 1/1.3 |
| $\stackrel{\square}{6}$ | TON | 215A | 170.0 | 4 | - 174.7 | -18.0 | 1.41 | 0.68 | 85 | 1 | 63.3 |  |
|  | URS | 060A | 23.0 | 4 | $4{ }^{1.5}$ | 57.4 | 3.08 | 1.56 | 153 | 1 | 66.7 |  |
| $\stackrel{\rightharpoonup}{\infty}$ | ZAI | 322A | -19.0 | 4 | 22.4 | 0.0 | 2.16 | 1.88 | 48 | 1 | 64.7 |  |


|  | ALG | 252A | -250 | 4 | 1.6 | 25.5 | 3.64 | 216 | 152 | 1 | 62.8 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | AND | 341A | -37.0 | 4 | 1.6 | 42.5 | 0.60 | 0.60 | 0 | 2 | 61.5 | 1/0.5 |
|  | ARS | 003A | 17.0 | 4 | 41.1 | 23.8 | 3.52 | 1.68 | 134 | 2 | 62.7 |  |
|  | AUS | 007A | 128.0 | 4 | 145.0 | - 38.1 | 1.83 | 1.39 | 134 | 2 | 63.3 |  |
|  | AUT | 016A | - 19.0 | 4 | 122 | 47.5 | 1.14 | 0.63 | 166 | 2 | 64.1 |  |
|  | BUL | 020A | -1.0 | 4 | 25.0 | 43.0 | 1.04 | 060 | 165 | 1 | 63.6 |  |
|  | CHN | 156A | 620 | 4 | 97.8 | 36.3 | 2.56 | 158 | 157 | 1 | 635 |  |
|  | CHN | 161B | 92.0 | 4 | 118.1 | 31.1 | 2.49 | 1.69 | 117 | 1 | 64.4 |  |
|  | CKN | 053A | 158.0 | 4 | -1630 | - 11.2 | 1.76 | 072 | 30 | 2 | 64.3 |  |
|  | CPV | 301A | -310 | 4 | -24.0 | 16.0 | 0.86 | 070 | 144 | 2 | 62.2 |  |
|  | EGY | 026A | -7.0 | 4 | 29.7 | 26.8 | 2.33 | 1.72 | 136 | 2 | 63.1 |  |
|  | G | 027A | - 31.0 | 4 | -3.5 | 53.8 | 1.84 | 0.72 | 142 | 1 | 65.0 |  |
|  | IND | 040A | 56.0 | 4 | 73.0 | 25.0 | 1.82 | 1.48 | 58 | 2 | 63.6 |  |
|  | IND | 048A | 68.0 | 4 | 86.2 | 25.0 | 1.56 | 090 | 120 | 2 | 63.7 |  |
|  | INS | 028B | 80.0 | 4 | 101.5 | 0.0 | 3.00 | 120 | 133 | 2 | 63.3 |  |
|  | KOR | 112B | 110.0 | 4 | 127.5 | 36.0 | 1.24 | 1.02 | 168 | 2 | 63.6 |  |
|  | LAO | 284B | 74.0 | 4 | 103.7 | 18.1 | 2.16 | 0.78 | 133 | 1 | 63.8 |  |
|  | MAU | 243A | 29.0 | 4 | 56.8 | -13.9 | 1.56 | 1.38 | 65 | 1 | 63.7 |  |
|  | MLA | 228B | 86.0 | 4 | 114.1 | 3.9 | 2.34 | 1.12 | 45 | 1 | 63.6 |  |
|  | MLI | 328A | -37.0 | 4 | -7.6 | 13.2 | 1.74 | 1.24 | 171 | 1 | 63.7 |  |
|  | MLT | 147A | - 13.0 | 4 | 14.3 | 35.9 | 0.60 | 060 | 0 | 1 | 61.0 | 1/0.7 |
|  | MOZ | 307A | -1.0 | 4 | 34.0 | - 18.0 | 3.57 | 1.38 | 55 | 2 | 64.2 |  |
|  | OCE | 101A | -160.0 | 4 | - 145.0 | -16.3 | 4.34 | 3.54 | 4 | 2 | 63.5 |  |
|  | PAK | 283A | 38.0 | 4 | 74.7 | 33.9 | 1.34 | 1.13 | 160 | 1 | 64.3 |  |
|  | PNG | 271A | 128.0 | 4 | 148.0 | -6.7 | 2.80 | 2.05 | 155 | 1 | 63.4 |  |
|  | RRW | 310A | 11.0 | 4 | 30.0 | -2.1 | 0.66 | 0.60 | 42 | 2 | 64.8 |  |
|  | S | 138A | 5.0 | 4 | 16.2 | 61.0 | 1.04 | 0.98 | 14 | 2 | 67.1 |  |
| 0 | STP | 241A | -13.0 | 4 | 7.0 | 0.8 | 0.60 | 0.60 | 0 | 2 | 61.4 | 1/1.3 |
| $\stackrel{\square}{6}$ | TON | 215A | 170.0 | 4 | - 174.7 | -18.0 | 1.41 | 0.68 | 85 | 1 | 63.3 |  |
|  | URS | 060A | 23.0 | 4 | $4{ }^{1.5}$ | 57.4 | 3.08 | 1.56 | 153 | 1 | 66.7 |  |
| $\stackrel{\rightharpoonup}{\infty}$ | ZAI | 322A | -19.0 | 4 | 22.4 | 0.0 | 2.16 | 1.88 | 48 | 1 | 64.7 |  |


|  | ALG | 252A | -250 | 4 | 1.6 | 25.5 | 3.64 | 216 | 152 | 1 | 62.8 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | AND | 341A | -37.0 | 4 | 1.6 | 42.5 | 0.60 | 0.60 | 0 | 2 | 61.5 | 1/0.5 |
|  | ARS | 003A | 17.0 | 4 | 41.1 | 23.8 | 3.52 | 1.68 | 134 | 2 | 62.7 |  |
|  | AUS | 007A | 128.0 | 4 | 145.0 | - 38.1 | 1.83 | 1.39 | 134 | 2 | 63.3 |  |
|  | AUT | 016A | - 19.0 | 4 | 122 | 47.5 | 1.14 | 0.63 | 166 | 2 | 64.1 |  |
|  | BUL | 020A | -1.0 | 4 | 25.0 | 43.0 | 1.04 | 060 | 165 | 1 | 63.6 |  |
|  | CHN | 156A | 620 | 4 | 97.8 | 36.3 | 2.56 | 158 | 157 | 1 | 635 |  |
|  | CHN | 161B | 92.0 | 4 | 118.1 | 31.1 | 2.49 | 1.69 | 117 | 1 | 64.4 |  |
|  | CKN | 053A | 158.0 | 4 | -1630 | - 11.2 | 1.76 | 072 | 30 | 2 | 64.3 |  |
|  | CPV | 301A | -310 | 4 | -24.0 | 16.0 | 0.86 | 070 | 144 | 2 | 62.2 |  |
|  | EGY | 026A | -7.0 | 4 | 29.7 | 26.8 | 2.33 | 1.72 | 136 | 2 | 63.1 |  |
|  | G | 027A | - 31.0 | 4 | -3.5 | 53.8 | 1.84 | 0.72 | 142 | 1 | 65.0 |  |
|  | IND | 040A | 56.0 | 4 | 73.0 | 25.0 | 1.82 | 1.48 | 58 | 2 | 63.6 |  |
|  | IND | 048A | 68.0 | 4 | 86.2 | 25.0 | 1.56 | 090 | 120 | 2 | 63.7 |  |
|  | INS | 028B | 80.0 | 4 | 101.5 | 0.0 | 3.00 | 120 | 133 | 2 | 63.3 |  |
|  | KOR | 112B | 110.0 | 4 | 127.5 | 36.0 | 1.24 | 1.02 | 168 | 2 | 63.6 |  |
|  | LAO | 284B | 74.0 | 4 | 103.7 | 18.1 | 2.16 | 0.78 | 133 | 1 | 63.8 |  |
|  | MAU | 243A | 29.0 | 4 | 56.8 | -13.9 | 1.56 | 1.38 | 65 | 1 | 63.7 |  |
|  | MLA | 228B | 86.0 | 4 | 114.1 | 3.9 | 2.34 | 1.12 | 45 | 1 | 63.6 |  |
|  | MLI | 328A | -37.0 | 4 | -7.6 | 13.2 | 1.74 | 1.24 | 171 | 1 | 63.7 |  |
|  | MLT | 147A | - 13.0 | 4 | 14.3 | 35.9 | 0.60 | 060 | 0 | 1 | 61.0 | 1/0.7 |
|  | MOZ | 307A | -1.0 | 4 | 34.0 | - 18.0 | 3.57 | 1.38 | 55 | 2 | 64.2 |  |
|  | OCE | 101A | -160.0 | 4 | - 145.0 | -16.3 | 4.34 | 3.54 | 4 | 2 | 63.5 |  |
|  | PAK | 283A | 38.0 | 4 | 74.7 | 33.9 | 1.34 | 1.13 | 160 | 1 | 64.3 |  |
|  | PNG | 271A | 128.0 | 4 | 148.0 | -6.7 | 2.80 | 2.05 | 155 | 1 | 63.4 |  |
|  | RRW | 310A | 11.0 | 4 | 30.0 | -2.1 | 0.66 | 0.60 | 42 | 2 | 64.8 |  |
|  | S | 138A | 5.0 | 4 | 16.2 | 61.0 | 1.04 | 0.98 | 14 | 2 | 67.1 |  |
| 0 | STP | 241A | -13.0 | 4 | 7.0 | 0.8 | 0.60 | 0.60 | 0 | 2 | 61.4 | 1/1.3 |
| $\stackrel{\square}{6}$ | TON | 215A | 170.0 | 4 | - 174.7 | -18.0 | 1.41 | 0.68 | 85 | 1 | 63.3 |  |
|  | URS | 060A | 23.0 | 4 | $4{ }^{1.5}$ | 57.4 | 3.08 | 1.56 | 153 | 1 | 66.7 |  |
| $\stackrel{\rightharpoonup}{\infty}$ | ZAI | 322A | -19.0 | 4 | 22.4 | 0.0 | 2.16 | 1.88 | 48 | 1 | 64.7 |  |


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67.1
61.4
63.3
66.7
64.7

$1 / 0.5$

|  | ALG | 252A | -250 | 4 | 1.6 | 25.5 | 3.64 | 216 | 152 | 1 | 62.8 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | AND | 341A | -37.0 | 4 | 1.6 | 42.5 | 0.60 | 0.60 | 0 | 2 | 61.5 | 1/0.5 |
|  | ARS | 003A | 17.0 | 4 | 41.1 | 23.8 | 3.52 | 1.68 | 134 | 2 | 62.7 |  |
|  | AUS | 007A | 128.0 | 4 | 145.0 | - 38.1 | 1.83 | 1.39 | 134 | 2 | 63.3 |  |
|  | AUT | 016A | - 19.0 | 4 | 122 | 47.5 | 1.14 | 0.63 | 166 | 2 | 64.1 |  |
|  | BUL | 020A | -1.0 | 4 | 25.0 | 43.0 | 1.04 | 060 | 165 | 1 | 63.6 |  |
|  | CHN | 156A | 620 | 4 | 97.8 | 36.3 | 2.56 | 158 | 157 | 1 | 635 |  |
|  | CHN | 161B | 92.0 | 4 | 118.1 | 31.1 | 2.49 | 1.69 | 117 | 1 | 64.4 |  |
|  | CKN | 053A | 158.0 | 4 | -1630 | - 11.2 | 1.76 | 072 | 30 | 2 | 64.3 |  |
|  | CPV | 301A | -310 | 4 | -24.0 | 16.0 | 0.86 | 070 | 144 | 2 | 62.2 |  |
|  | EGY | 026A | -7.0 | 4 | 29.7 | 26.8 | 2.33 | 1.72 | 136 | 2 | 63.1 |  |
|  | G | 027A | - 31.0 | 4 | -3.5 | 53.8 | 1.84 | 0.72 | 142 | 1 | 65.0 |  |
|  | IND | 040A | 56.0 | 4 | 73.0 | 25.0 | 1.82 | 1.48 | 58 | 2 | 63.6 |  |
|  | IND | 048A | 68.0 | 4 | 86.2 | 25.0 | 1.56 | 090 | 120 | 2 | 63.7 |  |
|  | INS | 028B | 80.0 | 4 | 101.5 | 0.0 | 3.00 | 120 | 133 | 2 | 63.3 |  |
|  | KOR | 112B | 110.0 | 4 | 127.5 | 36.0 | 1.24 | 1.02 | 168 | 2 | 63.6 |  |
|  | LAO | 284B | 74.0 | 4 | 103.7 | 18.1 | 2.16 | 0.78 | 133 | 1 | 63.8 |  |
|  | MAU | 243A | 29.0 | 4 | 56.8 | -13.9 | 1.56 | 1.38 | 65 | 1 | 63.7 |  |
|  | MLA | 228B | 86.0 | 4 | 114.1 | 3.9 | 2.34 | 1.12 | 45 | 1 | 63.6 |  |
|  | MLI | 328A | -37.0 | 4 | -7.6 | 13.2 | 1.74 | 1.24 | 171 | 1 | 63.7 |  |
|  | MLT | 147A | - 13.0 | 4 | 14.3 | 35.9 | 0.60 | 060 | 0 | 1 | 61.0 | 1/0.7 |
|  | MOZ | 307A | -1.0 | 4 | 34.0 | - 18.0 | 3.57 | 1.38 | 55 | 2 | 64.2 |  |
|  | OCE | 101A | -160.0 | 4 | - 145.0 | -16.3 | 4.34 | 3.54 | 4 | 2 | 63.5 |  |
|  | PAK | 283A | 38.0 | 4 | 74.7 | 33.9 | 1.34 | 1.13 | 160 | 1 | 64.3 |  |
|  | PNG | 271A | 128.0 | 4 | 148.0 | -6.7 | 2.80 | 2.05 | 155 | 1 | 63.4 |  |
|  | RRW | 310A | 11.0 | 4 | 30.0 | -2.1 | 0.66 | 0.60 | 42 | 2 | 64.8 |  |
|  | S | 138A | 5.0 | 4 | 16.2 | 61.0 | 1.04 | 0.98 | 14 | 2 | 67.1 |  |
| 0 | STP | 241A | -13.0 | 4 | 7.0 | 0.8 | 0.60 | 0.60 | 0 | 2 | 61.4 | 1/1.3 |
| $\stackrel{\square}{6}$ | TON | 215A | 170.0 | 4 | - 174.7 | -18.0 | 1.41 | 0.68 | 85 | 1 | 63.3 |  |
|  | URS | 060A | 23.0 | 4 | $4{ }^{1.5}$ | 57.4 | 3.08 | 1.56 | 153 | 1 | 66.7 |  |
| $\stackrel{\rightharpoonup}{\infty}$ | ZAI | 322A | -19.0 | 4 | 22.4 | 0.0 | 2.16 | 1.88 | 48 | 1 | 64.7 |  |

19I-( $\$ 8-910) 0 \varepsilon d V$

11 804,20 MHz (5)


11 823,38 MHz (6)
(986I ^^əy)

| ALG | $251 B$ |
| :--- | :--- |
| ARS | $275 B$ |
| AUS | $006 B$ |
| AUS | $008 B$ |
| BOT | $297 B$ |
| CHN | $154 B$ |
| CHN | $161 C$ |
| CKH | $052 B$ |
| CLN | $219 B$ |
| D | 087B |
| FNL | $103 B$ |
| GNP | $304 B$ |
| GUM | $331 B$ |
| IND | $037 B$ |
| IND | $045 B$ |
| INS | $028 C$ |
| IRL | $211 B$ |
| KOR | $112 C$ |
| LAO | $284 C$ |
| MAU | $242 B$ |
| MLA | $228 C$ |
| MLI | $327 B$ |
| MRL | $333 B$ |
| NCL | $100 B$ |
| PAK | $127 B$ |
| PNG | $131 B$ |
| ROU | $136 B$ |
| TCD | $143 B$ |
| TGO | $226 B$ |
| WAL | $102 B$ |
| YEM | $266 B$ |
| ZAI | $323 B$ |


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| ---: |
| -25.0 |
| 17.0 |
| 98.0 |
| 128.0 |
| -1.0 |
| 62.0 |
| 92.0 |
| 158.0 |
| 50.0 |
| -19.0 |
| 5.0 |
| -31.0 |
| 122.0 |
| 68.0 |
| 56.0 |
| 80.0 |
| -31.0 |
| 110.0 |
| 74.0 |
| 29.0 |
| 86.0 |
| -37.0 |
| 146.0 |
| 140.0 |
| 38.0 |
| 110.0 |
| -1.0 |
| -13.0 |
| -25.0 |
| 140.0 |
| 11.0 |
| -19.0 |


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|  | 4.2 |
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| 48.3 |  |
| 135.4 |  |
| 145.9 |  |
| 23.3 |  |
| 83.9 |  |
| 118.1 |  |
| -161.0 |  |
| 80.6 |  |
| 9.6 |  |
| 22.5 |  |
| -15.0 |  |
| 144.5 |  |
| 93.0 |  |
| 76.2 |  |
| 101.5 |  |
| -8.2 |  |
| 127.5 |  |
| 103.7 |  |
| 59.8 |  |
| 114.1 |  |
| -2.0 |  |
| 166.7 |  |
| 166.0 |  |
| 69.6 |  |
| 147.7 |  |
| 25.0 |  |
| 18.1 |  |
| 0.8 |  |
| -176.8 |  |
| 44.3 |  |
| 21.3 |  |


| 33.2 |
| ---: | ---: |
| 24.6 |
| -30.3 |


| 5 | 1.25 | 172 | 1 | 63.4 |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 4 | 1.20 | 138 | 2 | 62.8 |  |
| 0 | 1.40 | 44 | 1 | 63.3 |  |
| 0 | 2.00 | 120 | 2 | 63.7 |  |
| 3 | 1.50 | 36 | 2 | 63.8 |  |
| 5 | 2.05 | 177 | 1 | 63.3 |  |
| 9 | 1.69 | 117 | 1 | 64.5 |  |
| 2 | 0.64 | 132 | 2 | 64.6 |  |
| 8 | 0.60 | 106 | 1 | 63.6 |  |
| 2 | 0.72 | 147 | 2 | 65.6 |  |
| 8 | 0.76 | 171 | 2 | 67.8 |  |
| O | 0.60 | 172 | 2 | 63.2 |  |
| 00 | 0.60 | 0 | 2 | 63.4 |  |
| 6 | 1.13 | 40 | 2 | 64.0 |  |
| 8 | 1.58 | 21 | 2 | 63.6 |  |
|  | 1.20 | 133 | 2 | 63.3 |  |
| 4 | 0.60 | 162 | 1 | 64.3 |  |
| 4 | 1.02 | 168 | 2 | 63.6 |  |
|  | 0.78 | 133 | 1 | 63.8 |  |
|  | 1.24 | 55 | 1 | 64.0 |  |
| 4 | 1.12 | 45 | 1 | 63.6 |  |
|  | 1.26 | 127 | 1 | 63.2 |  |
|  | 1.50 | 177 | 1 | 63.3 |  |
| 4 | 0.72 | 146 | 1 | 63.8 |  |
| - | 2.16 | 14 | 1 | 64.0 |  |
|  | 2.18 | 169 | 1 | 64.4 |  |
| 8 | 0.66 | 155 | 1 | 63.9 |  |
|  | 1.72 | 107 | 2 | 64.0 |  |
| 2 | 0.60 | 105 | 2 | 63.4 |  |
| 4 | 0.60 | 29 | 1 | 64.4 |  |
| 1 | 0.70 | 109 | 1 | 62.7 |  |
|  | 1.52 | 149 | 1 | 64.7 |  |

$\varepsilon 9 I-(\varsigma 8-q 1 O) 0 \varepsilon d \forall$

11 842,56 MHz (7)


11 861,74 MHz (8)

11 880,92 MHz
(9)

| 1 | $\mathbf{1}$ | $\mathbf{3}$ |  | $\mathbf{4}$ |  |  | $\mathbf{5}$ |  | $\mathbf{6}$ | $\mathbf{7}$ | $\mathbf{8}$ |
| :--- | :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |

(986I ^ләу)

| ALG | 251 C |
| :--- | :--- |
| ARS | 275 C |
| AUS | 006 C |
| AUS | 008 C |
| BOT | 297 C |
| CHN | 154 C |
| CHN | 171 A |
| CHN | 187 A |
| CKH | 052 C |
| CLN | 219 C |
| D | 087 C |
| FNL | 103 C |
| GNP | 304 C |
| GUM | 331 C |
| IND | 037 C |
| IND | 045 C |
| IRL | 211 C |
| KOR | 112 E |
| LAO | 284 E |
| MAU | 242 C |
| MLI | 327 C |
| MRL | 333 C |
| NCL | 100 C |
| PAK | 127 C |
| PNG | 131 C |
| ROU | 136 C |
| TCD | 143 C |
| TGO | 226 C |
| WAL | 102 C |
| YEM | 266 C |
| ZAI | 323 C |


| -25.0 | 10 | 4.2 |
| ---: | ---: | ---: |
| 17.0 | 10 | 48.3 |
| 98.0 | 10 | 135.4 |
| 128.0 | 10 | 145.9 |
| -1.0 | 10 | 23.3 |
| 62.0 | 10 | 83.9 |
| 92.0 | 10 | 117.2 |
| 80.0 | 10 | 106.6 |
| 158.0 | 10 | -161.0 |
| 50.0 | 10 | 80.6 |
| -19.0 | 10 | 9.6 |
| 5.0 | 10 | 22.5 |
| -31.0 | 10 | -15.0 |
| 122.0 | 10 | 144.5 |
| 68.0 | 10 | 93.0 |
| 56.0 | 10 | 76.2 |
| -31.0 | 10 | -8.2 |
| 110.0 | 10 | 127.5 |
| 74.0 | 10 | 103.7 |
| 29.0 | 10 | 59.8 |
| -37.0 | 10 | -2.0 |
| 146.0 | 10 | 166.7 |
| 140.0 | 10 | 166.0 |
| 38.0 | 10 | 69.6 |
| 110.0 | 10 | 147.7 |
| -1.0 | 10 | 25.0 |
| -13.0 | 10 | 18.1 |
| -25.0 | 10 | 0.8 |
| 140.0 | 10 | -176.8 |
| 11.0 | 10 | 44.3 |
| -19.0 | 10 | 21.3 |
|  |  |  |


| 33.2 | 2.45 |
| ---: | ---: |
| 24.6 | 3.84 |
| -30.3 | 2.00 |
| -21.5 | 2.90 |
| -22.2 | 2.13 |
| 40.5 | 2.75 |
| 32.0 | 1.20 |
| 26.7 | 1.14 |
| -19.8 | 1.02 |
| 7.7 | 1.18 |
| 49.9 | 1.62 |
| 64.5 | 1.38 |
| 12.0 | 0.90 |
| 13.1 | 0.60 |
| 25.5 | 1.46 |
| 19.5 | 1.58 |
| 53.2 | 0.84 |
| 36.0 | 1.24 |
| 18.1 | 2.16 |
| -18.9 | 1.62 |
| 19.0 | 2.66 |
| 7.9 | 1.50 |
| -21.0 | 1.14 |
| 29.5 | 2.30 |
| -6.3 | 2.50 |
| 45.7 | 1.38 |
| 15.5 | 3.40 |
| 8.6 | 1.52 |
| -14.0 | 0.74 |
| 15.1 | 1.14 |
| -6.8 | 2.80 |


| 1.25 |
| :--- |
| 1.20 |
| 1.40 |
| 2.00 |
| 1.50 |
| 2.05 |
| 0.74 |
| 0.94 |
| 0.64 |
| 0.60 |
| 0.72 |
| 0.76 |
| 0.60 |
| 0.60 |
| 1.13 |
| 1.58 |
| 0.60 |
| 1.02 |
| 0.78 |
| 1.24 |
| 1.26 |
| 1.50 |
| 0.72 |
| 2.16 |
| 2.18 |
| 0.66 |
| 1.72 |
| 0.60 |
| 0.60 |
| 0.70 |
| 1.52 |


| 172 | 1 |  |
| ---: | ---: | ---: |
| 138 | 2 |  |
| 44 | 1 |  |
| 120 |  |  |
| 36 |  |  |
| 177 |  |  |
| 126 |  |  |
| 179 |  |  |
| 132 |  |  |
| 106 |  |  |
| 147 |  |  |
| 171 |  |  |
| 172 |  |  |
| 0 |  |  |
| 40 |  |  |
| 21 |  |  |
| 162 |  |  |
| 168 |  |  |
| 133 |  |  |
| 55 |  |  |
| 127 | 1 |  |
| 177 | 1 |  |
| 146 | 1 |  |
| 14 | 1 |  |
| 169 | 1 |  |
| 155 | 1 |  |
| 107 |  |  |
| 105 |  |  |
| 29 | 109 | 1 |
| 149 |  |  |


|  |
| :--- |
| 63.5 |
| 62.9 |
| 63.3 |
| 63.8 |
| 63.9 |
| 63.3 |
| 64.2 |
| 64.0 |
| 64.7 |
| 63.7 |
| 65.6 |
| 67.9 |
| 63.2 |
| 63.4 |
| 64.0 |
| 63.6 |
| 64.4 |
| 63.7 |
| 63.9 |
| 64.1 |
| 63.2 |
| 63.4 |
| 63.8 |
| 64.0 |
| 64.5 |
| 63.9 |
| 64.1 |
| 63.5 |
| 64.5 |
| 62.7 |
| 64.7 |

AP30 (Orb-85)-167

11 919,28 MHz
(11)


11 938,46 MHz (12)

| ALG | 252C | -25.0 | 12 | 1.6 | 25.5 | 3.64 | 2.16 | 152 | 1 | 62.9 |  |
| :--- | :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| AND | 341C | -37.0 | 12 | 16 | 42.5 | 0.60 | 0.60 | 0 | 2 | 61.6 | $1 / 0.5$ |
| ARS | 003C | 17.0 | 12 | 41.1 | 23.8 | 3.52 | 1.68 | 134 | 2 | 62.8 |  |
| AUS | $007 C$ | 128.0 | 12 | 145.0 | -38.1 | 1.83 | 1.39 | 134 | 2 | 63.4 |  |
| AUT | $016 C$ | -19.0 | 12 | 122 | 47.5 | 1.14 | 0.63 | 166 | 2 | 64.2 |  |
| BRU | 330A | 74.0 | 12 | 114.7 | 4.4 | 0.60 | 0.60 | 0 | 1 | 62.5 | $1 / 1.3$ |
| BUL | 020C | -1.0 | 12 | 25.0 | 43.0 | 1.04 | 0.60 | 165 | 1 | 63.8 |  |
| CHN | 156C | 62.0 | 12 | 97.8 | 36.3 | 2.56 | 1.58 | 157 | 1 | 63.6 |  |
| CHN | 170A | 92.0 | 12 | 119.5 | 33.0 | 1.34 | 0.64 | 155 | 1 | 64.4 |  |
| CHN | 178A | 80.0 | 12 | 111.5 | 27.4 | 1.22 | 0.86 | 130 | 2 | 64.4 |  |
| CKN | 053C | 158.0 | 12 | -163.0 | -11.2 | 1.76 | 0.72 | 30 | 2 | 64.4 |  |
| CPV | 301C | -31.0 | 12 | -240 | 16.0 | 0.86 | 0.70 | 144 | 2 | 62.3 |  |
| DNK | 089A | 5.0 | 12 | 12.3 | 57.1 | 1.20 | 0.60 | 177 | 2 | 64.3 |  |
| EGY | 026C | -7.0 | 12 | 297 | 26.8 | 2.33 | 1.72 | 136 | 2 | 63.2 |  |
| G | 027C | -31.0 | 12 | -35 | 538 | 1.84 | 0.72 | 142 | 1 | 65.1 |  |
| IND | 040C | 56.0 | 12 | 73.0 | 25.0 | 1.82 | 1.48 | 58 | 2 | 63.8 |  |
| IND | 048C | 68.0 | 12 | 862 | 25.0 | 1.56 | 0.90 | 120 | 2 | 63.8 |  |
| KOR | 112F | 10.0 | 12 | 127.5 | 360 | 1.24 | 1.02 | 168 | 2 | 63.7 |  |
| MAU | 243C | 29.0 | 12 | 56.8 | -13.9 | 1.56 | 1.38 | 65 | 1 | 63.8 |  |
| MLD | 306A | 44.0 | 12 | 73.1 | 6.0 | 0.96 | 0.60 | 90 | 1 | 63.7 |  |
| MLI | 328C | -37.0 | 12 | -7.6 | 13.2 | 1.74 | 1.24 | 171 | 1 | 63.8 |  |
| MLT | 147C | -13.0 | 12 | 14.3 | 35.9 | 0.60 | 0.60 | 0 | 1 | 61.1 | $1 / 0.7$ |
| MOZ | 307C | -1.0 | 12 | 34.0 | -18.0 | 3.57 | 1.38 | 55 | 2 | 64.3 |  |
| OCE | 101C | -160.0 | 12 | -145.0 | -16.3 | 4.34 | 3.54 | 4 | 2 | 63.6 |  |
| PAK | 210A | 38.0 | 12 | 72.1 | 30.8 | 1.16 | 0.72 | 90 | 1 | 63.5 |  |
| PNG | 271C | 128.0 | 12 | 148.0 | -6.7 | 2.80 | 2.05 | 155 | 1 | 63.5 |  |
| RRW | 310C | 11.0 | 12 | 30.0 | -2.1 | 0.66 | 0.60 | 42 | 2 | 64.9 |  |
| STP | 241C | -13.0 | 12 | 7.0 | 0.8 | 0.60 | 0.60 | 0 | 2 | 61.5 | $1 / 1.3$ |
| TON | 215C | 170.0 | 12 | -174.7 | -18.0 | 1.41 | 0.68 | 85 | 1 | 63.4 |  |
| URS | 060C | 23.0 | 12 | 41.5 | 57.4 | 3.08 | 1.56 | 153 | 1 | 66.9 |  |
| URS | 069A | 44.0 | 12 | 708 | 38.5 | 1.36 | 0.74 | 161 | 2 | 64.1 |  |
| ZAI | 322C | -19.0 | 12 | 22.4 | 0.0 | 2.16 | 1.88 | 48 | 1 | 64.8 |  |

11 957,64 MHz
(13)


11 976,82 MHz

|  | ALG | 251D | - 25.0 | 14 | 4.2 | 33.2 | 2.45 | 1.25 | 172 | 1 | 63.6 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | ARS | 275D | 17.0 | 14 | 48.3 | 24.6 | 3.84 | 1.20 | 138 | 2 | 63.0 |  |
|  | AUS | 006D | 98.0 | 14 | 135.4 | -30.3 | 2.00 | 1.40 | 44 | 1 | 63.4 |  |
|  | AUS | 008D | 128.0 | 14 | 145.9 | -21.5 | 2.90 | 2.00 | 120 | 2 | 63.9 |  |
|  | BOT | 297D | -1.0 | 14 | 23.3 | -22.2 | 2.13 | 1.50 | 36 | 2 | 63.9 |  |
|  | BRU | 330B | 74.0 | 14 | 114.7 | 4.4 | 0.60 | 0.60 | 0 | 1 | 62.6 | 1/1.3 |
|  | CHN | 154D | 62.0 | 14 | 83.9 | 40.5 | 2.75 | 2.05 | 177 | 1 | 63.4 |  |
|  | CHN | 172A | 92.0 | 14 | 120.4 | 29.1 | 0.96 | 0.84 | 123 | 1 | 64.3 |  |
|  | CHN | 181A | 80.0 | 14 | 108.5 | 23.8 | 1.41 | 1.08 | 153 | 2 | 64.1 |  |
|  | CKH | 052D | 158.0 | 14 | - 161.0 | - 19.8 | 1.02 | 0.64 | 132 | 2 | 64.8 |  |
|  | CLN | 219D | 50.0 | 14 | 80.6 | 7.7 | 1.18 | 0.60 | 106 | 1 | 63.8 |  |
|  | D | 087D | - 19.0 | 14 | 9.6 | 49.9 | 1.62 | 0.72 | 147 | 2 | 65.7 |  |
|  | GNP | 304D | -31.0 | 14 | -15.0 | 12.0 | 0.90 | 0.60 | 172 | 2 | 63.3 |  |
|  | GUM | 331D | 122.0 | 14 | 144.5 | 13.1 | 0.60 | 0.60 | 0 | 2 | 63.5 |  |
|  | IND | 037D | 68.0 | 14 | 93.0 | 25.5 | 1.46 | 1.13 | 40 | 2 | 64.1 |  |
|  | IND | 045D | 56.0 | 14 | 76.2 | 19.5 | 1.58 | 1.58 | 21 | 2 | 63.7 |  |
|  | IRL | 211D | -31.0 | 14 | -8.2 | 53.2 | 0.84 | 0.60 | 162 | 1 | 64.4 |  |
|  | KRE | 286A | 110.0 | 14 | 127.0 | 39.1 | 1.30 | 1.10 | 31 | 2 | 64.0 |  |
|  | MAU | 242D | 29.0 | 14 | 59.8 | -18.9 | 1.62 | 1.24 | 55 | 1 | 64.1 |  |
|  | MLI | 327D | -37.0 | 14 | -2.0 | 19.0 | 2.66 | 1.26 | 127 | 1 | 63.2 |  |
|  | MRL | 333D | 146.0 | 14 | 166.7 | 7.9 | 1.50 | 1.50 | 177 | 1 | 63.5 |  |
|  | NCL | 100D | 140.0 | 14 | 166.0 | -21.0 | 1.14 | 0.72 | 146 | 1 | 63.9 |  |
|  | NOR | 120A | 5.0 | 14 | 13.1 | 64.1 | 1.84 | 0.88 | 10 | 2 | 65.0 |  |
|  | PAK | 210B | 38.0 | 14 | 72.1 | 30.8 | 1.16 | 0.72 | 90 | 1 | 63.6 |  |
|  | PNG | 131D | 110.0 | 14 | 147.7 | -6.3 | 2.50 | 2.18 | 169 | 1 | 64.6 |  |
|  | ROU | 136D | -1.0 | 14 | 25.0 | 45.7 | 1.38 | 0.66 | 155 | 1 | 64.0 |  |
|  | TCD | 143D | -13.0 | 14 | 18.1 | 15.5 | 3.40 | 1.72 | 107 | 2 | 64.1 |  |
| Q | TGO | 226D | -25.0 | 14 | 0.8 | 8.6 | 1.52 | 0.60 | 105 | 2 | 63.5 |  |
|  | WAL | 102D | 140.0 | 14 | -176.8 | - 14.0 | 0.74 | 0.60 | 29 | 1 | 64.6 |  |
| $\checkmark$ | YEM | 266D | 11.0 | 14 | 44.3 | 15.1 | 1.14 | 0.70 | 109 | 1 | 62.8 |  |
| $\stackrel{\infty}{0}$ | ZAI | 323D | -19.0 | 14 | 21.3 | -6.8 | 2.80 | 1.52 | 149 | 1 | 64.8 |  |

$11996,00 \mathrm{MHz}$ (15)


12 015,18 MHz (16)

|  | ALG | 252D | -25.0 | 16 | 1.6 | 25.5 | 3.64 | 2.16 | 152 | 1 | 63.0 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | AND | 341D | - 37.0 | 16 | 1.6 | 42.5 | 0.60 | 0.60 | 0 | 2 | 61.6 | 1/0.5 |
|  | ARS | 003D | 17.0 | 16 | 41.1 | 23.8 | 3.52 | 1.68 | 134 | 2 | 62.8 |  |
|  | AUS | 007D | 128.0 | 16 | 145.0 | -38.1 | 1.83 | 1.39 | 134 | 2 | 63.5 |  |
|  | AUT | 016D | -19.0 | 16 | 12.2 | 47.5 | 1.14 | 0.63 | 166 | 2 | 64.3 |  |
|  | BUL | 020D | -1.0 | 16 | 25.0 | 43.0 | 1.04 | 0.60 | 165 | 1 | 63.8 |  |
|  | CHN | 169A | 92.0 | 16 | 118.5 | 36.4 | 1.16 | 0.76 | 11 | 1 | 64.7 |  |
|  | CHN | 186A | 62.0 | 16 | 102.5 | 30.2 | 1.91 | 1.23 | 147 | 2 | 65.5 |  |
|  | CKN | 053D | 158.0 | 16 | - 163.0 | - 11.2 | 1.76 | 0.72 | 30 | 2 | 64.5 |  |
|  | CPV | 301D | -31.0 | 16 | -24.0 | 16.0 | 0.86 | 0.70 | 144 | 2 | 62.4 |  |
|  | DNK | 089B | 5.0 | 16 | 12.3 | 57.1 | 1.20 | 0.60 | 177 | 2 | 64.4 |  |
|  | EGY | 026D | -7.0 | 16 | 29.7 | 26.8 | 2.33 | 1.72 | 136 | 2 | 63.3 |  |
|  | G | 027D | - 31.0 | 16 | -3.5 | 53.8 | 1.84 | 0.72 | 142 | 1 | 65.2 |  |
|  | IND | 040D | 56.0 | 16 | 73.0 | 25.0 | 1.82 | 1.48 | 58 | 2 | 63.8 |  |
|  | IND | 048D | 68.0 | 16 | 86.2 | 25.0 | 1.56 | 0.90 | 120 | 2 | 65.5 |  |
|  | KRE | 286B | 110.0 | 16 | 127.0 | 39.1 | 1.30 | 1.10 | 31 | 2 | 64.0 |  |
|  | MAU | 243D | 29.0 | 16 | 56.8 | - 13.9 | 1.56 | 1.38 | 65 | 1 | 63.9 |  |
|  | MLA | 227A | 86.0 | 16 | 102.1 | 4.1 | 1.62 | 0.82 | 135 | 1 | 63.2 | 2 |
|  | MLD | 306B | 44.0 | 16 | 73.1 | 6.0 | 0.96 | 0.60 | 90 | 1 | 63.7 |  |
|  | MLI | 328D | -37.0 | 16 | -7.6 | 13.2 | 1.74 | 1.24 | 171 | 1 | 63.9 |  |
|  | MLT | 147D | - 13.0 | 16 | 14.3 | 35.9 | 0.60 | 0.60 | 0 | 1 | 61.2 | $1 / 0.7$ |
|  | MOZ | 307D | -1.0 | 16 | 34.0 | -18.0 | 3.57 | 1.38 | 55 | 2 | 64.4 |  |
|  | OCE | 101D | -160.0 | 16 | - 145.0 | -16.3 | 4.34 | 3.54 | 4 | 2 | 63.7 |  |
|  | PHL | 285A | 98.0 | 16 | 121.3 | 11.1 | 3.46 | 1.76 | 99 | 2 | 63.7 |  |
|  | RRW | 310D | 11.0 | 16 | 30.0 | -2.1 | 0.66 | 0.60 | 42 | 2 | 65.0 |  |
|  | STP | 241D | -13.0 | 16 | 7.0 | 0.8 | 0.60 | 0.60 | 0 | 2 | 61.6 | 1/1.3 |
| O | TON | 215D | 170.0 | 16 | - 174.7 | -18.0 | 1.41 | 0.68 | 85 | 1 | 63.5 |  |
| $\bigcirc$ | URS | 060D | 23.0 | 16 | 41.5 | 57.4 | 3.08 | 1.56 | 153 | 1 | 66.9 |  |
| $\checkmark$ | URS | 069B | 44.0 | 16 | 70.8 | 38.5 | 1.36 | 0.74 | 161 | 2 | 64.1 |  |
| $\stackrel{\infty}{\infty}$ | ZAI | 322D | -19.0 | 16 | 22.4 | 0.0 | 2.16 | 1.88 | 48 | 1 | 64.9 |  |

$\varepsilon L I-\left(\varsigma 8-q{ }^{1} O\right) 0 \varepsilon d V$

12 034,36 MHz (17)

| 1 |  | 2 | 3 | 4 |  |  |  | 6 | 7 | 8 | 9 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| AUS | 005E | 98.0 | 17 | 133.5 | - 18.8 | 2.70 | 1.40 | 76 | 2 | 64.5 |  |  |
| BRM | 298A | 74.0 | 17 | 97.1 | 19.1 | 3.58 | 1.48 | 104 | 2 | 63.9 |  |  |
| CAR | 338E | 122.0 | 17 | 149.5 | 8.0 | 5.36 | 0.77 | 178 | 1 | 62.7 |  |  |
| CHN | 167A | 92.0 | 17 | 124.3 | 43.7 | 1.98 | 0.72 | 156 | 2 | 64.7 |  |  |
| CHN | 182A | 80.0 | 17 | 108.7 | 35.1 | 1.42 | 0.88 | 109 | 1 | 64.2 |  |  |
| CME | 300E | - 13.0 | 17 | 12.7 | 6.2 | 2.54 | 1.68 | 87 | 1 | 63.6 |  |  |
| F | 093E | - 19.0 | 17 | 2.6 | 45.9 | 2.50 | 0.98 | 160 | 1 | 64.0 |  |  |
| GUI | 192E | -37.0 | 17 | -11.0 | 10.2 | 1.58 | 1.04 | 147 | 2 | 63.7 |  |  |
| IND | 038A | 56.0 | 17 | 75.9 | 33.4 | 1.52 | 1.08 | 33 | 1 | 64.3 |  |  |
| IND | 046A | 68.0 | 17 | 84.7 | 20.5 | 1.60 | 0.86 | 30 | 1 | 63.6 |  |  |
| INS | 032A | 80.0 | 17 | 112.3 | -0.3 | 2.66 | 2.32 | 109 | 2 | 64.0 |  |  |
| LBY | 280E | -25.0 | 17 | 21.4 | 26.0 | 2.50 | 1.04 | 119 | 2 | 63.7 |  |  |
| MDG | 236E | 29.0 | 17 | 46.6 | -18.8 | 2.72 | 1.14 | 65 | 2 | 63.5 |  |  |
| NPL | 122A | 50.0 | 17 | 83.7 | 28.3 | 1.72 | 0.60 | 163 | 2 | 64.6 |  |  |
| NZL | 287B | 128.0 | 17 | 173.0 | -41.0 | 3.30 | 1.28 | 48 | 1 | 64.8 |  |  |
| PLM | 337 E | 170.0 | 17 | - 161.4 | 7.0 | 0.60 | 0.60 | 0 | 1 | 62.6 |  |  |
| POI. | 132 E | -1.0 | 17 | 19.3 | 51.8 | 1.46 | 0.64 | 162 | 2 | 64.3 |  |  |
| QAT | 247E | 17.0 | 17 | 51.1 | 25.3 | 0.60 | 0.60 | 0 | 1 | 62.0 | 1/1.6 | 2 |
| SMA | 335E | 170.0 | 17 | - 170.1 | - 14.2 | 0.60 | 0.60 | 0 | 2 | 61.4 | 1/0.9 |  |
| SMR | 311 E | -37.0 | 17 | 12.6 | 43.7 | 0.60 | 0.60 | 0 | 1 | 62.7 | 1/0.8 |  |
| SWZ | 313E | - 1.0 | 17 | 31.5 | -26.5 | 0.62 | 0.60 | 66 | 1 | 63.0 | 1/1.7 |  |
| TUR | 145E | 5.0 | 17 | 34.4 | 38.9 | 2.68 | 1.04 | 168 | 1 | 63.9 |  |  |
| URS | 064E | 23.0 | 17 | 45.6 | 40.8 | 2.16 | 0.60 | 163 | 2 | 641 |  |  |
| WAK | 334E | 140.0 | 17 | 166.5 | 19.2 | 0.60 | 0.60 | 0 | 1 | 63.8 |  |  |
| YMS | 267E | 11.0 | 17 | 48.8 | 15.2 | 1.76 | 154 | 176 | 2 | 63.0 |  |  |

$12 \mathbf{0 5 3 , 5 4} \mathbf{M H z}$
(986I ^^әу)

| ALG | 251E | -25.0 | 18 | 4.2 | 332 | 2.45 | 1.25 | 172 | 1 | 63.6 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ARS | 275E | 17.0 | 18 | 48.3 | 24.6 | 3.84 | 120 | 138 | 2 | 63.0 |  |
| AUS | 006E | 98.0 | 18 | 135.4 | -30.3 | 2.00 | 1.40 | 44 | 1 | 63.4 |  |
| AUS | 008E | 128.0 | 18 | 145.9 | -21.5 | 2.90 | 2.00 | 120 | 2 | 63.9 |  |
| BGD | 220B | 74.0 | 18 | 90.3 | 23.6 | 1.46 | 0.84 | 135 | 1 | 637 |  |
| BOT | 297E | -1.0 | 18 | 23.3 | -22.2 | 2.13 | 1.50 | 36 | 2 | 64.0 |  |
| CBG | 299A | 68.0 | 18 | 105.0 | 12.7 | 1.01 | 0.90 | 110 | 1 | 64.3 |  |
| CHN | 159A | 80.0 | 18 | 109.4 | 27.3 | 2.14 | 1.72 | 107 | 2 | 64.5 |  |
| CHN | 185A | 62.0 | 18 | 95.7 | 35.4 | 2.10 | 1.14 | 156 | 1 | 63.4 |  |
| D | 087E | - 19.0 | 18 | 9.6 | 49.9 | 1.62 | 0.72 | 147 | 2 | 65.7 |  |
| GNP | 304E | -31.0 | 18 | -15.0 | 12.0 | 0.90 | 060 | 172 | 2 | 63.3 |  |
| GUM | 331E | 122.0 | 18 | 144.5 | 13.1 | 0.60 | 0.60 | 0 | 2 | 63.5 |  |
| IND | 041A | 56.0 | 18 | 78.4 | 16.0 | 2.08 | 1.38 | 35 | 2 | 63.8 |  |
| IND | 042A | 68.0 | 18 | 79.3 | 27.7 | 2.14 | 1.16 | 147 | 2 | 63.8 |  |
| INS | 030A | 80.0 | 18 | 1123 | -8.1 | 3.14 | 1.46 | 169 | 1 | 64.2 |  |
| IRL | 211E | - 31.0 | 18 | -8.2 | 53.2 | 0.84 | 0.60 | 162 | 1 | 64.5 |  |
| KRE | 286C | 110.0 | 18 | 127.0 | 39.1 | 1.30 | 1.10 | 31 | 2 | 64.0 |  |
| MAU | 242E | 29.0 | 18 | 59.8 | - 18.9 | 1.62 | 1.24 | 55 | 1 | 64.2 |  |
| MLA | 227B | 86.0 | 18 | 102.1 | 4.1 | 1.62 | 0.82 | 135 | 1 | 63.3 |  |
| MLI | 327E | -37.0 | 18 | -2.0 | 19.0 | 2.66 | 1.26 | 127 | 1 | 63.2 |  |
| MRL | 333E | 146.0 | 18 | 166.7 | 7.9 | 1.50 | 1.50 | 177 | 1 | 63.5 |  |
| NOR | 120B | 5.0 | 18 | 13.1 | 64.1 | 1.84 | 0.88 | 10 | 2 | 65.0 |  |
| PAK | 281A | 38.0 | 18 | 65.2 | 27.9 | 1.52 | 1.42 | 28 | 1 | 63.0 |  |
| PHL | 285B | 98.0 | 18 | 121.3 | 11.1 | 3.46 | 1.76 | 99 | 2 | 63.7 |  |
| ROU | 136E | -1.0 | 18 | 25.0 | 45.7 | 1.38 | 0.66 | 155 | 1 | 64.0 |  |
| TCD | 143E | - 13.0 | 18 | 18.1 | 15.5 | 3.40 | 1.72 | 107 | 2 | 64.2 |  |
| TGO | 226E | -25.0 | 18 | 0.8 | 8.6 | 1.52 | 0.60 | 105 | 2 | 63.6 |  |
| URS | 070A | 44.0 | 18 | 73.9 | 41.0 | 1.34 | 0.84 | 5 | 2 | 64.5 |  |
| YEM | 266E | 11.0 | 18 | 44.3 | 15.1 | 1.14 | 0.70 | 109 | 1 | 62.8 |  |
| ZAI | 323E | -19.0 | 18 | 21.3 | -6.8 | 2.80 | 1.52 | 149 | 1 | 64.9 |  |

12 072,72 MHz (19)


12 091,90 MHz (20)

| ALG | 252E | - 25.0 | 20 | 1.6 | 25.5 | 3.64 | 2.16 | 152 | 1 | 63.0 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| AND | 341 E | -37.0 | 20 | 1.6 | 42.5 | 0.60 | 0.60 | 0 | 2 | 61.7 | 1/0.5 |
| ARS | 003E | 17.0 | 20 | 411 | 23.8 | 3.52 | 1.68 | 134 | 2 | 62.9 |  |
| AUS | 007E | 128.0 | 20 | 145.0 | -38.1 | 1.83 | 1.39 | 134 | 2 | 63.5 |  |
| AUT | 016E | -190 | 20 | 12.2 | 47.5 | 1.14 | 0.63 | 166 | 2 | 64.3 |  |
| BGD | 220C | 74.0 | 20 | 90.3 | 23.6 | 146 | 0.84 | 135 | 1 | 63.7 |  |
| BUL | 020E | -10 | 20 | 25.0 | 43.0 | 1.04 | 0.60 | 165 | 1 | 63.9 |  |
| CBG | 299B | 68.0 | 20 | 105.0 | 12.7 | 1.01 | 0.90 | 110 | 1 | 64.3 |  |
| CHN | 159B | 80.0 | 20 | 109.4 | 27.3 | 2.14 | 1.72 | 107 | 2 | 64.6 |  |
| CHN | 184A | 62.0 | 20 | 101.0 | 37.9 | 2.78 | 0.82 | 144 | 1 | 63.7 |  |
| CPV | 301 E | -310 | 20 | -240 | 16.0 | 0.86 | 0.70 | 144 | 2 | 62.4 |  |
| DNK | 089C | 5.0 | 20 | 12.3 | 57.1 | 1.20 | 0.60 | 177 | 2 | 64.4 |  |
| EGY | 026E | - 7.0 | 20 | 29.7 | 26.8 | 2.33 | 1.72 | 136 | 2 | 63.3 |  |
| G | 027E | -31.0 | 20 | -3.5 | 53.8 | 1.84 | 0.72 | 142 | 1 | 65.2 |  |
| IND | 041B | 56.0 | 20 | 784 | 16.0 | 2.08 | 1.38 | 35 | 2 | 63.8 |  |
| IND | 042B | 68.0 | 20 | 79.3 | 27.7 | 2.14 | 1.16 | 147 | 2 | 63.8 |  |
| INS | 030B | 80.0 | 20 | 112.3 | -8.1 | 3.14 | 1.46 | 169 | 1 | 64.2 |  |
| KRE | 286D | 110.0 | 20 | 127.0 | 39.1 | 1.30 | 1.10 | 31 | 2 | 64.0 |  |
| MLA | 227C | 86.0 | 20 | 1021 | 41 | 1.62 | 0.82 | 135 | 1 | 63.3 |  |
| MLI | 328E | -37.0 | 20 | -7.6 | 13.2 | 1.74 | 1.24 | 171 | 1 | 63.9 |  |
| MOZ | 307E | -10 | 20 | 34.0 | -18.0 | 3.57 | 1.38 | 55 | 2 | 64.4 |  |
| PAK | 282A | 38.0 | 20 | 68.5 | 25.8 | 1.32 | 0.62 | 133 | 1 | 63.3 |  |
| PHL | 285C | 98.0 | 20 | 121.3 | 11.1 | 3.46 | 1.76 | 99 | 2 | 63.7 |  |
| RRW | 310E | 11.0 | 20 | 30.0 | -2.1 | 0.66 | 0.60 | 42 | 2 | 65.0 |  |
| STP | 241 E | - 13.0 | 20 | 7.0 | 0.8 | 0.60 | 0.60 | 0 | 2 | 61.7 | 1/1.3 |
| TKL | 058A | 158.0 | 20 | -171.8 | -8.9 | 0.70 | 0.60 | 35 | 1 | 63.8 |  |
| URS | 065A | 23.0 | 20 | 32.4 | 63.1 | 1.18 | 0.60 | 175 | 1 | 66.6 |  |
| URS | 066A | 44.0 | 20 | 64.3 | 44.6 | 4.56 | 2.48 | 169 | 2 | 65.4 |  |
| URS | 079A | 140.0 | 20 | 138.0 | 53.6 | 3.16 | 2.12 | 62 | 2 | 67.7 |  |
| ZAI | 322E | -19.0 | 20 | 22.4 | 0.0 | 2.16 | 1.88 | 48 | 1 | 64.9 |  |

LLI-(58-qIO) $0 \varepsilon d V$
$12111,08 \mathrm{MHz}$ (21)

$12 \mathbf{1 3 0 , 2 6 ~ M H z}$
AP30 (Orb-85)-179

12 149,44 MHz

| $\boldsymbol{1}$ | $\mathbf{2}$ | $\mathbf{3}$ | $\mathbf{4}$ |  | $\mathbf{5}$ |  | $\mathbf{6}$ | $\mathbf{7}$ | $\mathbf{8}$ |  |  |
| :--- | :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| AGL | 295A | -13.0 | 23 | 16.5 | -12.0 | 3.09 | 2.26 | 84 | 1 | 64.1 |  |
| ARS | 340A | 17.0 | 23 | 52.3 | 24.8 | 2.68 | 0.70 | 143 | 1 | 63.2 |  |
| AUS | 004F | 98.0 | 23 | 121.8 | -24.9 | 3.60 | 1.90 | 54 | 2 | 63.3 |  |
| AUS | 009F | 128.0 | 23 | 147.2 | -32.0 | 2.10 | 1.40 | 15 | 1 | 64.3 |  |
| BRM | 298D | 74.0 | 23 | 97.1 | 19.1 | 3.58 | 1.48 | 104 | 2 | 64.0 |  |
| CHN | 158C | 80.0 | 23 | 111.8 | 38.0 | 2.60 | 1.74 | 124 | 1 | 65.0 |  |
| CNR | 130A | -31.0 | 23 | -15.7 | 28.4 | 1.54 | 0.60 | 5 | 2 | 62.8 |  |
| CVA | 085A | -37.0 | 23 | 10.8 | 41.5 | 2.00 | 0.60 | 138 | 1 | 63.6 | $1 / 1.5$ |
| E | 129A | -31.0 | 23 | -3.1 | 39.9 | 2.10 | 1.14 | 154 | 2 | 63.9 |  |
| GHA | 108A | -25.0 | 23 | -1.2 | 7.9 | 148 | 1.06 | 102 | 1 | 63.6 |  |
| GNE | 303A | -19.0 | 23 | 10.3 | 1.5 | 0.68 | 0.60 | 10 | 2 | 63.8 |  |
| HOL | 213A | -19.0 | 23 | 5.4 | 52.0 | 0.76 | 0.60 | 171 | 1 | 644 |  |
| IND | 038D | 56.0 | 23 | 75.9 | 33.4 | 1.52 | 1.08 | 33 | 1 | 64.4 |  |
| IND | 046D | 68.0 | 23 | 84.7 | 20.5 | 1.60 | 0.86 | 30 | 1 | 63.7 |  |
| INS | 032D | 80.0 | 23 | 112.3 | -0.3 | 2.66 | 2.32 | 109 | 2 | 64.1 |  |
| ISL | 050A | 5.0 | 23 | -19.5 | 61.0 | 2.20 | 0.80 | 4 | 1 | 66.3 | 3 |
| JOR | 224A | 11.0 | 23 | 35.8 | 31.4 | 0.84 | 0.78 | 114 | 2 | 63.1 |  |
| NIU | 054B | 158.0 | 23 | -169.8 | -19.0 | 0.60 | 0.60 | 0 | 2 | 64.1 |  |
| SDN | 230A | -7.0 | 23 | 29.2 | 7.5 | 2.34 | 1.12 | 148 | 2 | 64.4 |  |
| SRL | 259A | -31.0 | 23 | -11.8 | 8.6 | 0.78 | 0.68 | 114 | 1 | 63.4 |  |
| TGK | 225A | 11.0 | 23 | 34.6 | -6.2 | 2.41 | 1.72 | 129 | 1 | 63.7 |  |
| URS | 061F | 23.0 | 23 | 24.7 | 56.6 | 0.88 | 0.64 | 12 | 2 | 65.3 |  |
| URS | 064F | 23.0 | 23 | 45.6 | 40.8 | 2.16 | 0.60 | 163 | 1 | 64.2 |  |
| URS | 077B | 110.0 | 23 | 112.7 | 573 | 2.67 | 1.75 | 2 | 1 | 66.1 |  |
| YUG | 149A | -7.0 | 23 | 18.4 | 43.7 | 1.68 | 0.66 | 154 | 1 | 65.2 |  |

12 168,62 MHz (24)

| AUS | 007F | 128.0 | 24 | 145.0 | -38.1 | 1.83 | 1.39 | 134 | 2 | 63.6 |  |
| :--- | :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| BGD | 220E | 74.0 | 24 | 90.3 | 23.6 | 1.46 | 0.84 | 135 | 1 | 63.8 |  |
| CAF | 258A | -13.0 | 24 | 21.0 | 6.3 | 2.25 | 1.68 | 31 | 2 | 64.3 |  |
| CBG | 299D | 68.0 | 24 | 105.0 | 12.7 | 1.01 | 0.90 | 110 | 1 | 64.3 |  |
| CHN | 166A | 92.0 | 24 | 121.1 | 41.7 | 1.52 | 0.78 | 154 | 2 | 64.5 |  |
| CHN | 177A | 80.0 | 24 | 111.8 | 30.8 | 1.42 | 0.82 | 160 | 2 | 64.7 |  |
| CHN | 188A | 62.0 | 24 | 101.5 | 25.1 | 1.86 | 1.08 | 132 | 2 | 65.0 |  |
| DNK | 090A | 5.0 | 24 | 17.0 | 61.5 | 2.00 | 1.00 | 10 | 2 | 67.5 |  |
| I | 082A | -19.0 | 24 | 12.3 | 41.3 | 2.38 | 0.98 | 137 | 2 | 64.1 |  |
| IND | 041D | 56.0 | 24 | 78.4 | 16.0 | 2.08 | 1.38 | 35 | 2 | 63.9 |  |
| IND | 042D | 68.0 | 24 | 79.3 | 27.7 | 2.14 | 1.16 | 147 | 2 | 63.9 |  |
| INS | 030D | 80.0 | 24 | 112.3 | -8.1 | 3.14 | 1.46 | 169 | 1 | 64.3 |  |
| IRQ | 256A | 11.0 | 24 | 43.6 | 32.8 | 1.88 | 0.96 | 143 | 1 | 63.3 | 2 |
| LSO | 305A | 5.0 | 24 | 27.8 | -29.8 | 0.66 | 0.60 | 36 | 1 | 64.2 |  |
| MLA | $227 E$ | 86.0 | 24 | 102.1 | 4.1 | 1.62 | 0.82 | 135 | 1 | 63.4 |  |
| MTN | 288A | -37.0 | 24 | -7.8 | 23.4 | 1.63 | 1.10 | 141 | 1 | 63.0 |  |
| MWI | $308 A$ | -1.0 | 24 | 34.1 | -13.0 | 1.54 | 0.60 | 87 | 2 | 64.2 |  |
| MYT | 098A | 29.0 | 24 | 45.1 | -12.8 | 0.60 | 0.60 | 0 | 1 | 63.4 |  |
| NGR | 115A | -25.0 | 24 | 8.3 | 16.8 | 2.54 | 2.08 | 44 | 2 | 64.5 |  |
| OMA | 123A | 17.0 | 24 | 55.6 | 21.0 | 1.88 | 1.02 | 100 | 2 | 63.3 |  |
| PAK | 282B | 38.0 | 24 | 68.5 | 25.8 | 1.32 | 0.62 | 133 | 1 | 63.4 |  |
| PHL | 285E | 98.0 | 24 | 121.3 | 11.1 | 3.46 | 1.76 | 99 | 2 | 63.8 |  |
| SDN | 232A | -7.0 | 24 | 30.4 | 19.0 | 2.44 | 1.52 | 176 | 1 | 63.3 |  |
| TKL | $058 B$ | 158.0 | 24 | -171.8 | -8.9 | 0.70 | 0.60 | 35 | 1 | 63.9 |  |
| URS | $066 B$ | 44.0 | 24 | 64.3 | 44.6 | 4.56 | 2.48 | 169 | 2 | 65.4 |  |
| URS | $079 B$ | 140.0 | 24 | 138.0 | 53.6 | 3.16 | 2.12 | 62 | 2 | 67.8 |  |

$12 \mathbf{1 8 7 , 8 0} \mathbf{M H z}$ (25)

| $\mathbf{1}$ | $\mathbf{2}$ | $\mathbf{3}$ | $\mathbf{4}$ |  | 5 |  | $\mathbf{6}$ | $\mathbf{7}$ | $\mathbf{8}$ |  |  |
| :--- | :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| AFI | 099B | 23.0 | 25 | 42.5 | 11.6 | 0.60 | 0.60 | 0 | 1 | 62.6 |  |
| BEL | 018B | -19.0 | 25 | 4.6 | 50.6 | 0.82 | 0.60 | 167 | 1 | 641 |  |
| BLR | 062B | 23.0 | 25 | 27.8 | 52.6 | 1.08 | 0.72 | 1 | 2 | 649 |  |
| CYP | 086B | 5.0 | 25 | 33.3 | 35.1 | 0.60 | 0.60 | 0 | 1 | 636 |  |
| DDR | 216B | -1.0 | 25 | 12.6 | 52.1 | 0.83 | 0.63 | 172 | 2 | 64.3 |  |
| HVO | 107B | -31.0 | 25 | -1.5 | 12.2 | 1.45 | 1.14 | 29 | 1 | 64.0 |  |
| IFB | 021B | 5.0 | 25 | 24.5 | -28.0 | 3.13 | 1.68 | 27 | 2 | 64.1 | 4 |
| ISL | 049B | -31.0 | 25 | -19.0 | 64.9 | 1.00 | 0.60 | 177 | 2 | 65.9 |  |
| ISR | 110A | -13.0 | 25 | 34.9 | 31.4 | 0.94 | 0.60 | 117 | 2 | 63.8 |  |
| KEN | 249B | 11.0 | 25 | 379 | 1.1 | 2.29 | 1.56 | 94 | 1 | 63.8 |  |
| MCO | 116B | -37.0 | 25 | 7.4 | 43.7 | 0.60 | 0.60 | 0 | 1 | 62.5 | $1 / 0.5$ |
| MNG | 248A | 74.0 | 25 | 102.2 | 46.6 | 3.60 | 1.13 | 169 | 1 | 641 |  |
| MRC | 209B | -25.0 | 25 | -9.0 | 29.2 | 2.72 | 1.47 | 43 | 2 | 63.3 |  |
| NMB | 025A | -19.0 | 25 | 17.5 | -21.6 | 2.66 | 1.90 | 48 | 2 | 64.7 |  |
| SEN | 222B | -37.0 | 25 | -14.4 | 13.8 | 1.46 | 1.04 | 139 | 2 | 63.7 |  |
| UAE | 274B | 17.0 | 25 | 53.6 | 24.2 | 0.98 | 0.80 | 162 | 1 | 63.2 |  |
| URS | 078A | 110.0 | 25 | 108.2 | 53.4 | 2.16 | 0.78 | 10 | 1 | 65.0 |  |
| YUG | 148B | -7.0 | 25 | 184 | 43.7 | 1.68 | 0.66 | 154 | 1 | 65.3 |  |

12 206,98 MHz (26)

| ALB | 296B | -70 | 26 | 19.8 | 413 | 0.68 | 0.60 | 146 | 2 | 63.8 |  |
| :--- | :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| BDI | 270B | 11.0 | 26 | 29.9 | -31 | 0.71 | 0.60 | 80 | 2 | 63.4 |  |
| COG | 235B | -13.0 | 26 | 14.6 | -07 | 2.02 | 1.18 | 59 | 2 | 63.8 |  |
| CTI | 237B | -31.0 | 26 | -56 | 7.5 | 1.60 | 1.22 | 108 | 2 | 63.7 |  |
| ETH | 092B | 23.0 | 26 | 397 | 9.1 | 3.50 | 2.40 | 124 | 2 | 63.5 |  |
| FNL | 104B | 5.0 | 26 | 17.0 | 61.5 | 2.00 | 1.00 | 10 | 2 | 67.5 |  |
| HNG | 106B | -1.0 | 26 | 19.5 | 47.2 | 0.92 | 0.60 | 176 | 1 | 64.0 |  |
| IFB | 135B | -1.0 | 26 | 29.6 | -18.8 | 1.46 | 136 | 37 | 2 | 64.2 | 4 |
| KWT | 113B | 17.0 | 26 | 47.6 | 29.2 | 0.68 | 0.60 | 145 | 2 | 63.1 |  |
| MTN | 223B | -37.0 | 26 | -12.2 | 185 | 2.62 | 1.87 | 150 | 1 | 62.9 |  |
| NIG | 119B | -19.0 | 26 | 7.8 | 9.4 | 2.16 | 2.02 | 45 | 1 | 63.9 |  |
| REU | 097B | 29.0 | 26 | 55.6 | -19.2 | 1.56 | 0.78 | 96 | 1 | 64.0 |  |
| SDN | 231B | -7.0 | 26 | 28.9 | 12.7 | 2.26 | 1.96 | 159 | 1 | 63.5 |  |
| SUI | 140B | -19.0 | 26 | 8.2 | 46.6 | 0.98 | 0.70 | 171 | 2 | 64.1 |  |
| SYR | 229B | 11.0 | 26 | 38.3 | 34.9 | 1.04 | 0.90 | 7 | 1 | 63.3 |  |
| TUN | 150B | -25.0 | 26 | 9.5 | 33.5 | 1.88 | 0.72 | 135 | 1 | 63.9 |  |
| URS | 068A | 44.0 | 26 | 59.0 | 38.8 | 2.24 | 1.00 | 164 | 2 | 64.0 |  |
| URS | 074A | 74.0 | 26 | 88.8 | 57.6 | 3.08 | 168 | 162 | 2 | 67.9 |  |
| URS | 080A | 140.0 | 26 | 155.3 | 55.4 | 2.90 | 2.36 | 35 | 1 | 67.9 |  |

12 226,16 MHz (27)

| $\mathbf{1}$ | $\mathbf{2}$ | $\mathbf{3}$ |  | $\mathbf{4}$ |  | $\mathbf{5}$ |  | $\mathbf{6}$ | $\mathbf{7}$ | $\mathbf{8}$ |  |
| :--- | :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| AGL | 295B | -13.0 | 27 | 16.5 | -12.0 | 3.09 | 2.26 | 84 | 1 | 64.2 |  |
| BHR | 255A | 17.0 | 27 | 50.5 | 26.1 | 0.60 | 0.60 | 0 | 1 | 60.8 | $1 / 0.7$ |
| CNR | 130B | -31.0 | 27 | -15.7 | 28.4 | 1.54 | 0.60 | 5 | 2 | 62.8 |  |
| CVA | 083A | -37.0 | 27 | 12.4 | 41.8 | 0.60 | 0.60 | 0 | 1 | 65.2 |  |
| DNK | 091A | 5.0 | 27 | -19.5 | 61.0 | 2.20 | 0.80 | 4 | 1 | 66.2 | 3 |
| E | 129B | -31.0 | 27 | -3.1 | 39.9 | 2.10 | 1.14 | 154 | 2 | 64.0 |  |
| GHA | 108B | -25.0 | 27 | -1.2 | 7.9 | 1.48 | 1.06 | 102 | 1 | 63.7 |  |
| GNE | 303B | -19.0 | 27 | 10.3 | 1.5 | 0.68 | 0.60 | 10 | 2 | 63.8 |  |
| HOL | 213B | -19.0 | 27 | 5.4 | 52.0 | 0.76 | 0.60 | 171 | 1 | 64.5 |  |
| JOR | 224B | 11.0 | 27 | 35.8 | 31.4 | 0.84 | 0.78 | 114 | 2 | 63.1 |  |
| SDN | 230B | -7.0 | 27 | 29.2 | 7.5 | 2.34 | 1.12 | 148 | 2 | 64.5 |  |
| SRL | 259B | -31.0 | 27 | -11.8 | 8.6 | 0.78 | 0.68 | 114 | 1 | 63.5 |  |
| TGK | 225B | 11.0 | 27 | 34.6 | -6.2 | 2.41 | 1.72 | 129 | 1 | 63.8 |  |
| URS | 059A | 23.0 | 27 | 36.0 | 47.0 | 3.70 | 1.43 | 153 | 2 | 65.2 |  |
| URS | 077C | 110.0 | 27 | 112.7 | 57.3 | 2.67 | 1.75 | 2 | 1 | 67.2 |  |
| YUG | 149B | -7.0 | 27 | 18.4 | 43.7 | 1.68 | 0.66 | 154 | 1 | 65.3 |  |

12 245,34 MHz (28)

| CAF | $258 B$ | -13.0 | 28 | 210 | 6.3 | 2.25 | 1.68 | 31 | 2 | 64.3 |  |
| :--- | :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| I | 082B | -19.0 | 28 | 12.3 | 413 | 238 | 0.98 | 137 | 2 | 64.2 |  |
| IRQ | $256 B$ | 11.0 | 28 | 43.6 | 32.8 | 1.88 | 0.96 | 143 | 1 | 63.4 |  |
| LSO | $305 B$ | 5.0 | 28 | 278 | -298 | 066 | 0.60 | 36 | 1 | 64.2 |  |
| MTN | $288 B$ | -370 | 28 | -78 | 234 | 1.63 | 1.10 | 141 | 1 | 63.0 |  |
| MWI | $308 B$ | -1.0 | 28 | 341 | -130 | 1.54 | 0.60 | 87 | 2 | 64.3 |  |
| MYT | $098 B$ | 290 | 28 | 45.1 | -128 | 0.60 | 0.60 | 0 | 1 | 63.5 |  |
| NGR | $115 B$ | -25.0 | 28 | 8.3 | 16.8 | 2.54 | 2.08 | 44 | 2 | 64.5 |  |
| NOR | 121A | 50 | 28 | 17.0 | 61.5 | 2.00 | 1.00 | 10 | 2 | 66.8 |  |
| OMA | 123B | 170 | 28 | 556 | 210 | 1.88 | 1.02 | 100 | 2 | 63.3 |  |
| SDN | $232 B$ | -7.0 | 28 | 30.4 | 19.0 | 2.44 | 1.52 | 176 | 1 | 63.3 |  |
| URS | 066C | 44.0 | 28 | 64.3 | 44.6 | 4.56 | 2.48 | 169 | 2 | 65.5 |  |
| URS | $076 A$ | 74.0 | 28 | 98.0 | 63.2 | 1.84 | 0.69 | 170 | 2 | 68.1 |  |
| URS | $079 C$ | 1400 | 28 | 1380 | 53.6 | 3.16 | 2.12 | 62 | 2 | 67.8 |  |

12 264,52 MHz (29)

| $\mathbf{1}$ | $\mathbf{2}$ | $\mathbf{3}$ | $\mathbf{4}$ |  | $\mathbf{5}$ |  | $\mathbf{6}$ | $\mathbf{7}$ | $\mathbf{8}$ |  |  |
| :--- | :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| AFI | 099C | 230 | 29 | 42.5 | 116 | 0.60 | 0.60 | 0 | 1 | 62.6 |  |
| BEL | 018C | -190 | 29 | 4.6 | 50.6 | 0.82 | 0.60 | 167 | 1 | 63.5 |  |
| CYP | 086C | 5.0 | 29 | 33.3 | 35.1 | 0.60 | 060 | 0 | 1 | 63.7 |  |
| DDR | $216 C$ | -10 | 29 | 12.6 | 52.1 | 0.83 | 0.63 | 172 | 2 | 64.3 |  |
| HVO | 107C | -310 | 29 | -1.5 | 12.2 | 1.45 | 1.14 | 29 | 1 | 64.1 |  |
| IFB | 021C | 5.0 | 29 | 24.5 | -28.0 | 3.13 | 1.68 | 27 | 2 | 64.2 | 4 |
| ISL | 049C | -31.0 | 29 | -190 | 64.9 | 1.00 | 0.60 | 177 | 2 | 65.9 |  |
| ISR | 110B | -130 | 29 | 349 | 31.4 | 0.94 | 0.60 | 117 | 2 | 63.9 |  |
| KEN | 249C | 110 | 29 | 37.9 | 1.1 | 2.29 | 1.56 | 94 | 1 | 63.8 |  |
| MCO | 116C | -37.0 | 29 | 7.4 | 43.7 | 0.60 | 0.60 | 0 | 1 | 62.5 | $1 / 0.5$ |
| MNG | 248B | 740 | 29 | 102.2 | 46.6 | 3.60 | 1.13 | 169 | 1 | 64.2 |  |
| MRC | 209C | -25.0 | 29 | -90 | 292 | 2.72 | 1.47 | 43 | 2 | 63.4 |  |
| NMB | 025B | -190 | 29 | 17.5 | -216 | 2.66 | 1.90 | 48 | 2 | 648 |  |
| SEN | $222 C$ | -37.0 | 29 | -14.4 | 138 | 146 | 1.04 | 139 | 2 | 63.7 |  |
| UAE | $274 C$ | 170 | 29 | 536 | 242 | 0.98 | 0.80 | 162 | 1 | 633 |  |
| UKR | 063A | 23.0 | 29 | 31.2 | 48.4 | 232 | 0.96 | 172 | 2 | 64.6 |  |
| YUG | 148C | -7.0 | 29 | 18.4 | 43.7 | 1.68 | 0.66 | 154 | 1 | 653 |  |

12 283,70 MHz (30)

| ALB | 296C | -7.0 | 30 | 19.8 | 41.3 | 0.68 | 0.60 | 146 | 2 | 63.9 |  |
| :--- | :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| BDI | 270C | 110 | 30 | 29.9 | -3.1 | 0.71 | 0.60 | 80 | 2 | 63.5 |  |
| COG | 235C | -13.0 | 30 | 14.6 | -0.7 | 202 | 1.18 | 59 | 2 | 63.9 |  |
| CTI | 237C | -31.0 | 30 | -5.6 | 7.5 | 1.60 | 1.22 | 108 | 2 | 63.8 |  |
| ETH | 092C | 23.0 | 30 | 39.7 | 91 | 3.50 | 2.40 | 124 | 2 | 63.6 |  |
| HNG | 106C | -1.0 | 30 | 19.5 | 47.2 | 0.92 | 0.60 | 176 | 1 | 64.1 |  |
| IFB | 135C | -1.0 | 30 | 296 | -18.8 | 1.46 | 1.36 | 37 | 2 | 64.3 | 4 |
| KWT | $113 C$ | 17.0 | 30 | 47.6 | 29.2 | 0.68 | 0.60 | 145 | 2 | 63.2 |  |
| MTN | 223C | -37.0 | 30 | -12.2 | 18.5 | 2.62 | 1.87 | 150 | 1 | 62.9 |  |
| NIG | 119C | -19.0 | 30 | 7.8 | 9.4 | 2.16 | 2.02 | 45 | 1 | 64.0 |  |
| REU | 097C | 290 | 30 | 55.6 | -19.2 | 1.56 | 0.78 | 96 | 1 | 64.1 |  |
| S | 139A | 5.0 | 30 | 17.0 | 61.5 | 2.00 | 1.00 | 10 | 2 | 67.1 |  |
| SDN | $231 C$ | -7.0 | 30 | 28.9 | 12.7 | 2.26 | 196 | 159 | 1 | 63.6 |  |
| SUI | 140C | -19.0 | 30 | 8.2 | 46.6 | 0.98 | 070 | 171 | 2 | 64.2 |  |
| SYR | $229 C$ | 11.0 | 30 | 38.3 | 34.9 | 1.04 | 0.90 | 7 | 1 | 633 |  |
| TUN | 150C | -25.0 | 30 | 9.5 | 33.5 | 1.88 | 0.72 | 135 | 1 | 63.9 |  |
| URS | O68B | 44.0 | 30 | 59.0 | 38.8 | 2.24 | 1.00 | 164 | 2 | 641 |  |
| URS | $074 B$ | 74.0 | 30 | 88.8 | 57.6 | 3.08 | 1.68 | 162 | 2 | 68.0 |  |
| URS | 080B | 140.0 | 30 | 155.3 | 55.4 | 2.90 | 2.36 | 35 | 1 | 67.9 |  |

12 302,88 MHz (31)

| $\mathbf{1}$ | $\mathbf{2}$ | $\mathbf{3}$ | $\mathbf{4}$ |  | $\mathbf{5}$ |  | $\mathbf{6}$ | $\mathbf{7}$ | $\mathbf{8}$ |  |  |  |
| :--- | :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| AGL | 295C | -13.0 | 31 | 16.5 | -12.0 | 3.09 | 2.26 | 84 | 1 | 64.2 |  |  |
| BHR | 255B | 17.0 | 31 | 50.5 | 26.1 | 0.60 | 0.60 | 0 | 1 | 60.9 | $1 / 0.7$ |  |
| CNR | 130C | -31.0 | 31 | -15.7 | 28.4 | 1.54 | 0.60 | 5 | 2 | 62.9 |  |  |
| CVA | 083B | -37.0 | 31 | 12.4 | 41.8 | 0.6 | 0.60 | 0 | 1 | 65.3 |  |  |
| E | 129C | -31.0 | 31 | -3.1 | 39.9 | 2.10 | 1.14 | 154 | 2 | 64.0 |  |  |
| GHA | 108C | -25.0 | 31 | -1.2 | 7.9 | 1.48 | 1.06 | 102 | 1 | 63.7 |  |  |
| GNE | 303C | -19.0 | 31 | 10.3 | 1.5 | 0.68 | 0.60 | 10 | 2 | 63.9 |  |  |
| HOL | 213C | -19.0 | 31 | 5.4 | 52.0 | 0.76 | 0.60 | 171 | 1 | 64.6 |  |  |
| ISL | 050B | 5.0 | 31 | -19.5 | 61.0 | 2.20 | 0.80 | 4 | 1 | 66.4 | 3 |  |
| JOR | 224C | 11.0 | 31 | 35.8 | 31.4 | 0.84 | 0.78 | 114 | 2 | 63.2 |  |  |
| SDN | 230C | -7.0 | 31 | 29.2 | 7.5 | 2.34 | 1.12 | 148 | 2 | 64.5 |  |  |
| SRL | 259C | -31.0 | 31 | -11.8 | 8.6 | 0.78 | 0.68 | 114 | 1 | 63.6 |  |  |
| TGK | 225C | 11.0 | 31 | 34.6 | -6.2 | 2.41 | 1.72 | 129 | 1 | 63.8 |  |  |
| URS | 059B | 23.0 | 31 | 36.0 | 47.0 | 3.70 | 1.43 | 153 | 2 | 65.2 |  |  |
| URS | 077D | 110.0 | 31 | 112.7 | 57.3 | 2.67 | 1.75 | 2 | 1 | 67.2 |  |  |
| YUG | 149C | -7.0 | 31 | 18.4 | 43.7 | 1.68 | 0.66 | 154 | 1 | 65.4 |  |  |

12 322,06 MHz (32)

| CAF | 258C | -13.0 | 32 | 21.0 | 6.3 | 2.25 | 1.68 | 31 | 2 | 64.4 |  |
| :--- | :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| I | 082C | -19.0 | 32 | 12.3 | 41.3 | 2.38 | 0.98 | 137 | 2 | 64.2 |  |
| IRQ | 256C | 11.0 | 32 | 43.6 | 32.8 | 1.88 | 0.96 | 143 | 1 | 63.4 |  |
| LSO | $305 C$ | 5.0 | 32 | 27.8 | -29.8 | 0.66 | 0.60 | 36 | 1 | 64.3 |  |
| MTN | 288C | -37.0 | 32 | -7.8 | 23.4 | 1.63 | 1.10 | 141 | 1 | 63.1 |  |
| MWI | $308 C$ | -1.0 | 32 | 34.1 | -1.0 | 1.54 | 0.60 | 87 | 2 | 64.4 |  |
| MYT | $098 C$ | 29.0 | 32 | 45.1 | -12.8 | 0.60 | 0.60 | 0 | 1 | 63.5 |  |
| NGR | 115C | -25.0 | 32 | 8.3 | 16.8 | 2.54 | 2.08 | 44 | 2 | 64.6 |  |
| NOR | 121B | 5.0 | 32 | 17.0 | 61.5 | 2.00 | 1.00 | 10 | 2 | 66.9 |  |
| OMA | 123C | 17.0 | 32 | 55.6 | 21.0 | 1.88 | 1.02 | 100 | 2 | 63.4 |  |
| SDN | 232C | -7.0 | 32 | 30.4 | 19.0 | 2.44 | 1.52 | 176 | 1 | 63.4 |  |
| URS | 066D | 44.0 | 32 | 64.3 | 44.6 | 4.56 | 2.48 | 169 | 2 | 65.5 |  |
| URS | 075A | 74.0 | 32 | 94.0 | 51.7 | 1.52 | 0.60 | 172 | 2 | 65.1 |  |
| URS | 079D | 140.0 | 32 | 138.0 | 53.6 | 3.16 | 2.12 | 62 | 2 | 67.9 |  |

12 341,24 MHz (33)

| 1 | $\mathbf{2}$ | $\mathbf{3}$ | $\mathbf{4}$ |  | $\mathbf{5}$ |  | $\mathbf{6}$ | $\mathbf{7}$ | $\mathbf{8}$ |  |  |
| :--- | :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| AFI | 099D | 23.0 | 33 | 42.5 | 11.6 | 0.60 | 0.60 | 0 | 1 | 62.7 |  |
| BEL | 018D | -19.0 | 33 | 4.6 | 50.6 | 0.82 | 0.60 | 167 | 1 | 63.9 |  |
| CYP | 086D | 5.0 | 33 | 33.3 | 35.1 | 0.60 | 0.60 | 0 | 1 | 63.7 |  |
| DDR | 216D | -1.0 | 33 | 12.6 | 52.1 | 0.83 | 0.63 | 172 | 2 | 64.4 |  |
| HVO | 107D | -31.0 | 33 | -1.5 | 12.2 | 1.45 | 1.14 | 29 | 1 | 64.1 |  |
| IFB | 021D | 5.0 | 33 | 24.5 | -28.0 | 3.13 | 1.68 | 27 | 2 | 64.2 | 4 |
| ISL | 049D | -31.0 | 33 | -19.0 | 64.9 | 1.00 | 0.60 | 177 | 2 | 66.0 |  |
| ISR | 110C | -13.0 | 33 | 34.9 | 31.4 | 0.94 | 0.60 | 117 | 2 | 63.9 |  |
| KEN | 249D | 11.0 | 33 | 37.9 | 1.1 | 2.29 | 1.56 | 94 | 1 | 63.9 |  |
| MCO | 116D | -37.0 | 33 | 7.4 | 43.7 | 0.60 | 0.60 | 0 | 1 | 62.6 | $1 / 0.5$ |
| MNG | 248C | 74.0 | 33 | 102.2 | 46.6 | 3.60 | 1.13 | 169 | 1 | 64.2 |  |
| MRC | 209D | -25.0 | 33 | -9.0 | 29.2 | 2.72 | 1.47 | 43 | 2 | 63.4 |  |
| NMB | 025C | -19.0 | 33 | 17.5 | -21.6 | 2.66 | 1.90 | 48 | 2 | 64.8 |  |
| SEN | 222D | -37.0 | 33 | -14.4 | 13.8 | 1.46 | 1.04 | 139 | 2 | 63.8 |  |
| UAE | 274D | 17.0 | 33 | 53.6 | 24.2 | 0.98 | 0.80 | 162 | 1 | 63.3 |  |
| UKR | 063B | 23.0 | 33 | 31.2 | 48.4 | 2.32 | 0.96 | 172 | 2 | 64.7 |  |
| YUG | 148D | -7.0 | 33 | 18.4 | 43.7 | 1.68 | 0.66 | 154 | 1 | 65.4 |  |

$12 \mathbf{3 6 0 , 4 2} \mathbf{~ M H z ~ ( 3 4 )}$

| ALB | 296D | -7.0 | 34 | 19.8 | 41.3 | 0.68 | 0.60 | 146 | 2 | 63.9 |  |
| :--- | :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| BDI | 270D | 1.0 | 34 | 29.9 | -3.1 | 0.71 | 0.60 | 80 | 2 | 63.5 |  |
| COG | 235D | -1.0 | 34 | 14.6 | -0.7 | 2.02 | 1.18 | 59 | 2 | 63.9 |  |
| CTI | 237D | -31.0 | 34 | -5.6 | 7.5 | 1.60 | 1.22 | 108 | 2 | 6.9 |  |
| ETH | 092D | 23.0 | 34 | 39.7 | 9.1 | 3.50 | 2.40 | 124 | 2 | 63.6 |  |
| HNG | 106D | -1.0 | 34 | 19.5 | 47.2 | 0.92 | 0.60 | 176 | 1 | 64.1 |  |
| IFB | 135D | -1.0 | 34 | 29.6 | -18.8 | 1.46 | 1.36 | 37 | 2 | 64.3 | 4 |
| KWT | 113D | 17.0 | 34 | 47.6 | 29.2 | 0.68 | 0.60 | 145 | 2 | 63.2 |  |
| MTN | 223D | -37.0 | 34 | -12.2 | 18.5 | 2.62 | 1.87 | 150 | 1 | 63.0 |  |
| NIG | 119D | -19.0 | 34 | 7.8 | 9.4 | 2.16 | 2.02 | 45 | 1 | 64.1 |  |
| REU | 097D | 29.0 | 34 | 55.6 | -19.2 | 1.56 | 0.78 | 96 | 1 | 64.1 |  |
| S | 138C | 5.0 | 34 | 16.2 | 61.0 | 1.04 | 0.98 | 14 | 2 | 67.4 |  |
| SDN | 231D | -7.0 | 34 | 28.9 | 12.7 | 2.26 | 1.96 | 159 | 1 | 63.6 |  |
| SUI | 140D | -19.0 | 34 | 8.2 | 46.6 | 0.98 | 0.70 | 171 | 2 | 64.3 |  |
| SYR | 229D | 11.0 | 34 | 38.3 | 34.9 | 1.04 | 0.90 | 7 | 1 | 63.4 |  |
| TUN | 150D | -25.0 | 34 | 9.5 | 33.5 | 1.88 | 0.72 | 135 | 1 | 64.0 |  |
| URS | 071A | 44.0 | 34 | 63.1 | 42.0 | 2.64 | 0.84 | 170 | 2 | 64.4 |  |
| URS | 074C | 74.0 | 34 | 88.8 | 57.6 | 3.08 | 1.68 | 162 | 2 | 68.0 |  |
| URS | 080C | 140.0 | 34 | 155.3 | 55.4 | 2.90 | 2.36 | 35 | 1 | 68.0 |  |

12 379,60 MHz (35)

| $\mathbf{1}$ | $\mathbf{2}$ | $\mathbf{3}$ | $\mathbf{4}$ |  | $\mathbf{5}$ |  | $\mathbf{6}$ | $\mathbf{7}$ | $\mathbf{8}$ |  | $\mathbf{9}$ |
| :--- | :--- | ---: | ---: | ---: | ---: | ---: | ---: | :--- | :--- | :--- | :--- |
| AGL | 295D | -13.0 | 35 | 16.5 | -12.0 | 3.09 | 2.26 | 84 | 1 | 64.3 |  |
| BHR | 255C | 17.0 | 35 | 50.5 | 26.1 | 0.60 | 0.60 | 0 | 1 | 61.0 | $1 / 0.7$ |
| CNR | 130D | -31.0 | 35 | -15.7 | 28.4 | 1.54 | 0.60 | 5 | 2 | 63.0 |  |
| CVA | 083C | -37.0 | 35 | 12.4 | 41.8 | 0.60 | 0.60 | 0 | 1 | 65.3 |  |
| DNK | 091B | 5.0 | 35 | -19.5 | 61.0 | 2.20 | 0.80 | 4 | 1 | 66.3 | 3 |
| E | 129D | -31.0 | 35 | -3.1 | 39.9 | 2.10 | 1.14 | 154 | 2 | 64.1 |  |
| GHA | 108D | -25.0 | 35 | -1.2 | 7.9 | 1.48 | 1.06 | 102 | 1 | 63.8 |  |
| GNE | 303D | -19.0 | 35 | 10.3 | 1.5 | 0.68 | 0.60 | 10 | 2 | 63.9 |  |
| HOL | 213D | -19.0 | 35 | 5.4 | 52.0 | 0.76 | 0.60 | 171 | 1 | 64.6 |  |
| JOR | 224D | 11.0 | 35 | 35.8 | 31.4 | 0.84 | 0.78 | 114 | 2 | 63.2 |  |
| SDN | 230D | -7.0 | 35 | 29.2 | 7.5 | 2.34 | 1.12 | 148 | 2 | 64.6 |  |
| SRL | 259D | -31.0 | 35 | -11.8 | 8.6 | 0.78 | 0.68 | 114 | 1 | 63.6 |  |
| TGK | 225D | 11.0 | 35 | 34.6 | -6.2 | 2.41 | 1.72 | 129 | 1 | 63.9 |  |
| URS | 059C | 23.0 | 35 | 36.0 | 47.0 | 3.70 | 1.43 | 153 | 2 | 65.3 |  |
| URS | 077E | 110.0 | 35 | 112.7 | 57.3 | 2.67 | 1.75 | 2 | 1 | 67.3 |  |
| YUG | 149D | -7.0 | 35 | 18.4 | 43.7 | 1.68 | 0.66 | 154 | 1 | 65.4 |  |

12 398,78 MHz
(36)

| CAF | 258D | -13.0 | 36 | 21.0 | 6.3 | 2.25 | 1.68 | 31 | 2 | 64.4 |  |
| :--- | :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| DNK | 090B | 5.0 | 36 | 17.0 | 61.5 | 2.00 | 1.00 | 10 | 2 | 68.2 |  |
| I | 082D | -19.0 | 36 | 12.3 | 41.3 | 2.38 | 0.98 | 137 | 2 | 64.3 |  |
| IRQ | 256D | 11.0 | 36 | 43.6 | 32.8 | 1.88 | 0.96 | 143 | 1 | 63.5 |  |
| LSO | 305D | 5.0 | 36 | 27.8 | -29.8 | 0.66 | 0.60 | 36 | 1 | 64.3 |  |
| MTN | 288D | -37.0 | 36 | -7.8 | 23.4 | 1.63 | 1.10 | 141 | 1 | 63.1 |  |
| MWI | 308D | -1.0 | 36 | 34.1 | -13.0 | 1.54 | 0.60 | 87 | 2 | 64.4 |  |
| MYT | 098D | 29.0 | 36 | 45.1 | -12.8 | 0.60 | 0.60 | 0 | 1 | 63.6 |  |
| NGR | 115D | -25.0 | 36 | 8.3 | 16.8 | 2.54 | 2.08 | 44 | 2 | 64.7 |  |
| OMA | 123D | 17.0 | 36 | 55.6 | 21.0 | 1.88 | 1.02 | 100 | 2 | 63.4 |  |
| SDN | 232D | -7.0 | 36 | 30.4 | 19.0 | 2.44 | 1.52 | 176 | 1 | 63.4 |  |
| URS | 066E | 44.0 | 36 | 64.3 | 44.6 | 4.56 | 2.48 | 169 | 2 | 65.6 |  |
| URS | 079E | 140.0 | 36 | 138.0 | 53.6 | 3.16 | 2.12 | 62 | 2 | 68.0 |  |

12 417,96 MHz (37)

| 1 |  | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| AFI | 099E | 23.0 | 37 | 42.5 | 11.6 | 0.60 | 0.60 | 0 | 1 | 62.7 |  |
| BEL | 018E | - 19.0 | 37 | 4.6 | 50.6 | 0.82 | 0.60 | 167 | 1 | 64.4 |  |
| CYP | 086E | 5.0 | 37 | 33.3 | 35.1 | 0.60 | 0.60 | 0 | 1 | 63.8 |  |
| DDR | 216E | - 1.0 | 37 | 12.6 | 52.1 | 0.83 | 0.63 | 172 | 2 | 64.4 |  |
| HVO | 107E | -31.0 | 37 | -1.5 | 12.2 | 1.45 | 1.14 | 29 | 1 | 64.2 |  |
| IFB | 021E | 5.0 | 37 | 24.5 | -28.0 | 3.13 | 1.68 | 27 | 2 | 64.3 | 4 |
| ISL | 049E | -31.0 | 37 | - 19.0 | 64.9 | 1.00 | 0.60 | 177 | 2 | 66.0 |  |
| ISR | 110D | - 13.0 | 37 | 34.9 | 31.4 | 0.94 | 0.60 | 117 | 2 | 64.0 |  |
| KEN | 249E | 11.0 | 37 | 37.9 | 1.1 | 2.29 | 1.56 | 94 | 1 | 63.9 |  |
| MCO | 116E | - 37.0 | 37 | 7.4 | 43.7 | 0.60 | 0.60 | 0 | 1 | 62.6 | 1/0.5 |
| MNG | 248D | 74.0 | 37 | 102.2 | 46.6 | 3.60 | 1.13 | 169 | 1 | 64.3 |  |
| MRC | 209E | -25.0 | 37 | -9.0 | 29.2 | 2.72 | 1.47 | 43 | 2 | 63.5 |  |
| NMB | 025D | -19.0 | 37 | 17.5 | -21.6 | 2.66 | 1.90 | 48 | 2 | 64.9 |  |
| SEN | 222E | -37.0 | 37 | -14.4 | 13.8 | 1.46 | 1.04 | 139 | 2 | 63.9 |  |
| UAE | 274E | 17.0 | 37 | 53.6 | 24.2 | 0.98 | 0.80 | 162 | 1 | 63.4 |  |
| UKR | 063C | 23.0 | 37 | 31.2 | 48.4 | 2.32 | 0.96 | 172 | 2 | 64.7 |  |
| YUG | 148 E | -7.0 | 37 | 18.4 | 43.7 | 1.68 | 0.66 | 154 | 1 | 65.4 |  |

12 437,14 MHz (38)

| ALB | 296E | -7.0 | 38 | 19.8 | 413 | 0.68 | 0.60 | 146 | 2 | 64.0 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| BDI | 270E | 11.0 | 38 | 29.9 | -3.1 | 0.71 | 0.60 | 80 | 2 | 63.6 |  |
| COG | 235E | - 13.0 | 38 | 14.6 | -07 | 2.02 | 1.18 | 59 | 2 | 64.0 |  |
| CTI | 237E | -31.0 | 38 | -5.6 | 75 | 1.60 | 1.22 | 108 | 2 | 63.9 |  |
| ETH | 092E | 23.0 | 38 | 39.7 | 91 | 3.50 | 2.40 | 124 | 2 | 63.7 |  |
| HNG | 106E | -10 | 38 | 195 | 472 | 0.92 | 0.60 | 176 | 1 | 64.2 |  |
| IFB | 135E | -1.0 | 38 | 29.6 | - 18.8 | 1.46 | 1.36 | 37 | 2 | 64.4 | 4 |
| KWT | 113 E | 17.0 | 38 | 47.6 | 29.2 | 0.68 | 0.60 | 145 | 2 | 63.3 |  |
| MTN | 223E | -37.0 | 38 | - 12.2 | 18.5 | 2.62 | 1.87 | 150 | 1 | 63.0 |  |
| NIG | 119E | - 19.0 | 38 | 7.8 | 9.4 | 2.16 | 2.02 | 45 | 1 | 64.1 |  |
| NOR | 120C | 5.0 | 38 | 13.1 | 64.1 | 1.84 | 0.88 | 10 | 2 | 67.0 |  |
| REU | 097E | 29.0 | 38 | 55.6 | - 19.2 | 1.56 | 0.78 | 96 | 1 | 64.2 |  |
| SDN | 231E | -7.0 | 38 | 28.9 | 12.7 | 2.26 | 1.96 | 159 | 1 | 63.7 |  |
| SUI | 140 E | - 19.0 | 38 | 8.2 | 46.6 | 0.98 | 0.70 | 171 | 2 | 64.3 |  |
| SYR | 339A | 11.0 | 38 | 37.6 | 34.2 | 1.32 | 0.88 | 74 | 1 | 63.4 | 2 |
| TUN | 272A | - 25.0 | 38 | 2.5 | 32.0 | 3.59 | 1.75 | 175 | 1 | 61.9 | 5 |
| URS | 071B | 44.0 | 38 | 63.1 | 42.0 | 2.64 | 0.84 | 170 | 2 | 64.5 |  |
| URS | 074D | 74.0 | 38 | 88.8 | 57.6 | 3.08 | 1.68 | 162 | 2 | 68.1 |  |
| URS | 080D | 140.0 | 38 | 155.3 | 55.4 | 2.90 | 236 | 35 | 1 | 68.1 |  |

12 456,32 MHz

| 1 |  | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| AGL | 295 E | - 13.0 | 39 | 16.5 | - 12.0 | 3.09 | 2.26 | 84 | 1 | 64.4 |  |
| BHR | 255D | 17.0 | 39 | 50.5 | 26.1 | 0.60 | 0.60 | 0 | 1 | 61.0 | 1/0.7 |
| CNR | 130E | -31.0 | 39 | -15.7 | 28.4 | 1.54 | 0.60 | 5 | 2 | 63.0 |  |
| CVA | 083D | -37.0 | 39 | 12.4 | 41.8 | 0.60 | 0.60 | 0 | 1 | 65.4 |  |
| E | 129 E | -31.0 | 39 | -3.1 | 39.9 | 2.10 | 1.14 | 154 | 2 | 64.2 |  |
| GHA | 108 E | -25.0 | 39 | -1.2 | 7.9 | 1.48 | 1.06 | 102 | 1 | 63.8 |  |
| GNE | 303 E | - 19.0 | 39 | 10.3 | 1.5 | 0.68 | 0.60 | 10 | 2 | 64.0 |  |
| HOL | 213E | - 19.0 | 39 | 5.4 | 52.0 | 0.76 | 0.60 | 171 | 1 | 64.7 |  |
| ISL | 050C | 5.0 | 39 | -19.5 | 61.0 | 2.20 | 0.80 | 4 | 1 | 66.5 | 3 |
| JOR | 224E | 11.0 | 39 | 35.8 | 31.4 | 0.84 | 0.78 | 114 | 2 | 63.3 |  |
| MNG | 248 E | 74.0 | 39 | 102.2 | 46.6 | 3.60 | 1.13 | $16^{\circ}$ | 1 | 64.3 |  |
| SDN | 230 E | -7.0 | 39 | 29.2 | 7.5 | 2.34 | 1.12 | 148 | 2 | 64.6 |  |
| SRL | 259 E | -31.0 | 39 | -11.8 | 8.6 | 0.78 | 0.68 | 114 | 1 | 63.7 |  |
| tGk | 225 E | 11.0 | 39 | 34.6 | -6.2 | 2.41 | 1.72 | 129 | 1 | 63.9 |  |
| URS | 059D | 23.0 | 39 | 36.0 | 47.0 | 3.70 | 1.43 | 153 | 2 | 65.3 |  |
| URS | 077F | 110.0 | 39 | 112.7 | 57.3 | 2.67 | 1.75 | 2 | 1 | 67.4 |  |
| YUG | 149E | -7.0 | 39 | 18.4 | 43.7 | 1.68 | 0.66 | 154 | 1 | 65.5 |  |

12 475,50 MHz (40)

| CAF | 258 E | -13.0 | 40 | 21.0 | 6.3 | 2.25 | 1.68 | 31 | 2 | 64.5 |  |
| :--- | :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| I | 082 E | -19.0 | 40 | 12.3 | 41.3 | 2.38 | 0.98 | 137 | 2 | 64.3 |  |
| IRQ | 256 E | 11.0 | 40 | 43.6 | 32.8 | 1.88 | 0.96 | 143 | 1 | 63.5 |  |
| LSO | 305 E | 5.0 | 40 | 278 | -298 | 0.66 | 0.60 | 36 | 1 | 64.4 |  |
| MTN | 288 E | -37.0 | 40 | -7.8 | 23.4 | 1.63 | 1.10 | 141 | 1 | 63.2 |  |
| MWI | $308 E$ | -1.0 | 40 | 34.1 | -13.0 | 1.54 | 0.60 | 87 | 2 | 64.5 |  |
| MYT | 098E | 29.0 | 40 | 45.1 | -12.8 | 0.60 | 0.60 | 0 | 1 | 63.6 |  |
| NGR | 115E | -25.0 | 40 | 8.3 | 16.8 | 2.54 | 2.08 | 44 | 2 | 64.7 |  |
| OMA | 123E | 17.0 | 40 | 55.6 | 21.0 | 1.88 | 1.02 | 100 | 2 | 63.5 |  |
| S | 139B | 5.0 | 40 | 17.0 | 61.5 | 2.00 | 1.00 | 10 | 2 | 68.2 |  |
| SDN | $232 E$ | -70 | 40 | 30.4 | 19.0 | 2.44 | 152 | 176 | 1 | 63.5 |  |
| URS | 066F | 44.0 | 40 | 64.3 | 44.6 | 4.56 | 2.48 | 169 | 2 | 65.6 |  |
| URS | $079 F$ | 140 | 40 | 138.0 | 53.6 | 3.16 | 2.12 | 62 | 2 | 68.0 |  |

## ARTICLE 12

## Relationship to Resolution 507

12.1 The provisions and associated Plans for the broadcasting-satellite service in Regions 1 and 3 and in Region 2, of this Appendix, shall be regarded as including a world agreement and associated Plans for Regions 1, 2 and 3 in accordance with resolves 1 of Resolution 507, which requires the stations in the broadcasting-satellite service to be established and operated in accordance with such agreements and associated plans.

ARTICLE 13

Interference
13.1 The Members of the Union shall endeavour to agree on the action required to reduce harmful interference which might be caused by the application of these provisions and the associated Plans.

## ARTICLE 14

## Period of Validity of the Provisions and Associated Plans

14.1 For Regions 1 and 3, the provisions and associated Plan have been prepared in order to meet the requirements of the broadcasting-satellite service in the bands concerned for a period of at least fifteen years from 1 January 1979.
14.2 For Region 2, the provisions and associated Plan have been prepared in order to meet the requirements of the broadcasting-satellite service in the bands concerned for a period extending until at least 1 January 1994.
14.3 In any event, the provisions and associated Plans shall remain in force until their revision by a competent administrative radio conference convened in accordance with the relevant provisions of the Convention in force.

## ANNEX 1

# Limits for Determining Whether a Service of an Administration is Affected by a Proposed Modification to the Plans or When It is Necessary Under This Appendix to Seek the Agreement of Any Other Administration ${ }^{1}$ 

(See Article 4)

1. Limits to the change in the wanted-to-interfering signal ratio with respect to frequency assignments in conformity with the Regions 1 and 3 Plan

With respect to paragraph 4.3.1.1, an administration in Region 1 or 3 shall be considered as being affected if the effect of the proposed modification to the Regions 1 and 3 Plan would result in the wanted-tointerfering signal ratio at any point within the service area associated with any of its frequency assignments in that Plan falling below either 30 dB or the value resulting from the frequency assignments in the Plan at the date of entry into force of the Final Acts ${ }^{2}$, whichever is the lower.

Note: In performing the calculation, the effect at the receiver input of all the co-channel and adjacent-channel signals is expressed in terms of one equivalent co-channel interfering signal. This value is usually expressed in decibels.

[^40]2. Limits to the change in the overall equivalent protection margin with respect to frequency assignments in conformity with the Region 2 Plan

With respect to paragraph 4.3.3.1, an administration in Region 2 shall be considered as being affected if the overall equivalent protection margin ${ }^{1}$ corresponding to a test point of its entry in the Region 2 Plan, including the cumulative effect of any previous modification to that Plan or any previous agreement, falls more than 0.25 dB below 0 dB , or, if already negative, more than 0.25 dB below the value resulting from:

- the Region 2 Plan as established by the 1983 Conference; or
- a modification of the assignment in accordance with this Appendix; or
- a new entry in the Region 2 Plan under Article 4 of this Appendix; or
- any agreement reached in accordance with this Appendix.

3. Limits to the change in the power flux-density to protect the broad-casting-satellite service in Regions 1 and 2 in the band 12.212.5 GHz and in Region 3 in the band 12.5-12.7 GHz

With respect to paragraph 4.3.1.2, an administration in Region 2 shall be considered as being affected if the proposed modification to the Regions 1 and 3 Plan would result in exceeding the power flux-densities given below, at any point in the service area affected.

[^41]With respect to paragraph 4.3.3.2 or 4.3.3.6 as appropriate, an administration in Region 1 or 3 shall be considered as being affected if the proposed modification to the Region 2 Plan would result in exceeding the power flux-densities given below, at any point in the service area affected.

$$
\begin{array}{ll}
-147 \mathrm{~dB}\left(\mathrm{~W} / \mathrm{m}^{2} / 27 \mathrm{MHz}\right) & \text { for } 0^{\circ} \leqslant \theta<0.44^{\circ} \\
-138+25 \log \theta \mathrm{~dB}\left(\mathrm{~W} / \mathrm{m}^{2} / 27 \mathrm{MHz}\right) & \text { for } 0.44^{\circ} \leqslant \theta<19.1^{\circ} \\
-106 \mathrm{~dB}\left(\mathrm{~W} / \mathrm{m}^{2} / 27 \mathrm{MHz}\right) & \text { for } \theta \geqslant 19.1^{\circ}
\end{array}
$$

where $\theta$ is:

- the difference in degrees between the longitudes of the broadcasting-satellite space station in Region 1 or 3 and the broadcasting-satellite space station affected in Region 2, or
- the difference in degrees between the longitudes of the broadcasting-satellite space station in Region 2 and the broadcasting-satellite space station affected in Region 1 or 3.

4. Limits to the change in the power flux-density to protect the terrestrial services of administrations in Region 2

With respect to paragraph 4.3.1.3, an administration in Region 2 shall be considered as being affected if the proposed modification to the Regions 1 and 3 Plan would result in exceeding a power flux-density, for any angle of arrival, at any point on its territories, of:
$-125 \mathrm{~dB}\left(\mathrm{~W} / \mathrm{m}^{2} / 4 \mathrm{kHz}\right) \quad$ when the broadcasting-satellite station uses circular polarization, and,
$-128 \mathrm{~dB}\left(\mathrm{~W} / \mathrm{m}^{2} / 4 \mathrm{kHz}\right) \quad$ when the broadcasting-satellite station uses linear polarization.
5. Limits to the change in the power flux-density to protect the terrestrial services of administrations in Regions 1 and $3^{1}$

With respect to paragraph 4.3.3.4, an administration in Region 1 or 3 shall be considered as being affected if the proposed modification to the Region 2 Plan would result in the following power flux-density limits being exceeded:
a) in the frequency band $12.2-12.7 \mathrm{GHz}$ for all the territories of administrations in Regions $1^{2}$ and 3 and for any arrival angle $\gamma$ :
$-125 \mathrm{~dB}\left(\mathrm{~W} / \mathrm{m}^{2} / 4 \mathrm{kHz}\right) \quad$ for broadcasting-satellite space stations using circular polarization;
$-128 \mathrm{~dB}\left(\mathrm{~W} / \mathrm{m}^{2} / 4 \mathrm{kHz}\right)$
for broadcasting-satellite space stations using linear polarization;
b) in the frequency band $12.2-12.5 \mathrm{GHz}$ for territories of administrations in Region 3 and those in the western part of Region 1, west of longitude $30^{\circ} \mathrm{E}^{3}$ :

$$
\begin{array}{ll}
-132 \mathrm{~dB}\left(\mathrm{~W} / \mathrm{m}^{2} / 5 \mathrm{MHz}\right) & \text { for } 0^{\circ} \leqslant \gamma<10^{\circ} \\
-132+4.2(\gamma-10) \mathrm{dB}\left(\mathrm{~W} / \mathrm{m}^{2} / 5 \mathrm{MHz}\right) & \text { for } 10^{\circ} \leqslant \gamma<15^{\circ} \\
-111 \mathrm{~dB}\left(\mathrm{~W} / \mathrm{m}^{2} / 5 \mathrm{MHz}\right) & \text { for } 15^{\circ} \leqslant \gamma<90^{\circ}
\end{array}
$$

[^42](Rev. 1986)
c) in the frequency band $12.2-12.7 \mathrm{GHz}$ for territories of administrations in Region $1^{1}$, east of longitude $30^{\circ} \mathrm{E}$ :
\[

$$
\begin{array}{ll}
-134 \mathrm{~dB}\left(\mathrm{~W} / \mathrm{m}^{2} / 5 \mathrm{MHz}\right) & \text { for } \gamma=0^{\circ} ; \\
-134+4.6975 \gamma^{2} \mathrm{~dB}\left(\mathrm{~W} / \mathrm{m}^{2} / 5 \mathrm{MHz}\right) & \text { for } 0^{\circ}<\gamma \leqslant 0.8^{\circ} ; \\
-128.5+25 \log \gamma \mathrm{~dB}\left(\mathrm{~W} / \mathrm{m}^{2} / 5 \mathrm{MHz}\right) & \text { for } \gamma>0.8^{\circ} ;
\end{array}
$$
\]

d) in the frequency band $12.5-12.7 \mathrm{GHz}$ for all the territories of administrations of Regions $1^{1}$ and 3:

$$
\begin{array}{ll}
-148 \mathrm{~dB}\left(\mathrm{~W} / \mathrm{m}^{2} / 4 \mathrm{kHz}\right) & \text { for } \gamma=0^{\circ} ; \\
-148+4.6975 \gamma^{2} \mathrm{~dB}\left(\mathrm{~W} / \mathrm{m}^{2} / 4 \mathrm{kHz}\right) & \text { for } 0^{\circ}<\gamma \leqslant 0.8^{\circ} ; \\
-142.5+25 \log \gamma \mathrm{~dB}\left(\mathrm{~W} / \mathrm{m}^{2} / 4 \mathrm{kHz}\right) & \text { for } \gamma>0.8^{\circ},
\end{array}
$$

where $\gamma$ is the angle of arrival of the incident wave above the horizontal plane, in degrees.
6. Limits to the change in the power flux-density of assignments in the Regions 1 and 3 Plan to protect the fixed-satellite service (space-toEarth) in the band 11.7-12.2 GHz in Region 2, and of assignments in the Region 2 Plan to protect the fixed-satellite service (space-to-Earth) in the band 12.5-12.7 GHz in Region 1 and in the band 12.212.7 GHz in Region 3

With respect to paragraph 4.3.1.5, an administration in Region 2 shall be considered as being affected if the proposed modification to the Regions 1 and 3 Plan would result in an increase in the power flux-density on its territory of 0.25 dB or more above that resulting from the frequency assignments in the Regions 1 and 3 Plan at the time of entry into force of the Final Acts ${ }^{2}$.

[^43]With respect to paragraph 4.3.3.5, an administration in Region 1 or 3 shall be considered as being affected if the proposed modification to the Region 2 Plan would result in an increase in the power flux-density on its territory of 0.25 dB or more above that resulting from the frequency assignments in the Region 2 Plan at the time of entry into force of the Final Acts ${ }^{1}$.

However, where an assignment in the Regions 1 and 3 Plan or its subsequent modification gives a power flux-density of less than $-138 \mathrm{~dB}\left(\mathrm{~W} / \mathrm{m}^{2} / 27 \mathrm{MHz}\right)$ anywhere in the territory of an administration of Region 2, that administration shall be considered as not being affected; where an assignment in the Region 2 Plan or its subsequent modification gives a power flux-density of less than $-160 \mathrm{~dB}\left(\mathrm{~W} / \mathrm{m}^{2} / 4 \mathrm{kHz}\right)$ anywhere in the territory of an administration of Region 1 or 3 , that administration shall be considered as not being affected.
7. Limits to the change in equivalent noise temperature to protect the fixed-satellite service (Earth-to-space) in Region 1 from modifications to the Region 2 Plan in the band 12.5-12.7 GHz

With respect to paragraph 4.3.3.5, an administration of Region 1 shall be considered as being affected if the proposed modification to the Region 2 Plan would result in:

- the $\Delta \mathrm{T} / \mathrm{T}$ resulting from the proposed modification is greater than the $\Delta \mathrm{T} / \mathrm{T}$ resulting from the assignment in the Region 2 Plan as of the date of entry into force of the Final Acts ${ }^{1}$; and
- the $\Delta T / T$ resulting from the proposed modification exceeds $4 \%$, using the method of Appendix 29 (Case II).

[^44]
## 8. Limits to the change in the power flux-density to protect the terrestrial services of other administrations

a) In Region 1 or 3:

With respect to paragraph 4.3.1.4, an administration in Region 1 or 3 shall be considered as being affected if the consequence of the proposed modification of an existing assignment in the Regions 1 and 3 Plan is to increase the power flux-density arriving on any part of the territory of that administration by more than 0.25 dB over that resulting from that frequency assignment in the Regions 1 and 3 Plan at the time of entry into force of the Final Acts ${ }^{1}$. The same administration shall be considered as not being affected if the value of the power flux-density anywhere in its territory does not exceed the limits expressed in section 5 of this Annex.

With respect to paragraph 4.3.1.4 in the case of an addition of a new assignment to the Regions 1 and 3 Plan, an administration in Region 1 or 3 is considered as being affected if the power flux-density on any part of its territory exceeds the limit expressed in section 5 of this Annex.
b) In Region 2:

With respect to paragraph 4.3.3.4, an administration in Region 2 shall be considered as being affected if the consequence of the proposed modification to an existing assignment in the Region 2 Plan is to increase the power flux-density arriving on any part of the territory of that administration by more than 0.25 dB over that resulting from that frequency assignment in the Region 2 Plan at the time of entry into force of the Final Acts ${ }^{2}$. The same administration shall be considered as not being affected if the value of the power flux-density anywhere in its territory does not exceed the following limit: $-115 \mathrm{~dB}\left(\mathrm{~W} / \mathrm{m}^{2}\right)$.

[^45]With respect to paragraph 4.3.3.4 in the case of an addition of a new assignment to the Region 2 Plan, an administration in Region 2 is considered as being affected if the power flux-density on any part of its territory exceeds $-115 \mathrm{~dB}\left(\mathrm{~W} / \mathrm{m}^{2}\right)$.

## ANNEX 2

> Basic Characteristics to Be Furnished in Notices ${ }^{1}$ Relating to Space Stations in the Broadcasting-Satellite Service ${ }^{2}$

1. Country and IFRB number in the case of Regions 1 and 3; country and beam identification in the case of Region 2.
2. Nominal orbital position (in degrees from the Greenwich meridian) in the case of Regions 1 and 3; orbital position (xxx.xx degrees from the Greenwich meridian) in the case of Region 2.
3. Assigned frequency or channel number.
4. Date of bringing into use.
5. Identity of the space station.
6. Service area (if necessary, the service area may be defined by a number of "test points").

[^46]7. Geographical coordinates of the intersection of the antenna beam axis with the Earth.
8. Rain-climatic zone(s) ${ }^{1}$.
9. Class of station.
10. Class of emission and necessary bandwidth.
11. Power supplied to the antenna (dBW) in the case of Regions 1 and 3; and, in the case of Region 2, power supplied to the antenna (dBW) and the maximum power density per $\mathrm{Hz}(\mathrm{dB}(\mathrm{W} / \mathrm{Hz}))$, averaged over the worst $5 \mathrm{MHz}, 40 \mathrm{kHz}$ and 4 kHz , supplied to the antenna.
12. Antenna characteristics:
a) gain of the antenna in the direction of maximum radiation referred to an isotropic radiator (dBi);
b) shape of the beam (elliptical, circular, or other);
c) pointing accuracy;
d) type of polarization;
e) sense of polarization;
f) for circular beams indicate the following:

- half-power beamwidth in degrees;
- co-polar and cross-polar radiation patterns;
g) for elliptical beams indicate the following:
- co-polar and cross-polar radiation patterns;
- rotation accuracy;
- orientation;
- major axis (degrees) at the half-power beamwidth;
- minor axis (degrees) at the half-power beamwidth;

1 As defined in Annex 5 to this Appendix.
h) for beams of other than circular or elliptical shape, indicate the following:

- co-polar and cross-polar gain contours plotted on a map of the Earth's surface, preferably in a radial projection from the satellite on to a plane perpendicular to the line from the centre of the Earth to the satellite. The isotropic or absolute gain shall be indicated at each contour which corresponds to a decrease in gain of $2,4,6,10$ and 20 dB and thereafter at 10 dB intervals down to a value of 0 dB relative to an isotropic radiator;
- wherever practicable, a numerical equation or table providing the necessary information to allow the gain contours to be plotted.

In the case of Regions 1 and 3:
i) $\Delta G$ (difference between the maximum gain and the gain in the direction of the point in the service area at which the power flux-density is at a minimum).
13. Station keeping accuracy.
14. Modulation characteristics:
a) type of modulation;
b) pre-emphasis characteristics;
c) TV standard;
d) sound broadcasting characteristics;
e) frequency deviation;
f) composition of the baseband;
g) type of multiplexing of the video and sound signals;
h) energy dispersal characteristics.
15. Minimum angle of elevation in the service area in the case of Regions 1 and 3.
16. Type of reception (individual or community) in the case of Regions 1 and 3.
(Rev. 1986)
17. Regular hours of operation (UTC).
18. Coordination.
19. Agreements.
20. Other information.
21. Operating administration or company.

## ANNEX 3

Method for Determining the Limiting Interfering Power Flux-Density at the Edge of a Broadcasting-Satellite Service Area in the Frequency Bands 11.7 - $\mathbf{1 2 . 2} \mathbf{~ G H z}$ (in Region 3), 11.7-12.5 GHz (in Region 1) and 12.2-12.7 GHz (in Region 2) and for Calculating the Power Flux-Density Produced There by a Terrestrial Station

1. General
1.1 This Annex describes a method of calculating the interference potential from terrestrial transmitters to broadcasting-satellite receivers.
1.2 The method is in two parts:
a) the calculation of the maximum permissible interfering power flux-density at the edge of the broadcasting-satellite service area concerned;
b) the calculation of the likely power flux-density produced at any point on the edge of the service area by the terrestrial transmitter of another administration.
1.3 The interference potential of the terrestrial transmitters must be considered case by case; the power flux-density produced by each terrestrial transmitter is compared to the limiting power flux-density at any point on the edge of the service area of a broadcasting-satellite station of another administration. If, for a given transmitter, the value of the power flux-density produced is lower than the value of the limiting power flux-density at any point on the edge of the service area, the interference caused to the broadcasting-satellite service by this transmitter is considered to be lower than the permissible value and no coordination is required between administrations before the terrestrial service is brought into use. Where this is not the case, coordination and more precise calculations derived from a mutually agreed basis are necessary.
1.4 It is emphasized that, should the calculation described in this Annex indicate that the maximum permissible power flux-density is exceeded, it does not necessarily preclude the introduction of the terrestrial service since the calculations are necessarily based on worst-case assumptions for:
a) the nature of the terrain of the interference path;
b) the off-beam discrimination on the broadcasting-satellite receiving installations;
c) the necessary protection ratios for the broadcasting-satellite service;
d) the type of reception in the broadcasting-satellite service, i.e., assuming individual reception, this being more critical than community reception for the angles of elevation concerned;
$e)$ the value of power flux-density to be protected in the broad-casting-satellite service;
f) the propagation conditions between the terrestrial station and the broadcasting-satellite service area.

## 2. Limit of power flux-density

### 2.1 General

The limiting power flux-density not to be exceeded at the edge of the service area in order to protect the broadcasting-satellite service of an administration is given by the formula:

$$
\begin{equation*}
F=F_{0}-R+D+P \tag{1}
\end{equation*}
$$

where:
$F=$ the maximum permissible interfering power flux-density $\left(\mathrm{dB}\left(\mathrm{W} / \mathrm{m}^{2}\right)\right)$ within the necessary bandwidth of the broadcasting-satellite;
$F_{0}=$ the wanted power flux-density $\left(\mathrm{dB}\left(\mathrm{W} / \mathrm{m}^{2}\right)\right)$ at the edge of the service area;
$R=$ the protection ratio (dB) between the wanted and interfering signals;
$D=$ angular discrimination (dB) provided by the radiation pattern of the broadcasting-satellite receiver antenna;
$P=$ polarization discrimination (dB) between the wanted and interfering signals.
2.2 Wanted power flux-density ( $F_{0}$ )

The value of $F_{0}$ is equal to:
a) $-103 \mathrm{~dB}\left(\mathrm{~W} / \mathrm{m}^{2}\right)$ for service areas in Regions 1 and 3, and
b) $-107 \mathrm{~dB}\left(\mathrm{~W} / \mathrm{m}^{2}\right)$ for 24 MHz , as well as for 27 MHz with respect to the cases mentioned in the footnote to section 3.8 of Annex 5 for service areas in Region 2.

### 2.3 Protection ratio ( $R$ )

2.3.1 The single entry protection ratio against all types of terrestrial transmissions, with the exception of amplitude-modulation multichannel television systems, is 35 dB for carrier frequency differences between the wanted and interfering signals of up to $\pm 10 \mathrm{MHz}$, decreasing linearly from 35 dB to 0 dB for carrier frequency differences between 10 MHz and 35 MHz , and is 0 dB for frequency differences in excess of 35 MHz (see Figure 1).
2.3.2 The carrier frequency difference should be determined by reference to the frequency assignments in the broadcasting-satellite Plan or, in the case of assignments not contained within a plan, by reference to the characteristics of the proposed or operational system. For amplitude-modulation multichannel television systems which produce high peaks of power flux-density spread over a wide range of their necessary bandwidth, the protection ratio $R$ is 35 dB and is independent of the carrier frequency difference.
2.3.3 A signal from a terrestrial station should be considered only if its necessary bandwidth overlaps the necessary bandwidth of the broadcastingsatellite assignment.

### 2.4 Angular discrimination (D)

Regions 1 and 3:
2.4.1 Where the angle of elevation $\varphi$ selected for the proposed or operational broadcasting-satellite system for the broadcasting-satellite service area concerned is equal to or greater than $19^{\circ}$, the value of $D$ to be assumed in expression (1) is 33 dB . When $\varphi$ is less than $19^{\circ}, D$ should be derived from the expression (2) below.


## FIGURE 1

Protection ratio $R(d B)$ for a broadcasting-satellite signal against a single entry of interference from a terrestrial service (except for AM multichannel TV system)

Note: If more than one value of $\varphi$ is specified for a particular service area, the appropriate value of $\varphi$ should be used for each section of the edge of the service area under consideration.

| $D=0$ | for $0^{\circ} \leqslant \varphi \leqslant 0.5^{\circ}$ |
| :--- | :--- |
| $D=3 \varphi^{2}$ | for $0.5^{\circ}<\varphi \leqslant 1.41^{\circ}$ |
| $D=3+20 \log \varphi$ | for $1.41^{\circ}<\varphi \leqslant 2.52^{\circ}$ |
| $D=1+25 \log \varphi$ | for $2.52^{\circ}<\varphi \leqslant 19^{\circ}$ |

Note: For the graphical determination of $D$ see Figure 2.

## Region 2:

2.4.2 $D$ should be derived from the expression (3) below where $\varphi$ is the elevation angle for the proposed or operational broadcasting-satellite system for the broadcasting-satellite service area concerned.

Note: If more than one value of $\varphi$ is specified for a particular service area, the appropriate value of $\varphi$ should be used for each section of the edge of the service area under consideration.

$$
\begin{array}{ll}
D=0 & \text { for } 0^{\circ} \leqslant \varphi \leqslant 0.43^{\circ} \\
D=4.15 \varphi^{2} & \text { for } 0.43^{\circ}<\varphi \leqslant 1.92^{\circ}  \tag{3}\\
D=8.24+25 \log \varphi & \text { for } 1.92^{\circ}<\varphi \leqslant 25^{\circ} \\
D=43.2 & \text { for } \varphi \quad>25^{\circ}
\end{array}
$$

Note: For the graphical determination of $D$ see Figure 3.

### 2.5 Polarization discrimination ( $P$ )

The value of $P$ is equal to:
a) 3 dB when the interfering terrestrial service uses linear polarization and the broadcasting-satellite service uses circular polarization or vice versa;
b) 0 dB when the interfering terrestrial service and the broad-casting-satellite service both use circular or both use linear polarization.

FIGURE 2
Discrimination $D(d B)$ of broadcastıng-satellite receiver antenna
as a function of satellite elevation angle
For service areas in Regions 1 and $3, \varphi_{0}=2^{\circ}$.


FIGURE 3
Discrimination $D(d B)$ of broadcasting-satellite receiver antenna
as a function of satellite elevation angle
3. Power flux-density produced by a terrestrial station $\left(F_{p}\right)$

The power flux-density $F_{p}\left(\mathrm{~dB}\left(\mathrm{~W} / \mathrm{m}^{2}\right)\right)$ produced at any point on the edge of the service area by the terrestrial station is determined from the following formula:

$$
\begin{equation*}
F_{p}=E-A+43 \tag{4}
\end{equation*}
$$

where:
$E=$ the equivalent isotropically radiated power (dBW) of the terrestrial station in the direction of the point concerned on the edge of the service area;
$A=$ the total path loss in dB.
3.1 Evaluation of path loss $A$ for a terrestrial station at a distance greater than 100 km from the edge of the service area of the broadcasting satellite

For path lengths greater than $100 \mathrm{~km}, A$ is given by:

In the case of Regions 1 and 3:

$$
\begin{equation*}
A=137.6+0.2324 d_{t}+0.0814 d_{m} \tag{5}
\end{equation*}
$$

In the case of Region 2:

$$
\begin{equation*}
A=141.9+0.2867 d_{t}+0.1522 d_{m} \tag{6}
\end{equation*}
$$

where:
$d_{t}$ and $d_{m}$ are the overland and oversea path lengths respectively, in kilometres.
3.2 Evaluation of path loss $A$ for a terrestrial station at a distance equal to or less than 100 km from the edge of the service area of the broadcasting satellite

In the case of Regions 1 and 3:

For path lengths equal to or less than $100 \mathrm{~km}, A$ is calculated using equations (5) and (7) and the lower value obtained is substituted in formula (4) to calculate the power flux-density produced at the point concerned on the edge of the service area:

$$
\begin{equation*}
A=109.5+20 \log \left(d_{t}+d_{m}\right) \tag{7}
\end{equation*}
$$

The variation in $A$ for different path lengths and percentage of oversea path is shown in Figure 4.

In the case of Region 2:

For path lengths equal to or less than $100 \mathrm{~km}, A$ is calculated using equations (6) and (8) and the lower value obtained is substituted in formula (4) to calculate the power flux-density produced at the point concerned on the edge of the service area:

$$
\begin{equation*}
A=114.4+20 \log \left(d_{t}+d_{m}\right)+0.01\left(d_{t}+d_{m}\right) \tag{8}
\end{equation*}
$$

The variation in $A$ for different path lengths and percentage of oversea path is shown in Figure 5.

### 3.3 Distance beyond which the method need not be applied

The method need not be applied and coordination is unnecessary when the distance between the terrestrial station and the service area of the broadcasting satellite is greater than:
a) 400 km in the case of all overland paths; or
b) 1200 km in the case of all oversea or mixed paths.


FIGURE 4
Total path loss $A(d B)$ versus total path length $\left(d_{t}+d_{m}\right)(k m)$ and percentage of oversea path
(Regions 1 and 3)


Total path $A(d B)$ versus total path length $\left(d_{t}+d_{m}\right)(k m)$ and percentage of oversea path
(Region 2)

## ANNEX 4

# Need for Coordination of a Space Station in the Fixed-Satellite Service : in Region 2 (11.7-12.2 GHz) with Respect to the Regions 1 and 3 Plan, in Region 1 ( 12.5 - 12.7 GHz ) and in Region 3 (12.2-12.7 GHz) with Respect to the Region 2 Plan 

(See Article 7)

With respect to paragraph 7.2.1 of Article 7 of this Appendix, coordination of a space station in the fixed-satellite service of Region 2 is required when, under assumed free-space propagation conditions, the power flux-density on the territory of an administration in Region 1 or Region 3 exceeds the value derived from the expressions given below.

With respect to paragraph 7.2.1 of Article 7 of this Appendix, coordination of a space station in the fixed-satellite service in Region 1 or 3 is required when, under assumed free-space propagation conditions, the power flux-density on the territory of an administration in Region 2 exceeds the value derived from the same expressions:

$$
\begin{array}{lll}
-147 \mathrm{~dB}\left(\mathrm{~W} / \mathrm{m}^{2} / 27 \mathrm{MHz}\right) & \text { for } & 0^{\circ} \leqslant \theta<0.44^{\circ} \\
-138+25 \log \theta \mathrm{~dB}\left(\mathrm{~W} / \mathrm{m}^{2} / 27 \mathrm{MHz}\right) & \text { for } & 0.44^{\circ} \leqslant \theta<19.1^{\circ} \\
-106 \mathrm{~dB}\left(\mathrm{~W} / \mathrm{m}^{2} / 27 \mathrm{MHz}\right) & \text { for } & \theta \geqslant 19.1^{\circ}
\end{array}
$$

where $\theta$ is:

- the difference in degrees between the longitude of the interfering fixed-satellite space station in Region 2 and the longitude of the affected broadcasting-satellite space station in Regions 1 and 3, or
- the difference in degrees between the longitude of the interfering fixed-satellite space station in Region 1 or 3 and the longitude of the affected broadcasting-satellite space station in Region 2.


## ANNEX 5

# Technical Data Used in Establishing the Provisions and Associated Plans and Which Should Be Used for Their Application 

## 1. DEFINITIONS

### 1.1 Service area

The area on the surface of the Earth in which the administration responsible for the service has the right to demand that the agreed protection conditions be provided.

- Note: In the definition of service area, it is made clear that within the service area the agreed protection conditions can be demanded. This is the area where there should be at least the wanted power flux-density and protection against interference based on the agreed protection ratio for the agreed percentage of time.


### 1.2 Coverage area

The area on the surface of the Earth delineated by a contour of a constant given value of power flux-density which would permit the wanted quality of reception in the absence of interference.

Note 1: In accordance with the provisions of No. 2674 of the Radio Regulations, the coverage area must be the smallest area which encompasses the service area.

Note 2: The coverage area, which will normally encompass the entire service area, will result from the intersection of the antenna beam (elliptical or circular) with the surface of the Earth, and will be defined by a given value of power flux-density. For example, in the case of a country with a service
planned for individual reception, it would be the area delineated by the contour corresponding to a level of $-103 \mathrm{~dB}\left(\mathrm{~W} / \mathrm{m}^{2}\right)$ exceeded for $99 \%$ of the worst month in the case of Regions 1 and 3, and $-107 \mathrm{~dB}\left(\mathrm{~W} / \mathrm{m}^{2}\right)$ exceeded for $99 \%$ of the worst month in the case of Region 2 . There will usually be an area outside the service area but within the coverage area in which the power flux-density will be at least equivalent to the minimum specified value; however, protection against interference will not be provided in this area.

### 1.3 Beam area

The area delineated by the intersection of the half-power beam of the satellite transmitting antenna with the surface of the Earth.

Note: The beam area is simply that area on the Earth's surface corresponding to the -3 dB points on the satellite antenna radiation pattern. In many cases the beam area would almost coincide with the coverage area, the discrepancy being accounted for by the permanent difference in path lengths from the satellite throughout the beam area, and also by the permanent variations, if any, in propagation factors across the area. However, for a service area where the maximum dimension as seen from the satellite, position is less than $0.6^{\circ}$ in Regions 1 and 3, and less than $0.8^{\circ}$ in Region 2 (the agreed minimum practicable satellite antenna half-power beamwidths), there could be a significant difference between the beam area and the coverage area.

### 1.4 Nominal orbital position

The longitude of a position in the geostationary-satellite orbit associated with a frequency assignment to a space station in a space radiocommunication service. The position is given in degrees from the Greenwich meridian.

Note: Definitions in sections 1.5 to 1.14 are applicable to Region 2.

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### 1.5 Feeder link

In the Region 2 broadcasting-satellite service Plan, the term "feeder link", as defined in No. 109 of the Radio Regulations, is further qualified to indicate a fixed-satellite service link in the frequency band $17.3-17.8 \mathrm{GHz}$ from any earth station within the feeder-link service area to the associated space station in the broadcasting-satellite service.

### 1.6 Feeder-link area

The area delineated by the intersection of the half-power beam of the satellite receiving antenna with the surface of the Earth.

### 1.7 Feeder-link service area

The area on the surface of the Earth within the feeder-link beam area within which the administration responsible for the service has the right to locate transmitting earth stations for the purpose of providing feeder links to broadcasting-satellite space stations.

### 1.8 Adjacent channel

The RF channel in the broadcasting-satellite service frequency Plan, or in the associated feeder-link frequency Plan, which is situated immediately higher or lower in frequency with respect to the reference channel.

### 1.9 Second adjacent channel

The RF channel in the broadcasting-satellite service frequency Plan, or in the associated feeder-link frequency Plan, which is situated immediately beyond either of the adjacent channels, with respect to the reference channel.

### 1.10 Overall carrier-to-interference ratio

The overall carrier-to-interference ratio is the ratio of the wanted carrier power to the sum of all interfering RF powers in a given channel including both feeder links and down-links. The overall carrier-to-interference ratio due to interference from the given channel is calculated as the reciprocal of the sum of the reciprocals of the feeder link carrier-to-interference ratio and the down-link carrier-to-interference ratio referred to the satellite receiver input and earth station receiver input, respectively. ${ }^{1}$

### 1.11 Overall co-channel protection margin

The overall co-channel protection margin in a given channel is the difference in decibels between the overall co-channel carrier-to-interference ratio and the co-channel protection ratio.

### 1.12 Overall adjacent channel protection margin

The overall adjacent channel protection margin is the difference in decibels between the overall adjacent channel carrier-to-interference ratio and the adjacent channel protection ratio.

[^47]
### 1.13 Overall second adjacent channel protection margin

The overall second adjacent channel protection margin is the difference in decibels between the overall second adjacent channel carrier-to-interference ratio and the second adjacent channel protection ratio.

### 1.14 Overall equivalent protection margin

The overall equivalent protection margin $M$ is given in decibels by the expression:

$$
\begin{equation*}
M=-10 \log \left(\sum_{i=1}^{5} 10^{\left(-M_{i} / 10\right)}\right) \tag{dB}
\end{equation*}
$$

where:
$M_{1} \quad=$ overall co-channel protection margin, in dB (as defined in section 1.11 of this Annex);
$M_{2}, M_{3}=$ overall adjacent channel protection margins for the upper and lower adjacent channels respectively, in dB (as defined in section 1.12 of this Annex);
$M_{4}, M_{5}{ }^{1}=$ overall second adjacent channel protection margins for the upper and lower second adjacent channels respectively, in dB (as defined in section 1.13 of this Annex).

[^48]The adjective "equivalent" indicates that the protection margins for all interference sources from the adjacent and second adjacent channels as well as co-channel interference sources have been included.

## 2. RADIO PROPAGATION FACTORS

## In Regions 1 and 3:

2.1 The propagation loss on the space-to-Earth path is equal to the free space path loss plus the attenuation exceeded for $1 \%$ of the worst month, the latter being given in Figure 1 for the five rain-climatic zones shown in Figure 2.
2.2 In using the curves of Figure 1, the difference between clear weather attenuation and the attenuation exceeded for $1 \%$ of the worst month should be limited to a maximum of 2 dB by appropriate choice of angle of elevation.
2.3 In planning the broadcasting-satellite service, for emissions applying circular polarization, the level of the depolarized component relative to the level of the co-polar component should be taken as:
-27 dB for rain-climatic zones 1 and 2;
-30 dB for rain-climatic zones 3,4 and 5 .

## In Region 2:

2.4 The propagation loss on a space-Earth path is equal to the free space path loss plus the atmospheric absorption loss plus the rain attenuation exceeded for $1 \%$ of the worst month.

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FIGURE 1
Predicted attenuation values exceeded for $1 \%$ of the worst month $(0.25 \%$ of the time) at 12 GHz in the rain-climatic zones indicated in Figure 2 (for Regions 1 and 3)
A: Rain-climatic zone 1
C: Rain-climatic zones 3 and 4
B: Rain-climatic zone 2
D: Rain-climatic zone 5
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### 2.4.1 Atmospheric absorption

The loss due to atmospheric absorption (i.e. clear sky attenuation) is given by:

$$
A_{a}=\frac{92.20}{\cos \theta}\left[0.017 F_{o}+0.002 \rho F_{w}\right] \quad(\mathrm{dB}) \quad \text { for } \quad \theta<5^{\circ}
$$

where:

$$
\begin{aligned}
& F_{o}=\left[24.88 \tan \theta+0.339 \sqrt{1416.77 \tan ^{2} \theta+5.51}\right]^{-1} \\
& F_{w}=\left[40.81 \tan \theta+0.339 \sqrt{3811.66 \tan ^{2} \theta+5.51}\right]^{-1}
\end{aligned}
$$

and:

$$
A_{a}=\frac{0.042+0.003 \rho}{\sin \theta} \quad(\mathrm{~dB}) \quad \text { for } \quad \theta \geqslant 5^{\circ}
$$

where:

$$
\begin{aligned}
\theta= & \text { elevation angle (degrees), } \\
\rho= & \text { surface water vapour concentration, } \mathrm{g} / \mathrm{m}^{3}, \text { being } \\
& \rho=10 \mathrm{~g} / \mathrm{m}^{3} \text { for rain-climatic zones } A \text { to } \mathrm{K} \text { and } \\
& \rho=20 \mathrm{~g} / \mathrm{m}^{3} \text { for rain-climatic zones } \mathrm{M} \text { to } \mathrm{P} \text { (see Figure } 3 \text { ). }
\end{aligned}
$$

### 2.4.2 Rain attenuation

The rain attenuation $A_{p}$ of circularly polarized signals exceeded for $1 \%$ of the worst month at 12.5 GHz is given by:

$$
\begin{equation*}
A_{p}=0.21 \gamma L r \tag{1}
\end{equation*}
$$

where:
$L \quad$ is the slant path length through rain

$$
\begin{equation*}
=\frac{2\left(h_{R}-h_{0}\right)}{\left\{\sin ^{2} \theta+2 \frac{\left(h_{R}-h_{0}\right)}{8500}\right\}^{1 / 2}+\sin \theta} \tag{km}
\end{equation*}
$$

$r$ is the rain path length reduction factor

$$
=\frac{90}{90+4 L \cos \theta}
$$

$h_{R}$ is the rain height $(\mathrm{km})$

$$
\begin{array}{ll}
=c\left\{5.1-2.15 \log \left(1+10^{(\zeta-27) / 25}\right)\right\} & (\mathrm{km} \\
c=0.6 \quad \text { for } & |\zeta| \leqslant 20^{\circ} \\
c=0.6+0.02(|\zeta|-20) & \text { for } 20^{\circ}<|\zeta| \leqslant 40^{\circ} \\
c=1.0 \quad \text { for } & |\zeta|>40^{\circ}
\end{array}
$$

$h_{0}$ is the height ( km ) above mean sea level of the earth station;
$\zeta \quad$ is the earth station latitude (degrees);
$\theta$ is the elevation angle (degrees);
$\gamma \quad$ is the specific rain attenuation $=0.0202 R^{1198} \mathrm{~dB} / \mathrm{km}$;
$R$ is the rain intensity ( $\mathrm{mm} / \mathrm{h}$ ) obtained from the Table below for the rain climatic zones identified in Figure 3.
(Note: The method is based on $R$ exceeded for $0.01 \%$ of an average year.)

Rainfall intensity $(R)$ for the rain climatic zones (exceeded for 0.01\% of an average year) (see Figure 3)

| Rain climatic <br> zone | A | B | C | D | E | F | G | K | M | N | $\mathbf{P}$ |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Rainfall intensity <br> $(\mathrm{mm} / \mathrm{h})$ | 8 | 12 | 15 | 19 | 22 | 28 | 30 | 42 | 63 | 95 | 145 |

Figure 4 presents plots of rain attenuation, as calculated using equation (1), of circularly polarized signals exceeded for $1 \%$ of the worst month at 12.5 GHz , as a function of earth station latitude and elevation angle for each of the rain climatic zones shown in Figure 3.

### 2.4.3 Rain attenuation limit

In the analysis of the Plan for the broadcasting-satellite service in Region 2, a maximum down-link attenuation of 9 dB was agreed in order to limit the inhomogeneity of broadcasting-satellite power flux-density and to facilitate sharing during clear-sky conditions.
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FIGURE 3
Rain-climatic zones (Region 2)

### 2.4.4 Procedure for calculating the carrier-to-interference ratio at a test point

The calculation of the down-link carrier-to-interference ratio (exceeded for $99 \%$ of the worst month) used to obtain the overall equivalent protection margin at a test point is the minimum value of the carrier-tointerference ratio obtained assuming:
i) clear-sky conditions (i.e. including atmospheric absorption); or
ii) rain-faded conditions corresponding to an attenuation value exceeded for $1 \%$ of the worst month.

### 2.5 Depolarization

Rain and ice can cause depolarization of radio frequency signals. The level of the co-polar component relative to the depolarized component is given by the cross-polarization discrimination (XPD) ratio. For circularly polarized emissions, the XPD ratio, in dB , exceeded for $99 \%$ of the worst month is obtained from:

$$
\begin{gather*}
\text { XPD }=30 \log f-40 \log (\cos \theta)-20 \log A_{p}  \tag{2}\\
\text { for } 5^{\circ} \leqslant \theta \leqslant 60^{\circ}
\end{gather*}
$$

where $A_{p}(\mathrm{~dB})$ is the co-polar rain attenuation exceeded for $1 \%$ of the worst month (calculated in section 2.4), $f$ is the frequency in GHz and $\theta$ is the elevation angle. For angles of $\theta$ greater than $60^{\circ}$, use $\theta=60^{\circ}$ in equation (2).




## 3. BASIC TECHNICAL CHARACTERISTICS

### 3.1 Type of modulation

3.1.1 In Regions 1 and 3, planning of the broadcasting-satellite service is based on the use of a signal consisting of a video signal with an associated carrier, frequency-modulated by a sound signal, both frequency-modulating a carrier in the 12 GHz band, with a pre-emphasis characteristic in accordance with Figure 5 (from CCIR Recommendation 405).
3.1.2 In Region 2, planning is based on the use of a frequency-modulated composite-coded colour television signal with two sound sub-carriers. However, in recognition of the need to provide for the use of new, enhanced television coding and modulation formats (e.g. time-compressed, multiplexed analogue video component signals and digitally-coded sound and data signals), values of the important technical characteristics have been chosen to take into consideration the implementation of these new formats within the provisions of the Plan.
3.1.3 Nevertheless, this does not preclude the use of other modulating signals having different characteristics (e.g. modulation with sound channels frequency-multiplexed within the bandwidth of a television channel, digital modulation of sound and television signals, or other pre-emphasis characteristics), provided that the use of such characteristics does not cause greater interference than that caused by the system considered in the appropriate Regional Plan or complies with the provisions of paragraph 3.2 of Article 3 of this Appendix.

### 3.2 Polarization

3.2.1 For the planning of the broadcasting-satellite service, circular polarization shall be used in Regions 1, 2 and 3.


FIGURE 5
Pre-emphasis characteristic for television on 525-and 625-line systems
Curve A: 525-line system
Curve B: 625-line system
3.2.2 In Regions 1 and 3, the polarization of different beams intended to serve the same area should, if possible, be the same.
3.2.3 The terms "direct" and "indirect" used in the Plans to indicate the direction of rotation of circularly-polarized waves correspond to right-hand (clockwise) and left-hand (anti-clockwise) polarization respectively according to the following definitions:

Direct polarization (right-hand or clockwise polarization):

An elliptically or circularly-polarized electromagnetic wave, in which the electric field-intensity vector, observed in any fixed plane, normal to the direction of propagation, whilst looking in (i.e., not against) the direction of propagation, rotates with time in a right-hand or clockwise direction.

Note: For right-hand circularly-polarized plane waves, the ends of the electric vectors drawn from any points along a straight line normal to the plane of the wave front form, at any instant, a left-hand helix.

Indirect polarization (left-hand or anti-clockwise polarization):

An elliptically or circularly-polarized electromagnetic wave, in which the electric field-intensity vector, observed in any fixed plane, normal to the direction of propagation, whilst looking in (i.e., not against) the direction of propagation, rotates with time in a left-hand or anti-clockwise direction.

Note: For left-hand circularly-polarized plane waves, the ends of the electric vectors drawn from any points along a straight line normal to the plane of the wave front form, at any instant, a right-hand helix.

### 3.3 Carrier-to-noise ratio

For the purpose of planning the broadcasting-satellite service, the carrier-to-noise ratio is equal to or exceeds 14 dB for $99 \%$ of the worst month.

In Regions 1 and 3, the reduction in quality in the down-link due to thermal noise in the up-link is taken as equivalent to a degradation in the down-link carrier-to-noise ratio not exceeding 0.5 dB for $99 \%$ of the worst month. In Region 2, as a guide for planning, the reduction in quality in the down-link due to thermal noise in the feeder link is taken as equivalent to a degradation in the down-link carrier-to-noise ratio of approximately 0.5 dB not exceeded for $99 \%$ of the worst month, but the feeder-link and down-link Plans are evaluated on the basis of the overall carrier-to-noise ratio of 14 dB for the combined down-link and feeder-link contributions.

### 3.4 Protection ratio between FM television signals

For planning in Regions 1 and 3 the following protection ratios have been adopted for the purpose of calculating equivalent protection margins ${ }^{1}$ :

31 dB for co-channel signals;
15 dB for adjacent channel signals.
${ }^{1}$ The equivalent protection margin $M$ is given in dB by the formula

$$
M=-10 \log \left(10^{-M_{1} / 10}+10^{-M_{2} / 10}+10^{-M_{1} / 10}\right)
$$

where $M_{1}$ is the value in dB of the protection margin for the same channel. This is defined in the following expression where the powers are evaluated at the receiver input:

$$
\frac{\text { wanted power }}{\substack{\text { sum of the co-channel } \\
\text { interfering powers }}} \begin{gathered}
\text { co-channel protection } \\
\text { ratio }(\mathrm{dB})
\end{gathered}
$$

$M_{2}$ and $M_{3}$ are the values in dB of the upper and lower adjacent-channel protection margins respectively.

The definition of the adjacent-channel protection margin is similar to that for the co-channel case except that the adjacent-channel protection ratio and the sum of the interfering powers due to emissions in the adjacent channel are considered.

In Region 2, the following protection ratios have been adopted for the purpose of calculating the overall equivalent protection margin ${ }^{1}$ :

28 dB for co-channel signals;
13.6 dB for adjacent-channel signals;
-9.9 dB for second adjacent-channel signals.
In Region 2, as a guide for planning, the reduction in the overall carrier-to-interference ratio due to co-channel interference in the feeder link is taken as equivalent to a degradation in the down-link co-channel carrier-to-interference ratio of approximately 0.5 dB not exceeded for $99 \%$ of the worst month, but the feeder-link and down-link Plans are evaluated on the basis of the overall equivalent protection margin, which includes the combined down-link and feeder-link contributions.

In Region 2, an overall equivalent protection margin of zero decibels, or greater, indicates that the individual protection ratios have been met for the co-channel, the adjacent channels and the second adjacent channels.

### 3.4.1 Adjacent channel protection ratio template for Region $2^{2}$ (FMTV into FMTV)

The protection ratios for adjacent channels are derived from the template given in Figure 6. The template is symmetrical and is given in terms of absolute levels for the carrier-to-interference ratios.

The template is obtained by joining the segment for adjacent channels to the horizontal extension of the co-channel protection ratio value. The adjacent channel protection ratio cannot be adjusted relative to the co-channel value.

[^49]
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FIGURE 6
Protection ratio template (FMTV/FMTV), for planning of broadcasting-satellite systems in Region 2

The template is given by the following expressions:

$P R=\left\{\right.$| 28 | dB |  |  |  | for | $\left\|F_{0}\right\| \leqslant 8.36 \mathrm{MHz}$ |
| :--- | :--- | :--- | :--- | :---: | :---: | :---: |
| -2.762 | $\left\|F_{0}\right\|+51.09 \mathrm{~dB}$ | for | $8.36<$ |  |  |  |
| -1.154 | $\left\|F_{0}\right\|+30.4 \mathrm{~dB}$ | for | $12.87<$ |  |  |  |
| -2.00 | $\left\|F_{0}\right\| \leqslant$ | $\left\|F_{0}\right\| \leqslant 21.87 \mathrm{MHz}$ |  |  |  |  |
|  | +48.38 dB | for |  |  |  |  |

where:
$P R$ is the protection ratio in dB and $\left|F_{0}\right|$ is the carrier spacing between the interfering and wanted signals in MHz .

### 3.5 Channel spacing

### 3.5.1 Channel spacing in the Plans

In Regions 1 and 3, the spacing between the assigned frequencies of two adjacent channels is 19.18 MHz .

In Region 2, the spacing between the assigned frequencies of two adjacent channels is 14.58 MHz , which corresponds to 32 channels in the 500 MHz bandwidth allocated to the broadcasting-satellite service.

The Plans give the assigned frequencies for each channel.

### 3.5.2 Grouping of channels in the same beam

Planning in Region 1 has been carried out by trying to group all the channels radiated within a single antenna beam within a frequency range of 400 MHz , in order to simplify receiver construction.
3.5.3 Spacing between assigned channel frequencies feeding a common antenna

For Regions 1 and 3, owing to technical difficulties in the output circuit of a satellite transmitter, spacing between the assigned frequencies of two channels feeding a common antenna must be greater than 40 MHz .
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3.6 Figure of merit $(G / T)$ of a receiving station in the broadcastingsatellite service

In planning the broadcasting-satellite service, the value of the figure of merit $G / T$ used is:
for Regions 1 and 3:
$6 \mathrm{~dB}\left(\mathrm{~K}^{-1}\right)$ for individual reception;
$14 \mathrm{~dB}\left(\mathrm{~K}^{-1}\right)$ for community reception, and
for Region 2:
$10 \mathrm{~dB}\left(\mathrm{~K}^{-1}\right)$ for individual reception.
The values are calculated from the following formula which allows for pointing error, polarization effects and equipment ageing:

$$
G / T=10 \log \left(\frac{\alpha \beta G_{r}}{\alpha T_{a}+(1-\alpha) T_{0}+(n-1) T_{0}}\right) \quad \mathrm{dB}\left(\mathrm{~K}^{-1}\right)
$$

where:

$$
\left.\begin{array}{rl}
\alpha= & \text { the total coupling losses, expressed as a power ratio; } \\
\beta= & \text { the total losses due to the pointing error, polarization } \\
\text { effects and equipment ageing, expressed as a power ratio; }
\end{array}\right\}
$$

See also CCIR Report 473-3 (Annex 1).

### 3.7 Receiving antennas

### 3.7. $\quad$ Minimum diameter of receiving antennas

For planning the broadcasting-satellite service the minimum receiving antenna diameter must be such that the half-power beamwidth $\varphi_{0}$ is:
a) for individual reception: $2^{\circ}$ in Regions 1 and 3, and $1.7^{\circ}$ in Region 2;
b) for community reception: $1^{\circ}$ in Regions 1 and 3.

### 3.7.2 Receiving antenna reference patterns

The co-polar and cross-polar receiving antenna reference patterns are given in Figures 7 and 8.
a) For Regions 1 and 3, the relative antenna gain (dB) is given by the curves in Figure 7 for:

- individual reception, for which use should be made of:
- Curve A for the co-polar component;
- Curve B for the cross-polar component;
- community reception, for which use should be made of:
- Curve $\mathrm{A}^{\prime}$ up to the intersection with Curve C, then Curve C , for the co-polar component;
- Curve B for the cross-polar component.
b) For Region 2, the relative antenna gain (dB) is given by the curves in Figure 8 for individual reception, for which use should be made of:
- Curve A for the co-polar component;
- Curve B for the cross-polar component.


Co-polar and cross-polar receiving antenna reference patterns
in Regions 1 and 3

Curve A: Co-polar component for individual reception without side-lobe suppression ( dB relative to main beam gain)

0

$$
\text { for } 0 \leqslant \varphi \leqslant 0.25 \varphi_{0}
$$

$-12\left(\frac{\varphi}{\varphi_{0}}\right)^{2} \quad$ for $0.25 \varphi_{0}<\varphi \leqslant 0.707 \varphi_{0}$
$-\left[9.0+20 \log \left(\frac{\varphi}{\varphi_{0}}\right)\right] \quad$ for $0.707 \varphi_{0}<\varphi \leqslant 1.26 \varphi_{0}$
$-\left[8.5+20 \log \left(\frac{\varphi}{\varphi_{0}}\right)\right] \quad$ for $1.26 \varphi_{0}<\varphi \leqslant 9.55 \varphi_{0}$
-33 for $\varphi>9.55 \varphi_{0}$
Curve $A^{\prime}$ : Co-polar component for community reception without side-lobe suppression ( dB relative to main beam gain)

0

$$
\text { for } 0 \leqslant \varphi \leqslant 0.25 \varphi_{0}
$$

$-12\left(\frac{\varphi}{\varphi_{0}}\right)^{2} \quad$ for $0.25 \varphi_{0}<\varphi \leqslant 0.86 \varphi_{0}$
$-\left[10.5+25 \log \left(\frac{\varphi}{\varphi_{0}}\right)\right] \quad$ for $\varphi>0.86 \varphi_{0}$ up to intersection with Curve C (then Curve C)

Curve B: Cross-polar component for both types of reception (dB relative to main beam gain)
-25 for $0 \leqslant \varphi \leqslant 0.25 \varphi_{0}$
$-\left(30+40 \log \left|\frac{\varphi}{\varphi_{0}}-1\right|\right)$ for $0.25 \varphi_{0}<\varphi \leqslant 0.44 \varphi_{0}$
-20 for $0.44 \varphi_{0}<\varphi \leqslant 1.4 \varphi_{0}$
$-\left(30+25 \log \left|\frac{\varphi}{\varphi_{0}}-1\right|\right) \quad$ for $1.4 \varphi_{0}<\varphi \leqslant 2 \varphi_{0}$

- 30 until intersection with co-polar component curve; then co-polar component curve.

Curve C: Minus the on-axis gain (Curve C in this figure illustrates the particular case of an antenna with an on-axis gain of 37 dBi ).

Note: for values of $\varphi_{0}$ see section 3.7.1


FIGURE 8
Reference patterns for co-polar and cross-polar components for receiving earth station antennas in Region 2

Curve A: Co-polar component without side-lobe suppression (dB relative to main beam gain)

0
for $0 \leqslant \varphi \leqslant 0.25 \varphi_{0}$
$-12\left(\varphi / \varphi_{0}\right)^{2}$
for $0.25 \varphi_{0}<\varphi \leqslant 1.13 \varphi_{0}$
$-\left\{14+25 \log \left(\varphi / \varphi_{0}\right)\right\}$
for $1.13 \varphi_{0}<\varphi \leqslant 14.7 \varphi_{0}$
$-43.2$
for $14.7 \varphi_{0}<\varphi \leqslant 35 \varphi_{0}$
$-\left\{85.2-27.2 \log \left(\varphi / \varphi_{0}\right)\right\}$
for $35 \varphi_{0}<\varphi \leqslant 45.1 \varphi_{0}$
$-40.2$
for $45.1 \varphi_{0}<\varphi \leqslant 70 \varphi_{0}$
$-\left\{-55.2+51.7 \log \left(\varphi / \varphi_{0}\right)\right\}$
for $70 \varphi_{0}<\varphi \leqslant 80 \varphi_{0}$
-43.2 for $80 \varphi_{0}<\varphi \leqslant 180^{\circ}$

Curve B: Cross-polar component ( dB relative to main beam gain)

$$
\begin{array}{ll}
-25 & \text { for } 0 \leqslant \varphi \leqslant 0.25 \varphi_{0} \\
-\left(30+40 \log \left|\frac{\varphi}{\varphi_{0}}-1\right|\right) & \text { for } 0.25 \varphi_{0}<\varphi \leqslant 0.44 \varphi_{0} \\
-20 & \text { for } 0.44 \varphi_{0}<\varphi \leqslant 1.28 \varphi_{0} \\
-\left(17.3+25 \log \left|\frac{\varphi}{\varphi_{0}}\right|\right) & \text { for } 1.28 \varphi_{0}<\varphi \leqslant 3.22 \varphi_{0}
\end{array}
$$

-30 until intersection with co-polar component curve; then co-polar component curve.

Note 1: For values of $\varphi_{0}$ see paragraph 3.7.1.
Note 2: In the angular range between $0.1 \varphi_{0}$ and $1.13 \varphi_{0}$ the co-polar and cross-polar gains must not exceed the reference patterns.

Note 3: At off-axis angles larger than $1.13 \varphi_{0}$ and for $90 \%$ of all sidelobe peaks in each of the reference angular windows, the gain must not exceed the reference patterns. The reference angular windows are $1.13 \varphi_{0}$ to $3 \varphi_{0}, 3 \varphi_{0}$ to $6 \varphi_{0}, 6 \varphi_{0}$ to $10 \varphi_{0}, 10 \varphi_{0}$ to $20 \varphi_{0}, 20 \varphi_{0}$ to $40 \varphi_{0}, 40 \varphi_{0}$ to $75 \varphi_{0}$ and $75 \varphi_{0}$ to $180^{\circ}$.
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### 3.8 Necessary bandwidth

The necessary bandwidths considered are as follows for:

- 625 -line systems in Regions 1 and 3: 27 MHz ;
- 525-line systems in Region 3: 27 MHz .

In Region 2, the Plan is based on a channel bandwidth of $24 \mathrm{MHz}^{1}$, but different bandwidths may be implemented in accordance with the provisions of this Appendix.

### 3.9 Guardbands

3.9.1 A guardband is defined as the portion of the frequency spectrum between the edge of the allocated band and the edge of the necessary bandwidth of the emission in the nearest channel.
3.9.2 For the planning of the broadcasting-satellite service, the guardbands necessary to protect the services in adjacent frequency bands are shown in the table below.

| Regions | Guardband at the lower <br> edge of the band | Guardband at the upper <br> edge of the band |
| :---: | :---: | :---: |
| 1 | 14 MHz | 11 MHz |
| 2 | 12 MHz |  |
| 3 | 14 MHz | 12 MHz |
| 11 MHz |  |  |

${ }^{1}$ For France, Denmark and some of the United Kingdom requirements which use 625 -line standards with greater video bandwidth, the channels shown in the Plan have a necessary bandwidth of 27 MHz . This is indicated by an appropriate symbol in the Plan.

For Regions 1 and 3, the guardbands assume a maximum beam centre e.i.r.p. of 67 dBW (value relating to individual reception), and a filter roll-off of $2 \mathrm{~dB} / \mathrm{MHz}$. If smaller e.i.r.p. values are assumed, the guardbands can be reduced in width by 0.5 MHz for each decibel decrease in e.i.r.p.
3.9.3 Since developments in technology or the choice of lower e.i.r.p. values than those given above are likely to permit a reduction in the necessary guardbands, it is recommended for Regions 1 and 3 that, for purposes other than planning at the 1977 Conference, the latest CCIR Recommendations concerning spurious emissions from broadcasting satellites should be followed.
3.9.4 The guardbands at both the lower and upper edges may be used for transmissions in the space operation service.

### 3.10 Orbital spacing

The Plan for Regions 1 and 3 has been based generally on nominal orbital positions spaced uniformly at intervals of $6^{\circ}$. The Plan for Region 2 has been based on a non-uniform spacing.

### 3.11 Satellite station-keeping

Space stations in the broadcasting-satellite service must be maintained in position with an accuracy of better than $\pm 0.1^{\circ}$ in both the $\mathrm{N}-\mathrm{S}$ and the E-W directions. For such space stations, the maintenance of the tolerance in the N -S direction is recommended but is not a requirement for Region 2.

### 3.12 Elevation angle of receiving antennas

The Plans have been based on the desirability of a minimum angle of elevation of $20^{\circ}$ to minimize the required e.i.r.p. of the satellite and to reduce the effects of shadowing and the possibility of interference from terrestrial services. However, for areas situated in latitudes above about $60^{\circ}$, the angle of elevation is of necessity less than $20^{\circ}$. Attention is also drawn to section 2.2 for the Regions 1 and 3 Plan and to section 2.4.3 for the Region 2 Plan.

For mountainous areas where an elevation angle of $20^{\circ}$ may not suffice, an angle of at least $30^{\circ}$ has been provided, where possible, to provide an acceptable service. An angle of elevation of at least $40^{\circ}$ has been considered for service areas subject to high precipitation (e.g., in Regions 1 and 3, rain-climatic zone 1; in Region 2, rain-climatic zones $\mathrm{M}, \mathrm{N}$ and P ), but exceptions were made in some cases in Region 2.

Some dry, non-mountainous areas may be given an acceptable service at angles of elevation less than $20^{\circ}$.

In areas with small elevation angles, the shadowing effect of tall buildings may have to be takerr into account.

In choosing a satellite position designed to give the maximum angle of elevation at the ground, the influence of such a position on the eclipse period has been borne in mind.

### 3.13 Transmitting antennas

### 3.13.1 Cross-section of transmitted beam

Planning in Regions 1, 2 and 3 has been based on the use of transmitting antennas with beams of elliptical or circular cross-section.

If the cross-section of the emitted beam is elliptical, the effective beamwidth $\varphi_{0}$ is a function of the angle of rotation between the plane containing the satellite and the major axis of the beam cross-section and the plane in which the beamwidth is required.

The relationship between the maximum gain of an antenna and the half-power beamwidth can be derived from the expression:

$$
G_{m}=\frac{27843}{a b}
$$

or

$$
G_{m}(\mathrm{~dB})=44.44-10 \log a-10 \log b
$$

where:
$a$ and $b$ are the angles (in degrees) subtended at the satellite by the major and minor axes of the elliptical cross-section of the beam.

An antenna efficiency of $55 \%$ is assumed.

### 3.13.2 Minimum beamwidth of transmitting antenna

A minimum value of $0.6^{\circ}$ for the half-power beamwidth of a transmitting antenna has been adopted for planning for Regions 1 and 3, and $0.8^{\circ}$ for Region 2.

### 3.13.3 Transmitting antenna reference patterns

The reference patterns for the co-polar and cross-polar components of satellite transmitting antennas used in preparing the Plans are given in Figure 9 for Regions 1 and 3, and in Figure 10 for Region 2.


FIGURE 9
Reference patterns for co-polar and cross-polar components for satellite transmitting antennas in Regions 1 and 3

Curve A: Co-polar component (dB relative to main beam gain)

$$
\begin{array}{ll}
-12\left(\frac{\varphi}{\varphi_{0}}\right)^{2} & \text { for } 0 \leqslant \varphi \leqslant 1.58 \varphi_{0} \\
-30 & \text { for } 1.58 \varphi_{0}<\varphi \leqslant 3.16 \varphi_{0} \\
-\left[17.5+25 \log \left(\frac{\varphi}{\varphi_{0}}\right)\right] & \text { for } \varphi>3.16 \varphi_{0}
\end{array}
$$

after intersection with Curve C : as Curve C

Curve B: Cross-polar component ( dB relative to main beam gain)

$$
\begin{array}{ll}
-\left(40+40 \log \left|\frac{\varphi}{\varphi_{0}}-1\right|\right) & \text { for } 0 \leqslant \varphi \leqslant 0.33 \varphi_{0} \\
-33 & \text { for } 0.33 \varphi_{0}<\varphi \leqslant 1.67 \varphi_{0} \\
-\left(40+40 \log \left|\frac{\varphi}{\varphi_{0}}-1\right|\right) & \text { for } \varphi>1.67 \varphi_{0}
\end{array}
$$

after intersection with Curve C : as Curve C

Curve C: Minus the on-axis gain (Curve C in this figure illustrates the particular case of an antenna with an on-axis gain of 43 dBi ).


FIGURE 10
Reference patterns for co-polar and cross-polar components

Curve A: Co-polar component ( dB relative to main beam gain)

$$
\begin{array}{lll}
-12\left(\varphi / \varphi_{0}\right)^{2} & \text { for } 0 \leqslant\left(\varphi / \varphi_{0}\right) \leqslant 1.45 \\
-\left(22+20 \log \left(\varphi / \varphi_{0}\right)\right) & \text { for }\left(\varphi / \varphi_{0}\right)>1.45
\end{array}
$$

after intersection with curve C : Curve C

Curve B: Cross-polar component ( dB relative to main beam gain)
$-30$
for $0 \leqslant\left(\varphi / \varphi_{0}\right) \leqslant 2.51$
after intersection with co-polar pattern: co-polar pattern

Curve C: Minus the on-axis gain (Curve C in this figure illustrates the particular case of an antenna with an on-axis gain of 46 dBi ).

In Region 2, when it was necessary to reduce interference, the pattern shown in Figure 11 was used; this use is indicated in the Plan by an appropriate symbol. This pattern is derived from an antenna producing an elliptical beam with fast roll-off in the main lobe. Three curves for different values of $\varphi_{0}$ are shown as examples.


FIGURE 11
Reference patterns for co-polar and cross-polar components for satellite transmitting antennas with fast roll-off in the main beam for Region 2

Curve A: Co-polar component ( dB relative to main beam gain)

$$
\begin{array}{ll}
-12\left(\varphi / \varphi_{0}\right)^{2} & \text { for } 0 \leqslant\left(\varphi / \varphi_{0}\right) \leqslant 0.5 \\
-18.75 \varphi_{0}^{2}\left(\varphi / \varphi_{0}-x\right)^{2} & \text { for } 0.5<\left(\varphi / \varphi_{0}\right) \leqslant\left(\frac{1.16}{\varphi_{0}}+x\right) \\
-25.23 & \text { for }\left(\frac{1.16}{\varphi_{0}}+x\right)<\left(\varphi / \varphi_{0}\right) \leqslant 1.4 \\
-\left(22+20 \log \left(\varphi / \varphi_{0}\right)\right) & \text { for }\left(\varphi / \varphi_{0}\right)>1.45
\end{array}
$$

after intersection with curve $C$ : Curve C

Curve B: Cross-polar component (dB relative to main beam gain)
for $0 \leqslant\left(\varphi / \varphi_{0}\right)<2.51$
after intersection with co-polar pattern: co-polar pattern

Curve C: Minus the on-axis gain (Curves A and C represent examples of three antennas having different values of $\varphi_{0}$ as labelled in Figure 11. The on-axis gains of these antennas are approximately 34,40 and 46 dBi , respectively).
where:
$\rho \quad=$ off-axis angle (degrees)
$\varphi_{0}=$ dimension of the minimum ellipse fitted around the down-link service area in the direction of interest (degrees)
$x=0.5\left(1-\frac{0.8}{\varphi_{0}}\right)$.

### 3.14 Satellite antenna pointing accuracy

3.14.1 The deviation of the antenna beam from its nominal pointing direction must not exceed a limit of $0.1^{\circ}$ in any direction. Moreover, the angular rotation of a transmitting beam about its axis must not exceed a limit of $\pm 2^{\circ}$ for Regions 1 and 3 , and $\pm 1^{\circ}$ for Region 2; the limit on rotation is not necessary for beams of circular cross-section using circular polarization.
3.14.2 The following factors contribute to the total variation in the area on the surface of the Earth illuminated by the satellite beam:

- variations in satellite station-keeping;
- the variations caused by the pointing tolerances, which become more significant for coverage areas with low angles of elevation;
- the effect of the yaw error, which increases as the beam ellipse lengthens.
3.14.3 The effect of these possible variations should be assessed on a case-by-case basis, since their total effect on the area covered will vary with the geometry of the satellite beam, and it would not be reasonable to indicate a single value of shift in the area covered for all situations.
3.14.4 If linear polarization is used for an emission, yaw error makes a significant contribution to increasing the transmitted cross-polarized component; this increases the interference with other carriers which were originally cross-polarized with the emission in question.


### 3.15 Limitation of output power in the satellite transmitter

The output power of a space station transmitter in the broadcastingsatellite service must not rise by more than 0.25 dB relative to its nominal value throughout the life of the satellite.

### 3.16 Power flux-density at edge of coverage area

The value of the power flux-density at the edge of the coverage area exceeded for $99 \%$ of the worst month is:
$-103 \mathrm{~dB}\left(\mathrm{~W} / \mathrm{m}^{2}\right)$ for individual reception in Regions 1 and 3;
$-107 \mathrm{~dB}\left(\mathrm{~W} / \mathrm{m}^{2}\right)$ for individual reception in Region 2 for 24 MHz , as well as for 27 MHz with respect to the cases mentioned in the footnote to Section 3.8.
$-111 \mathrm{~dB}\left(\mathrm{~W} / \mathrm{m}^{2}\right)$ for community reception in Regions 1 and 3.
3.17 Difference between the e.i.r.p. directed towards the edge of the coverage area and that on the axis of the beam

For planning, the absolute value of the difference between the e.i.r.p. directed towards the edge of the coverage area and that on the axis of the beam should preferably be 3 dB .

If the beam area is larger than the coverage area, the value will be less than 3 dB .

### 3.18 Use of energy dispersal

For planning, an energy dispersal value has been adopted which reduces by 22 dB the spectral power flux-density measured in a 4 kHz bandwidth in relation to that measured in the entire bandwidth; this reduction corresponds to a peak-to-peak deviation of 600 kHz .

## ANNEX $6^{1}$

## Criteria for Sharing Between Services

1. Protection requirements for sharing between services in the 12 GHz band
1.1 The establishment of sharing criteria for the different services using the 12 GHz band should be based on the protection requirements listed in the table below.
1.2 The values given as "total acceptable" are those necessary to protect the wanted signal. The "single entry" values are those which should be used as a guide for determining sharing criteria. The total interference from all sources must be calculated, since satisfying the "single entry" criteria for each source may not guarantee that the total interference meets the above protection requirements. A "single entry" is defined as the aggregate of emissions from any one station entering any receiver in the wanted service within the channel to be protected.
1.3 The carrier-to-interference ratio ( $C / I$ ) refers to the ratio of the wanted-to-interfering power at the affected ground station. The value given shall be exceeded for $80 \%$ of the worst month for the fixed-satellite service (FSS), and for $99 \%$ of the worst month for the broadcasting service (BS) and the broadcasting-satellite service (BSS).
1.4 The term $N$ refers to the post-demodulation noise power at a point of 0 dBm 0 relative test tone level in any voice channel of an FDM/FM telephony system. The value given shall not be exceeded for $80 \%$ of the worst month.
1.5 The specified values of protection ratio (i.e., the carrier-to-interference power ratio corresponding to a specified picture quality) are applicable, for planning purposes, to television signals of any of the several television standards.
[^50]| Wanted service ${ }^{1}$ | Wanted signal ${ }^{1}$ | Interfering service ${ }^{1}$ | Interfering signal ${ }^{1}$ | Protection requirements ${ }^{2}$ |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | Total acceptable ${ }^{3}$ | Single entry |
| BSS | TV/FM | BSS, FSS, FS, BS | TV/FM | $C / I=30 \mathrm{~dB}^{4.7}$ | $C / I=35 \mathrm{~dB}^{4}$ |
| FSS | FDM/FM | BSS | TV/FM | $N=500 \mathrm{pW} 0 \mathrm{p}^{8}$ | $N=300 \mathrm{pW} 0 \mathrm{p}$ |
| FSS | TV/FM | BSS, FSS | TV/FM | $C / I=32 \mathrm{~dB}^{5}$ | $C / I=37 \mathrm{~dB}{ }^{5}$ |
| FSS | 4¢-PSK | BSS, FSS | TV/FM | $C / I=30 \mathrm{~dB}$ | $C / I=35 \mathrm{~dB}$ |
| FSS | FDM/FM | FSS | FDM/FM | $N=1000 \mathrm{pW} 0 \mathrm{p}$ | $N=400 \mathrm{pW} 0 \mathrm{p}$ |
| FS | FDM/FM | BSS | TV/FM | $N=1000 \mathrm{pW} 0 \mathrm{p}$ | $-125 \mathrm{~dB}\left(\mathrm{~W} / \mathrm{m}^{2} / 4 \mathrm{kHz}\right)^{6}$ |
| BS | TV/VSB | BSS | TV/FM | $C / I=50 \mathrm{~dB}$ | not applicable |

## Notes:

| ${ }^{1}$ BSS | $=$ broadcasting-satellite servic |
| ---: | :--- |
| FSS | $=$ fixed-satellite service |
| BS | $=$ broadcasting service |
| FS | $=$ fixed service |
| TV | $=$ television |


| FM | $=$ frequency modulation |
| :--- | :--- |
| FDM | $=$ frequency division multiplex |
| $4 \varphi$-PSK | $=$ four-level phase shift keying |
| VSB | $=$ vestigial sideband. | $4 \varphi$-PSK $=$ four-level phase shift keying VSB $=$ vestigial sideband.

TV $=$ television
${ }^{2}$ These limits include both up-link and down-link contributions.
${ }^{3}$ Values in dB are protection ratios for the sum of interfering signals. Values in pW 0 p represent interference noise in the worst telephone channels caused by the sum of interfering signals.
${ }^{4}$ For BSS satellites located at the interfaces of the Regions 1 and 3 Plan and the Region 2 Plan, the $C / I$ ratios should be 1 dB higher.
${ }^{5}$ See CCIR Recommendation 483.
${ }^{6}$ This value may be suitably modified for tropical regions to take account of rain attenuation. Allowance may also be made for polarization discrimination.
${ }^{7} C / I=$ ratio of carrier-to-interfering signal.
${ }^{8} N=$ noise power.
1.6 For BSS systems with FM/TV as the wanted signal, the protection ratios are given for particular reference conditions, the most important of which are:
a) frequency deviation of the wanted signal ( 12 MHz peak-topeak);
b) quality of the wanted service (grade 4.5) ${ }^{\text {' }}$;
c) co-channel carriers (no carrier-frequency offset).
1.7 If system design is based on conditions other than $a$ ) and $b$ ) above, the $\mathrm{FM} / \mathrm{TV}$ protection ratio is given by:

$$
\begin{equation*}
R=12.5-20 \log \left(D_{v} / 12\right)-Q+1.1 Q^{2} \tag{dB}
\end{equation*}
$$

where:

$$
\begin{aligned}
& D_{v}=\text { nominal peak-to-peak frequency deviation }(\mathrm{MHz}) \\
& Q=\text { the impairment grade, concerning the interference only. }
\end{aligned}
$$

1.8 When carriers are offset in frequency, condition $c$ ) does not apply and the adjacent channel protection ratios should be adjusted according to the frequency offset as shown in Figure 1. For example, at a frequency offset of 20 MHz , the total acceptable ratio of protection against interference to an FM/TV signal from another FM/TV signal is 13 dB . The corresponding "single entry" value is 18 dB .

[^51]

FIGURE 1
Reference case protection ratios relative to co-channel values
Curve A: TV/VSB-wanted, TV/FM interfering
Curve B: TV/FM-wanted, TV/FM interfering
Curve C: TV/FM-wanted, TV/VSB interfering
2. Reference antenna diameter for a fixed-satellite earth station to be used in calculating interference from space stations in the broad-casting-satellite service
2.1 For antennas larger than $100 \lambda(2.5 \mathrm{~m})$ in the fixed-satellite service, the gain of the side-lobes is given by the equation $32-25 \log \theta$, where $\theta$ is the angle from the boresight (CCIR Recommendation 465). The side-lobe gain is independent of antenna diameter.
2.2 However, in the case of transmitting earth stations, the level of interference radiated into the up-link of other satellite systems would be inversely proportional to the square of the antenna diameter. In this case, the interference decreases with increasing antenna diameter. Since the 11.7-12.2 GHz band is only assigned in the space-to-Earth direction in the fixed-satellite service, this point is not of direct concern to the broadcastingsatellite service.
2.3 Hence it does not appear appropriate, for antenna diameters greater than $100 \lambda$, to specify a minimum antenna diameter for receiving earth stations in the fixed-satellite service sharing the band $11.7-12.2 \mathrm{GHz}$. It may be useful to consider a 4.5 m antenna having an efficiency of $60 \%$ and an on-axis gain of 53 dB as typical for the purpose of planning the sharing of this band.
3. Use of energy dispersal in the broadcasting-satellite service
3.1 Artificial energy dispersal is useful in promoting sharing between the broadcasting-satellite service and the other services to which the band is also allocated.
3.2 Such energy dispersal is achieved by the addition at baseband of a triangular waveform to the video signal to form a composite baseband which, in turn, is used to frequency-modulate the up-link carrier. The frequency of the triangular waveform is usually synchronized at a sub-multiple of the television frame frequency. Typical frequencies range from 12.5 Hz to 30 Hz .
3.3 The table below gives the relative reduction in spectral power flux-density in a 4 kHz bandwidth as a function of the peak-to-peak deviation due to the energy dispersal signal. This table is based on the following equation:

Relative reduction $(\mathrm{dB})$ in a 4 kHz band $=10 \log \frac{\Delta F_{p p}+\delta f_{r m s}}{4}$
where:
$\Delta F_{p p}=\underset{(\mathrm{kHz}) ;}{\text { peak-to-peak deviation due to the energy dispersal signal }}$
$\delta f_{r m s}=$ rms deviation due to "natural" energy dispersal ( kHz ).
In compiling the table below, a value of 40 kHz has been assumed for $\delta f_{r m s}$, on the basis of the value of 10 dB for "natural" dispersion given in Table 4 of CCIR draft Report 631 (Rev. 76).

Reduction of spectral power flux-density relative
to a 4 kHz bandwidth

| Peak-to-peak <br> deviation (kHz) | Relative <br> reduction (dB) |
| :---: | :---: |
| 0 | 10 |
| 100 | 15.44 |
| 200 | 17.78 |
| 300 | 19.29 |
| 400 | 20.41 |
| 500 | 21.30 |
| 600 | 22.04 |
| 700 | 22.67 |
| 800 | 23.22 |
| 900 | 23.71 |
| 1000 | 24.15 |

3.4 The value of energy dispersal for the broadcasting-satellite service has been determined such that the spectral power flux-density measured in a 4 kHz bandwidth is reduced by 22 dB relative to that measured in the entire bandwidth; this reduction corresponds to a peak-to-peak deviation of 600 kHz .

## ANNEX 7

## Orbital Position Limitations

A. In applying the procedure of Article 4 for modifications to the appropriate Regional Plan, administrations should observe the following criteria:

1) No broadcasting satellite serving an area in Region 1 and using a frequency in the band $11.7-12.2 \mathrm{GHz}$ shall occupy a nominal orbital position further west than $37^{\circ} \mathrm{W}$ or further east than $146^{\circ} \mathrm{E}$.
2) No broadcasting satellite serving an area in Region 2 that involves an orbital position different from that contained in the Region 2 Plan shall occupy a nominal orbital position:
a) further east than $54^{\circ} \mathrm{W}$ in the band $12.5-12.7 \mathrm{GHz}$; or
b) further east than $44^{\circ} \mathrm{W}$ in the band $12.2-12.5 \mathrm{GHz}$; or
c) further west than $175.2^{\circ} \mathrm{W}$ in the band $12.2-12.7 \mathrm{GHz}$.

However, modifications necessary to resolve possible incompatibilities during the incorporation of the Regions 1 and 3 feederlink Plan into the Radio Regulations shall be permitted.
3) Any new orbital position in the Regions 1 and 3 Plan in the range of the orbital arc between $37^{\circ} \mathrm{W}$ and $10^{\circ} \mathrm{E}$ associated with a new assignment, or resulting from a modification of an assignment in the Plan, shall be coincident with, or within $1^{\circ}$ to the east of, a nominal orbital position in the Region 1 and 3 Plan at the date of entry into force of the Final Acts ${ }^{1}$.

In the event of a modification to an assignment in the Regions 1 and 3 Plan, the use of a new nominal orbital position not coincident with any nominal orbital position in the Plan at the date of entry into force of the Final Acts ${ }^{1}$ shall involve an 8 dB reduction in the e.i.r.p. compared to that appearing in the Regions 1 and 3 Plan for the assignment before modification.
B. The Region 2 Plan is based on the grouping of the space stations in nominal orbital positions of $+0.2^{\circ}$ and $-0.2^{\circ}$ from the centre of $\bullet$ he cluster of satellites. Administrations may locate those satellites within a cluster at any orbital position within that cluster, provided they obtain the agreement of administrations having assignments to space stations in the same cluster. (See Section 3.13.1 of Annex 3 to Appendix 30A of the Radio Regulations.)

[^52]
## APPENDIX 30A

## Orb-85

> Provisions and Associated Plan for the Feeder Links for the Broadcasting-Satellite Service (12.2-12.7 GHz) in the Frequency Band 17.3-17.8 GHz in Region 2
(See Article 15A)

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## ARTICLE 1

## General Definitions

1.1 Region 2 Feeder-Link Plan: The Plan for the feeder links for the broadcasting-satellite service in the frequency band $17.3-17.8 \mathrm{GHz}$ in Region 2 contained in this Appendix together with any modifications resulting from the successful application of the procedure of Article 4 of this Appendix herein referred to as the Plan.
1.2 Frequency assignment in conformity with the Region 2 Feeder-Link Plan: Any frequency assignment for a receiving space station which appears in the Plan or for which the procedure of Article 4 of this Appendix has been successfully applied.
1.3 1983 Conference: Regional Administrative Radio Conference for the Planning in Region 2 of the Broadcasting-Satellite Service in the Frequency Band 12.2-12.7 GHz and Associated Feeder Links in the Frequency Band 17.3-17.8 GHz, called in short Regional Administrative Conference for the Planning of the Broadcasting-Satellite Service in Region 2 (RARC Sat-R2), Geneva, 1983.
1.4 1985 Conference: First Session of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It, Geneva, 1985, called in short WARC Orb-85.

# ARTICLE 2 

## Frequency Band

2.1 The provisions of this Appendix apply to the feeder links in the fixed-satellite service (Earth-to-space) in the frequency band 17.317.8 GHz , for the broadcasting-satellite service in Region 2, and to other services to which this band is allocated in Region 2 so far as their relationship to the fixed-satellite service (Earth-to-space) in this band is concerned.

## ARTICLE 3

## Execution of the Provisions and Associated Plan

3.1 The Members of the Union in Region 2 shall adopt for their feeder-link space and earth stations in the fixed-satellite service (Earth-tospace) in the frequency band referred to in this Appendix, the characteristics specified in the Plan and its associated provisions.
3.2 Members of the Union in Region 2 shall not change the characteristics specified in the Plan, or bring into use assignments to feeder-link stations in the fixed-satellite service or to stations of the other services to which these frequency bands are allocated, except as provided for in the Radio Regulations and the appropriate Articles and Annexes of this Appendix.

## ARTICLE 4

## Procedure for Modifications to the Region 2 Plan (17.3-17.8 GHz)

4.1 When an administration intends to make a modification to the Plan, i.e. either:
a) to modify the characteristics of any of its frequency assignments in the fixed-satellite service which are shown in the Plan, or for which the procedure in this Article has been successfully applied, whether or not the station has been brought into use; or
b) to include in the Plan a new frequency assignment in the fixed-satellite service; or
c) to cancel a frequency assignment in the fixed-satellite service,
the following procedure shall be applied before any notification of the frequency assignment is made to the International Frequency Registration Board (see Article 5 of this Appendix and Resolution 42 (Orb-85)).
4.1.1 Before an administration proposes to include in the Plan under the provisions of 4.1 b ) a new frequency assignment for reception at a space station ${ }^{1}$ or to include in the Plan a new frequency assignment for reception at a space station whose orbital position is not designated in the Plan to this administration, all of the assignments to the service areas involved should normally have been brought into service or have been notified to the Board in accordance with Article 5 of this Appendix. Should this not be the case, the administration concerned shall inform the Board of the reasons thereof.

[^53]4.2 Proposed modifications to a frequency assignment in conformity with the Plan or the inclusion in the Plan of a new frequency assignment
4.2.1 An administration proposing a modification to the characteristics of a frequency assignment in conformity with the Plan or the inclusion of a new frequency assignment in the Plan shall seek the agreement of those administrations:
4.2.1.1 of Region 2 having a feeder-link frequency assignment in the fixed-satellite service (Earth-to-space) in the same channel or an adjacent channel, which appears in the Plan or in respect of which proposed modifications to the Plan have already been published by the Board in accordance with the provisions of sections 4.2.3.1 and 4.2.4 of this Article; or
4.2.1.2 having a frequency assignment in the band $17.7-17.8 \mathrm{GHz}$ to an earth station in the fixed-satellite service (space-to-Earth) which is recorded in the Master Register or which has been coordinated or is being coordinated under the provisions of No. 1060 of the Radio Regulations and which is located within the coordination area of the feeder link fixed-satellite earth station;
4.2.1.3 having a frequency assignment in the band $17.7-17.8 \mathrm{GHz}$ to a terrestrial station in use or intended to be brought into use within three years of the projected date of bringing the feeder link modification into use, and which is located within the coordination area of the feeder link fixed-satellite earth station;
4.2.1.4 having an assignment in the fixed-satellite service (Earth-to-space) in Regions 1 or 3 which
a) is recorded in the Master Register; or
b) has been coordinated or is being coordinated or has been notified under Articles 11 and 13 of the Radio Regulations; or
c) appears in a Region 1 and 3 feeder-link Plan to be adopted by a future Administrative Radio Conference, taking account of modifications which may be introduced subsequently, in accordance with the Final Acts of that conference; or
d) is identified in accordance with Resolution 43 (Orb-85).
4.2.1.5 which are considered affected.
4.2.1.6 The services of an administration are considered to be affected when the limits shown in Annex 1 to this Appendix are exceeded.
4.2.2 The agreement referred to in 4.2.1 is not required when an administration proposes to bring into use, with characteristics appearing in the Plan, a fixed earth station in the band $17.3-17.8 \mathrm{GHz}$ or a transportable earth station in the band $17.3-17.7 \mathrm{GHz}$. Administrations may communicate to the Board the characteristics of such earth stations in order to include them in the Plan.
4.2.3 An administration intending to modify characteristics in the Plan shall send to the Board, not earlier than five years but preferably not later than eighteen months before the date on which the assignment is to be brought into use, the relevant information listed in Annex 2 to this Appendix.
4.2.3.1 Where as a result of the intended modification the limits defined in Annex 1 to this Appendix are not exceeded, this fact shall be indicated when submitting to the Board the information required by 4.2.3. The Board shall then publish this information in a special section of its weekly circular.
4.2.3.2 In all other cases the administration shall notify the Board of the names of the administrations whose agreement it considers should be sought in order to arrive at the agreement referred to in 4.2 .1 as well as of those with which agreement has already been reached.
4.2.4 The Board shall determine on the basis of Annex 1 to this Appendix the administrations whose frequency assignments are considered to be affected within the meaning of 4.2.1. The Board shall include the names of those administrations with the information received under 4.2.3.2 and shall
publish the complete information in a special section of its weekly circular. The Board shall immediately send the results of its calculations to the administration proposing the modification to the Plan.
4.2.5 The Board shall send a telegram to the administrations listed in the special section of the weekly circular drawing their attention to the information it contains and shall send them the results of its calculations.
4.2.6 An administration which feels that it should have been included in the list of administrations whose services are considered to be affected may, giving the technical reasons for so doing, request the Board to include its name. The Board shall study this request on the basis of Annex 1 to this Appendix and shall send a copy of the request with an appropriate recommendation to the administration proposing the modification to the Plan.
4.2.7 Any modification to a frequency assignment which is in conformity with the Plan or any inclusion in the Plan of a new frequency assignment which would have the effect of exceeding the limits specified in Annex 1 to this Appendix shall be subject to the agreement of all affected administrations.
4.2.8 The administration seeking agreement or the administration with which agreement is sought may request any additional technical information it considers necessary. The administrations shall inform the Board of such requests.
4.2.9 Comments from administrations on the information published pursuant to 4.2 .4 should be sent either directly to the administration proposing the modification or through the Board. In any event the Board shall be informed that comments have been made.
4.2.10 An administration which has not notified its comments either to the administration seeking agreement or to the Board, within a period of four months following the date of the weekly circular referred to in 4.2.3.1 or 4.2 .4 shall be understood to have agreed to the proposed modification. This time-limit may be extended by up to three months for an administration which has requested additional information under 4.2.8 or for an
administration which has requested the assistance of the Board under 4.2.18. In the latter case the Board shall inform the administrations concerned of this request.
4.2.11 If, in seeking agreement, an administration modifies its initial proposal, it shall again apply the provisions of 4.2 .3 and the consequent procedure with respect to any other administration whose services might be affected as a result of modifications to the initial proposal.
4.2.12 If no comments have been received on the expiry of the periods specified in 4.2.10, or if agreement has been reached with the administrations which have made comments and with which agreement is necessary, the administration proposing the modification may continue with the appropriate procedure in Article 5 of this Appendix and shall inform the Board, indicating the final characteristics of the frequency assignment together with the names of the administrations with which agreement has been reached.
4.2.13 The agreement of the administrations affected may also be obtained in accordance with this Article, for a specified period.
4.2.14 When the proposed modification to the Plan involves developing countries, administrations shall seek all practicable solutions conducive to the economical development of the broadcasting-satellite systems of these countries.
4.2.15 The Board shall publish in a special section of its weekly circular the information received under 4.2.12 together with the names of any administrations with which the provisions of this Article have been successfully applied. The frequency assignment concerned shall enjoy the same status as those appearing in the Plan and will be considered as a frequency assignment in conformity with the Plan.
4.2.16 When an administration proposing to modify the characteristics of a frequency assignment or to make a new frequency assignment receives notice of disagreement from an administration whose agreement it has sought, it should first endeavour to solve the problem by exploring all possible means of meeting its requirement. If the problem still cannot be
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solved by such means, the administration whose agreement has been sought should endeavour to overcome the difficulties as far as possible, and shall state the technical reasons for any disagreement if the administration seeking the agreement requests it to do so.
4.2.17 If no agreement is reached between the administrations concerned, the Board shall carry out any study that may be requested by these administrations; the Board shall inform them of the result of the study and shall make such recommendations as it may be able to offer for the solution of the problem.
4.2.18 An administration may at any stage in the procedure described, or before applying it, request the assistance of the Board, particularly in seeking the agreement of another administration.
4.2.19 The relevant provisions of Article 5 of this Appendix shall be applied when frequency assignments are notified to the Board.

### 4.3 Cancellation of frequency assignments

When a frequency assignment in conformity with the Plan is no longer required, whether or not as a result of a modification, the administration concerned shall immediately so inform the Board. The Board shall publish this information in a special section of its weekly circular and delete the assignment from the Plan.

### 4.4 Master copy of the Plan

4.4.1 The Board shall maintain an up-to-date master copy of the Plan, including the overall equivalent protection margins of each assignment, taking account of the application of the procedure specified in this Article. This master copy shall contain the overall equivalent protection margins derived from the Plan as established by the 1983 Conference and those derived from all modifications to the Plan as a result of the successful completion of the modification procedure of this Article. The Board shall prepare a document listing the amendments to be made to the Plan as a result of modifications made in accordance with the procedure in this Article.
4.4.2 The Secretary-General shall be informed by the Board of modifications made to the Plan and shall publish an up-to-date version of the Plan in an appropriate form when justified by the circumstances.

## ARTICLE 5

Notification, Examination and Recording in the Master Register of Frequency Assignments to Feeder-Link Transmitting Earth Stations and Receiving Space Stations in the Fixed-Satellite Service in the Band Between 17.3 and $\mathbf{1 7 . 8} \mathbf{~ G H z}$ in Region 2

### 5.1 Notification

5.1.1 Whenever an administration intends to bring into use a frequency assignment to a transmitting earth station or receiving space station in the fixed-satellite service in the band between 17.3 and 17.8 GHz , it shall notify this frequency assignment to the Board. For this purpose, the notifying administration shall apply the following provisions.
5.1.2 For any notification under 5.1.1, an individual notice for each frequency assignment shall be drawn up as prescribed in Annex 2 to this Appendix, the various sections of which specify the basic characteristics to be provided as appropriate. It is recommended that the notifying administration should also supply any other data it may consider useful.
5.1.3 Each notice must reach the Board not earlier than three years before the date on which the frequency assignment is to be brought into use. In any case, the notice must reach the Board not later than three months before that date ${ }^{1}$.

[^54]5.1.4 Any frequency assignment the notice of which reaches the Board after the applicable period specified in 5.1.3 shall, where it is to be recorded, bear a remark in the Master Register to indicate that it is not in conformity with 5.1.3.
5.1.5 Any notice made under 5.1.1 which does not contain the characteristics specified in Annex 2 to this Appendix shall be returned by the Board immediately by airmail to the notifying administration with the relevant reasons.
5.1.6 Upon receipt of a complete notice, the Board shall include its particulars, with the date of receipt, in its weekly circular which shall contain the particulars of all such notices received since the publication of the previous circular.
5.1.7 The circular shall constitute the acknowledgement to the notifying administration of the receipt of a complete notice.
5.1.8 Complete notices shall be considered by the Board in order of receipt. The Board shall not postpone its finding unless it lacks sufficient data to reach a decision; moreover, the Board shall not act upon any notice which has a technical bearing on an earlier notice still under consideration by the Board until it has reached a finding with respect to such earlier notice.

### 5.2 Examination and recording

5.2.1 The Board shall examine each notice:
a) with respect to its conformity with the Convention and the relevant provisions of the Radio Regulations (with the exception of those relating to $b$ ), $c$ ), and $d$ ) below); and
b) with respect to its conformity with the Plan; or
c) with respect to its conformity with the Plan, however having characteristics differing from those in the Plan in one or more of the following aspects:

- use of a reduced e.i.r.p.,
- use of a reduced coverage area entirely situated within the coverage area appearing in the Plan,
- use of other modulating signals in accordance with the provisions of 3.1.3 of Annex 5 of Appendix 30 (Orb-85),
- use of an orbital position under the conditions specified in paragraph B of Annex 7 of Appendix 30 (Orb-85),
- use of an antenna diameter greater than 5 metres without increasing the on-axis e.i.r.p.,
- use of an antenna diameter greater than 5 metres resulting in a greater on-axis e.i.r.p. if the orbital separation with any other space station is greater than $0.5^{\circ}$; or
d) with respect to its conformity with the provisions of Resolution 42 (Orb-85).
5.2.2 Where the Board reaches a favourable finding with respect to 5.2.1 $a$ ) and 5.2.1 b), the frequency assignment of an administration shall be recorded in the Master Register. The date of receipt of the notice by the Board shall be entered in Column 2d. In relations between administrations, all frequency assignments brought into use in conformity with the Plan and recorded in the Master Register shall be considered to have the same status irrespective of the dates entered in Column 2d for such frequency assignments.
5.2.2.1 Where the Board reaches a favourable finding with respect to 5.2.1 a) and 5.2.1 c) the frequency assignment shall be recorded in the Master Register. The date of receipt of the notice by the Board shall be entered in Column 2d. In relations between administrations, all frequency assignments brought into use in conformity with the Plan and recorded in
the Master Register shall be considered to have the same status irrespective of the dates entered in Column 2d for such frequency assignments. When recording these assignments, the Board shall indicate by an appropriate symbol the characteristics having a value different from that appearing in the Plan.
5.2.2.2 Where the Board reaches a favourable finding with respect to 5.2.1 $a$ ), but an unfavourable finding with respect to 5.2.1. b) and 5.2.1 c), it shall examine the notice with respect to the successful application of the provisions of Resolution 42 (Orb-85). A frequency assignment for which the provisions of Resolution 42 (Orb-85) have been successfully applied shall be recorded in the Master Register with an appropriate symbol to indicate its interim status. The date of receipt of the notice by the Board shall be entered in Column 2d. In relations between administrations all frequency assignments brought into use following the successful application of the provisions of Resolution 42 (Orb-85) and recorded in the Master Register shall be considered to have the same status irrespective of the dates entered in Column 2d for such frequency assignments.
5.2.3 Whenever a frequency assignment is recorded in the Master Register, the finding reached by the Board shall be indicated by a symbol in Column 13a.
5.2.4 Where the Board reaches an unfavourable finding with respect to 5.2.1 a), 5.2.1 b) and 5.2.1 c), the notice shall be returned immediately by airmail to the notifying administration with the reasons of the Board for this finding and with such suggestions as the Board may be able to offer with a view to a satisfactory solution of the problem.
5.2.5 Where the notifying administration resubmits the notice and the finding of the Board becomes favourable with respect to the appropriate parts of 5.2.1, the notice shall be treated as in 5.2.2, 5.2.2.1 or 5.2.2.2 as appropriate.
5.2.6 If the notifying administration resubmits the notice without modification and insists on its reconsideration, and if the Board's finding with respect to 5.2.1 remains unfavourable, the notice is returned to the notifying administration in accordance with 5.2.4. In this case, the notifying administration undertakes not to bring into use the frequency assignment until the condition specified in 5.2.5 is fulfilled.
5.2.7 If a frequency assignment notified in advance of bringing into use in conformity with 5.1 .3 has received a favourable finding by the Board with respect to the provisions of 5.2 .1 , it shall be entered provisionally in the Master Register with a special symbol in the Remarks Column indicating the provisional nature of that entry.
5.2.8 When the Board has received confirmation that the frequency assignment has been brought into use, the Board shall remove the symbol in the Master Register.
5.2.9 The date in Column 2 c shall be the date of bringing into use notified by the administration concerned. It is given for information only.


### 5.3 Cancellation of entries in the Master Register

5.3.1 If an administration has not confirmed the bringing into use of a frequency assignment under 5.2.8, the Board will make inquiries of the administration not earlier than six months after the expiry of the period specified in 5.1.3. On receipt of the relevant information, the Board will either modify the date of coming into use or cancel the entry.
5.3.2 If the use of any recorded frequency assignment is permanently discontinued, the notifying administration shall so inform the Board within three months, whereupon the entry shall be removed from the Master Register.

# ARTICLE 6 

Procedure Concerning Notification and Recording in the Master Register of Frequency Assignments to Terrestrial Stations in Region 2 in the Band 17.7 - 17.8 GHz, when Frequency Assignments to Feeder-Link Earth Stations for the Broadcasting-Satellite Service in Conformity with the Region 2 Plan Are Involved

6.1 Administrations planning to implement assignments for terrestrial stations in the $17.7-17.8 \mathrm{GHz}$ band should evaluate the level of interference which might be caused by the closest feeder-link earth station located on the border of the territory of another administration. In cases where the entry in the Plan contains information on specific earth stations, the level of interference shall be assessed on the basis of coordination contours calculated in accordance with Appendix 28 to the Radio Regulations. Should the administration concerned find that interference may be caused by the feeder-link earth stations to its planned terrestrial station, it may request the administration responsible for the feeder-link earth station to indicate the planned actual locations of the feeder-link earth stations.
6.2 An administration which receives a request under 6.1 shall, within a period of three months, indicate the actual locations of its feeder-link earth stations and communicate them to the Board in order to update the Plan.
6.3 If, at the end of a period of three months, the administration responsible for the terrestrial station does not receive a reply, it may request the assistance of the Board.
6.4 If the administration responsible for the feeder-link earth stations does not communicate to the Board, within a period of three months, the actual locations of its feeder-link earth stations, this administration may implement its feeder-link earth station provided it does not cause harmful interference to the terrestrial station under consideration.

## ARTICLE 7

Procedure Concerning Notification and Recording in the Master Register of Frequency Assignments to Stations in the Fixed-Satellite Service (Space-to-Earth) in Region 2 in the Band 17.7 - 17.8 GHz , when Frequency Assignments to Feeder-Link Stations for the Broadcasting-Satellite Service Appearing in the Region 2 Plan Are Involved

7.1 The provisions of Articles 11 and 13 and Appendix 29 of the Radio Regulations are applicable to transmitting space stations in the fixed-satellite service of Region 2 in the band $17.7-17.8 \mathrm{GHz}$ together with the provisions of Annex 4 to this Appendix, except that in relationship with feeder-link stations in Region 2, the threshold value mentioned in Appendix 29 to the Radio Regulations is replaced by those given in Annex 4 to this Appendix.
7.2 Administrations planning to implement assignments for receiving earth stations in the $17.7-17.8 \mathrm{GHz}$ band in the fixed-satellite service (space-to-Earth) should evaluate the level of interference that might be caused by the closest feeder-link earth station located on the border of the territory of another administration. In cases where the entry in the Plan or the Master Register contains information on specific earth stations, the level of interference shall be assessed on the basis of coordination contours calculated in accordance with Annex 4 to this Appendix. Should this administration find that interference may be caused by the feeder-link earth stations to its planned fixed-satellite earth station, it may request the administration responsible for the feeder-link earth station to indicate the planned actual locations of the feeder-link earth stations.
7.3 An administration which receives a request under 7.2 shall, within a period of three months, indicate the actual locations of its earth stations and communicate it to the Board in order to update the Plan.
7.4 If, at the end of the period of three months, the administration responsible for the fixed-satellite receiving earth station does not receive a reply, it may request the assistance of the Board in this matter.
7.5 If the administration responsible for the feeder-link earth stations does not communicate to the Board, within a period of three months, the actual locations of its feeder-link earth stations, this administration may implement its feeder-link earth station provided it does not cause harmful interference to the fixed-satellite earth station under consideration.

## ARTICLE 8

## Miscellaneous Provisions Relating to the Procedures

## Section I. Studies and Recommendations

8.1.1 If it is requested by any administration, the Board, using such means at its disposal as are appropriate in the circumstances, shall conduct a study of cases of alleged contravention or non-observance of these provisions, or of harmful interference.
8.1.2 The Board shall thereupon prepare and forward to the administrations concerned a report containing its findings and recommendations for the solution of the problem.
8.1.3 On receiving the Board's recommendations for the solution of the problem, an administration shall promptly acknowledge the receipt by telegram and shall subsequently indicate the action it intends to take. In cases when the Board's suggestions or recommendations are unacceptable to the administrations concerned, further efforts should be made by the Board to find an acceptable solution to the problem.
8.1.4 In a case where, as a result of a study, the Board submits to one or more administrations suggestions or recommendations for the solution of a problem, and where no answer has been received from one or more of these
administrations within a period of four months, the Board shall consider that the suggestions or recommendations concerned are unacceptable to the administrations which did not answer. If it was the requesting administration which failed to answer within this period, the Board shall close the study.

## Section II. Miscellaneous Provisions

8.2.1 If it is requested by any administration, particularly by an administration of a country in need of special assistance, the Board, using such means at its disposal as are appropriate in the circumstances, shall render the following assistance:
a) computation necessary in the application of Annexes 1,3 and 4 to this Appendix;
b) any other assistance of a technical nature for completion of the procedures in this Appendix.
8.2.2 In making a request to the Board under paragraph 8.2.1, the administration shall furnish the Board with the necessary information.

## ARTICLE 9

## The Plan for the Feeder Links in the Fixed-Satellite Service in the Frequency Band 17.3 - $\mathbf{1 7 . 8} \mathbf{~ G H z}$ in Region 2

## 9.1 <br> COLUMN HEADINGS OF THE PLAN

Col. 1 Beam identification (Column 1 contains the symbol designating the country or the geographical area taken from Table B1 of the Preface to the International Frequency List followed by the symbol designating the service area).

Col. 2 Nominal orbital position, in degrees and hundredths of a degree.
Col. 3 Channel number (see Table 2 showing channel numbers and corresponding assigned frequencies).
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Col. 4 Boresight geographical coordinates, in degrees and hundredths of a degree.

Col. 5 Antenna beamwidth. This column contains two figures corresponding to the major axis and the minor axis respectively of the elliptical cross-section half-power beam, in degrees and hundredths of a degree.

Col. 6 Orientation of the ellipse determined as follows: in a plane normal to the beam axis, the direction of a major axis of the ellipse is specified as the angle measured anti-clockwise from a line parallel to the equatorial plane to the major axis of the ellipse to the nearest degree.

Col. $7 \quad$ Polarization ( $1=$ direct, $2=$ indirect $).{ }^{1}$
Col. 8 Earth station e.i.r.p. in the direction of maximum radiation, in dBW.

Col. 9 Location of earth station(s) in the band 17.7-17.8 GHz.
9.1 Geographical coordinates.
9.2 Antenna characteristics.
9.3 Elevation angle of the horizon around the earth station using the band $17.7-17.8 \mathrm{GHz}$.

Col. 10 Remarks.
9.2

TEXT FOR SYMBOLS IN REMARKS COLUMN OF THE PLAN

1. Fast roll-off space station receiving antenna as defined in Annex 3 (Section 3.6.3) to this Appendix.

[^55]2. Television standard with 625 lines using greater video bandwidth and necessary bandwidth of 27 MHz .
3. This assignment will be implemented only if it does not hinder the development and subsequent introduction of a feeder-link Plan for Region 1.
4. This assignment may be utilized in the geographical area of Anguilla (AIA) (which is in the beam area).
5. Feeder-link earth stations for this assignment may also be located in the territories of Puerto Rico and the United States Virgin Islands. Such operation shall not cause more interference nor require more protection than the assignment under the Plan.
6. Feeder-link earth stations for this assignment may also be located in the States of Alaska and Hawaii. Such operation shall not cause more interference nor require more protection than the assignment under the Plan.
7. The feeder-link earth station for this assignment may also be located at the point with geographical coordinates $3^{\circ} 31^{\prime}$ West, $48^{\circ} 46^{\prime}$ North. Such operation shall not cause more interference nor require more protection than the assignment under the Plan.
8. Feeder-link earth stations for this assignment may also be located at the points with the following geographical coordinates:

| $47^{\circ} 55^{\prime}$ West | $15^{\circ} 47^{\prime}$ South | $34^{\circ} 53^{\prime}$ West | $08^{\circ} 04^{\prime}$ South |
| :--- | :--- | :--- | :--- |
| $43^{\circ} 13^{\prime}$ West | $22^{\circ} 55^{\prime}$ South | $60^{\circ} 02^{\prime}$ West | $03^{\circ} 06^{\prime}$ South |
| $46^{\circ} 38^{\prime}$ West | $23^{\circ} 33^{\prime}$ South | $38^{\circ} 31^{\prime}$ West | $12^{\circ} 56^{\prime}$ South |
| $51^{\circ} 13^{\prime}$ West | $30^{\circ} 02^{\prime}$ South | $49^{\circ} 15^{\prime}$ West | $16^{\circ} 40^{\prime}$ South |

Such operation shall not cause more interference nor require more protection than the assignment under the Plan.

9/GR . . . This assignment is part of a group, the number of which follows the symbol. The group consists of the beams and has the number of channels assigned to it as indicated in the Table 1.
a) The overall equivalent protection margin to be used for the application of Article 4 and Resolution 42 (Orb-85) shall be calculated on the following basis:

- for the calculation of interference to assignments that are part of a group, only the interference contributions from assignments that are not part of the same group are to be included; and
- for the calculation of interference from assignments belonging to a group to assignments that are not part of that same group, only the worst interference contribution from that group shall be used on a test point to test point basis.
b) If an administration notifies the same frequency in more than one beam of a group for use at the same time, the aggregated $C / I$ produced by all emissions from that group shall not exceed the $C / I$ calculated on the basis of $a$ ) above.

TABLE 1

|  |  | Number of <br> channels <br> assigned to <br> the group |
| :--- | :---: | :--- |
| Group |  |  |

## Country symbols

1. For the explanation of symbols designating countries or geographical areas in Region 2, see the Preface to the International Frequency List.
2. One additional symbol, CRB, has been created for the purposes of the 1983 Conference only, to designate a geographical area in the Caribbean Area. The five Caribbean beams are identified as follows:

CRBBAH01, CRBBER01, CRBBLZ01, CRBEC001 and CRBJMC01
and are intended collectively to provide coverage for the following countries or geographical areas: AIA, ATG, BAH, BER, BLZ, BRB, CYM, DMA, GRD, GUY, JMC, LCA, MSR, SCN, SUR, TCA, TRD, VCT and VRG to be so used if approved by them.

TABLE 2

TABLE SHOWING CORRESPONDENCE BETWEEN CHANNEL NUMBERS AND ASSIGNED FREQUENCIES

| Channel <br> No. | Assigned frequency <br> (MHz) | Channel <br> No. | Assigned frequency <br> (MHz) |
| :---: | :---: | :---: | :---: |
| 1 | 17324.00 | 17 | 17557.28 |
| 2 | 17338.58 | 18 | 17571.86 |
| 3 | 17353.16 | 19 | 17586.44 |
| 4 | 17367.74 | 20 | 17601.02 |
| 5 | 17382.32 | 21 | 17615.60 |
| 6 | 17396.90 | 22 | 17630.18 |
| 7 | 17411.48 | 23 | 17644.76 |
| 8 | 17426.06 | 24 | 17659.34 |
| 9 | 17440.64 | 25 | 17673.92 |
| 10 | 17455.22 | 26 | 17688.50 |
| 11 | 17469.80 | 27 | 17703.08 |
| 12 | 17484.38 | 28 | 17717.66 |
| 13 | 17498.96 | 29 | 17732.24 |
| 14 | 17513.54 | 30 | 17746.82 |
| 15 | 17528.12 | 31 | 17761.40 |
| 16 | 17542.70 | 32 | 17775.98 |

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| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALS00002 | $-166.20$ | 1 | -109.94 | 36.86 | 6.04 | 1.11 | 137 | 1 | 87.4 | 9/GR1 |
| ALS00003 | - 175.20 | 1 | -116.23 | 37.50 | 5.60 | 0.75 | 132 | 1 | 87.4 | 9/GR2 |
| ARGINSU4 | -94.20 | 1 | -52.98 | -59.81 | 3.40 | 0.68 | 19 | 1 | 87.4 | 9/GR3 |
| ARGSUR04 | -94.20 | 1 | -65.04 | -43.33 | 3.32 | 1.50 | 40 | 1 | 87.4 | 9/GR3 |
| B CE311 | -64.20 | 1 | -40.60 | -6.07 | 3.04 | 2.06 | 174 | 1 | 87.4 | 8 9/GR7 |
| B CE312 | -45.20 | 1 | -40.27 | -6.06 | 3.44 | 2.09 | 174 | 1 | 87.4 | 8 9/GR9 |
| B CE411 | -64.20 | 1 | -50.97 | - 15.27 | 3.86 | 1.38 | 49 | 1 | 87.4 | 8 9/GR7 |
| B CE412 | -45.20 | 1 | -50.71 | -15.30 | 3.57 | 1.56 | 52 | 1 | 87.4 | 8 9/GR9 |
| B CE511 | -64.20 | 1 | -53.10 | -2.90 | 2.44 | 2.13 | 104 | 1 | 87.4 | 8 9/GR7 |
| B N0611 | -74.20 | 1 | -59.60 | -11.62 | 2.85 | 1.69 | 165 | 2 | 87.4 | 8 9/GR8 |
| B NO711 | -74.20 | 1 | -60.70 | -1.78 | 3.54 | 1.78 | 126 | 2 | 87.4 | 8 9/GR8 |
| B N0811 | -74.20 | 1 | -68.76 | -4.71 | 2.37 | 1.65 | 73 | 2 | 87.4 | 89/GR8 |
| B SU111 | -81.20 | 1 | -51.12 | -25.63 | 2.76 | 1.05 | 50 | 1 | 87.4 | 8 9/GR6 |
| B SU112 | -45.20 | 1 | -50.75 | -25.62 | 2.47 | 1.48 | 56 | 1 | 87.4 | 8 9/GR9 |
| B SU211 | -81.20 | 1 | -44.51 | -16.95 | 3.22 | 1.36 | 60 | 1 | 87.4 | 8 9/GR6 |
| B SU212 | -45.20 | 1 | -44.00 | -16.87 | 3.20 | 1.96 | 58 | 1 | 87.4 | 8 9/GR9 |
| B AHIFRB1 | -87.20 | 1 | -76.06 | 24.16 | 1.81 | 0.70 | 142 | 1 | 87.4 |  |
| BERBERMU | -96.20 | 1 | -64.77 | 32.32 | 0.60 | 0.60 | 90 | 2 | 87.4 |  |
| B ERBER02 | -31.00 | 1 | -64.77 | 32.32 | 0.60 | 0.60 | 90 | 1 | 87.4 | 23 |
| B OLAND01 | - 115.20 | 1 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | 9/GR5 |
| CAN01101 | - 138.20 | 1 | - 114.60 | 51.08 | 7.28 | 1.10 | 160 | 1 | 87.4 | 9/GR10 |
| CAN01201 | - 138.20 | 1 | -114.60 | 51.08 | 7.28 | 1.10 | 160 | 1 | 87.4 | 9/GR10 |
| CAN01202 | -7270 | 1 | -81.34 | 50.02 | 7.96 | 2.55 | 5 | 1 | 87.4 |  |
| CAN01203 | -129.20 | 1 | -113.02 | 51.08 | 7.47 | 1.26 | 162 | 1 | 87.4 | 9/GR12 |

17324,00 MHz (1)

| CAN01303 | -12920 | 1 | -113.02 | 51.08 | 7.47 | 1.26 | 162 | 1 | 87.4 | $9 / G R 12$ |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | :--- | :--- | :--- |
| CAN01304 | -91.20 | 1 | -86.71 | 50.48 | 8.58 | 2.54 | 178 | 1 | 87.4 | $9 / G R 13$ |
| CAN01403 | -129.20 | 1 | -113.02 | 51.08 | 7.47 | 1.26 | 162 | 1 | 87.4 | $9 /$ GR12 |
| CAN01404 | -91.20 | 1 | -86.71 | 50.48 | 8.58 | 2.54 | 178 | 1 | 87.4 | $9 /$ GR13 |
| CAN01405 | -82.20 | 1 | -84.11 | 50.20 | 8.31 | 2.58 | 1 | 1 | 87.4 | $9 /$ GR14 |
| CAN01504 | -91.20 | 1 | -86.71 | 50.48 | 8.58 | 254 | 178 | 1 | 874 | $9 /$ GR13 |
| CAN01505 | -82.20 | 1 | -84.11 | 5020 | 8.31 | 258 | 1 | 1 | 874 | $9 /$ GR14 |
| CAN01605 | -8220 | 1 | -84.11 | 50.20 | 8.31 | 2.58 | 1 | 1 | 87.4 | $9 / G R 14$ |
| CAN01606 | -70.70 | 1 | -8077 | 50.03 | 7.88 | 2.53 | 6 | 1 | 87.4 |  |
| CHLCONT5 | -10620 | 1 | -72.23 | -35.57 | 2.60 | 0.68 | 55 | 1 | 87.4 | $9 /$ GR17 |
| CHLPAC02 | -106.20 | 1 | -80.06 | -30.06 | 1.36 | 0.68 | 69 | 1 | 87.4 | $9 /$ GR17 |
| CLMAND01 | -11520 | 1 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | $9 /$ GR5 |
| CLM00001 | -10320 | 1 | -74.50 | 587 | 3.98 | 1.96 | 118 | 1 | 87.4 |  |
| EQACAND1 | -115.20 | 1 | -7137 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | $9 /$ GR5 |
| EQAGAND1 | -115.20 | 1 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | $9 /$ GR5 |
| FLKANT01 | -57.20 | 1 | -44.54 | -60.13 | 3.54 | 0.68 | 12 | 1 | 87.4 | 2 |
| FLKFALKS | -31.00 | 1 | -59.90 | -51.64 | 0.60 | 0.60 | 90 | 1 | 87.4 | 23 |
| GRD00002 | -42.20 | 1 | -61.58 | 12.29 | 0.60 | 0.60 | 90 | 1 | 87.4 |  |
| HWA00002 | -166.20 | 1 | -109.94 | 36.86 | 6.04 | 1.11 | 137 | 1 | 87.4 | $9 /$ GR1 |
| HWA00003 | -175.20 | 1 | -116.23 | 37.50 | 5.60 | 0.75 | 132 | 1 | 87.4 | $9 /$ GR2 |
| MEX01NTE | -78.20 | 1 | -105.81 | 26.01 | 2.89 | 2.08 | 155 | 1 | 87.4 | 1 |
| MEX01SUR | -69.20 | 1 | -94.84 | 19.82 | 3.05 | 2.09 | 4 | 1 | 87.4 | 1 |
| MEX02NTE | -136.20 | 1 | -107.21 | 26.31 | 384 | 1.55 | 148 | 1 | 87.4 | 1 |
| MEX02SUR | -127.20 | 1 | -96.39 | 19.88 | 3.18 | 1.87 | 157 | 1 | 87.4 | 1 |

17324,00 MHz

| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| PAQPAC01 | -106.20 | 1 | -109 18 | -27.53 | 0.60 | 0.60 | 90 | 1 | 87.4 | 9/GR17 |
| PRG00002 | -99.20 | 1 | -58.66 | -23.32 | 1.45 | 1.04 | 76 | 1 | 87.4 |  |
| PRUAND02 | - 115.20 | 1 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | 9/GR5 |
| PTRVIR01 | - 101.20 | 1 | -93.94 | 36.32 | 8.24 | 3.56 | 171 | 1 | 87.4 | 16 9/GR20 |
| PTRVIR02 | - 110.20 | 1 | -95.23 | 36.29 | 8.27 | 3.37 | 168 | 1 | 87.4 | 16 9/GR21 |
| SPMFRAN3 | -53.20 | 1 | -67.24 | 47.51 | 3.16 | 0.79 | 7 | 1 | 87.4 | 27 |
| TRD00001 | -84.70 | 1 | -61.23 | 10.70 | 0.60 | 0.60 | 90 | 1 | 87.4 |  |
| URG00001 | -71.70 | 1 | -56.22 | -32.52 | 1.02 | 0.89 | 11 | 1 | 87.4 |  |
| USAEH001 | -61.70 | 1 | -87.57 | 36.17 | 6.42 | 3.49 | 12 | 1 | 87.4 | 156 |
| USAEH002 | - 101.20 | 1 | -93.94 | 36.32 | 8.24 | 3.56 | 171 | 1 | 87.4 | 16 9/GR20 |
| USAEH003 | - 110.20 | 1 | -95.23 | 36.29 | 8.27 | 3.37 | 168 | 1 | 87.4 | 16 9/GR21 |
| USAEH004 | -119.20 | 1 | -96.45 | 36.21 | 8.20 | 3.12 | 165 | 1 | 87.4 | 156 |
| USAPSA02 | - 166.20 | 1 | -109.94 | 36.86 | 6.04 | 1.11 | 137 | 1 | 87.4 | 9/GR1 |
| USAPSA03 | - 175.20 | 1 | -116.23 | 37.50 | 5.60 | 0.75 | 132 | 1 | 87.4 | 9/GR2 |
| USAWH101 | - 148.20 | 1 | - 111.02 | 40.68 | 4.36 | 2.15 | 162 | 1 | 87.4 |  |
| USAWH102 | - 157.20 | 1 | - 113.07 | 40.74 | 3.72 | 1.78 | 149 | 1 | 87.4 |  |
| VENAND03 | -115.20 | 1 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | 9/GR5 |
| VRG00001 | -79.70 | 1 | -64.37 | 18.48 | 0.60 | 0.60 | 90 | 1 | 87.4 | 4 |

17338,58 MHz (2)

| ALS00002 | -165.80 | 2 | - 109.83 | 36.82 | 6.03 | 1.12 | 137 | 2 | 874 | 9/GR1 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALS00003 | - 174.80 | 2 | - 116.10 | 37.47 | 5.60 | 0.76 | 132 | 2 | 87.4 | 9/GR2 |
| ARGNORT4 | -93.80 | 2 | -63.96 | -30.01 | 3.86 | 1.99 | 48 | 2 | 87.4 |  |
| ARGNORT5 | -54.80 | 2 | -62.85 | -29.80 | 3.24 | 2.89 | 47 | 2 | 87.4 |  |
| ATNBEAM1 | -52.80 | 2 | -66.44 | 14.87 | 1.83 | 0.68 | 39 | 2 | 87.4 |  |
| B CE311 | -63.80 | 2 | -40.60 | -6.07 | 3.04 | 2.06 | 174 | 2 | 87.4 | 8 9/GR7 |
| B CE312 | -44.80 | 2 | -40.26 | -6.06 | 3.44 | 2.09 | 174 | 2 | 87.4 | 8 9/GR9 |
| B CE411 | -63.80 | 2 | -50.97 | -15.26 | 3.86 | 1.38 | 49 | 2 | 87.4 | 8 9/GR7 |
| B CE412 | -44.80 | 2 | -50.71 | -15.30 | 3.57 | 1.56 | 52 | 2 | 87.4 | 8 9/GR9 |
| B CE511 | -63.80 | 2 | -53.11 | -2.98 | 2.42 | 2.15 | 107 | 2 | 87.4 | $89 / \mathrm{GR} 7$ |
| B NO611 | - 73.80 | 2 | -59.60 | -1162 | 2.86 | 1.69 | 165 | 1 | 87.4 | 8 9/GR8 |
| B NO711 | -73.80 | 2 | -60.70 | -1.78 | 3.54 | 1.78 | 126 | 1 | 87.4 | 8 9/GR8 |
| B NO811 | - 73.80 | 2 | -68.75 | -4.71 | 2.37 | 1.65 | 73 | 1 | 87.4 | 8 9/GR8 |
| B SE911 | - 101.80 | 2 | -45.99 | -19.09 | 2.22 | 0.79 | 62 | 2 | 87.4 | 8 |
| B SU111 | -80.80 | 2 | -51.10 | -25.64 | 2.76 | 1.06 | 50 | 2 | 87.4 | 8 9/GR6 |
| B SU112 | -44.80 | 2 | -50.76 | -25.62 | 2.47 | 1.48 | 56 | 2 | 87.4 | 8 9/GR9 |
| B SU211 | -80.80 | 2 | -44.51 | -16.94 | 3.22 | 1.37 | 60 | 2 | 87.4 | 8 9/GR6 |
| B SU212 | -44.80 | 2 | -43.99 | -16.97 | 3.27 | 192 | 59 | 2 | 87.4 | 8 9/GR9 |
| CAN01101 | - 137.80 | 2 | -11410 | 50.92 | 7.22 | 1.11 | 160 | 2 | 87.4 | 9/GR10 |
| CAN01201 | - 137.80 | 2 | -11410 | 50.92 | 7.22 | 1.11 | 160 | 2 | 87.4 | 9/GR10 |
| CAN01202 | -72.30 | 2 | -81.23 | 50.12 | 7.99 | 2.53 | 5 | 2 | 87.4 |  |
| CAN01203 | - 128.80 | 2 | -113.04 | 51.04 | 7.53 | 1.26 | 162 | 2 | 87.4 | 9/GR12 |
| CAN01303 | -128.80 | 2 | -113.04 | 51.04 | 7.53 | 1.26 | 162 | 2 | 87.4 | 9/GR12 |
| CAN01304 | -90.80 | 2 | -86.57 | 50.48 | 8.59 | 2.54 | 178 | 2 | 87.4 | 9/GR13 |


| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CAN01403 | - 128.80 | 2 | -113.04 | 51.04 | 7.53 | 1.26 | 162 | 2 | 87.4 | 9/GR12 |
| CAN01404 | -90.80 | 2 | -86.57 | 50.48 | 8.59 | 2.54 | 178 | 2 | 87.4 | 9/GR13 |
| CAN01405 | -81.80 | 2 | -83.80 | 50.22 | 8.35 | 2.57 | 2 | 2 | 87.4 | 9/GR14 |
| CAN01504 | -90.80 | 2 | -86.57 | 50.48 | 8.59 | 254 | 178 | 2 | 87.4 | 9/GR13 |
| CAN01505 | -81.80 | 2 | -83.80 | 50.22 | 8.35 | 2.57 | 2 | 2 | 87.4 | 9/GR14 |
| CAN01605 | -81.80 | 2 | -83.80 | 50.22 | 8.35 | 2.57 | 2 | 2 | 87.4 | 9/GR14 |
| CAN01606 | -70.30 | 2 | -80.64 | 50.02 | 7.88 | 2.52 | 6 | 2 | 87.4 |  |
| CHLCONT4 | -105.80 | 2 | -69.59 | -23.20 | 2.21 | 0.69 | 68 | 2 | 87.4 | 9/GR16 |
| CHLCONT6 | - 105.80 | 2 | -73.52 | -55.52 | 3.65 | 1.31 | 39 | 2 | 87.4 | 9/GR16 |
| CRBBAH01 | -92.30 | 2 | -76.09 | 24.13 | 1.83 | 0.68 | 141 | 1 | 87.4 | 9/GR18 |
| CRBBER01 | -92.30 | 2 | -64.76 | 32.13 | 0.60 | 0.60 | 90 | 1 | 87.4 | 9/GR18 |
| CRBBLZ01 | -92.30 | 2 | -88.61 | 17.26 | 0.64 | 0.64 | 90 | 1 | 87.4 | 9/GR18 |
| CRBEC001 | -92.30 | 2 | -60.07 | 8.26 | 4.20 | 0.86 | 115 | 1 | 87.4 | 9/GR18 |
| CRBJMC01 | -92.30 | 2 | - 79.45 | 17.97 | 0.99 | 0.68 | 151 | 1 | 87.4 | 9/GR18 |
| CTR00201 | -130.80 | 2 | -84.33 | 9.67 | 0.82 | 0.68 | 119 | 2 | 87.4 |  |
| EQAC0001 | -94.80 | 2 | -78.31 | -1.52 | 1.48 | 1.15 | 65 | 1 | 87.4 | 9/GR19 |
| EQAG0001 | -94.80 | 2 | -90.36 | -0.57 | 0.94 | 0.89 | 99 | 1 | 87.4 | 9/GR19 |
| GUY00302 | -33.80 | 2 | -59.07 | 4.77 | 1.43 | 0.85 | 91 | 2 | 87.4 |  |
| HNDIFRB2 | -107.30 | 2 | -86.23 | 15.16 | 1.14 | 0.85 | 8 | 1 | 87.4 |  |
| HTIO0002 | -83.30 | 2 | -73.28 | 18.96 | 0.82 | 0.68 | 11 | 2 | 87.4 |  |
| HWA00002 | -165.80 | 2 | -109.83 | 36.82 | 6.03 | 1.12 | 137 | 2 | 87.4 | 9/GR1 |
| HWA00003 | - 174.80 | 2 | -11610 | 37.47 | 5.60 | 0.76 | 132 | 2 | 87.4 | 9/GR2 |
| MEX01NTE | -77.80 | 2 | - 105.80 | 25.99 | 2.88 | 2.07 | 155 | 2 | 87.4 | 1 |
| MEX02NTE | -135.80 | 2 | -107.36 | 26.32 | 3.80 | 1.57 | 149 | 2 | 87.4 | 1 |

17338,58 MHz (2)

| MEX02SUR | -126.80 | 2 | -96.39 | 19.88 | 3.19 | 1.87 | 158 | 2 | 87.4 | 1 |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | :--- | :--- | :--- |
| PRU00004 | -85.80 | 2 | -74.19 | -8.39 | 3.74 | 2.45 | 112 | 2 | 87.4 |  |
| PTRVIR01 | -100.80 | 2 | -93.85 | 36.31 | 8.26 | 3.55 | 171 | 2 | 87.4 | $169 /$ GR20 |
| PTRVIR02 | -109.80 | 2 | -95.47 | 36.38 | 8.10 | 3.45 | 168 | 2 | 87.4 | $1699 /$ GR21 |
| TCAOO001 | -115.80 | 2 | -71.79 | 21.53 | 0.60 | 0.60 | 90 | 2 | 87.4 |  |
| USAEH001 | -6130 | 2 | -87.53 | 36.18 | 6.41 | 3.49 | 12 | 2 | 87.4 | 156 |
| USAEH002 | -100.80 | 2 | -93.85 | 3631 | 8.26 | 3.55 | 171 | 2 | 87.4 | $169 /$ GR20 |
| USAEH003 | -109.80 | 2 | -95.47 | 36.38 | 8.10 | 3.45 | 168 | 2 | 87.4 | $169 /$ GR21 |
| USAEH004 | -118.80 | 2 | -96.42 | 36.21 | 8.20 | 3.12 | 165 | 2 | 87.4 | 156 |
| USAPSA02 | -165.80 | 2 | -109.83 | 36.82 | 6.03 | 1.12 | 137 | 2 | 874 | $9 /$ GR1 |
| USAPSA03 | -17480 | 2 | -116.10 | 37.47 | 5.60 | 0.76 | 132 | 2 | 87.4 | $9 /$ GR2 |
| USAWH101 | -147.80 | 2 | -111.01 | 40.67 | 4.38 | 2.15 | 162 | 2 | 87.4 |  |
| USAWH102 | -156.80 | 2 | -113.01 | 40.71 | 3.74 | 1.79 | 149 | 2 | 87.4 |  |
| VCTO0001 | -79.30 | 2 | -61.18 | 13.23 | 0.60 | 0.60 | 90 | 2 | 87.4 |  |
| VEN11VEN | -103.80 | 2 | -66.79 | 6.90 | 2.50 | 1.77 | 122 | 2 | 87.4 |  |

$\varepsilon \varepsilon-\forall 0 \varepsilon d \forall$

| 1 | 2 | 3 | 4 |  |  |  | 6 | 7 | 8 | 9 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALS00002 | $-166.20$ | 3 | -109.94 | 36.86 | 6.04 | 1.11 | 137 | 1 | 87.4 | 9/GR1 |
| ALS00003 | -175.20 | 3 | -116.23 | 3750 | 5.60 | 0.75 | 132 | 1 | 87.4 | 9/GR2 |
| ARGINSU4 | -94.20 | 3 | -52.98 | -59.81 | 3.40 | 0.68 | 19 | 1 | 87.4 | 9/GR3 |
| ARGINSU5 | -55.20 | 3 | -44.17 | -59.91 | 3.77 | 0.70 | 13 | 1 | 87.4 | 9/GR4 |
| ARGSUR04 | -94.20 | 3 | -65.04 | -43.33 | 3.32 | 1.50 | 40 | 1 | 87.4 | 9/GR3 |
| ARGSUR05 | -55.20 | 3 | -63.68 | -43.01 | 2.54 | 2.38 | 152 | 1 | 87.4 | 9/GR4 |
| ATGSJN01 | - 79.70 | 3 | -61.79 | 17.07 | 0.60 | 0.60 | 90 | 1 | 87.4 |  |
| B CE311 | -64.20 | 3 | -40.60 | -6.07 | 3.04 | 2.06 | 174 | 1 | 87.4 | 8 9/GR7 |
| B CE312 | -45.20 | 3 | -40.27 | -6.06 | 3.44 | 2.09 | 174 | 1 | 87.4 | 8 9/GR9 |
| B CE411 | -64.20 | 3 | -50.97 | -15.27 | 3.86 | 1.38 | 49 | 1 | 87.4 | 8 9/GR7 |
| B CE412 | -45.20 | 3 | -50.71 | -15.30 | 3.57 | 1.56 | 52 | 1 | 87.4 | 8 9/GR9 |
| B CE511 | -64.20 | 3 | -53.10 | -2.90 | 2.44 | 2.13 | 104 | 1 | 87.4 | 8 9/GR7 |
| B NO611 | -74.20 | 3 | -59.60 | -11.62 | 2.85 | 1.69 | 165 | 2 | 87.4 | 8 9/GR8 |
| B NO711 | -74.20 | 3 | -60.70 | -1.78 | 3.54 | 1.78 | 126 | 2 | 87.4 | 8 9/GR8 |
| B NO811 | -74.20 | 3 | -68.76 | -4.71 | 2.37 | 1.65 | 73 | 2 | 87.4 | 8 9/GR8 |
| B SU111 | -8120 | 3 | -51.12 | -25.63 | 2.76 | 1.05 | 50 | 1 | 87.4 | 8 9/GR6 |
| B SU112 | -45.20 | 3 | -50.75 | -25.62 | 2.47 | 1.48 | 56 | 1 | 87.4 | 8 9/GR9 |
| B SU211 | -81.20 | 3 | -44.51 | -16.95 | 3.22 | 1.36 | 60 | 1 | 87.4 | 8 9/GR6 |
| B SU212 | -45.20 | 3 | -44.00 | -16.87 | 320 | 1.96 | 58 | 1 | 87.4 | 8 9/GR9 |
| BERBERMU | -96.20 | 3 | -64.77 | 32.32 | 0.60 | 0.60 | 90 | 2 | 87.4 |  |
| B OLAND01 | - 115.20 | 3 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | 9/GR5 |
| B OL00001 | -87.20 | 3 | -64.61 | -16.71 | 2.52 | 2.19 | 85 | 1 | 87.4 |  |
| B RB00001 | -92.70 | 3 | -59.85 | 12.93 | 0.60 | 0.60 | 90 | 2 | 87.4 |  |
| CAN01101 | - 138.20 | 3 | -114.60 | 51.08 | 7.28 | 1.10 | 160 | 1 | 87.4 | 9/GR10 |

17353,16 MHz (3)

| CAN01201 | -138.20 | 3 | -114.60 | 51.08 | 7.28 | 1.10 | 160 | 1 | 87.4 | $9 /$ GR10 |
| :--- | ---: | :--- | ---: | ---: | ---: | ---: | ---: | :--- | :--- | :--- |
| CAN01202 | -72.70 | 3 | -81.34 | 50.02 | 7.96 | 2.55 | 5 | 1 | 87.4 |  |
| CAN01203 | -129.20 | 3 | -113.02 | 51.08 | 7.47 | 1.26 | 162 | 1 | 87.4 | $9 /$ GR12 |
| CAN01303 | -129.20 | 3 | -113.02 | 51.08 | 747 | 1.26 | 162 | 1 | 87.4 | $9 /$ GR12 |
| CAN01304 | -91.20 | 3 | -86.71 | 50.48 | 8.58 | 2.54 | 178 | 1 | 87.4 | $9 /$ GR13 |
| CAN01403 | -129.20 | 3 | -113.02 | 51.08 | 7.47 | 1.26 | 162 | 1 | 87.4 | $9 /$ GR12 |
| CAN01404 | -91.20 | 3 | -86.71 | 50.48 | 8.58 | 2.54 | 178 | 1 | 87.4 | $9 /$ GR13 |
| CAN01405 | -82.20 | 3 | -84.11 | 50.20 | 8.31 | 2.58 | 1 | 1 | 87.4 | $9 /$ GR14 |
| CAN01504 | -91.20 | 3 | -86.71 | 50.48 | 8.58 | 2.54 | 178 | 1 | 87.4 | $9 /$ GR13 |
| CAN01505 | -82.20 | 3 | -84.11 | 50.20 | 8.31 | 2.58 | 1 | 1 | 87.4 | $9 /$ GR14 |
| CAN01605 | -82.20 | 3 | -84.11 | 50.20 | 8.31 | 2.58 | 1 | 1 | 87.4 | $9 /$ GR14 |
| CAN01606 | -70.70 | 3 | -80.77 | 5003 | 7.88 | 2.53 | 6 | 1 | 874 |  |
| CHLCONT5 | -106.20 | 3 | -72.23 | -35.57 | 2.60 | 0.68 | 55 | 1 | 87.4 | $9 /$ GR17 |
| CHLPAC02 | -106.20 | 3 | -80.06 | -3006 | 1.36 | 0.68 | 69 | 1 | 87.4 | $9 /$ GR17 |
| CLMAND01 | -115.20 | 3 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | $9 /$ GR5 |
| CLM00001 | -103.20 | 3 | -74.50 | 5.87 | 3.98 | 1.96 | 118 | 1 | 87.4 |  |
| CUB00001 | -89.20 | 3 | -79.81 | 21.62 | 2.24 | 0.68 | 168 | 1 | 87.4 |  |
| EQACAND1 | -115.20 | 3 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | $9 /$ GR5 |
| EQAGAND1 | -115.20 | 3 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | $9 / G R 5$ |
| GRD00002 | -42.20 | 3 | -61.58 | 12.29 | 0.60 | 0.60 | 90 | 1 | 87.4 |  |
| GRD00059 | -57.20 | 3 | -61.58 | 12.29 | 0.60 | 0.60 | 90 | 1 | 87.4 |  |
| GRLDNK01 | -53.20 | 3 | -44.89 | 66.56 | 2.70 | 0.82 | 173 | 1 | 87.4 | 2 |
| HWA00002 | -166.20 | 3 | -109.94 | 36.86 | 6.04 | 1.11 | 137 | 1 | 87.4 | $9 /$ GR1 |
| HWA00003 | -175.20 | 3 | -116.23 | 37.50 | 5.60 | 0.75 | 132 | 1 | 87.4 | $9 /$ GR2 |

17353,16 MHz (3)

| $\mathbf{1}$ | $\mathbf{2}$ | $\mathbf{3}$ | $\mathbf{4}$ |  | $\mathbf{5}$ |  | $\mathbf{6}$ | $\mathbf{7}$ | $\mathbf{8}$ |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | :--- | :--- | :--- |

17367,74 MHz (4)

| ALS00002 | -165.80 | 4 | - 109.83 | 36.82 | 6.03 | 1.12 | 137 | 2 | 87.4 | 9/GR1 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALS00003 | - 174.80 | 4 | - 116.10 | 37.47 | 5.60 | 0.76 | 132 | 2 | 87.4 | 9/GR2 |
| ARGNORT4 | -93.80 | 4 | -63.96 | -30.01 | 386 | 1.99 | 48 | 2 | 87.4 |  |
| ARGNORT5 | -54.80 | 4 | -62.85 | -29.80 | 3.24 | 2.89 | 47 | 2 | 87.4 |  |
| B CE311 | -63.80 | 4 | -40.60 | -6.07 | 3.04 | 2.06 | 174 | 2 | 87.4 | 8 9/GR7 |
| B CE312 | -44.80 | 4 | -4026 | -6.06 | 3.44 | 2.09 | 174 | 2 | 87.4 | 8 9/GR9 |
| B CE411 | -63.80 | 4 | -50.97 | -15.26 | 3.86 | 1.38 | 49 | 2 | 87.4 | 8 9/GR7 |
| B CE412 | -44.80 | 4 | -50.71 | - 15.30 | 3.57 | 1.56 | 52 | 2 | 87.4 | 8 9/GR9 |
| B CE511 | -63.80 | 4 | -53.11 | -2.98 | 2.42 | 2.15 | 107 | 2 | 87.4 | 8 9/GR7 |
| B NO611 | -73.80 | 4 | -59.60 | - 11.62 | 2.86 | 1.69 | 165 | 1 | 87.4 | 8 9/GR8 |
| B N0711 | -7380 | 4 | -60.70 | -1.78 | 3.54 | 1.78 | 126 | 1 | 87.4 | 8 9/GR8 |
| B NO811 | -73.80 | 4 | -68.75 | -4.71 | 2.37 | 1.65 | 73 | 1 | 87.4 | 8 9/GR8 |
| B SE911 | -101.80 | 4 | -45.99 | - 19.09 | 2.22 | 0.79 | 62 | 2 | 87.4 | 8 |
| B SU111 | -80.80 | 4 | -51.10 | -25.64 | 2.76 | 1.06 | 50 | 2 | 874 | 8 9/GR6 |
| B SU112 | -44.80 | 4 | -50.76 | -25.62 | 2.47 | 1.48 | 56 | 2 | 874 | 8 9/GR9 |
| B SU211 | -80.80 | 4 | -44.51 | -16.94 | 3.22 | 1.37 | 60 | 2 | 87.4 | 8 9/GR6 |
| B SU212 | -44.80 | 4 | -43.99 | -16.97 | 3.27 | 1.92 | 59 | 2 | 87.4 | 8 9/GR9 |
| CAN01101 | - 137.80 | 4 | - 114.10 | 50.92 | 7.22 | 1.11 | 160 | 2 | 87.4 | 9/GR10 |
| CAN01201 | -137.80 | 4 | - 114.10 | 50.92 | 7.22 | 1.11 | 160 | 2 | 87.4 | 9/GR10 |
| CAN01202 | -72.30 | 4 | -81.23 | 50.12 | 7.99 | 2.53 | 5 | 2 | 87.4 |  |
| CAN01203 | - 128.80 | 4 | - 113.04 | 51.04 | 7.53 | 1.26 | 162 | 2 | 87.4 | 9/GR12 |
| CAN01303 | - 128.80 | 4 | - 113.04 | 51.04 | 7.53 | 1.26 | 162 | 2 | 87.4 | 9/GR12 |
| CAN01304 | -90.80 | 4 | -86.57 | 50.48 | 8.59 | 2.54 | 178 | 2 | 87.4 | 9/GR13 |
| CAN01403 | - 128.80 | 4 | -113.04 | 51.04 | 7.53 | 1.26 | 162 | 2 | 87.4 | 9/GR12 |

17367,74 MHz (4)

| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CAN01404 | -90.80 | 4 | -86.57 | 50.48 | 8.59 | 2.54 | 178 | 2 | 87.4 | 9/GR13 |
| CAN01405 | -81.80 | 4 | -83.80 | 50.22 | 8.35 | 2.57 | 2 | 2 | 87.4 | 9/GR14 |
| CAN01504 | -90.80 | 4 | -86.57 | 50.48 | 8.59 | 2.54 | 178 | 2 | 87.4 | 9/GR13 |
| CAN01505 | -81.80 | 4 | -83.80 | 50.22 | 8.35 | 2.57 |  | 2 | 87.4 | 9/GR14 |
| CAN01605 | -81.80 | 4 | -83.80 | 50.22 | 8.35 | 2.57 | 2 | 2 | 87.4 | 9/GR14 |
| CAN01606 | -70.30 | 4 | -80.64 | 50.02 | 7.88 | 2.52 | 6 | 2 | 87.4 |  |
| CHLCONT4 | -105.80 | 4 | -69.59 | -23.20 | 2.21 | 0.69 | 68 | 2 | 87.4 | 9/GR16 |
| CHLCONT6 | - 105.80 | 4 | -73.52 | -55.52 | 3.65 | 1.31 | 39 | 2 | 87.4 | 9/GR16 |
| CRBBAH01 | -92.30 | 4 | -76.09 | 24.13 | 1.83 | 0.68 | 141 | 1 | 87.4 | 9/GR18 |
| CRBBER01 | -92.30 | 4 | -64.76 | 32.13 | 0.60 | 0.60 | 90 | 1 | 87.4 | 9/GR18 |
| CRBBLZ 01 | -92.30 | 4 | -88.61 | 17.26 | 064 | 0.64 | 90 | 1 | 87.4 | 9/GR18 |
| CRBEC001 | -92.30 | 4 | -60.07 | 8.26 | 4.20 | 0.86 | 115 | 1 | 87.4 | 9/GR18 |
| CRBJMC01 | -92.30 | 4 | - 79.45 | 17.97 | 0.99 | 0.68 | 151 | 1 | 87.4 | 9/GR18 |
| CYM00001 | - 115.80 | 4 | -80.58 | 19.57 | 0.60 | 0.60 | 90 | 2 | 87.4 |  |
| DOMIFRB2 | -83.30 | 4 | - 70.51 | 18.79 | 0.98 | 0.69 | 167 | 2 | 87.4 |  |
| EQAC0001 | -94.80 | 4 | -78.31 | -1.52 | 1.48 | 1.15 | 65 | 1 | 87.4 | 9/GR19 |
| EQAG0001 | -94.80 | 4 | -90.36 | -0.57 | 0.94 | 0.89 | 99 | 1 | 87.4 | 9/GR19 |
| GUFMGG02 | -52.80 | 4 | -56.42 | 8.47 | 4.16 | 0.81 | 123 | 2 | 87.4 | 27 |
| HWA00002 | -165 80 | 4 | - 109.83 | 36.82 | 6.03 | 1.12 | 137 | 2 | 87.4 | 9/GR1 |
| HWA00003 | - 174.80 | 4 | - 116.10 | 37.47 | 5.60 | 0.76 | 132 | 2 | 87.4 | 9/GR2 |
| JMC00005 | -33.80 | 4 | -77.27 | 18.12 | 0.60 | 0.60 | 90 | 2 | 87.4 |  |
| LCAIFRB1 | -79.30 | 4 | -61.15 | 13.90 | 060 | 0.60 | 90 | 2 | 87.4 |  |
| MEX01NTE | -77.80 | 4 | -105.80 | 25.99 | 2.88 | 2.07 | 155 | 2 | 87.4 | 1 |
| MEX02NTE | - 135.80 | 4 | -107.36 | 26.32 | 3.80 | 1.57 | 149 | 2 | 87.4 | 1 |

17367,74 MHz (4)

| MEX02SUR | -126.80 | 4 | -96.39 | 19.88 | 3.19 | 1.87 | 158 | 2 | 87.4 | 1 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| PRU00004 | -85.80 | 4 | -74.19 | -8.39 | 3.74 | 2.45 | 112 | 2 | 87.4 |  |
| PTRVIR01 | -100.80 | 4 | -9385 | 36.31 | 8.26 | 3.55 | 171 | 2 | 87.4 | 16 9/GR20 |
| PTRVIR02 | -109.80 | 4 | -95.47 | 36.38 | 8.10 | 3.45 | 168 | 2 | 87.4 | 16 9/GR21 |
| SLVIFRB2 | -107.30 | 4 | -88.91 | 13.59 | 0.60 | 0.60 | 90 | 1 | 87.4 |  |
| USAEH001 | -61.30 | 4 | -87.53 | 3618 | 6.41 | 3.49 | 12 | 2 | 87.4 | 156 |
| USAEH002 | -100.80 | 4 | -93.85 | 36.31 | 8.26 | 3.55 | 171 | 2 | 87.4 | 16 9/GR20 |
| USAEH003 | - 109.80 | 4 | -9547 | 36.38 | 8.10 | 3.45 | 168 | 2 | 874 | 16 9/GR21 |
| USAEH004 | -118.80 | 4 | -96.42 | 36.21 | 8.20 | 3.12 | 165 | 2 | 87.4 | 156 |
| USAPSA02 | -165.80 | 4 | -109.83 | 36.82 | 6.03 | 1.12 | 137 | 2 | 87.4 | 9/GR1 |
| USAPSA03 | - 174.80 | 4 | - 116.10 | 37.47 | 5.60 | 0.76 | 132 | 2 | 87.4 | 9/GR2 |
| USAWH101 | - 147.80 | 4 | - 111.01 | 40.67 | 4.38 | 2.15 | 162 | 2 | 87.4 |  |
| USAWH 102 | - 156.80 | 4 | - 113.01 | 40.71 | 3.74 | 1.79 | 149 | 2 | 87.4 |  |
| VEN11VEN | - 103.80 | 4 | -66.79 | 6.90 | 2.50 | 1.77 | 122 | 2 | 87.4 |  |


| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALS 00002 | -166.20 | 5 | -109.94 | 36.86 | 6.04 | 1.11 | 137 | 1 | 87.4 | 9/GR1 |
| ALS00003 | - 175.20 | 5 | - 116.23 | 37.50 | 5.60 | 0.75 | 132 | 1 | 87.4 | 9/GR2 |
| ARGINSU4 | -94.20 | 5 | -52.98 | -59.81 | 3.40 | 0.68 | 19 | 1 | 87.4 | 9/GR3 |
| ARGSUR04 | -94.20 | 5 | -65.04 | -43.33 | 3.32 | 1.50 | 40 | 1 | 87.4 | 9/GR3 |
| B CE311 | -64.20 | 5 | -40.60 | -6.07 | 3.04 | 2.06 | 174 | 1 | 87.4 | 8 9/GR7 |
| B CE312 | -45.20 | 5 | -40.27 | -6.06 | 3.44 | 2.09 | 174 | 1 | 87.4 | 8 9/GR9 |
| B CE411 | -64.20 | 5 | -50.97 | -15.27 | 3.86 | 1.38 | 49 | 1 | 87.4 | 8 9/GR7 |
| B CE412 | -4520 | 5 | -50.71 | - 15.30 | 3.57 | 1.56 | 52 | 1 | 87.4 | 8 9/GR9 |
| B CE511 | -64.20 | 5 | -53.10 | -2.90 | 2.44 | 2.13 | 104 | 1 | 87.4 | 8 9/GR7 |
| B NO611 | -74.20 | 5 | -59.60 | -11.62 | 2.85 | 1.69 | 165 | 2 | 87.4 | 8 9/GR8 |
| B NO711 | -74.20 | 5 | -60.70 | -1.78 | 3.54 | 1.78 | 126 | 2 | 87.4 | 8 9/GR8 |
| B NO811 | -74.20 | 5 | -68.76 | -4.71 | 2.37 | 165 | 73 | 2 | 87.4 | 8 9/GR8 |
| B SU111 | -81.20 | 5 | -51.12 | -25.63 | 2.76 | 1.05 | 50 | 1 | 87.4 | 8 9/GR6 |
| B SU112 | -45.20 | 5 | -50.75 | -25.62 | 2.47 | 1.48 | 56 | 1 | 87.4 | 8 9/GR9 |
| B SU211 | -81.20 | 5 | -44.51 | -16.95 | 3.22 | 1.36 | 60 | 1 | 87.4 | 8 9/GR6 |
| B SU212 | -45.20 | 5 | -44.00 | - 16.87 | 3.20 | 1.96 | 58 | 1 | 87.4 | 8 9/GR9 |
| B AHIFRB1 | -87.20 | 5 | -76.06 | 24.16 | 1.81 | 0.70 | 142 | 1 | 87.4 |  |
| BERBERMU | -96.20 | 5 | -64.77 | 32.32 | 0.60 | 0.60 | 90 | 2 | 87.4 |  |
| B ERBER02 | -31.00 | 5 | -64.77 | 32.32 | 0.60 | 0.60 | 90 | , | 87.4 | 23 |
| B OLAND01 | - 115.20 | 5 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | 9/GR5 |
| CAN01101 | - 138.20 | 5 | - 114.60 | 51.08 | 7.28 | 1.10 | 160 | 1 | 874 | 9/GR10 |
| CAN01201 | - 138.20 | 5 | - 114.60 | 51.08 | 7.28 | 1.10 | 160 |  | 87.4 | 9/GR10 |
| CAN01202 | -72.70 | 5 | -81.34 | 50.02 | 7.96 | 2.55 | 5 | 1 | 87.4 |  |
| CAN01203 | - 129.20 | 5 | -113.02 | 5108 | 7.47 | 1.26 | 162 | 1 | 87.4 | 9/GR12 |

17382,32 MHz (5)

| CAN01303 | -129.20 | 5 | -11302 | 51.08 | 7.47 | 1.26 | 162 | 1 | 874 | $9 / \mathrm{GR} 12$ |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | :--- | :--- | :--- |
| CAN01304 | -91.20 | 5 | -86.71 | 50.48 | 8.58 | 2.54 | 178 | 1 | 87.4 | $9 / \mathrm{GR} 13$ |
| CAN01403 | -129.20 | 5 | -113.02 | 51.08 | 7.47 | 1.26 | 162 | 1 | 87.4 | $9 / \mathrm{GR} 12$ |
| CAN01404 | -91.20 | 5 | -86.71 | 50.48 | 8.58 | 2.54 | 178 | 1 | 87.4 | $9 / \mathrm{GR} 13$ |
| CAN01405 | -82.20 | 5 | -84.11 | 50.20 | 8.31 | 2.58 | 1 | 1 | 87.4 | $9 / \mathrm{GR} 14$ |
| CAN01504 | -91.20 | 5 | -86.71 | 50.48 | 8.58 | 2.54 | 178 | 1 | 87.4 | $9 / \mathrm{GR} 13$ |
| CAN01505 | -82.20 | 5 | -84.11 | 50.20 | 8.31 | 2.58 | 1 | 1 | 87.4 | $9 / \mathrm{GR} 14$ |
| CAN01605 | -82.20 | 5 | -84.11 | 50.20 | 831 | 2.58 | 1 | 1 | 87.4 | $9 / \mathrm{GR} 14$ |
| CAN01606 | -70.70 | 5 | -80.77 | 50.03 | 7.88 | 2.53 | 6 | 1 | 87.4 |  |
| CHLCONT5 | -106.20 | 5 | -72.23 | -3557 | 2.60 | 0.68 | 55 | 1 | 87.4 | $9 / \mathrm{GR} 17$ |
| CHLPAC02 | -106.20 | 5 | -80.06 | -30.06 | 1.36 | 0.68 | 69 | 1 | 87.4 | $9 / \mathrm{GR} 17$ |
| CLMAND01 | -115.20 | 5 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | $9 /$ GR5 |
| CLM00001 | -103.20 | 5 | -74.50 | 5.87 | 3.98 | 1.96 | 118 | 1 | 87.4 |  |
| EQACAND1 | -115.20 | 5 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | $9 /$ GR5 |
| EQAGAND1 | -115.20 | 5 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | $9 /$ GR5 |
| FLKANT01 | -57.20 | 5 | -44.54 | -60.13 | 3.54 | 0.68 | 12 | 1 | 87.4 | 2 |
| FLKFALKS | -31.00 | 5 | -59.90 | -5164 | 0.60 | 0.60 | 90 | 1 | 87.4 | 23 |
| GRD00002 | -42.20 | 5 | -61.58 | 1229 | 0.60 | 0.60 | 90 | 1 | 87.4 |  |
| HWA00002 | -166.20 | 5 | -109.94 | 3686 | 6.04 | 1.11 | 137 | 1 | 87.4 | $9 /$ GR1 |
| HWA00003 | -175.20 | 5 | -116.23 | 3750 | 5.60 | 0.75 | 132 | 1 | 87.4 | $9 / G R 2$ |
| MEX01NTE | -78.20 | 5 | -10581 | 26.01 | 2.89 | 2.08 | 155 | 1 | 87.4 | 1 |
| MEX01SUR | -69.20 | 5 | -94.84 | 19.82 | 3.05 | 2.09 | 4 | 1 | 87.4 | 1 |
| MEX02NTE | -136.20 | 5 | -107.21 | 26.31 | 3.84 | 1.55 | 148 | 1 | 87.4 | 1 |
| MEX02SUR | -127.20 | 5 | -96.39 | 1988 | 3.18 | 1.87 | 157 | 1 | 87.4 | 1 |

17382,32 MHz (5)

| $\mathbf{1}$ | $\mathbf{2}$ | $\mathbf{3}$ | $\mathbf{4}$ |  | $\mathbf{5}$ |  | $\mathbf{6}$ | $\mathbf{7}$ | $\mathbf{8}$ |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | :--- | :--- | :--- |

17396,90 MHz (6)

| ALS00002 | -165.80 | 6 | - 109.83 | 36.82 | 6.03 | 1.12 | 137 | 2 | 87.4 | 9/GR1 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALS00003 | - 174.80 | 6 | -11610 | 37.47 | 5.60 | 0.76 | 132 | 2 | 87.4 | 9/GR2 |
| ARGNORT4 | -93.80 | 6 | -6396 | -30.01 | 3.86 | 1.99 | 48 | 2 | 87.4 |  |
| ARGNORT5 | - 54.80 | 6 | -62.85 | -29.80 | 3.24 | 2.89 | 47 | 2 | 87.4 |  |
| ATNBEAM1 | -52.80 | 6 | -66.44 | 14.87 | 1.83 | 0.68 | 39 | 2 | 87.4 |  |
| B CE311 | -63.80 | 6 | -40.60 | -6.07 | 3.04 | 2.06 | 174 | 2 | 87.4 | 8 9/GR7 |
| B CE312 | -44.80 | 6 | -40.26 | -6.06 | 3.44 | 2.09 | 174 | 2 | 87.4 | 8 9/GR9 |
| B CE411 | -63.80 | 6 | -50.97 | -15.26 | 3.86 | 1.38 | 49 | 2 | 87.4 | 8 9/GR7 |
| B CE412 | -4480 | 6 | -50 71 | -1530 | 3.57 | 1.56 | 52 | 2 | 87.4 | 8 9/GR9 |
| B CE511 | -63.80 | 6 | -5311 | -2.98 | 2.42 | 215 | 107 | 2 | 87.4 | 8 9/GR7 |
| B NO611 | -73.80 | 6 | -59.60 | - 11.62 | 2.86 | 1.69 | 165 | 1 | 87.4 | 8 9/GR8 |
| B NO711 | -7380 | 6 | -60.70 | -1.78 | 3.54 | 178 | 126 | 1 | 87.4 | 8 9/GR8 |
| B NO811 | -7380 | 6 | -68.75 | -4.71 | 2.37 | 1.65 | 73 | 1 | 874 | 8 9/GR8 |
| B SE911 | -10180 | 6 | -4599 | -19.09 | 2.22 | 0.79 | 62 | 2 | 87.4 | 8 |
| B SU111 | -80.80 | 6 | -51.10 | -25.64 | 2.76 | 1.06 | 50 | 2 | 87.4 | 8 9/GR6 |
| B SU112 | -44.80 | 6 | -50.76 | -25.62 | 2.47 | 1.48 | 56 | 2 | 87.4 | 8 9/GR9 |
| B SU211 | -80.80 | 6 | -44.51 | -16.94 | 3.22 | 1.37 | 60 | 2 | 87.4 | 8 9/GR6 |
| B SU212 | -44.80 | 6 | -43.99 | -16.97 | 3.27 | 1.92 | 59 | 2 | 87.4 | 8 9/GR9 |
| CAN01101 | - 137.80 | 6 | - 114.10 | 50.92 | 7.22 | 111 | 160 | 2 | 87.4 | 9/GR10 |
| CAN01201 | -137.80 | 6 | - 114.10 | 50.92 | 7.22 | 1.11 | 160 | 2 | 87.4 | 9/GR10 |
| CAN01202 | -72.30 | 6 | -81.23 | 50.12 | 7.99 | 2.53 | 5 | 2 | 87.4 |  |
| CAN01203 | - 128.80 | 6 | - 113.04 | 51.04 | 7.53 | 1.26 | 162 | 2 | 87.4 | 9/GR12 |
| CAN01303 | - 128.80 | 6 | - 113.04 | 51.04 | 7.53 | 1.26 | 162 | 2 | 87.4 | 9/GR12 |
| CAN01304 | -90.80 | 6 | -86.57 | 50.48 | 8.59 | 254 | 178 | 2 | 87.4 | 9/GR13 |

17396,90 MHz (6)

| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CAN01403 | - 128.80 | 6 | -113.04 | 51.04 | 7.53 | 1.26 | 162 | 2 | 87.4 | 9/GR12 |
| CAN01404 | -90.80 | 6 | -86.57 | 50.48 | 8.59 | 2.54 | 178 | 2 | 87.4 | 9/GR13 |
| CAN01405 | -81.80 | 6 | -83.80 | 50.22 | 8.35 | 2.57 | 2 | 2 | 87.4 | 9/GR14 |
| CAN01504 | -90.80 | 6 | -86.57 | 50.48 | 8.59 | 2.54 | 178 | 2 | 87.4 | 9/GR13 |
| CAN01505 | -81.80 | 6 | -83.80 | 50.22 | 8.35 | 2.57 | 2 | 2 | 87.4 | 9/GR14 |
| CAN01605 | -81.80 | 6 | -83.80 | 50.22 | 8.35 | 2.57 | 2 | 2 | 87.4 | 9/GR14 |
| CAN01606 | -70.30 | 6 | -80 64 | 50.02 | 7.88 | 2.52 | 6 | 2 | 87.4 |  |
| CHLCONT4 | -105.80 | 6 | -69.59 | -23.20 | 2.21 | 0.69 | 68 | 2 | 87.4 | 9/GR16 |
| CHLCONT6 | - 105.80 | 6 | -73.52 | -55.52 | 3.65 | 1.31 | 39 | 2 | 87.4 | 9/GR16 |
| CRBBAH01 | -92.30 | 6 | -76.09 | 24.13 | 1.83 | 0.68 | 141 | 1 | 87.4 | 9/GR18 |
| CRBBER01 | -92.30 | 6 | -64.76 | 3213 | 0.60 | 0.60 | 90 | 1 | 87.4 | 9/GR18 |
| CRBBLZ01 | -92.30 | 6 | -88.61 | 17.26 | 0.64 | 0.64 | 90 | 1 | 87.4 | 9/GR18 |
| CRBEC001 | -92.30 | 6 | -60.07 | 8.26 | 4.20 | 0.86 | 115 | 1 | 87.4 | 9/GR18 |
| CRBJMC01 | -92.30 | 6 | - 79.45 | 17.97 | 0.99 | 0.68 | 151 | 1 | 87.4 | 9/GR18 |
| CTR00201 | - 130.80 | 6 | -84.33 | 9.67 | 0.82 | 0.68 | 119 | 2 | 87.4 |  |
| EQAC0001 | -94.80 | 6 | -78.31 | -1.52 | 1.48 | 1.15 | 65 | 1 | 87.4 | 9/GR19 |
| EQAG0001 | -94.80 | 6 | -90.36 | -0.57 | 0.94 | 0.89 | 99 | 1 | 87.4 | 9/GR19 |
| GUY00302 | -33.80 | 6 | -59.07 | 4.77 | 1.43 | 0.85 | 91 | 2 | 87.4 |  |
| HNDIFRB2 | -107.30 | 6 | -86.23 | 15.16 | 1.14 | 0.85 | 8 | 1 | 87.4 |  |
| HTI00002 | -83.30 | 6 | -73.28 | 1896 | 082 | 0.68 | 11 | 2 | 87.4 |  |
| HWA00002 | -165.80 | 6 | -109.83 | 36.82 | 6.03 | 1.12 | 137 | 2 | 87.4 | 9/GR1 |
| HWA00003 | - 174.80 | 6 | -116.10 | 37.47 | 5.60 | 0.76 | 132 | 2 | 87.4 | 9/GR2 |
| MEX01NTE | -77.80 | 6 | -105.80 | 25.99 | 2.88 | 2.07 | 155 | 2 | 87.4 | 1 |
| MEX02NTE | -135.80 | 6 | -107.36 | 26.32 | 3.80 | 1.57 | 149 | 2 | 87.4 | 1 |

17396,90 MHz (6)

| MEX02SUR | -126.80 | 6 | -96.39 | 19.88 | 3.19 | 1.87 | 158 | 2 | 874 | 1 |
| :--- | ---: | :--- | ---: | ---: | ---: | ---: | ---: | :--- | :--- | :--- |
| PRU00004 | -8580 | 6 | -74.19 | -8.39 | 3.74 | 2.45 | 112 | 2 | 87.4 |  |
| PTRVIR01 | -100.80 | 6 | -93.85 | 36.31 | 8.26 | 3.55 | 171 | 2 | 87.4 | 169 9/GR20 |
| PTRVIR02 | -10980 | 6 | -95.47 | 3638 | 8.10 | 3.45 | 168 | 2 | 87.4 | 1699 GR21 |
| TCA00001 | -11580 | 6 | -71.79 | 2153 | 0.60 | 060 | 90 | 2 | 874 |  |
| USAEH001 | -61.30 | 6 | -87.53 | 36.18 | 6.41 | 3.49 | 12 | 2 | 87.4 | 156 |
| USAEH002 | -100.80 | 6 | -9385 | 36.31 | 8.26 | 3.55 | 171 | 2 | 87.4 | $169 /$ GR20 |
| USAEH003 | -109.80 | 6 | -95.47 | 36.38 | 8.10 | 3.45 | 168 | 2 | 874 | $169 /$ GR21 |
| USAEH004 | -118.80 | 6 | -96.42 | 3621 | 8.20 | 3.12 | 165 | 2 | 87.4 | 156 |
| USAPSA02 | -165.80 | 6 | -109.83 | 36.82 | 6.03 | 1.12 | 137 | 2 | 87.4 | $9 /$ GR1 |
| USAPSA03 | -174.80 | 6 | -116.10 | 37.47 | 5.60 | 0.76 | 132 | 2 | 874 | $9 / G R 2$ |
| USAWH101 | -147.80 | 6 | -111.01 | 40.67 | 4.38 | 215 | 162 | 2 | 87.4 |  |
| USAWH102 | -156.80 | 6 | -113.01 | 40.71 | 3.74 | 1.79 | 149 | 2 | 87.4 |  |
| VCT00001 | -79.30 | 6 | -61.18 | 1323 | 060 | 060 | 90 | 2 | 87.4 |  |
| VEN11VEN | -103.80 | 6 | -66.79 | 6.90 | 2.50 | 1.77 | 122 | 2 | 87.4 |  |
|  |  |  |  |  |  |  |  |  |  |  |

17411,48 MHz (7)

| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALS00002 | -166.20 | 7 | -109.94 | 36.86 | 6.04 | 1.11 | 137 | 1 | 87.4 | 9/GR1 |
| ALS00003 | - 175.20 | 7 | - 116.23 | 37.50 | 5.60 | 0.75 | 132 | 1 | 87.4 | 9/GR2 |
| ARGINSU4 | -94.20 | 7 | -52.98 | -59.81 | 3.40 | 0.68 | 19 | 1 | 87.4 | 9/GR3 |
| ARGINSU5 | -55.20 | 7 | -44.17 | -59.91 | 3.77 | 0.70 | 13 | 1 | 87.4 | 9/GR4 |
| ARGSUR04 | -94.20 | 7 | -65.04 | -43.33 | 3.32 | 1.50 | 40 | 1 | 87.4 | 9/GR3 |
| ARGSUR05 | -55.20 | 7 | -63.68 | -43.01 | 2.54 | 2.38 | 152 | 1 | 87.4 | 9/GR4 |
| ATGSJN01 | -79.70 | 7 | -61.79 | 17.07 | 0.60 | 0.60 | 90 | 1 | 87.4 |  |
| B CE311 | -64.20 | 7 | -40.60 | -6.07 | 3.04 | 2.06 | 174 | 1 | 87.4 | 8 9/GR7 |
| B CE312 | -45.20 | 7 | -40.27 | -6.06 | 3.44 | 2.09 | 174 | 1 | 87.4 | 8 9/GR9 |
| B CE411 | -64.20 | 7 | -50.97 | - 15.27 | 3.86 | 1.38 | 49 | 1 | 87.4 | 8 9/GR7 |
| B CE412 | -45.20 | 7 | -50.71 | - 15.30 | 3.57 | 1.56 | 52 | 1 | 87.4 | 8 9/GR9 |
| B CE511 | -64.20 | 7 | -53.10 | -2.90 | 2.44 | 2.13 | 104 | 1 | 87.4 | 8 9/GR7 |
| B NO611 | -74.20 | 7 | -59.60 | -11.62 | 2.85 | 1.69 | 165 | 2 | 87.4 | 8 9/GR8 |
| B NO711 | -74.20 | 7 | -60.70 | -1.78 | 3.54 | 1.78 | 126 | 2 | 87.4 | 8 9/GR8 |
| B N0811 | -74.20 | 7 | -68.76 | -4.71 | 2.37 | 1.65 | 73 | 2 | 87.4 | 8 9/GR8 |
| B SU111 | -8120 | 7 | -51.12 | -25.63 | 2.76 | 1.05 | 50 | 1 | 87.4 | 8 9/GR6 |
| B SU112 | -45.20 | 7 | -50.75 | -25.62 | 247 | 1.48 | 56 | 1 | 87.4 | 8 9/GR9 |
| B SU211 | -81.20 | 7 | -44.51 | -16.95 | 3.22 | 1.36 | 60 | 1 | 87.4 | 8 9/GR6 |
| B SU212 | -45.20 | 7 | -44.00 | - 16.87 | 3.20 | 1.96 | 58 | 1 | 87.4 | 8 9/GR9 |
| BERBERMU | -96.20 | 7 | -64.77 | 32.32 | 0.60 | 0.60 | 90 | 2 | 87.4 |  |
| B OLAND01 | - 115.20 | 7 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | 9/GR5 |
| B OL00001 | -87.20 | 7 | -64.61 | -16.71 | 2.52 | 2.19 | 85 | 1 | 87.4 |  |
| B RB00001 | -92.70 | 7 | -59.85 | 12.93 | 0.60 | 0.60 | 90 | 2 | 87.4 |  |
| CAN01101 | - 138.20 | 7 | - 114.60 | 51.08 | 7.28 | 1.10 | 160 | 1 | 87.4 | 9/GR10 |

17411,48 MHz (7)

| CAN01201 | -138.20 | 7 | -11460 | 51.08 | 7.28 | 1.10 | 160 | 1 | 87.4 | $9 /$ GR10 |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | :--- | :--- | :--- |
| CAN01202 | -72.70 | 7 | -81.34 | 50.02 | 7.96 | 2.55 | 5 | 1 | 87.4 |  |
| CAN01203 | -129.20 | 7 | -113.02 | 51.08 | 7.47 | 1.26 | 162 | 1 | 87.4 | $9 /$ GR12 |
| CAN01303 | -129.20 | 7 | -113.02 | 51.08 | 7.47 | 1.26 | 162 | 1 | 87.4 | 9/GR12 |
| CAN01304 | -91.20 | 7 | -86.71 | 50.48 | 8.58 | 2.54 | 178 | 1 | 87.4 | 9/GR13 |
| CAN01403 | -129.20 | 7 | -113.02 | 51.08 | 747 | 1.26 | 162 | 1 | 87.4 | 9/GR12 |
| CAN01404 | -91.20 | 7 | -86.71 | 50.48 | 8.58 | 2.54 | 178 | 1 | 87.4 | 9/GR13 |
| CAN01405 | -82.20 | 7 | -84.11 | 50.20 | 8.31 | 2.58 | 1 | 1 | 87.4 | 9/GR14 |
| CAN01504 | -91.20 | 7 | -86.71 | 50.48 | 8.58 | 2.54 | 178 | 1 | 87.4 | 9/GR13 |
| CAN01505 | -82.20 | 7 | -84.11 | 50.20 | 8.31 | 2.58 | 1 | 1 | 87.4 | 9/GR14 |
| CAN01605 | -82.20 | 7 | -84.11 | 50.20 | 8.31 | 2.58 | 1 | 1 | 87.4 | 9/GR14 |
| CAN01606 | -70.70 | 7 | -80.77 | 50.03 | 7.88 | 2.53 | 6 | 1 | 87.4 |  |
| CHLCONT5 | -106.20 | 7 | -72.23 | -35.57 | 2.60 | 0.68 | 55 | 1 | 87.4 | 9/GR17 |
| CHLPAC02 | -106.20 | 7 | -80.06 | -30.06 | 1.36 | 0.68 | 69 | 1 | 87.4 | 9/GR17 |
| CLMAND01 | -115.20 | 7 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | 9/GR5 |
| CLM00001 | -103.20 | 7 | -74.50 | 5.87 | 3.98 | 1.96 | 118 | 1 | 87.4 |  |
| CUB00001 | -89.20 | 7 | -79.81 | 21.62 | 2.24 | 0.68 | 168 | 1 | 87.4 |  |
| EQACAND1 | -115.20 | 7 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | 9/GR5 |
| EQAGAND1 | -115.20 | 7 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | 9/GR5 |
| GRD00002 | -42.20 | 7 | -61.58 | 12.29 | 0.60 | 0.60 | 90 | 1 | 87.4 |  |
| GRD00059 | -57.20 | 7 | -61.58 | 12.29 | 0.60 | 0.60 | 90 | 1 | 87.4 |  |
| GRLDNK01 | -53.20 | 7 | -44.89 | 66.56 | 2.70 | 0.82 | 173 | 1 | 87.4 | 2 |
| HWA00002 | -166.20 | 7 | -109.94 | 36.86 | 6.04 | 1.11 | 137 | 1 | 87.4 | 9/GR1 |
| HWA00003 | -175.20 | 7 | -116.23 | 37.50 | 5.60 | 0.75 | 132 | 1 | 87.4 | $9 /$ GR2 |

17411,48 MHz (7)

| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| MEX01NTE | -78.20 | 7 | - 105.81 | 26.01 | 2.89 | 2.08 | 155 | 1 | 87.4 | 1 |
| MEX01SUR | -69.20 | 7 | -94.84 | 19.82 | 3.05 | 2.09 | 4 | 1 | 87.4 | 1 |
| MEX02NTE | - 136.20 | 7 | - 107.21 | 26.31 | 3.84 | 1.55 | 148 | 1 | 87.4 | 1 |
| MEX02SUR | - 127.20 | 7 | -96.39 | 19.88 | 3.18 | 1.87 | 157 | 1 | 87.4 | 1 |
| PAQPAC01 | - 106.20 | 7 | - 109.18 | -27.53 | 0.60 | 0.60 | 90 | 1 | 87.4 | 9/GR17 |
| PRG00002 | -99.20 | 7 | -58.66 | -23.32 | 1.45 | 1.04 | 76 | 1 | 87.4 |  |
| PRUAND02 | - 115.20 | 7 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | 9/GR5 |
| PTRVIR01 | - 101.20 | 7 | -93.94 | 36.32 | 8.24 | 3.56 | 171 | 1 | 87.4 | 16 9/GR20 |
| PTRVIR02 | -11020 | 7 | -95.23 | 36.29 | 8.27 | 3.37 | 168 | 1 | 87.4 | 16 9/GR21 |
| SURINAM2 | -84.70 | 7 | -55.69 | 4.35 | 1.00 | 0.69 | 86 | 1 | 87.4 |  |
| URG00001 | - 71.70 | 7 | -56.22 | -32.52 | 1.02 | 0.89 | 11 | 1 | 87.4 |  |
| USAEH001 | -61.70 | 7 | -87.57 | 36.17 | 6.42 | 3.49 | 12 | 1 | 87.4 | 156 |
| USAEH002 | -101.20 | 7 | -93.94 | 36.32 | 8.24 | 3.56 | 171 | 1 | 87.4 | 16 9/GR20 |
| USAEH003 | - 110.20 | 7 | -95.23 | 36.29 | 827 | 3.37 | 168 | 1 | 87.4 | 16 9/GR21 |
| USAEH004 | - 119.20 | 7 | -96.45 | 36.21 | 8.20 | 3.12 | 165 | 1 | 87.4 | 156 |
| USAPSA02 | - 166.20 | 7 | -109.94 | 3686 | 6.04 | 1.11 | 137 | 1 | 87.4 | 9/GR1 |
| USAPSA03 | - 175.20 | 7 | - 116.23 | 37.50 | 5.60 | 075 | 132 | 1 | 87.4 | 9/GR2 |
| USAWH101 | - 148.20 | 7 | - 111.02 | 40.68 | 4.36 | 2.15 | 162 | 1 | 87.4 |  |
| USAWH102 | -157.20 | 7 | -113.07 | 40.74 | 3.72 | 1.78 | 149 | 1 | 87.4 |  |
| VENAND03 | - 115.20 | 7 | - 71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | 9/GR5 |

17426,06 MHz (8)

| ALS00002 | - 165.80 | 8 | - 109.83 | 36.82 | 6.03 | 1.12 | 137 | 2 | 874 | 9/GR1 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALS 00003 | - 174.80 | 8 | - 116.10 | 37.47 | 5.60 | 0.76 | 132 | 2 | 87.4 | 9/GR2 |
| ARGNORT4 | -93.80 | 8 | -63.96 | -30.01 | 3.86 | 1.99 | 48 | 2 | 87.4 |  |
| ARGNORT5 | - 54.80 | 8 | -62.85 | $-29.80$ | 3.24 | 2.89 | 47 | 2 | 87.4 |  |
| B CE311 | -63.80 | 8 | -40.60 | -6.07 | 3.04 | 2.06 | 174 | 2 | 87.4 | 8 9/GR7 |
| B CE312 | -44.80 | 8 | -40.26 | -6.06 | 3.44 | 2.09 | 174 | 2 | 87.4 | 8 9/GR9 |
| B CE411 | -63.80 | 8 | -50.97 | - 15.26 | 3.86 | 1.38 | 49 | 2 | 87.4 | 8 9/GR7 |
| B CE412 | -44.80 | 8 | -50.71 | - 15.30 | 3.57 | 1.56 | 52 | 2 | 87.4 | 8 9/GR9 |
| B CE511 | -63.80 | 8 | -53.11 | -2.98 | 2.42 | 2.15 | 107 | 2 | 87.4 | 8 9/GR7 |
| B NO611 | -73.80 | 8 | -59.60 | -11.62 | 2.86 | 1.69 | 165 | 1 | 87.4 | 8 9/GR8 |
| B NO711 | -73.80 | 8 | -60.70 | -1.78 | 3.54 | 1.78 | 126 | 1 | 87.4 | 8 9/GR8 |
| B N0811 | - 73.80 | 8 | -68.75 | -4.71 | 2.37 | 1.65 | 73 | 1 | 87.4 | 8 9/GR8 |
| B SE911 | - 101.80 | 8 | -45.99 | -19.09 | 2.22 | 0.79 | 62 | 2 | 87.4 | 8 |
| B SU111 | -80.80 | 8 | -51.10 | - 25.64 | 2.76 | 1.06 | 50 | 2 | 87.4 | 8 9/GR6 |
| B SU112 | -44.80 | 8 | -50.76 | -25.62 | 2.47 | 1.48 | 56 | 2 | 87.4 | 8 9/GR9 |
| B SU211 | -80.80 | 8 | -44.51 | -16.94 | 3.22 | 1.37 | 60 | 2 | 874 | 8 9/GR6 |
| B SU212 | -44.80 | 8 | -43.99 | -16.97 | 3.27 | 1.92 | 59 | 2 | 87.4 | 8 9/GR9 |
| CAN01101 | - 137.80 | 8 | -114.10 | 50.92 | 7.22 | 1.11 | 160 | 2 | 87.4 | 9/GR10 |
| CAN01201 | -13780 | 8 | - 114.10 | 50.92 | 7.22 | 1.11 | 160 | 2 | 87.4 | 9/GR10 |
| CAN01202 | -72.30 | 8 | -81.23 | 50.12 | 7.99 | 2.53 | 5 | 2 | 87.4 |  |
| CAN01203 | - 128.80 | 8 | - 113.04 | 51.04 | 7.53 | 1.26 | 162 | 2 | 87.4 | 9/GR12 |
| CAN01303 | - 128.80 | 8 | - 113.04 | 51.04 | 7.53 | 1.26 | 162 | 2 | 87.4 | 9/GR12 |
| CAN01304 | -90.80 | 8 | -86.57 | 50.48 | 8.59 | 2.54 | 178 | 2 | 87.4 | 9/GR13 |
| CAN01403 | - 128.80 | 8 | -113.04 | 51.04 | 7.53 | 1.26 | 162 | 2 | 87.4 | 9/GR12 |



17426,06 MHz
(8)

| MEX02SUR | -126.80 | 8 | -96.39 | 19.88 | 3.19 | 1.87 | 158 | 2 | 87.4 | 1 |
| :--- | ---: | :--- | ---: | ---: | ---: | ---: | ---: | :--- | :--- | :--- |
| PRU00004 | -85.80 | 8 | -74.19 | -839 | 3.74 | 2.45 | 112 | 2 | 87.4 |  |
| PTRVIR01 | -100.80 | 8 | -93.85 | 36.31 | 8.26 | 3.55 | 171 | 2 | 87.4 | 169 9/GR20 |
| PTRVIR02 | -109.80 | 8 | -95.47 | 36.38 | 8.10 | 3.45 | 168 | 2 | 87.4 | 169 9/GR21 |
| SLVIFRB2 | -107.30 | 8 | -88.91 | 13.59 | 0.60 | 0.60 | 90 | 1 | 87.4 |  |
| USAEH001 | -61.30 | 8 | -87.53 | 3618 | 6.41 | 3.49 | 12 | 2 | 87.4 | 156 |
| USAEH002 | -100.80 | 8 | -93.85 | 3631 | 8.26 | 3.55 | 171 | 2 | 87.4 | $169 /$ GR20 |
| USAEH003 | -109.80 | 8 | -95.47 | 36.38 | 8.10 | 3.45 | 168 | 2 | 87.4 | $1699 /$ GR21 |
| USAEH004 | -118.80 | 8 | -96.42 | 36.21 | 8.20 | 3.12 | 165 | 2 | 87.4 | 156 |
| USAPSA02 | -16580 | 8 | -109.83 | 36.82 | 6.03 | 1.12 | 137 | 2 | 87.4 | $9 /$ GR1 |
| USAPSA03 | -17480 | 8 | -116.10 | 37.47 | 5.60 | 076 | 132 | 2 | 87.4 | $9 /$ GR2 |
| USAWH101 | -147.80 | 8 | -111.01 | 4067 | 4.38 | 2.15 | 162 | 2 | 87.4 |  |
| USAWH102 | -156.80 | 8 | -113.01 | 40.71 | 3.74 | 1.79 | 149 | 2 | 874 |  |
| VEN11VEN | -103.80 | 8 | -66.79 | 6.90 | 2.50 | 1.77 | 122 | 2 | 87.4 |  |
|  |  |  |  |  |  |  |  |  |  |  |

IS-V0EdV

| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALS00002 | -166.20 | 9 | -109.94 | 36.86 | 6.04 | 1.11 | 137 | 1 | 87.4 | 9/GR1 |
| ALS00003 | - 175.20 | 9 | -116.23 | 37.50 | 5.60 | 0.75 | 132 | 1 | 87.4 | 9/GR2 |
| ARGINSU4 | -94.20 | 9 | -52.98 | -59.81 | 3.40 | 0.68 | 19 | 1 | 87.4 | 9/GR3 |
| ARGSUR04 | -94.20 | 9 | -65.04 | -43.33 | 3.32 | 1.50 | 40 | 1 | 87.4 | 9/GR3 |
| B CE311 | -64.20 | 9 | -40.60 | -6.07 | 3.04 | 2.06 | 174 | 1 | 87.4 | 8 9/GR7 |
| B CE312 | -45.20 | 9 | -40.27 | -6.06 | 3.44 | 2.09 | 174 | 1 | 87.4 | 8 9/GR9 |
| B CE411 | -64.20 | 9 | -50.97 | -15.27 | 3.86 | 1.38 | 49 | 1 | 87.4 | 8 9/GR7 |
| B CE412 | -45.20 | 9 | -50.71 | -15.30 | 3.57 | 1.56 | 52 | 1 | 87.4 | 8 9/GR9 |
| B CE511 | -64.20 | 9 | -53.10 | -2.90 | 2.44 | 2.13 | 104 | 1 | 87.4 | 8 9/GR7 |
| B N0611 | -74.20 | 9 | -59.60 | -11.62 | 2.85 | 1.69 | 165 | 2 | 87.4 | 8 9/GR8 |
| B N0711 | -7420 | 9 | -60.70 | -1.78 | 3.54 | 1.78 | 126 | 2 | 87.4 | 8 9/GR8 |
| B N0811 | -74.20 | 9 | -68.76 | -4.71 | 2.37 | 1.65 | 73 | 2 | 87.4 | 8 9/GR8 |
| B SU111 | -81.20 | 9 | -51.12 | -25.63 | 2.76 | 1.05 | 50 | 1 | 87.4 | 8 9/GR6 |
| B SU112 | -45.20 | 9 | -50.75 | -25.62 | 2.47 | 1.48 | 56 | 1 | 87.4 | 8 9/GR9 |
| B SU211 | -81.20 | 9 | -44.51 | -16.95 | 3.22 | 1.36 | 60 | 1 | 87.4 | 8 9/GR6 |
| B SU212 | -45.20 | 9 | -44.00 | -16.87 | 3.20 | 1.96 | 58 | 1 | 87.4 | 8 9/GR9 |
| B AHIFRB1 | -87.20 | 9 | - 76.06 | 24.16 | 1.81 | 0.70 | 142 | 1 | 87.4 |  |
| BERBERMU | -96.20 | 9 | -64.77 | 32.32 | 0.60 | 0.60 | 90 | 2 | 87.4 |  |
| B ERBER02 | -31.00 | 9 | -64.77 | 32.32 | 0.60 | 0.60 | 90 | 1 | 87.4 | 23 |
| B OLAND01 | -115.20 | 9 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | 9/GR5 |
| CAN01101 | - 138.20 | 9 | -114.60 | 51.08 | 7.28 | 1.10 | 160 | 1 | 87.4 | 9/GR10 |
| CAN01201 | - 138.20 | 9 | - 114.60 | 51.08 | 7.28 | 1.10 | 160 | 1 | 87.4 | 9/GR10 |
| CAN01202 | -72.70 | 9 | -81.34 | 50.02 | 7.96 | 2.55 | 5 | 1 | 87.4 |  |
| CAN01203 | - 129.20 | 9 | -113.02 | 51.08 | 7.47 | 1.26 | 162 | 1 | 87.4 | 9/GR12 |

17440,64 MHz (9)

| CAN01303 | -12920 | 9 | -11302 | 51.08 | 7.47 | 1.26 | 162 | 1 | 87.4 | $9 /$ GR12 |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | :--- | :--- | :--- |
| CAN01304 | -91.20 | 9 | -86.71 | 50.48 | 8.58 | 2.54 | 178 | 1 | 87.4 | $9 /$ GR13 |
| CAN01403 | -12920 | 9 | -113.02 | 51.08 | 7.47 | 1.26 | 162 | 1 | 87.4 | $9 / G R 12$ |
| CAN01404 | -91.20 | 9 | -86.71 | 50.48 | 8.58 | 254 | 178 | 1 | 87.4 | $9 /$ GR13 |
| CAN01405 | -8220 | 9 | -84.11 | 50.20 | 8.31 | 2.58 | 1 | 1 | 87.4 | $9 /$ GR14 |
| CAN01504 | -91.20 | 9 | -8671 | 50.48 | 8.58 | 2.54 | 178 | 1 | 87.4 | $9 /$ GR13 |
| CAN01505 | -82.20 | 9 | -84.11 | 50.20 | 8.31 | 2.58 | 1 | 1 | 87.4 | $9 /$ GR14 |
| CAN01605 | -82.20 | 9 | -84.11 | 50.20 | 8.31 | 2.58 | 1 | 1 | 87.4 | $9 /$ GR14 |
| CAN01606 | -70.70 | 9 | -80.77 | 50.03 | 788 | 2.53 | 6 | 1 | 87.4 |  |
| CHLCONT5 | -106.20 | 9 | -7223 | -35.57 | 2.60 | 0.68 | 55 | 1 | 87.4 | $9 /$ GR17 |
| CHLPAC02 | -106.20 | 9 | -80.06 | -30.06 | 136 | 0.68 | 69 | 1 | 87.4 | $9 /$ GR17 |
| CLMAND01 | -115.20 | 9 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | $9 /$ GR5 |
| CLM00001 | -103.20 | 9 | -74.50 | 5.87 | 3.98 | 1.96 | 118 | 1 | 87.4 |  |
| EQACAND1 | -115.20 | 9 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | $9 /$ GR5 |
| EQAGAND1 | -115.20 | 9 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | $9 /$ GR5 |
| FLKANT01 | -57.20 | 9 | -44.54 | -60.13 | 3.54 | 0.68 | 12 | 1 | 87.4 | 2 |
| FLKFALKS | -31.00 | 9 | -59.90 | -51.64 | 0.60 | 0.60 | 90 | 1 | 87.4 | 23 |
| GRD00002 | -42.20 | 9 | -61.58 | 12.29 | 0.60 | 0.60 | 90 | 1 | 87.4 |  |
| HWA00002 | -166.20 | 9 | -109.94 | 36.86 | 6.04 | 1.11 | 137 | 1 | 87.4 | $9 /$ GR1 |
| HWA00003 | -175.20 | 9 | -116.23 | 37.50 | 5.60 | 0.75 | 132 | 1 | 87.4 | $9 /$ GR2 |
| MEX01NTE | -78.20 | 9 | -105.81 | 26.01 | 2.89 | 2.08 | 155 | 1 | 87.4 | 1 |
| MEX01SUR | -69.20 | 9 | -94.84 | 19.82 | 3.05 | 2.09 | 4 | 1 | 87.4 | 1 |
| MEXO2NTE | -136.20 | 9 | -107.21 | 26.31 | 3.84 | 1.55 | 148 | 1 | 87.4 | 1 |
| MEX02SUR | -127.20 | 9 | -96.39 | 19.88 | 3.18 | 1.87 | 157 | 1 | 87.4 | 1 |

17440,64 MHz (9)

| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| PAQPAC01 | - 106.20 | 9 | - 109.18 | -27.53 | 0.60 | 0.60 | 90 | 1 | 87.4 | 9/GR17 |
| PRG00002 | -99.20 | 9 | -58.66 | -23.32 | 1.45 | 1.04 | 76 | 1 | 87.4 |  |
| PRUAND02 | -115.20 | 9 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | 9/GR5 |
| PTRVIR01 | - 101.20 | 9 | -93.94 | 36.32 | 8.24 | 3.56 | 171 | 1 | 87.4 | 16 9/GR20 |
| PTRVIR02 | - 110.20 | 9 | -95.23 | 36.29 | 8.27 | 3.37 | 168 | 1 | 87.4 | 16 9/GR21 |
| SPMFRAN3 | -53.20 | 9 | -67.24 | 47.51 | 3.16 | 0.79 | 7 | 1 | 87.4 | 27 |
| TRD00001 | -84.70 | 9 | -61.23 | 10.70 | 0.60 | 0.60 | 90 | 1 | 87.4 |  |
| URG00001 | -71.70 | 9 | -56.22 | -32.52 | 1.02 | 0.89 | 11 | 1 | 87.4 |  |
| USAEH001 | -61.70 | 9 | -87.57 | 36.17 | 6.42 | 3.49 | 12 | 1 | 87.4 | 156 |
| USAEH002 | - 101.20 | 9 | -93.94 | 36.32 | 8.24 | 3.56 | 171 | 1 | 87.4 | 16 9/GR20 |
| USAEH003 | -110.20 | 9 | -95.23 | 36.29 | 8.27 | 3.37 | 168 | 1 | 87.4 | 16 9/GR21 |
| USAEH004 | -119.20 | 9 | -96.45 | 36.21 | 8.20 | 3.12 | 165 | 1 | 87.4 | 156 |
| USAPSA02 | - 166.20 | 9 | -109.94 | 36.86 | 6.04 | 1.11 | 137 | 1 | 87.4 | 9/GR1 |
| USAPSA03 | -175.20 | 9 | -116.23 | 37.50 | 5.60 | 0.75 | 132 | 1 | 87.4 | 9/GR2 |
| USAWH101 | - 148.20 | 9 | - 111.02 | 40.68 | 4.36 | 2.15 | 162 | 1 | 87.4 |  |
| USAWH102 | - 157.20 | 9 | - 113.07 | 40.74 | 3.72 | 1.78 | 149 | 1 | 87.4 |  |
| VENAND03 | - 115.20 | 9 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | 9/GR5 |
| VRG00001 | -79.70 | 9 | -64.37 | 18.48 | 0.60 | 0.60 | 90 | 1 | 87.4 | 4 |

17455,22 MHz

| ALS00002 | $-165.80$ | 10 | - 109.83 | 36.82 | 6.03 | 1.12 | 137 | 2 | 874 | 9/GR1 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALS00003 | - 174.80 | 10 | -11610 | 37.47 | 5.60 | 0.76 | 132 | 2 | 87.4 | 9/GR2 |
| ARGNORT4 | -93.80 | 10 | -63.96 | -30.01 | 386 | 1.99 | 48 | 2 | 87.4 |  |
| ARGNORT5 | -54.80 | 10 | -62.85 | -29.80 | 3.24 | 2.89 | 47 | 2 | 87.4 |  |
| ATNBEAM1 | -52.80 | 10 | -66.44 | 14.87 | 183 | 0.68 | 39 | 2 | 87.4 |  |
| B CE311 | -63.80 | 10 | -40.60 | -6.07 | 3.04 | 2.06 | 174 | 2 | 87.4 | 8 9/GR7 |
| B CE312 | -44.80 | 10 | -40.26 | -6.06 | 344 | 2.09 | 174 | 2 | 87.4 | 8 9/GR9 |
| B CE411 | -63.80 | 10 | -50.97 | -15.26 | 3.86 | 1.38 | 49 | 2 | 87.4 | 8 9/GR7 |
| B CE412 | -44.80 | 10 | -50 71 | - 15.30 | 3.57 | 1.56 | 52 | 2 | 87.4 | 8 9/GR9 |
| B CE511 | -63.80 | 10 | -53.11 | -2.98 | 2.42 | 215 | 107 | 2 | 87.4 | 8 9/GR7 |
| B NO611 | -73.80 | 10 | -5960 | -1162 | 2.86 | 169 | 165 | 1 | 87.4 | 8 9/GR8 |
| B NO711 | -73.80 | 10 | -60 70 | -1.78 | 3.54 | 1.78 | 126 | 1 | 87.4 | 8 9/GR8 |
| B NO811 | -73.80 | 10 | -68.75 | -4.71 | 2.37 | 1.65 | 73 | 1 | 87.4 | 8 9/GR8 |
| B SE911 | -101.80 | 10 | -45.99 | - 19.09 | 2.22 | 0.79 | 62 | 2 | 87.4 | 8 |
| B SU111 | -80.80 | 10 | -51.10 | -25.64 | 2.76 | 1.06 | 50 | 2 | 87.4 | 8 9/GR6 |
| B SU112 | -44.80 | 10 | -50.76 | -25.62 | 2.47 | 1.48 | 56 | 2 | 87.4 | 8 9/GR9 |
| B SU211 | -80.80 | 10 | -44.51 | -16.94 | 3.22 | 1.37 | 60 | 2 | 87.4 | 8 9/GR6 |
| B SU212 | -44.80 | 10 | --43.99 | -16.97 | 3.27 | 1.92 | 59 | 2 | 87.4 | 8 9/GR9 |
| CAN01101 | $-137.80$ | 10 | - 114.10 | 50.92 | 7.22 | 1.11 | 160 | 2 | 87.4 | 9/GR10 |
| CAN01201 | -13780 | 10 | - 114.10 | 50.92 | 7.22 | 1.11 | 160 | 2 | 87.4 | 9/GR10 |
| CAN01202 | -72.30 | 10 | -81.23 | 50.12 | 7.99 | 2.53 | 5 | 2 | 87.4 |  |
| CAN01203 | $-128.80$ | 10 | -113.04 | 51.04 | 7.53 | 1.26 | 162 | 2 | 87.4 | 9/GR12 |
| CAN01303 | $-128.80$ | 10 | -113.04 | 51.04 | 7.53 | 1.26 | 162 | 2 | 87.4 | 9/GR12 |
| CAN01304 | -90.80 | 10 | -86.57 | 5048 | 8.59 | 2.54 | 178 | 2 | 87.4 | 9/GR13 |


| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CAN01403 | $-128.80$ | 10 | -113.04 | 51.04 | 7.53 | 1.26 | 162 | 2 | 87.4 | 9/GR12 |
| CAN01404 | -90.80 | 10 | -86.57 | 50.48 | 8.59 | 2.54 | 178 | 2 | 87.4 | 9/GR13 |
| CAN01405 | -81.80 | 10 | -83.80 | 50.22 | 8.35 | 2.57 | 2 | 2 | 87.4 | 9/GR14 |
| CAN01504 | -90.80 | 10 | -86.57 | 50.48 | 8.59 | 2.54 | 178 | 2 | 87.4 | 9/GR13 |
| CAN01505 | -81.80 | 10 | -83.80 | 50.22 | 8.35 | 2.57 | 2 | 2 | 87.4 | 9/GR14 |
| CAN01605 | -81.80 | 10 | -83.80 | 50.22 | 8.35 | 2.57 | 2 | 2 | 87.4 | 9/GR14 |
| CAN01606 | -70.30 | 10 | -80.64 | 50.02 | 7.88 | 2.52 | 6 | 2 | 87.4 |  |
| CHLCONT4 | -105.80 | 10 | -69.59 | -23.20 | 2.21 | 0.69 | 68 | 2 | 87.4 | 9/GR16 |
| CHLCONT6 | -105.80 | 10 | -73.52 | - 55.52 | 3.65 | 1.31 | 39 | 2 | 87.4 | 9/GR16 |
| CRBBAH01 | -92.30 | 10 | -76.09 | 24.13 | 1.83 | 0.68 | 141 | 1 | 87.4 | 9/GR18 |
| CRBBER01 | -92.30 | 10 | -64.76 | 32.13 | 0.60 | 0.60 | 90 | 1 | 87.4 | 9/GR18 |
| CRBBLZ 01 | -92.30 | 10 | -88.61 | 17.26 | 064 | 0.64 | 90 | 1 | 87.4 | 9/GR18 |
| CRBEC001 | -92.30 | 10 | -60.07 | 8.26 | 4.20 | 086 | 115 | 1 | 87.4 | 9/GR18 |
| CRBJMC01 | -92.30 | 10 | -79.45 | 17.97 | 0.99 | 068 | 151 | 1 | 87.4 | 9/GR18 |
| CTR00201 | - 130.80 | 10 | -84.33 | 9.67 | 0.82 | 0.68 | 119 | 2 | 87.4 |  |
| EQAC0001 | -94.80 | 10 | -78.31 | -1.52 | 1.48 | 1.15 | 65 | 1 | 87.4 | 9/GR19 |
| EQAG0001 | -94.80 | 10 | -90.36 | -0.57 | 0.94 | 0.89 | 99 | 1 | 87.4 | 9/GR19 |
| GUY00302 | -33.80 | 10 | -59.07 | 4.77 | 143 | 0.85 | 91 | 2 | 87.4 |  |
| HNDIFRB2 | -107.30 | 10 | -86.23 | 15.16 | 1.14 | 0.85 | 8 | 1 | 87.4 |  |
| HTIO0002 | -83.30 | 10 | -73.28 | 18.96 | 0.82 | 0.68 | 11 | 2 | 87.4 |  |
| HWA00002 | -165.80 | 10 | -109.83 | 36.82 | 6.03 | 1.12 | 137 | 2 | 87.4 | 9/GR1 |
| HWA00003 | -174.80 | 10 | - 116.10 | 37.47 | 5.60 | 0.76 | 132 | 2 | 87.4 | 9/GR2 |
| MEX01NTE | - 77.80 | 10 | - 105.80 | 25.99 | 2.88 | 2.07 | 155 | 2 | 87.4 | 1 |
| MEX02NTE | - 135.80 | 10 | -107.36 | 26.32 | 3.80 | 157 | 149 | 2 | 87.4 | 1 |

17455,22 MHz (10)

| MEXO2SUR | -12680 | 10 | -9639 | 19.88 | 3.19 | 1.87 | 158 | 2 | 87.4 | 1 |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | :--- | :--- | :--- |
| PRU00004 | -85.80 | 10 | -74.19 | -8.39 | 3.74 | 2.45 | 112 | 2 | 87.4 |  |
| PTRVIR01 | -100.80 | 10 | -93.85 | 36.31 | 8.26 | 3.55 | 171 | 2 | 87.4 | 169 9/GR20 |
| PTRVIR02 | -109.80 | 10 | -95.47 | 36.38 | 8.10 | 3.45 | 168 | 2 | 87.4 | 169 9/GR21 |
| TCA00001 | -115.80 | 10 | -71.79 | 21.53 | 0.60 | 0.60 | 90 | 2 | 87.4 |  |
| USAEH001 | -61.30 | 10 | -87.53 | 36.18 | 6.41 | 3.49 | 12 | 2 | 87.4 | 156 |
| USAEH002 | -100.80 | 10 | -93.85 | 36.31 | 8.26 | 3.55 | 171 | 2 | 87.4 | $169 /$ GR20 |
| USAEH003 | -109.80 | 10 | -95.47 | 36.38 | 8.10 | 3.45 | 168 | 2 | 87.4 | $169 /$ GR21 |
| USAEH004 | -118.80 | 10 | -96.42 | 36.21 | 8.20 | 3.12 | 165 | 2 | 87.4 | 156 |
| USAPSA02 | -165.80 | 10 | -109.83 | 36.82 | 6.03 | 1.12 | 137 | 2 | 87.4 | $9 / G R 1$ |
| USAPSA03 | -174.80 | 10 | -116.10 | 37.47 | 5.60 | 076 | 132 | 2 | 87.4 | $9 / G R 2$ |
| USAWH101 | -147.80 | 10 | -111.01 | 40.67 | 4.38 | 2.15 | 162 | 2 | 87.4 |  |
| USAWH102 | -156.80 | 10 | -113.01 | 40.71 | 3.74 | 1.79 | 149 | 2 | 87.4 |  |
| VCT00001 | -79.30 | 10 | -61.18 | 13.23 | 0.60 | 0.60 | 90 | 2 | 87.4 |  |
| VEN11VEN | -103.80 | 10 | -66.79 | 6.90 | 2.50 | 1.77 | 122 | 2 | 87.4 |  |


| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALS00002 | - 166.20 | 11 | -109.94 | 36.86 | 6.04 | 1.11 | 137 | 1 | 87.4 | 9/GR1 |
| ALS00003 | - 175.20 | 11 | -116.23 | 37.50 | 5.60 | 0.75 | 132 | 1 | 874 | 9/GR2 |
| ARGINSU4 | -94.20 | 11 | -52.98 | -59.81 | 3.40 | 0.68 | 19 | 1 | 87.4 | 9/GR3 |
| ARGINSU5 | -55.20 | 11 | -44.17 | -59.91 | 3.77 | 0.70 | 13 | 1 | 87.4 | 9/GR4 |
| ARGSUR04 | -94.20 | 11 | -65.04 | -43.33 | 3.32 | 1.50 | 40 | 1 | 87.4 | 9/GR3 |
| ARGSUR05 | -55.20 | 11 | -63.68 | -43.01 | 2.54 | 2.38 | 152 | 1 | 87.4 | 9/GR4 |
| ATGSJN01 | - 79.70 | 11 | -61.79 | 17.07 | 0.60 | 0.60 | 90 | 1 | 87.4 |  |
| B CE311 | -64.20 | 11 | -40.60 | -6.07 | 3.04 | 2.06 | 174 | 1 | 87.4 | 8 9/GR7 |
| B CE312 | -45.20 | 11 | -40.27 | -6.06 | 3.44 | 2.09 | 174 | 1 | 87.4 | 8 9/GR9 |
| B CE411 | -64.20 | 11 | -50.97 | -15.27 | 3.86 | 1.38 | 49 | 1 | 87.4 | 8 9/GR7 |
| B CE412 | -45.20 | 11 | -50.71 | -15.30 | 3.57 | 1.56 | 52 | 1 | 87.4 | 8 9/GR9 |
| B CE511 | -64.20 | 11 | -53.10 | -2.90 | 2.44 | 2.13 | 104 | 1 | 87.4 | 8 9/GR7 |
| B NO611 | -74.20 | 11 | -59.60 | -11.62 | 2.85 | 1.69 | 165 | 2 | 87.4 | 8 9/GR8 |
| B NO711 | -74.20 | 11 | -60.70 | -1.78 | 3.54 | 1.78 | 126 | 2 | 874 | 8 9/GR8 |
| B NO811 | -74.20 | 11 | -68.76 | -4.71 | 2.37 | 1.65 | 73 | 2 | 87.4 | 8 9/GR8 |
| B SU111 | -81.20 | 11 | -51.12 | -25.63 | 276 | 1.05 | 50 | 1 | 87.4 | 8 9/GR6 |
| B SU112 | -45.20 | 11 | -50.75 | -25.62 | 2.47 | 1.48 | 56 | 1 | 87.4 | 8 9/GR9 |
| B SU211 | -81.20 | 11 | -44.51 | -16.95 | 3.22 | 1.36 | 60 | 1 | 87.4 | 8 9/GR6 |
| B SU212 | -45.20 | 11 | -44.00 | -1687 | 3.20 | 1.96 | 58 | 1 | 87.4 | 8 9/GR9 |
| BERBERMU | -96.20 | 11 | -64.77 | 32.32 | 0.60 | 0.60 | 90 | 2 | 87.4 |  |
| B OLAND01 | - 115.20 | 11 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | 9/GR5 |
| B OL00001 | -87.20 | 11 | -64.61 | - 16.71 | 2.52 | 2.19 | 85 | 1 | 87.4 |  |
| B RB00001 | -92.70 | 11 | -59.85 | 12.93 | 0.60 | 0.60 | 90 | 2 | 87.4 |  |
| CAN01101 | -138.20 | 11 | -114.60 | 51.08 | 7.28 | 1.10 | 160 | 1 | 87.4 | 9/GR10 |

17469,80 MHz (11)

| CAN01201 | - 138.20 | 11 | - 114.60 | 51.08 | 7.28 | 1.10 | 160 | 1 | 87.4 | 9/GR10 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CAN01202 | - 72.70 | 11 | -81.34 | 50.02 | 7.96 | 2.55 | 5 | 1 | 87.4 |  |
| CAN01203 | - 129.20 | 11 | - 113.02 | 51.08 | 7.47 | 1.26 | 162 | 1 | 87.4 | 9/GR12 |
| CAN01303 | - 129.20 | 11 | - 113.02 | 51.08 | 7.47 | 1.26 | 162 | 1 | 87.4 | 9/GR12 |
| CAN01304 | -91.20 | 11 | -86.71 | 5048 | 858 | 2.54 | 178 | 1 | 87.4 | 9/GR13 |
| CAN01403 | - 129.20 | 11 | -113.02 | 51.08 | 747 | 1.26 | 162 | 1 | 874 | 9/GR12 |
| CAN01404 | -91.20 | 11 | -86.71 | 50.48 | 8.58 | 2.54 | 178 | 1 | 87.4 | 9/GR13 |
| CAN01405 | -82.20 | 11 | -84.11 | 50.20 | 8.31 | 2.58 | 1 | 1 | 87.4 | 9/GR14 |
| CAN01504 | -91.20 | 11 | -86.71 | 50.48 | 8.58 | 2.54 | 178 | 1 | 87.4 | 9/GR13 |
| CAN01505 | -82.20 | 11 | -84.11 | 50.20 | 8.31 | 2.58 | 1 | 1 | 87.4 | 9/GR14 |
| CAN01605 | -82.20 | 11 | -84.11 | 5020 | 8.31 | 2.58 | 1 | 1 | 87.4 | 9/GR14 |
| CAN01606 | -70.70 | 11 | -80.77 | 5003 | 7.88 | 2.53 | 6 | 1 | 87.4 |  |
| CHLCONT5 | - 106.20 | 11 | -72.23 | -35.57 | 2.60 | 0.68 | 55 | 1 | 87.4 | 9/GR17 |
| CHLPAC02 | - 106.20 | 11 | -80.06 | -30.06 | 1.36 | 0.68 | 69 | 1 | 87.4 | 9/GR17 |
| CLMAND01 | - 115.20 | 11 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | 9/GR5 |
| CLM00001 | - 103.20 | 11 | -74.50 | 5.87 | 3.98 | 1.96 | 118 | 1 | 87.4 |  |
| CUB00001 | -89.20 | 11 | -79.81 | 21.62 | 2.24 | 0.68 | 168 | 1 | 87.4 |  |
| EQACAND1 | - 115.20 | 11 | -71.37 | -469 | 6.49 | 2.57 | 87 | 1 | 87.4 | 9/GR5 |
| EQAGAND1 | - 115.20 | 11 | -71.37 | -4.69 | 6.49 | 257 | 87 | 1 | 87.4 | 9/GR5 |
| GRD00002 | -42.20 | 11 | -61.58 | 12.29 | 060 | 0.60 | 90 | 1 | 87.4 |  |
| GRD00059 | -57.20 | 11 | -61.58 | 12.29 | 060 | 0.60 | 90 | 1 | 87.4 |  |
| GRLDNK01 | -53.20 | 11 | -44.89 | 66.56 | 2.70 | 0.82 | 173 | 1 | 87.4 | 2 |
| GUY00201 | -84.70 | 11 | -59.19 | 4.78 | 1.44 | 085 | 95 | 1 | 87.4 |  |
| HWA00002 | -166.20 | 11 | -109 94 | 36.86 | 6.04 | 1.11 | 137 | 1 | 87.4 | 9/GR1 |

17469,80 MHz (11)

| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| HWA00003 | -175.20 | 11 | -116.23 | 37.50 | 5.60 | 0.75 | 132 | 1 | 87.4 | 9/GR2 |
| MEX01NTE | -78.20 | 11 | - 105.81 | 26.01 | 2.89 | 2.08 | 155 | 1 | 87.4 | 1 |
| MEX01SUR | -69.20 | 11 | -94.84 | 19.82 | 3.05 | 2.09 | 4 | 1 | 87.4 | 1 |
| MEX02NTE | -136.20 | 11 | -107.21 | 26.31 | 3.84 | 1.55 | 148 | 1 | 87.4 | 1 |
| MEX02SUR | -127.20 | 11 | -96.39 | 19.88 | 3.18 | 1.87 | 157 | 1 | 87.4 | 1 |
| PAQPAC01 | - 106.20 | 11 | - 109.18 | -27.53 | 0.60 | 0.60 | 90 | 1 | 87.4 | 9/GR17 |
| PRG00002 | -99.20 | 11 | -58.66 | -23.32 | 1.45 | 1.04 | 76 | 1 | 87.4 |  |
| PRUAND02 | -115.20 | 11 | - 71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | 9/GR5 |
| PTRVIR01 | - 101.20 | 11 | -93.94 | 36.32 | 8.24 | 3.56 | 171 | 1 | 87.4 | 16 9/GR20 |
| PTRVIR02 | - 110.20 | 11 | -95.23 | 36.29 | 8.27 | 3.37 | 168 | 1 | 87.4 | 16 9/GR21 |
| URG00001 | -71.70 | 11 | -56.22 | -32.52 | 1.02 | 0.89 | 11 | 1 | 874 |  |
| USAEH001 | -61.70 | 11 | -87.57 | 36.17 | 6.42 | 3.49 | 12 | 1 | 87.4 | 156 |
| USAEH002 | -10120 | 11 | -93.94 | 36.32 | 8.24 | 3.56 | 171 | 1 | 87.4 | 16 9/GR20 |
| USAEH003 | -110.20 | 11 | -95.23 | 36.29 | 8.27 | 3.37 | 168 | 1 | 87.4 | 16 9/GR21 |
| USAEH004 | - 119.20 | 11 | -96.45 | 36.21 | 8.20 | 3.12 | 165 | 1 | 87.4 | 156 |
| USAPSA02 | - 166.20 | 11 | -109.94 | 36.86 | 6.04 | 1.11 | 137 | 1 | 87.4 | 9/GR1 |
| USAPSA03 | -175.20 | 11 | - 116.23 | 37.50 | 5.60 | 0.75 | 132 | 1 | 87.4 | 9/GR2 |
| USAWH101 | - 148.20 | 11 | - 111.02 | 40.68 | 4.36 | 215 | 162 | 1 | 87.4 |  |
| USAWH102 | -15720 | 11 | - 113.07 | 4074 | 3.72 | 1.78 | 149 | 1 | 87.4 |  |
| VENAND03 | -115.20 | 11 | - 71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | 9/GR5 |

17484,38 MHz (12)

| ALS00002 | -165.80 | 12 | -109.83 | 36.82 | 6.03 | 1.12 | 137 | 2 | 87.4 | 9/GR1 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALS00003 | - 174.80 | 12 | - 116.10 | 37.47 | 5.60 | 0.76 | 132 | 2 | 87.4 | 9/GR2 |
| ARGNORT4 | -9380 | 12 | -63.96 | -30.01 | 386 | 1.99 | 48 | 2 | 87.4 |  |
| ARGNORT5 | -54.80 | 12 | -62.85 | -2980 | 324 | 2.89 | 47 | 2 | 87.4 |  |
| B CE311 | -6380 | 12 | -40.60 | -6.07 | 3.04 | 2.06 | 174 | 2 | 87.4 | 8 9/GR7 |
| B CE312 | -44.80 | 12 | -40.26 | -606 | 3.44 | 2.09 | 174 | 2 | 87.4 | 8 9/GR9 |
| B CE411 | -63.80 | 12 | -50.97 | -15.26 | 3.86 | 1.38 | 49 | 2 | 87.4 | 8 9/GR7 |
| B CE412 | -4480 | 12 | -50.71 | - 15.30 | 3.57 | 1.56 | 52 | 2 | 87.4 | 8 9/GR9 |
| B CE511 | -63.80 | 12 | -53.11 | -2.98 | 2.42 | 2.15 | 107 | 2 | 87.4 | 8 9/GR7 |
| B NO611 | - 73.80 | 12 | -59.60 | -11.62 | 286 | 1.69 | 165 | 1 | 87.4 | 8 9/GR8 |
| B NO711 | -73.80 | 12 | -60.70 | -1.78 | 354 | 1.78 | 126 | 1 | 87.4 | 8 9/GR8 |
| B N0811 | -73.80 | 12 | -68.75 | -4.71 | 2.37 | 1.65 | 73 | 1 | 87.4 | 8 9/GR8 |
| B SE911 | -101.80 | 12 | -4599 | -19.09 | 222 | 079 | 62 | 2 | 87.4 | 8 |
| B SU111 | -80.80 | 12 | -51.10 | -25.64 | 2.76 | 1.06 | 50 | 2 | 874 | 8 9/GR6 |
| B SU112 | -44.80 | 12 | -50 76 | -25.62 | 2.47 | 1.48 | 56 | 2 | 87.4 | 8 9/GR9 |
| B SU211 | -80.80 | 12 | -4451 | -16.94 | 3.22 | 1.37 | 60 | 2 | 87.4 | 8 9/GR6 |
| B SU212 | -44.80 | 12 | -43.99 | - 16.97 | 3.27 | 1.92 | 59 | 2 | 87.4 | 8 9/GR9 |
| CAN01101 | -137.80 | 12 | -114.10 | 50.92 | 7.22 | 1.11 | 160 | 2 | 87.4 | 9/GR10 |
| CAN01201 | - 137.80 | 12 | - 114.10 | 50.92 | 7.22 | 1.11 | 160 | 2 | 87.4 | 9/GR10 |
| CAN01202 | -72.30 | 12 | -81.23 | 50.12 | 7.99 | 2.53 | 5 | 2 | 87.4 |  |
| CAN01203 | - 128.80 | 12 | -113.04 | 51.04 | 7.53 | 1.26 | 162 | 2 | 87.4 | 9/GR12 |
| CAN01303 | - 128.80 | 12 | -113.04 | 51.04 | 7.53 | 1.26 | 162 | 2 | 87.4 | 9/GR12 |
| CAN01304 | -90.80 | 12 | -86.57 | 5048 | 8.59 | 2.54 | 178 | , | 87.4 | 9/GR13 |
| CAN01403 | - 128.80 | 12 | -113.04 | 5104 | 7.53 | 1.26 | 162 | 2 | 87.4 | 9/GR12 |

17484,38 MHz (12)

| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CAN01404 | -90.80 | 12 | -86.57 | 50.48 | 8.59 | 2.54 | 178 | 2 | 87.4 | 9/GR13 |
| CAN01405 | -81.80 | 12 | -83.80 | 5022 | 8.35 | 2.57 | 2 | 2 | 87.4 | 9/GR14 |
| CAN01504 | -90.80 | 12 | -86.57 | 50.48 | 8.59 | 2.54 | 178 | 2 | 874 | 9/GR13 |
| CAN01505 | -81.80 | 12 | -83.80 | 50.22 | 8.35 | 2.57 | 2 | 2 | 87.4 | 9/GR14 |
| CAN01605 | -8180 | 12 | -83.80 | 50.22 | 8.35 | 2.57 | 2 | 2 | 87.4 | 9/GR14 |
| CAN01606 | -70.30 | 12 | -80.64 | 50.02 | 7.88 | 2.52 | 6 | 2 | 87.4 |  |
| CHLCONT4 | -105.80 | 12 | -69.59 | -23.20 | 2.21 | 0.69 | 68 | 2 | 87.4 | 9/GR16 |
| CHLCONT6 | -105.80 | 12 | -73.52 | -55.52 | 3.65 | 1.31 | 39 | 2 | 87.4 | 9/GR16 |
| CRBBAH01 | -92.30 | 12 | -76.09 | 24.13 | 1.83 | 0.68 | 141 | 1 | 87.4 | 9/GR18 |
| CRBBER01 | -92.30 | 12 | -64.76 | 32.13 | 0.60 | 0.60 | 90 | 1 | 87.4 | 9/GR18 |
| CRBBLZ01 | -92.30 | 12 | -88.61 | 17.26 | 0.64 | 0.64 | 90 | 1 | 87.4 | 9/GR18 |
| CRBEC001 | -92.30 | 12 | -60.07 | 8.26 | 4.20 | 0.86 | 115 | 1 | 87.4 | 9/GR18 |
| CRBJMC01 | -92.30 | 12 | -79.45 | 17.97 | 0.99 | 0.68 | 151 | 1 | 87.4 | 9/GR18 |
| CYM00001 | -115.80 | 12 | -80.58 | 1957 | 0.60 | 0.60 | 90 | 2 | 87.4 |  |
| DOMIFRB2 | -83.30 | 12 | -70.51 | 18.79 | 0.98 | 0.69 | 167 | 2 | 87.4 |  |
| EQAC0001 | -94.80 | 12 | -78.31 | -1.52 | 1.48 | 1.15 | 65 | 1 | 87.4 | 9/GR19 |
| EQAG0001 | -94.80 | 12 | -90.36 | -0.57 | 0.94 | 0.89 | 99 | 1 | 87.4 | 9/GR19 |
| GUFMGG02 | -52.80 | 12 | -56.42 | 8.47 | 4.16 | 0.81 | 123 | 2 | 87.4 | 27 |
| HWA00002 | - 165.80 | 12 | - 109.83 | 36.82 | 6.03 | 1.12 | 137 | 2 | 87.4 | 9/GR1 |
| HWA00003 | -174.80 | 12 | - 116.10 | 37.47 | 5.60 | 0.76 | 132 | 2 | 87.4 | 9/GR2 |
| JMC00005 | -33.80 | 12 | -77.27 | 18.12 | 0.60 | 0.60 | 90 | 2 | 87.4 |  |
| LCAIFRB1 | -79.30 | 12 | -61.15 | 13.90 | 0.60 | 0.60 | 90 | 2 | 87.4 |  |
| MEX01NTE | -77.80 | 12 | -105.80 | 25.99 | 2.88 | 2.07 | 155 | 2 | 87.4 | 1 |
| MEX02NTE | -135.80 | 12 | -107.36 | 26.32 | 3.80 | 1.57 | 149 | 2 | 87.4 | 1 |

17484,38 MHz (12)

| MEXO2SUR | -126.80 | 12 | -96.39 | 19.88 | 3.19 | 1.87 | 158 | 2 | 87.4 | 1 |
| :--- | ---: | :--- | ---: | ---: | :--- | :--- | :--- | :--- | :--- | :--- |
| PRUO0004 | -85.80 | 12 | -74.19 | -8.39 | 3.74 | 2.45 | 112 | 2 | 87.4 |  |
| PTRVIR01 | -100.80 | 12 | -93.85 | 36.31 | 8.26 | 3.55 | 171 | 2 | 87.4 | $169 /$ GR20 |
| PTRVIR02 | -109.80 | 12 | -95.47 | 36.38 | 8.10 | 3.45 | 168 | 2 | 87.4 | $169 /$ GR21 |
| SLVIFRB2 | -107.30 | 12 | -88.91 | 13.59 | 0.60 | 0.60 | 90 | 1 | 87.4 |  |
| USAEH001 | -61.30 | 12 | -87.53 | 36.18 | 6.41 | 3.49 | 12 | 2 | 87.4 | 156 |
| USAEH002 | -10080 | 12 | -93.85 | 36.31 | 8.26 | 3.55 | 171 | 2 | 87.4 | $169 /$ GR20 |
| USAEH003 | -109.80 | 12 | -95.47 | 36.38 | 8.10 | 3.45 | 168 | 2 | 87.4 | $169 /$ GR21 |
| USAEH004 | -118.80 | 12 | -96.42 | 36.21 | 8.20 | 3.12 | 165 | 2 | 87.4 | 156 |
| USAPSA02 | -165.80 | 12 | -109.83 | 36.82 | 6.03 | 1.12 | 137 | 2 | 87.4 | $9 / G R 1$ |
| USAPSA03 | -174.80 | 12 | -116.10 | 37.47 | 5.60 | 0.76 | 132 | 2 | 87.4 | $9 /$ GR2 |
| USAWH101 | -147.80 | 12 | -111.01 | 40.67 | 4.38 | 2.15 | 162 | 2 | 87.4 |  |
| USAWH102 | -156.80 | 12 | -113.01 | 40.71 | 3.74 | 1.79 | 149 | 2 | 87.4 |  |
| VEN11VEN | -103.80 | 12 | -66.79 | 6.90 | 2.50 | 1.77 | 122 | 2 | 87.4 |  |



17498,96 MHz
(13)

| CAN01303 | - 129.20 | 13 | -113.02 | 51.08 | 7.47 | 1.26 | 162 | 1 | 87.4 | 9/GR12 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CAN01304 | -91.20 | 13 | -86.71 | 50.48 | 8.58 | 2.54 | 178 | 1 | 87.4 | 9/GR13 |
| CAN01403 | - 129.20 | 13 | - 113.02 | 51.08 | 7.47 | 126 | 162 | 1 | 87.4 | 9/GR12 |
| CAN01404 | -91.20 | 13 | -86.71 | 50.48 | 8.58 | 2.54 | 178 | 1 | 87.4 | 9/GR13 |
| CAN01405 | -82.20 | 13 | -84.11 | 50.20 | 8.31 | 2.58 | 1 | 1 | 87.4 | 9/GR14 |
| CAN01504 | -91.20 | 13 | -86.71 | 50.48 | 8.58 | 2.54 | 178 | 1 | 87.4 | 9/GR13 |
| CAN01505 | -82.20 | 13 | -84.11 | 50.20 | 8.31 | 2.58 | 1 | 1 | 87.4 | 9/GR14 |
| CAN01605 | -82.20 | 13 | -8411 | 50.20 | 8.31 | 2.58 | 1 | 1 | 87.4 | 9/GR14 |
| CAN01606 | -70.70 | 13 | -80.77 | 50.03 | 7.88 | 2.53 | 6 | 1 | 87.4 |  |
| CHLCONT5 | - 106.20 | 13 | -72.23 | -35.57 | 2.60 | 0.68 | 55 | 1 | 87.4 | 9/GR17 |
| CHLPAC02 | -106.20 | 13 | -80.06 | -30.06 | 1.36 | 0.68 | 69 | 1 | 87.4 | 9/GR17 |
| CLMAND01 | - 115.20 | 13 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | 9/GR5 |
| CLM00001 | - 103.20 | 13 | -74.50 | 5.87 | 3.98 | 1.96 | 118 | 1 | 87.4 |  |
| EQACAND1 | -115.20 | 13 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | 9/GR5 |
| EQAGAND1 | -115.20 | 13 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | 9/GR5 |
| FLKANT01 | -57.20 | 13 | -44.54 | -60.13 | 3.54 | 0.68 | 12 | 1 | 87.4 | 2 |
| FLKFALKS | -31.00 | 13 | -59.90 | -51.64 | 0.60 | 0.60 | 90 | 1 | 87.4 | 23 |
| GRD00002 | -42.20 | 13 | -61.58 | 12.29 | 0.60 | 0.60 | 90 | 1 | 87.4 |  |
| HWA00002 | -166.20 | 13 | -109.94 | 36.86 | 6.04 | 1.11 | 137 | 1 | 87.4 | 9/GR1 |
| HWA00003 | -175.20 | 13 | -116.23 | 37.50 | 5.60 | 0.75 | 132 | 1 | 87.4 | 9/GR2 |
| MEX01NTE | -78.20 | 13 | - 105.81 | 26.01 | 2.89 | 2.08 | 155 | 1 | 87.4 | 1 |
| MEX01SUR | -69.20 | 13 | -94.84 | 19.82 | 3.05 | 2.09 | 4 | 1 | 87.4 | 1 |
| MEX02NTE | -136.20 | 13 | - 107.21 | 26.31 | 3.84 | 1.55 | 148 | 1 | 87.4 | 1 |
| MEX02SUR | - 127.20 | 13 | -96.39 | 19.88 | 3.18 | 1.87 | 157 | 1 | 87.4 | 1 |

17498,96 MHz (13)

| $\mathbf{1}$ | $\mathbf{2}$ | $\mathbf{3}$ | $\mathbf{4}$ |  | $\mathbf{5}$ |  | $\mathbf{6}$ | $\mathbf{7}$ | $\mathbf{8}$ |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | :--- | :--- | :--- |

17513,54 MHz (14)

| ALS00002 | - 165.80 | 14 | -109.83 | 36.82 | 6.03 | 1.12 | 137 | 2 | 87.4 | 9/GR1 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALS00003 | - 174.80 | 14 | - 116.10 | 3747 | 5.60 | 0.76 | 132 | 2 | 87.4 | 9/GR2 |
| ARGNORT4 | -93.80 | 14 | -63.96 | -30.01 | 3.86 | 1.99 | 48 | 2 | 87.4 |  |
| ARGNORT5 | -54.80 | 14 | -62.85 | -29.80 | 324 | 2.89 | 47 | 2 | 87.4 |  |
| ATNBEAM1 | -52.80 | 14 | -66.44 | 14.87 | 1.83 | 0.68 | 39 | 2 | 87.4 |  |
| B CE311 | -63.80 | 14 | -40.60 | -6.07 | 304 | 2.06 | 174 | 2 | 87.4 | 8 9/GR7 |
| B CE312 | -44.80 | 14 | -40.26 | -6.06 | 3.44 | 209 | 174 | 2 | 87.4 | 8 9/GR9 |
| B CE411 | -6380 | 14 | -50.97 | -15.26 | 3.86 | 1.38 | 49 | 2 | 87.4 | 8 9/GR7 |
| B CE412 | -44.80 | 14 | -50.71 | - 15.30 | 3.57 | 1.56 | 52 | 2 | 87.4 | 8 9/GR9 |
| B CE511 | -63.80 | 14 | -53.11 | -298 | 2.42 | 2.15 | 107 | 2 | 87.4 | 8 9/GR7 |
| B NO611 | - 73.80 | 14 | -59.60 | -11.62 | 2.86 | 1.69 | 165 | 1 | 87.4 | 8 9/GR8 |
| B N0711 | -73.80 | 14 | -60.70 | -178 | 3.54 | 178 | 126 | 1 | 87.4 | 8 9/GR8 |
| B N0811 | -73.80 | 14 | -68.75 | -4.71 | 2.37 | 1.65 | 73 | 1 | 87.4 | 8 9/GR8 |
| B SE911 | - 101.80 | 14 | -45.99 | -19.09 | 2.22 | 0.79 | 62 | 2 | 87.4 | 8 |
| B SU111 | -80.80 | 14 | -51.10 | -25.64 | 2.76 | 1.06 | 50 | 2 | 87.4 | 8 9/GR6 |
| B SU112 | -44.80 | 14 | - 50.76 | -25.62 | 2.47 | 1.48 | 56 | 2 | 87.4 | 8 9/GR9 |
| B SU211 | -80.80 | 14 | -44.51 | -16.94 | 3.22 | 1.37 | 60 | 2 | 87.4 | 8 9/GR6 |
| B SU212 | -44.80 | 14 | -43.99 | -16.97 | 3.27 | 1.92 | 59 | 2 | 87.4 | 8 9/GR9 |
| CAN01101 | - 137.80 | 14 | - 114.10 | 50.92 | 7.22 | 1.11 | 160 | 2 | 87.4 | 9/GR10 |
| CAN01201 | -137.80 | 14 | - 114.10 | 50.92 | 7.22 | 1.11 | 160 | 2 | 87.4 | 9/GR10 |
| CAN01202 | -72.30 | 14 | -81.23 | 50.12 | 7.99 | 2.53 | 5 | 2 | 87.4 |  |
| CAN01203 | - 128.80 | 14 | -113.04 | 51.04 | 7.53 | 1.26 | 162 | 2 | 87.4 | 9/GR12 |
| CAN01303 | -128.80 | 14 | -113.04 | 51.04 | 7.53 | 1.26 | 162 | 2 | 87.4 | 9/GR12 |
| CAN01304 | -90.80 | 14 | -86.57 | 50.48 | 8.59 | 2.54 | 178 | 2 | 87.4 | 9/GR13 |

17513,54 MHz (14)

| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CAN01403 | - 128.80 | 14 | - 113.04 | 51.04 | 7.53 | 1.26 | 162 | 2 | 87.4 | 9/GR12 |
| CAN01404 | -90.80 | 14 | -86.57 | 50.48 | 8.59 | 2.54 | 178 | 2 | 87.4 | 9/GR13 |
| CAN01405 | -81.80 | 14 | -83.80 | 50.22 | 8.35 | 2.57 | 2 | 2 | 87.4 | 9/GR14 |
| CAN01504 | -90.80 | 14 | -86.57 | 50.48 | 8.59 | 2.54 | 178 | 2 | 87.4 | 9/GR13 |
| CAN01505 | -81.80 | 14 | -83.80 | 50.22 | 8.35 | 2.57 | 2 | 2 | 87.4 | 9/GR14 |
| CAN01605 | -81.80 | 14 | -83.80 | 50.22 | 8.35 | 2.57 | 2 | 2 | 87.4 | 9/GR14 |
| CAN01606 | -70.30 | 14 | -80.64 | 50.02 | 7.88 | 2.52 | 6 | 2 | 87.4 |  |
| CHLCONT4 | -105.80 | 14 | -69.59 | -23.20 | 2.21 | 0.69 | 68 | 2 | 87.4 | 9/GR16 |
| CHLCONT6 | - 105.80 | 14 | -73.52 | -55.52 | 3.65 | 1.31 | 39 | 2 | 87.4 | 9/GR16 |
| CRBBAH01 | -92.30 | 14 | -76.09 | 24.13 | 1.83 | 0.68 | 141 | 1 | 87.4 | 9/GR18 |
| CRBBER01 | -92.30 | 14 | -64.76 | 32.13 | 0.60 | 0.60 | 90 | 1 | 87.4 | 9/GR18 |
| CRBBLZ01 | -92.30 | 14 | -88.61 | 17.26 | 0.64 | 0.64 | 90 | 1 | 87.4 | 9/GR18 |
| CRBEC001 | -92.30 | 14 | -60.07 | 8.26 | 4.20 | 0.86 | 115 | 1 | 87.4 | 9/GR18 |
| CRBJMC01 | -92.30 | 14 | $-79.45$ | 17.97 | 0.99 | 0.68 | 151 | 1 | 87.4 | 9/GR18 |
| CTR00201 | - 130.80 | 14 | -84.33 | 9.67 | 0.82 | 0.68 | 119 | 2 | 87.4 |  |
| EQAC0001 | -94.80 | 14 | -78.31 | -1.52 | 1.48 | 1.15 | 65 | 1 | 87.4 | 9/GR19 |
| EQAG0001 | -94.80 | 14 | -90.36 | -0.57 | 0.94 | 0.89 | 99 | 1 | 87.4 | 9/GR19 |
| GUY00302 | -33.80 | 14 | -59.07 | 4.77 | 1.43 | 0.85 | 91 | 2 | 87.4 |  |
| HNDIFRB2 | -107.30 | 14 | -86.23 | 15.16 | 1.14 | 0.85 | 8 | 1 | 87.4 |  |
| HTIO0002 | -83.30 | 14 | -73.28 | 18.96 | 0.82 | 0.68 | 11 | 2 | 87.4 |  |
| HWA00002 | -165.80 | 14 | -109.83 | 36.82 | 6.03 | 1.12 | 137 | 2 | 87.4 | 9/GR1 |
| HWA00003 | - 174.80 | 14 | -116.10 | 37.47 | 5.60 | 0.76 | 132 | 2 | 87.4 | 9/GR2 |
| MEX01NTE | -77.80 | 14 | -105.80 | 25.99 | 2.88 | 2.07 | 155 | 2 | 87.4 | 1 |
| MEX02NTE | -135.80 | 14 | -107.36 | 26.32 | 3.80 | 1.57 | 149 | 2 | 87.4 | 1 |

17513,54 MHz (14)

| MEXO2SUR | -126.80 | 14 | -96.39 | 19.88 | 3.19 | 1.87 | 158 | 2 | 87.4 | 1 |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | :--- | :--- | :--- |
| PRU00004 | -85.80 | 14 | -74.19 | -8.39 | 3.74 | 2.45 | 112 | 2 | 87.4 |  |
| PTRVIR01 | -100.80 | 14 | -93.85 | 36.31 | 8.26 | 3.55 | 171 | 2 | 87.4 | $169 /$ GR20 |
| PTRVIR02 | -109.80 | 14 | -95.47 | 36.38 | 8.10 | 3.45 | 168 | 2 | 874 | $1699 /$ GR21 |
| TCA00001 | -115.80 | 14 | -71.79 | 2153 | 0.60 | 0.60 | 90 | 2 | 874 |  |
| USAEH001 | -61.30 | 14 | -87.53 | 36.18 | 6.41 | 3.49 | 12 | 2 | 87.4 | 156 |
| USAEH002 | -100.80 | 14 | -93.85 | 36.31 | 826 | 3.55 | 171 | 2 | 87.4 | $169 /$ GR20 |
| USAEH003 | -109.80 | 14 | -95.47 | 36.38 | 8.10 | 3.45 | 168 | 2 | 87.4 | $169 /$ GR21 |
| USAEH004 | -118.80 | 14 | -96.42 | 36.21 | 8.20 | 3.12 | 165 | 2 | 874 | 156 |
| USAPSA02 | -165.80 | 14 | -109.83 | 36.82 | 6.03 | 1.12 | 137 | 2 | 87.4 | $9 /$ GR1 |
| USAPSA03 | -174.80 | 14 | -116.10 | 37.47 | 5.60 | 0.76 | 132 | 2 | 87.4 | $9 /$ GR2 |
| USAWH101 | -147.80 | 14 | -111.01 | 40.67 | 4.38 | 2.15 | 162 | 2 | 87.4 |  |
| USAWH102 | -156.80 | 14 | -113.01 | 40.71 | 3.74 | 1.79 | 149 | 2 | 87.4 |  |
| VCTOO001 | -79.30 | 14 | -61.18 | 13.23 | 0.60 | 0.60 | 90 | 2 | 87.4 |  |
| VEN11VEN | -10380 | 14 | -66.79 | 6.90 | 2.50 | 1.77 | 122 | 2 | 87.4 |  |
|  |  |  |  |  |  |  |  |  |  |  |

69- $\forall 0 \varepsilon d \forall$

| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALS 00002 | -166.20 | 15 | -109.94 | 36.86 | 6.04 | 1.11 | 137 | 1 | 87.4 | 9/GR1 |
| ALS00003 | - 175.20 | 15 | -116.23 | 37.50 | 5.60 | 0.75 | 132 | 1 | 87.4 | 9/GR2 |
| ARGINSU4 | -94.20 | 15 | -52.98 | -59.81 | 3.40 | 0.68 | 19 | 1 | 87.4 | 9/GR3 |
| ARGINSU5 | -55.20 | 15 | -44.17 | -59.91 | 3.77 | 0.70 | 13 | 1 | 87.4 | 9/GR4 |
| ARGSUR04 | -94.20 | 15 | -65.04 | -43.33 | 3.32 | 1.50 | 40 | 1 | 87.4 | 9/GR3 |
| ARGSUR05 | -55.20 | 15 | -63.68 | -43.01 | 2.54 | 2.38 | 152 | 1 | 87.4 | 9/GR4 |
| ATGSJN01 | -79.70 | 15 | -61.79 | 17.07 | 0.60 | 0.60 | 90 | 1 | 87.4 |  |
| B CE311 | -64.20 | 15 | -40.60 | -6.07 | 3.04 | 2.06 | 174 | 1 | 87.4 | 8 9/GR7 |
| B CE312 | -45.20 | 15 | -40.27 | -6.06 | 3.44 | 2.09 | 174 | 1 | 87.4 | 8 9/GR9 |
| B CE411 | -64.20 | 15 | -50.97 | -15.27 | 3.86 | 1.38 | 49 | 1 | 87.4 | 8 9/GR7 |
| B CE412 | -45.20 | 15 | -50.71 | - 15.30 | 3.57 | 1.56 | 52 | 1 | 87.4 | 8 9/GR9 |
| B CE511 | -64.20 | 15 | -53.10 | -2.90 | 2.44 | 2.13 | 104 | 1 | 87.4 | 8 9/GR7 |
| B N0611 | -74.20 | 15 | -59.60 | -11.62 | 2.85 | 1.69 | 165 | 2 | 87.4 | 8 9/GR8 |
| B NO711 | -74.20 | 15 | -60.70 | -1.78 | 3.54 | 1.78 | 126 | 2 | 87.4 | 8 9/GR8 |
| B NO811 | -74.20 | 15 | -68.76 | -4.71 | 2.37 | 1.65 | 73 | 2 | 87.4 | 8 9/GR8 |
| B SU111 | -81.20 | 15 | -51.12 | -25.63 | 2.76 | 1.05 | 50 | 1 | 87.4 | 8 9/GR6 |
| B SU112 | -45.20 | 15 | -50.75 | -25.62 | 2.47 | 1.48 | 56 | 1 | 87.4 | 8 9/GR9 |
| B SU211 | -81.20 | 15 | -44.51 | -16.95 | 3.22 | 1.36 | 60 | 1 | 87.4 | 8 9/GR6 |
| B SU212 | -45.20 | 15 | -44.00 | - 16.87 | 3.20 | 1.96 | 58 | 1 | 87.4 | 8 9/GR9 |
| BERBERMU | -96.20 | 15 | -64.77 | 32.32 | 0.60 | 0.60 | 90 | 2 | 87.4 |  |
| B OLAND01 | - 115.20 | 15 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | 9/GR5 |
| B OL00001 | -87.20 | 15 | -64.61 | -16.71 | 2.52 | 2.19 | 85 | 1 | 87.4 |  |
| B RB00001 | -92.70 | 15 | -59.85 | 12.93 | 0.60 | 0.60 | 90 | 2 | 87.4 |  |
| CAN01101 | -138.20 | 15 | -114.60 | 51.08 | 7.28 | 1.10 | 160 | 1 | 87.4 | 9/GR10 |

17528, 12 MHz (15)

| CAN01201 | - 138.20 | 15 | -114.60 | 51.08 | 7.28 | 1.10 | 160 | 1 | 87.4 | 9/GR10 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CAN01202 | -72.70 | 15 | -81.34 | 50.02 | 7.96 | 2.55 | 5 | 1 | 87.4 |  |
| CAN01203 | - 129.20 | 15 | - 113.02 | 51.08 | 7.47 | 1.26 | 162 | 1 | 87.4 | 9/GR12 |
| CAN01303 | - 129.20 | 15 | - 113.02 | 51.08 | 7.47 | 1.26 | 162 | 1 | 87.4 | 9/GR12 |
| CAN01304 | -91.20 | 15 | -86.71 | 50.48 | 8.58 | 2.54 | 178 | 1 | 87.4 | 9/GR13 |
| CAN01403 | - 12920 | 15 | -113.02 | 51.08 | 7.47 | 1.26 | 162 | 1 | 87.4 | 9/GR12 |
| CAN01404 | -91.20 | 15 | -86.71 | 50.48 | 8.58 | 2.54 | 178 | 1 | 87.4 | 9/GR13 |
| CAN01405 | -82.20 | 15 | -84.11 | 50.20 | 8.31 | 2.58 | 1 | 1 | 87.4 | 9/GR14 |
| CAN01504 | -91.20 | 15 | -86.71 | 50.48 | 8.58 | 2.54 | 178 | 1 | 87.4 | 9/GR13 |
| CAN01505 | -82.20 | 15 | -84.11 | 50.20 | 8.31 | 2.58 | 1 | 1 | 87.4 | 9/GR14 |
| CAN01605 | -82.20 | 15 | -84.11 | 50.20 | 8.31 | 2.58 | 1 | 1 | 87.4 | 9/GR14 |
| CAN01606 | -70.70 | 15 | -80.77 | 50.03 | 7.88 | 2.53 | 6 | 1 | 874 |  |
| CHLCONT5 | - 106.20 | 15 | -72.23 | -35.57 | 2.60 | 0.68 | 55 | 1 | 87.4 | 9/GR17 |
| CHLPAC02 | -106.20 | 15 | -80.06 | -30.06 | 1.36 | 0.68 | 69 | 1 | 87.4 | 9/GR17 |
| CLMAND01 | -115.20 | 15 | - 71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | 9/GR5 |
| CLM00001 | - 103.20 | 15 | -74.50 | 5.87 | 3.98 | 1.96 | 118 | 1 | 87.4 |  |
| CUB00001 | -89.20 | 15 | -79.81 | 21.62 | 2.24 | 0.68 | 168 | 1 | 87.4 |  |
| EQACAND1 | -115.20 | 15 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | 9/GR5 |
| EQAGAND1 | - 115.20 | 15 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | 9/GR5 |
| GRD00002 | -42.20 | 15 | -61.58 | 12.29 | 0.60 | 0.60 | 90 | 1 | 87.4 |  |
| GRD00059 | -57.20 | 15 | -61.58 | 12.29 | 0.60 | 0.60 | 90 | 1 | 87.4 |  |
| GRLDNK01 | -53.20 | 15 | -44.89 | 66.56 | 2.70 | 0.82 | 173 | 1 | 87.4 | 2 |
| GUY00201 | -84.70 | 15 | -59.19 | 4.78 | 1.44 | 0.85 | 95 | 1 | 87.4 |  |
| HWA00002 | -166.20 | 15 | -109.94 | 36.86 | 6.04 | 1.11 | 137 | 1 | 87.4 | 9/GR1 |

17528,12 MHz (15)

| $\mathbf{1}$ | $\mathbf{2}$ | $\mathbf{3}$ | $\mathbf{4}$ |  | $\mathbf{5}$ |  | $\mathbf{6}$ | $\mathbf{7}$ | $\mathbf{8}$ |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | :--- | :--- | :--- |


| ALS00002 | -165.80 | 16 | -109.83 | 36.82 | 6.03 | 1.12 | 137 | 2 | 87.4 | 9/GR1 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALS00003 | - 174.80 | 16 | - 116.10 | 37.47 | 5.60 | 0.76 | 132 | 2 | 87.4 | 9/GR2 |
| ARGNORT4 | -93.80 | 16 | -63.96 | -30.01 | 3.86 | 1.99 | 48 | 2 | 87.4 |  |
| ARGNORT5 | -54.80 | 16 | -62.85 | -29.80 | 3.24 | 2.89 | 47 | 2 | 87.4 |  |
| B CE311 | -63.80 | 16 | -40.60 | -6.07 | 3.04 | 2.06 | 174 | 2 | 87.4 | 8 9/GR7 |
| B CE312 | -44.80 | 16 | -40.26 | -606 | 3.44 | 2.09 | 174 | 2 | 87.4 | 8 9/GR9 |
| B CE411 | -63.80 | 16 | -50.97 | - 15.26 | 3.86 | 1.38 | 49 | 2 | 87.4 | 8 9/GR7 |
| B CE412 | -44.80 | 16 | -50.71 | - 15.30 | 3.57 | 1.56 | 52 | 2 | 87.4 | 8 9/GR9 |
| B CE511 | -63.80 | 16 | -53.11 | -298 | 2.42 | 2.15 | 107 | 2 | 87.4 | 8 9/GR7 |
| B NO611 | -73.80 | 16 | -59.60 | -11.62 | 2.86 | 1.69 | 165 | 1 | 87.4 | 8 9/GR8 |
| B NO711 | -73.80 | 16 | -60.70 | -178 | 3.54 | 1.78 | 126 | 1 | 87.4 | 8 9/GR8 |
| B NO811 | -73.80 | 16 | -68.75 | -471 | 2.37 | 1.65 | 73 | 1 | 87.4 | 8 9/GR8 |
| B SE911 | - 101.80 | 16 | -45.99 | -19 09 | 2.22 | 0.79 | 62 | 2 | 87.4 | 8 |
| B SU111 | -80.80 | 16 | -51.10 | -25.64 | 2.76 | 1.06 | 50 | 2 | 87.4 | 8 9/GR6 |
| B SU112 | -44.80 | 16 | -50.76 | -25.62 | 2.47 | 1.48 | 56 | 2 | 87.4 | 8 9/GR9 |
| B SU211 | -80.80 | 16 | -44.51 | -16.94 | 3.22 | 1.37 | 60 | 2 | 87.4 | 8 9/GR6 |
| B SU212 | -44.80 | 16 | -43.99 | - 16.97 | 3.27 | 1.92 | 59 | 2 | 87.4 | 8 9/GR9 |
| CAN01101 | -137.80 | 16 | - 114.10 | 5092 | 7.22 | 1.11 | 160 | 2 | 87.4 | 9/GR10 |
| CAN01201 | -137.80 | 16 | - 114.10 | 50.92 | 7.22 | 1.11 | 160 | 2 | 87.4 | 9/GR10 |
| CAN01202 | - 72.30 | 16 | -81.23 | 50.12 | 7.99 | 2.53 | 5 | 2 | 87.4 |  |
| CAN01203 | -128.80 | 16 | -113.04 | 51.04 | 7.53 | 1.26 | 162 | 2 | 87.4 | 9/GR12 |
| CAN01303 | - 128.80 | 16 | - 113.04 | 51.04 | 7.53 | 1.26 | 162 | 2 | 87.4 | 9/GR12 |
| CAN01304 | -90.80 | 16 | -86.57 | 50.48 | 8.59 | 2.54 | 178 | 2 | 87.4 | 9/GR13 |
| CAN01403 | -128.80 | 16 | -113.04 | 51.04 | 7.53 | 1.26 | 162 | 2 | 87.4 | 9/GR12 |

17542,70 MHz (16)

| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 |  | 9 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CAN01404 | -90.80 | 16 | -86.57 | 50.48 | 8.59 | 2.54 | 178 | 2 | 87.4 | 9/GR13 |  |
| CAN01405 | -81.80 | 16 | -83.80 | 50.22 | 8.35 | 2.57 | 2 | 2 | 87.4 | 9/GR14 |  |
| CAN01504 | -90.80 | 16 | -86.57 | 50.48 | 8.59 | 2.54 | 178 | 2 | 87.4 | 9/GR13 |  |
| CAN01505 | -81.80 | 16 | -83.80 | 50.22 | 8.35 | 2.57 | 2 | 2 | 87.4 | 9/GR14 |  |
| CAN01605 | -81.80 | 16 | -83.80 | 50.22 | 8.35 | 2.57 | 2 | 2 | 87.4 | 9/GR14 |  |
| CAN01606 | -70.30 | 16 | -80.64 | 50.02 | 7.88 | 2.52 | 6 | 2 | 87.4 |  |  |
| CHLCONT4 | - 105.80 | 16 | -69.59 | -23.20 | 2.21 | 0.69 | 68 | 2 | 87.4 | 9/GR16 |  |
| CHLCONT6 | -105.80 | 16 | -73.52 | -55.52 | 3.65 | 1.31 | 39 | 2 | 87.4 | 9/GR16 |  |
| CRBBAH01 | -92.30 | 16 | -76.09 | 24.13 | 1.83 | 0.68 | 141 | 1 | 87.4 | 9/GR18 |  |
| CRBBER01 | -92.30 | 16 | -64.76 | 32.13 | 0.60 | 0.60 | 90 | 1 | 87.4 | 9/GR18 |  |
| CRBBLZ01 | -92.30 | 16 | -88.61 | 17.26 | 0.64 | 0.64 | 90 | 1 | 87.4 | 9/GR18 |  |
| CRBEC001 | -92.30 | 16 | -60.07 | 8.26 | 4.20 | 0.86 | 115 | 1 | 87.4 | 9/GR18 |  |
| CRBJMC01 | -92.30 | 16 | -79.45 | 17.97 | 0.99 | 0.68 | 151 | 1 | 87.4 | 9/GR18 |  |
| CYM00001 | - 115.80 | 16 | -80.58 | 19.57 | 0.60 | 0.60 | 90 | 2 | 87.4 |  |  |
| DOMIFRB2 | -83.30 | 16 | -70.51 | 18.79 | 0.98 | 0.69 | 167 | 2 | 87.4 |  |  |
| EQAC0001 | -94.80 | 16 | -78.31 | -1.52 | 1.48 | 1.15 | 65 | 1 | 87.4 | 9/GR19 |  |
| EQAG0001 | -94.80 | 16 | -90.36 | -0.57 | 0.94 | 0.89 | 99 | 1 | 87.4 | 9/GR19 |  |
| GUFMGG02 | -52.80 | 16 | -56.42 | 8.47 | 4.16 | 0.81 | 123 | 2 | 87.4 | 27 |  |
| HWA00002 | -165.80 | 16 | - 109.83 | 36.82 | 6.03 | 1.12 | 137 | 2 | 87.4 | 9/GR1 |  |
| HWA00003 | -174.80 | 16 | -116.10 | 37.47 | 5.60 | 0.76 | 132 | 2 | 87.4 | 9/GR2 |  |
| JMC00005 | -33.80 | 16 | -77.27 | 18.12 | 0.60 | 0.60 | 90 | 2 | 87.4 |  |  |
| LCAIFRB1 | -79.30 | 16 | -61.15 | 13.90 | 0.60 | 0.60 | 90 | 2 | 87.4 |  |  |
| MEX01NTE | -77.80 | 16 | -105.80 | 25.99 | 2.88 | 2.07 | 155 | 2 | 87.4 | 1 |  |
| MEX02NTE | -135.80 | 16 | -107.36 | 26.32 | 3.80 | 1.57 | 149 | 2 | 87.4 | 1 |  |

17542,70 MHz (16)

| MEX02SUR | - 126.80 | 16 | -96.39 | 19.88 | 3.19 | 187 | 158 | 2 | 87.4 | 1 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| PRU00004 | -85.80 | 16 | - 74.19 | -8.39 | 3.74 | 2.45 | 112 | 2 | 87.4 |  |
| PTRVIR01 | $-100.80$ | 16 | -93.85 | 36.31 | 8.26 | 3.55 | 171 | 2 | 87.4 | 16 9/GR20 |
| PTRVIR02 | $-109.80$ | 16 | -95.47 | 36.38 | 8.10 | 3.45 | 168 | 2 | 87.4 | 16 9/GR21 |
| SLVIFRB2 | $-107.30$ | 16 | -88.91 | 13.59 | 0.60 | 0.60 | 90 | 1 | 87.4 |  |
| USAEH001 | -61.30 | 16 | -87.53 | 36.18 | 6.41 | 3.49 | 12 | 2 | 87.4 | 156 |
| USAEH002 | $-10080$ | 16 | -93.85 | 36.31 | 8.26 | 3.55 | 171 | 2 | 874 | 16 9/GR20 |
| USAEH003 | $-109.80$ | 16 | -95.47 | 36.38 | 8.10 | 3.45 | 168 | 2 | 87.4 | 16 9/GR21 |
| USAEH004 | - 118.80 | 16 | -96.42 | 36.21 | 8.20 | 3.12 | 165 | 2 | 87.4 | 156 |
| USAPSA02 | $-165.80$ | 16 | - 109.83 | 36.82 | 603 | 1.12 | 137 | 2 | 87.4 | 9/GR1 |
| USAPSA03 | $-174.80$ | 16 | -116.10 | 37.47 | 5.60 | 0.76 | 132 | 2 | 87.4 | 9/GR2 |
| USAWH101 | $-147.80$ | 16 | - 111.01 | 40.67 | 438 | 2.15 | 162 | 2 | 87.4 |  |
| USAWH102 | $-156.80$ | 16 | -113.01 | 40.71 | 3.74 | 1.79 | 149 | 2 | 87.4 |  |
| VEN11VEN | $-103.80$ | 16 | -66.79 | 6.90 | 2.50 | 1.77 | 122 | 2 | 87.4 |  |

17557,28 MHz (17)

| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALS00002 | -166.20 | 17 | -109.94 | 36.86 | 6.04 | 1.11 | 137 | 1 | 87.4 | 9/GR1 |
| ALS00003 | -175.20 | 17 | - 116.23 | 37.50 | 5.60 | 0.75 | 132 | 1 | 87.4 | 9/GR2 |
| ARGINSU4 | -94.20 | 17 | -52.98 | -59.81 | 3.40 | 0.68 | 19 | 1 | 87.4 | 9/GR3 |
| ARGINSU5 | -55.20 | 17 | -44.17 | -59.91 | 3.77 | 0.70 | 13 | 1 | 87.4 | 9/GR4 |
| ARGSUR04 | -94.20 | 17 | -65.04 | -43.33 | 3.32 | 1.50 | 40 | 1 | 87.4 | 9/GR3 |
| ARGSUR05 | -55.20 | 17 | -63.68 | -43.01 | 2.54 | 2.38 | 152 | 1 | 87.4 | 9/GR4 |
| B CE311 | -64.20 | 17 | -40.60 | -6.07 | 3.04 | 2.06 | 174 | 1 | 87.4 | 8 9/GR7 |
| B CE312 | -45.20 | 17 | -40.27 | -6.06 | 3.44 | 2.09 | 174 | 1 | 87.4 | 8 9/GR9 |
| B CE411 | -64.20 | 17 | -50.97 | -15.27 | 3.86 | 1.38 | 49 | 1 | 87.4 | 8 9/GR7 |
| B CE412 | -45.20 | 17 | -50.71 | -15.30 | 3.57 | 1.56 | 52 | 1 | 87.4 | 8 9/GR9 |
| B CE511 | -64.20 | 17 | -53.10 | -2.90 | 2.44 | 2.13 | 104 | 1 | 87.4 | 8 9/GR7 |
| B NO611 | -74.20 | 17 | -59.60 | -11.62 | 2.85 | 1.69 | 165 | 2 | 87.4 | 8 9/GR8 |
| B NO711 | -74.20 | 17 | -60.70 | -1.78 | 3.54 | 1.78 | 126 | 2 | 87.4 | 8 9/GR8 |
| B NO811 | -74.20 | 17 | -68.76 | -4.71 | 2.37 | 1.65 | 73 | 2 | 87.4 | 8 9/GR8 |
| B SU111 | -81.20 | 17 | -51.12 | -25.63 | 2.76 | 1.05 | 50 | 1 | 87.4 | 8 9/GR6 |
| B SU112 | -45.20 | 17 | -50.75 | -25.62 | 2.47 | 1.48 | 56 | 1 | 87.4 | 8 9/GR9 |
| B SU211 | -81.20 | 17 | -44.51 | -16.95 | 3.22 | 1.36 | 60 | 1 | 87.4 | 8 9/GR6 |
| B SU212 | -45 20 | 17 | -44.00 | -16.87 | 3.20 | 1.96 | 58 | 1 | 87.4 | 8 9/GR9 |
| BERBERMU | -96.20 | 17 | -64.77 | 32.32 | 0.60 | 0.60 | 90 | 2 | 87.4 |  |
| B ERBER02 | -31.00 | 17 | -64.77 | 32.32 | 0.60 | 0.60 | 90 | 1 | 87.4 | 23 |
| B OLAND01 | - 115.20 | 17 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | 9/GR5 |
| CAN01101 | - 138.20 | 17 | -125 63 | 57.24 | 3.45 | 1.27 | 157 | 1 | 87.4 | 9/GR10 |
| CAN01201 | - 138.20 | 17 | -112.04 | 55.95 | 3.35 | 0.97 | 151 | 1 | 87.4 | 9/GR10 |
| CAN01202 | -72.70 | 17 | -107.70 | 55.63 | 2.74 | 1.12 | 32 | 1 | 87.4 |  |

17557,28 MHz

| CAN01203 | - 129.20 | 17 | -111.48 | 55.61 | 3.08 | 1.15 | 151 | 1 | 87.4 | 9/GR12 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CAN01303 | - 129.20 | 17 | -102 42 | 57.12 | 3.54 | 0.91 | 154 | 1 | 87.4 | 9/GR12 |
| CAN01304 | -91.20 | 17 | -99.12 | 5736 | 1.98 | 1.72 | 2 | 1 | 87.4 | 9/GR13 |
| CAN01403 | - 129.20 | 17 | -89.75 | 52.02 | 4.68 | 0.78 | 148 | 1 | 87.4 | 9/GR12 |
| CAN01404 | -91.20 | 17 | -84.82 | 5242 | 3.10 | 2.05 | 152 | 1 | 87.4 | 9/GR13 |
| CAN01405 | -82.20 | 17 | -84.00 | 5239 | 2.84 | 2.29 | 172 | 1 | 87.4 | 9/GR14 |
| CAN01504 | -9120 | 17 | - 72.66 | 5377 | 3.57 | 1.67 | 156 | 1 | 87.4 | 9/GR13 |
| CAN01505 | -8220 | 17 | -71.77 | 53.79 | 3.30 | 1.89 | 162 | 1 | 87.4 | 9/GR14 |
| CAN01605 | -82.20 | 17 | -61.50 | 49.55 | 2.65 | 1.40 | 143 | 1 | 87.4 | 9/GR14 |
| CAN01606 | -70.70 | 17 | -61.30 | 49.55 | 2.40 | 1.65 | 148 | 1 | 87.4 |  |
| CHLCONT5 | - 106.20 | 17 | - 72.23 | -35.57 | 2.60 | 0.68 | 55 | 1 | 87.4 | 9/GR17 |
| CHLPAC02 | - 106.20 | 17 | -80.06 | -30.06 | 1.36 | 0.68 | 69 | 1 | 87.4 | 9/GR17 |
| CLMAND01 | - 115.20 | 17 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | 9/GR5 |
| CLM00001 | - 103.20 | 17 | -74.50 | 5.87 | 3.98 | 1.96 | 118 | 1 | 87.4 |  |
| EQACAND1 | - 115.20 | 17 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | 9/GR5 |
| EQAGAND1 | - 115.20 | 17 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | 9/GR5 |
| FLKFALKS | -31.00 | 17 | -59.90 | -51.64 | 060 | 0.60 | 90 | 1 | 87.4 | 23 |
| HWA00002 | - 166.20 | 17 | - 165.79 | 23.42 | 4.20 | 0.68 | 160 | 1 | 87.4 | 9/GR1 |
| HWA00003 | - 175.20 | 17 | - 166.10 | 23.42 | 4.25 | 0.68 | 159 | 1 | 87.4 | 9/GR2 |
| JMC00002 | -92.70 | 17 | -77.30 | 18.12 | 0.62 | 0.62 | 90 | 2 | 87.4 |  |
| \$8a1 | -78.20 | 17 | -105 81 | 26.01 | 2.89 | 2.08 | 155 | 1 | 87.4 | 1 |
| MEX01NTE |  |  |  |  |  |  |  |  |  |  |
| MEX01SUR | -69.20 | 17 | -9484 | 19.82 | 3.05 | 209 | 4 | 1 | 87.4 | 1 |
| MEX02NTE | - 136.20 | 17 | -107.21 | 26.31 | 3.84 | 1.55 | 148 | 1 | 87.4 | 1 |
| MEX02SUR | - 127.20 | 17 | -96.39 | 19.88 | 3.18 | 187 | 157 | 1 | 87.4 | 1 |

17557,28 MHz (17)

| $\mathbf{1}$ | $\mathbf{2}$ | $\mathbf{3}$ | $\mathbf{4}$ |  | $\mathbf{5}$ |  | $\mathbf{6}$ | $\mathbf{7}$ | $\mathbf{8}$ |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | :--- | :--- | :--- |

17571,86 MHz (18)

| ALS00002 | - 165.80 | 18 | - 109.83 | 36.82 | 6.03 | 1.12 | 137 | 2 | 87.4 | 9/GR1 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALS00003 | - 174.80 | 18 | - 116.10 | 37.47 | 5.60 | 0.76 | 132 | 2 | 87.4 | 9/GR2 |
| ARGNORT4 | -93.80 | 18 | -63.96 | -30.01 | 3.86 | 1.99 | 48 | 2 | 87.4 |  |
| ARGNORT5 | -54.80 | 18 | -62.85 | -29.80 | 3.24 | 2.89 | 47 | 2 | 87.4 |  |
| ATNBEAM1 | -52.80 | 18 | -66.44 | 14.87 | 1.83 | 068 | 39 | 2 | 87.4 |  |
| B CE311 | -63.80 | 18 | -40.60 | -6.07 | 3.04 | 2.06 | 174 | 2 | 87.4 | 8 9/GR7 |
| B CE312 | -44.80 | 18 | -40.26 | -6.06 | 3.44 | 209 | 174 | 2 | 87.4 | 8 9/GR9 |
| B CE411 | -63.80 | 18 | -50.97 | -15.26 | 3.86 | 1.38 | 49 | 2 | 87.4 | 8 9/GR7 |
| B CE412 | -4480 | 18 | -50.71 | -15.30 | 3.57 | 1.56 | 52 | 2 | 87.4 | 8 9/GR9 |
| B CE511 | -63.80 | 18 | -53.11 | -2.98 | 2.42 | 2.15 | 107 | 2 | 87.4 | 8 9/GR7 |
| B N0611 | -73.80 | 18 | -59.60 | - 11.62 | 2.86 | 1.69 | 165 | 1 | 87.4 | 8 9/GR8 |
| B N0711 | -73.80 | 18 | -60.70 | -1.78 | 3.54 | 1.78 | 126 | 1 | 87.4 | 8 9/GR8 |
| B N0811 | -73.80 | 18 | -68.75 | -4.71 | 2.37 | 1.65 | 73 | 1 | 87.4 | 8 9/GR8 |
| B SE911 | -10180 | 18 | -45.99 | - 19.09 | 2.22 | 0.79 | 62 | 2 | 87.4 | 8 |
| B SU111 | -80.80 | 18 | -51.10 | -25.64 | 2.76 | 1.06 | 50 | 2 | 87.4 | 8 9/GR6 |
| B SU112 | -44.80 | 18 | -50.76 | -25.62 | 2.47 | 1.48 | 56 | 2 | 87.4 | 8 9/GR9 |
| B SU211 | -80.80 | 18 | -44.51 | - 16.94 | 3.22 | 1.37 | 60 | 2 | 87.4 | 8 9/GR6 |
| B SU212 | -44.80 | 18 | -43.99 | -16.97 | 3.27 | 1.92 | 59 | 2 | 87.4 | 8 9/GR9 |
| B LZ00001 | -115.80 | 18 | -88.68 | 17.27 | 0.62 | 0.62 | 90 | 2 | 87.4 |  |
| CAN01101 | -137.80 | 18 | - 125.60 | 57.24 | 3.45 | 1.27 | 157 | 2 | 87.4 | 9/GR10 |
| CAN01201 | -137.80 | 18 | -111.92 | 55.89 | 3.33 | 0.98 | 151 | 2 | 87.4 | 9/GR10 |
| CAN01202 | -72.30 | 18 | - 107.64 | 55.62 | 2.75 | 1.11 | 32 | 2 | 87.4 |  |
| CAN01203 | - 128.80 | 18 | - 111.43 | 55.56 | 3.07 | 1.15 | 151 | 2 | 87.4 | 9/GR12 |
| CAN01303 | -128.80 | 18 | -102.39 | 57.12 | 3.54 | 0.92 | 154 | 2 | 87.4 | 9/GR12 |


| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 |  | 9 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CAN01304 | -90.80 | 18 | -99.00 | 57.33 | 1.96 | 1.73 | 1 | 2 | 87.4 | 9/GR13 |  |
| CAN01403 | - 128.80 | 18 | -89.70 | 52.02 | 4.67 | 0.79 | 148 | 2 | 87.4 | 9/GR12 |  |
| CAN01404 | -90.80 | 18 | -84.78 | 52.41 | 3.09 | 2.06 | 153 | 2 | 874 | 9/GR13 |  |
| CAN01405 | -81.80 | 18 | -84.02 | 52.34 | 2.82 | 2.30 | 172 | 2 | 87.4 | 9/GR14 |  |
| CAN01504 | -90.80 | 18 | -72.68 | 53.78 | 3.57 | 1.67 | 157 | 2 | 874 | 9/GR13 |  |
| CAN01505 | -81.80 | 18 | -71.76 | 53.76 | 3.30 | 1.89 | 162 | 2 | 87.4 | 9/GR14 |  |
| CAN01605 | -81.80 | 18 | -61.54 | 49.50 | 2.66 | 1.39 | 144 | 2 | 87.4 | 9/GR14 |  |
| CAN01606 | -70.30 | 18 | -61.32 | 49.51 | 2.41 | 1.65 | 148 | 2 | 87.4 |  |  |
| CHLCONT4 | - 105.80 | 18 | -69 59 | -23.20 | 2.21 | 0.69 | 68 | 2 | 87.4 | 9/GR16 |  |
| CHLCONT6 | - 105.80 | 18 | -73.52 | -55.52 | 3.65 | 1.31 | 39 | 2 | 87.4 | 9/GR16 |  |
| CRBBAH01 | -92.30 | 18 | -7609 | 24.13 | 1.83 | 0.68 | 141 | 1 | 874 | 9/GR18 |  |
| CRBBER01 | -92.30 | 18 | -64.76 | 32.13 | 0.60 | 0.60 | 90 | 1 | 87.4 | 9/GR18 |  |
| CRBBLZ01 | -92.30 | 18 | -88.61 | 17.26 | 0.64 | 0.64 | 90 | 1 | 87.4 | 9/GR18 |  |
| CRBEC001 | -92.30 | 18 | -60.07 | 826 | 4.20 | 0.86 | 115 | 1 | 87.4 | 9/GR18 |  |
| CRBJMC01 | -92.30 | 18 | -79.45 | 17.97 | 0.99 | 0.68 | 151 | 1 | 87.4 | 9/GR18 |  |
| CTR00201 | - 130.80 | 18 | -84.33 | 9.67 | 0.82 | 0.68 | 119 | 2 | 87.4 |  |  |
| DMAIFRB1 | -79.30 | 18 | -61.30 | 1535 | 0.60 | 0.60 | 90 | 2 | 87.4 |  |  |
| EQAC0001 | -94.80 | 18 | -78.31 | -1.52 | 1.48 | 1.15 | 65 | 1 | 87.4 | 9/GR19 |  |
| EQAG0001 | -94.80 | 18 | -90.36 | -0 57 | 094 | 0.89 | 99 | 1 | 87.4 | 9/GR19 |  |
| HWA00002 | -165 80 | 18 | - 165.79 | 23.32 | 4.20 | 0.68 | 160 | 2 | 87.4 | 9/GR1 |  |
| HWA00003 | -17480 | 18 | - 166.10 | 23.42 | 4.25 | 0.68 | 159 | 2 | 87.4 | 9/GR2 |  |
| MEX01NTE | -7780 | 18 | -105.80 | 25.99 | 2.88 | 207 | 155 | 2 | 87.4 | , |  |
| MEX02NTE | $-135.80$ | 18 | -107.36 | 26.32 | 3.80 | 1.57 | 149 | 2 | 874 | 1 |  |
| MEX02SUR | - 126.80 | 18 | -9639 | 19.88 | 3.19 | 1.87 | 158 | 2 | 874 | 1 |  |

17571,86 MHz (18)

| NCG00003 | -107.30 | 18 | -8499 | 12.90 | 1.05 | 1.01 | 176 | 1 | 87.4 |  |
| :--- | ---: | ---: | ---: | ---: | :--- | :--- | :--- | :--- | :--- | :--- |
| PRU00004 | -85.80 | 18 | -7419 | -8.39 | 3.74 | 2.45 | 112 | 2 | 87.4 |  |
| PTRVIR01 | -100.80 | 18 | -93.85 | 36.31 | 8.26 | 3.55 | 171 | 2 | 874 | 169 9/GR20 |
| PTRVIR02 | -109.80 | 18 | -95.47 | 36.38 | 8.10 | 3.45 | 168 | 2 | 87.4 | $1699 / G R 21$ |
| USAEH001 | -61.30 | 18 | -87.53 | 36.18 | 6.41 | 349 | 12 | 2 | 87.4 | 156 |
| USAEH002 | -100.80 | 18 | -93.85 | 36.31 | 826 | 355 | 171 | 2 | 87.4 | $1699 /$ GR20 |
| USAEH003 | -10980 | 18 | -9547 | 3638 | 8.10 | 345 | 168 | 2 | 87.4 | $1699 / G R 21$ |
| USAEH004 | -118.80 | 18 | -9642 | 3621 | 8.20 | 3.12 | 165 | 2 | 87.4 | 156 |
| USAPSA02 | -165.80 | 18 | -109.83 | 36.82 | 6.03 | 112 | 137 | 2 | 874 | $9 / G R 1$ |
| USAPSA03 | -174.80 | 18 | -116.10 | 37.47 | 5.60 | 0.76 | 132 | 2 | 87.4 | $9 /$ GR2 |
| USAWH101 | -147.80 | 18 | -11101 | 40.67 | 4.38 | 2.15 | 162 | 2 | 87.4 |  |
| USAWH102 | -156.80 | 18 | -113.01 | 40.71 | 3.74 | 1.79 | 149 | 2 | 87.4 |  |
| VEN11VEN | -103.80 | 18 | -66.79 | 690 | 2.50 | 177 | 122 | 2 | 87.4 |  |


| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALS00002 | $-166.20$ | 19 | -109.94 | 36.86 | 6.04 | 1.11 | 137 | 1 | 87.4 | 9/GR1 |
| ALS00003 | - 175.20 | 19 | -116.23 | 37.50 | 5.60 | 0.75 | 132 | 1 | 87.4 | 9/GR2 |
| ARGINSU4 | -94.20 | 19 | -52.98 | -59.81 | 3.40 | 0.68 | 19 | 1 | 87.4 | 9/GR3 |
| ARGINSU5 | -55.20 | 19 | -44.17 | -59.91 | 3.77 | 0.70 | 13 | 1 | 87.4 | 9/GR4 |
| ARGSUR04 | -94.20 | 19 | -65.04 | -43.33 | 3.32 | 1.50 | 40 | 1 | 87.4 | 9/GR3 |
| ARGSUR05 | -55.20 | 19 | -63.68 | -43.01 | 2.54 | 2.38 | 152 | 1 | 87.4 | 9/GR4 |
| B CE311 | -64.20 | 19 | -40.60 | -6.07 | 3.04 | 2.06 | 174 | 1 | 87.4 | 8 9/GR7 |
| B CE312 | -45.20 | 19 | -40.27 | -6.06 | 3.44 | 2.09 | 174 | 1 | 87.4 | 8 9/GR9 |
| B CE411 | -64.20 | 19 | -50.97 | -15.27 | 3.86 | 1.38 | 49 | 1 | 87.4 | 8 9/GR7 |
| B CE412 | -45.20 | 19 | -50.71 | -15.30 | 3.57 | 1.56 | 52 | 1 | 87.4 | 8 9/GR9 |
| B CE511 | -64.20 | 19 | -53.10 | -2.90 | 2.44 | 2.13 | 104 | 1 | 87.4 | 8 9/GR7 |
| B NO611 | -74.20 | 19 | -59.60 | -11.62 | 2.85 | 1.69 | 165 | 2 | 87.4 | 8 9/GR8 |
| B NO711 | -74.20 | 19 | -60.70 | -1.78 | 3.54 | 1.78 | 126 | 2 | 87.4 | 8 9/GR8 |
| B N0811 | -74.20 | 19 | -68.76 | -4.71 | 2.37 | 1.65 | 73 | 2 | 87.4 | 8 9/GR8 |
| B SU111 | -81.20 | 19 | -51.12 | -25.63 | 2.76 | 1.05 | 50 | 1 | 87.4 | 8 9/GR6 |
| B SU112 | -45.20 | 19 | -50.75 | -25.62 | 2.47 | 1.48 | 56 | 1 | 87.4 | 8 9/GR9 |
| B SU211 | -81.20 | 19 | -44.51 | -16.95 | 3.22 | 1.36 | 60 | 1 | 87.4 | 8 9/GR6 |
| B SU212 | -45.20 | 19 | -44.00 | -16.87 | 3.20 | 1.96 | 58 | 1 | 87.4 | 8 9/GR9 |
| BERBERMU | -96.20 | 19 | -64.77 | 32.32 | 0.60 | 0.60 | 90 | 2 | 87.4 |  |
| B OLAND01 | -115.20 | 19 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | 9/GR5 |
| B OL00001 | -87.20 | 19 | -64.61 | - 16.71 | 2.52 | 2.19 | 85 | 1 | 874 |  |
| B RB00001 | -92.70 | 19 | -59.85 | 12.93 | 0.60 | 0.60 | 90 | 2 | 87.4 |  |
| CAN01101 | - 138.20 | 19 | -125.63 | 5724 | 3.45 | 1.27 | 157 | 1 | 87.4 | 9/GR10 |
| CAN01201 | -138.20 | 19 | - 112.04 | 55.95 | 3.35 | 0.97 | 151 | 1 | 87.4 | 9/GR10 |

17586,44 MHz (19)

| CAN01202 | -72.70 | 19 | -107.70 | 55.63 | 2.74 | 1.12 | 32 | 1 | 87.4 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CAN01203 | -129.20 | 19 | -111.48 | 5561 | 3.08 | 1.15 | 151 | 1 | 87.4 | 9/GR12 |
| CAN01303 | - 129.20 | 19 | - 102.42 | 5712 | 3.54 | 0.91 | 154 | 1 | 87.4 | 9/GR12 |
| CAN01304 | -91.20 | 19 | -99.12 | 57.36 | 1.98 | 1.72 | 2 | 1 | 87.4 | 9/GR13 |
| CAN01403 | - 129.20 | 19 | -89.75 | 5202 | 4.68 | 0.78 | 148 | 1 | 87.4 | 9/GR12 |
| CAN01404 | -91.20 | 19 | -84.82 | 52.42 | 3.10 | 2.05 | 152 | 1 | 87.4 | 9/GR13 |
| CAN01405 | -82.20 | 19 | -84.00 | 52.39 | 2.84 | 2.29 | 172 | 1 | 87.4 | 9/GR14 |
| CAN01504 | -91.20 | 19 | - 72.66 | 53.77 | 3.57 | 1.67 | 156 | 1 | 87.4 | 9/GR13 |
| CAN01505 | -82.20 | 19 | -71.77 | 53.79 | 3.30 | 1.89 | 162 | 1 | 87.4 | 9/GR14 |
| CAN01605 | -82.20 | 19 | -61.50 | 4955 | 2.65 | 1.40 | 143 | 1 | 87.4 | 9/GR14 |
| CAN01606 | -70.70 | 19 | -61.30 | 49.55 | 2.40 | 1.65 | 148 | 1 | 87.4 |  |
| CHLCONT5 | - 106.20 | 19 | -72.23 | -35.57 | 260 | 0.68 | 55 | 1 | 87.4 | 9/GR17 |
| CHLPAC02 | - 106.20 | 19 | -80.06 | -30.06 | 1.36 | 0.68 | 69 | 1 | 874 | 9/GR17 |
| CLMAND01 | - 115.20 | 19 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | 9/GR5 |
| CLM00001 | - 103.20 | 19 | -74.50 | 5.87 | 3.98 | 1.96 | 118 | 1 | 87.4 |  |
| CUB00001 | -89.20 | 19 | -79.81 | 21.62 | 2.24 | 0.68 | 168 | 1 | 87.4 |  |
| EQACAND1 | - 115.20 | 19 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | 9/GR5 |
| EQAGAND1 | - 115.20 | 19 | - 71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | 9/GR5 |
| GRD00059 | -57.20 | 19 | -61.58 | 12.29 | 0.60 | 0.60 | 90 | 1 | 87.4 |  |
| GRLDNK01 | -53.20 | 19 | -44.89 | 66.56 | 2.70 | 0.82 | 173 | 1 | 87.4 | 2 |
| GUY00201 | -84.70 | 19 | -59.19 | 4.78 | 1.44 | 0.85 | 95 | 1 | 87.4 |  |
| HWA00002 | -166.20 | 19 | -165.79 | 23.42 | 4.20 | 0.68 | 160 | 1 | 87.4 | 9/GR1 |
| HWA00003 | - 175.20 | 19 | -166.10 | 23.42 | 4.25 | 0.68 | 159 | 1 | 87.4 | 9/GR2 |
| MEX01NTE | -78.20 | 19 | -105.81 | 26.01 | 2.89 | 2.08 | 155 | 1 | 87.4 | 1 |

17586,44 MHz (19)

| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| MEX01SUR | -69 20 | 19 | -94.84 | 19.82 | 305 | 2.09 | 4 | 1 | 87.4 | 1 |
| MEX02NTE | - 136.20 | 19 | -107.21 | 26.31 | 3.84 | 1.55 | 148 | 1 | 87.4 | 1 |
| MEX02SUR | - 127.20 | 19 | -96.39 | 19.88 | 318 | 1.87 | 157 | 1 | 87.4 | 1 |
| MSR00001 | -79.70 | 19 | -61.73 | 16.75 | 0.60 | 0.60 | 90 | 1 | 87.4 | 4 |
| PAQPAC01 | -106.20 | 19 | - 109.18 | -27.53 | 0.60 | 0.60 | 90 | 1 | 87.4 | 9/GR17 |
| PRG00002 | -99.20 | 19 | -58.66 | -23.32 | 1.45 | 1.04 | 76 | 1 | 87.4 |  |
| PRUAND02 | - 115.20 | 19 | -7137 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | 9/GR5 |
| PTRVIR01 | - 101.20 | 19 | -93.94 | 36.32 | 8.24 | 356 | 171 | 1 | 87.4 | 16 9/GR20 |
| PTRVIR02 | - 110.20 | 19 | -95.23 | 36.29 | 8.27 | 3.37 | 168 | 1 | 87.4 | 16 9/GR21 |
| URG00001 | -71.70 | 19 | -56.22 | -32.52 | 1.02 | 0.89 | 11 | 1 | 874 |  |
| USAEH001 | -6170 | 19 | -87.57 | 36.17 | 6.42 | 3.49 | 12 | 1 | 874 | 156 |
| USAEH002 | - 101.20 | 19 | -93.94 | 36.32 | 8.24 | 3.56 | 171 | 1 | 87.4 | 16 9/GR20 |
| USAEH003 | - 110.20 | 19 | -95.23 | 36.29 | 8.27 | 3.37 | 168 | 1 | 874 | 16 9/GR21 |
| USAEH004 | - 119.20 | 19 | -96.45 | 36.21 | 8.20 | 3.12 | 165 | 1 | 874 | 156 |
| USAPSA02 | -166.20 | 19 | -109.94 | 36.86 | 6.04 | 111 | 137 | 1 | 87.4 | 9/GR1 |
| USAPSA03 | -175.20 | 19 | -116.23 | 37.50 | 5.60 | 0.75 | 132 | 1 | 87.4 | 9/GR2 |
| USAWH101 | - 148.20 | 19 | - 111.02 | 40.68 | 4.36 | 2.15 | 162 | 1 | 87.4 |  |
| USAWH102 | -15720 | 19 | - 113.07 | 4074 | 3.72 | 1.78 | 149 | 1 | 874 |  |
| VENAND03 | -115.20 | 19 | - 71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | 9/GR5 |

17601,02 MHz

| ALS00002 | $-165.80$ | 20 | -109.83 | 36.82 | 6.03 | 1.12 | 137 | 2 | 87.4 | 9/GR1 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALS00003 | -17480 | 20 | - 116.10 | 37.47 | 560 | 0.76 | 132 | 2 | 87.4 | 9/GR2 |
| ARGNORT4 | -93.80 | 20 | -63.96 | -30.01 | 3.86 | 1.99 | 48 | 2 | 87.4 |  |
| ARGNORT5 | -54.80 | 20 | -62.85 | -29.80 | 324 | 2.89 | 47 | 2 | 87.4 |  |
| B CE311 | -63.80 | 20 | -40.60 | -6.07 | 3.04 | 206 | 174 | 2 | 87.4 | 8 9/GR7 |
| B CE312 | -44.80 | 20 | -40.26 | -6.06 | 3.44 | 2.09 | 174 | 2 | 87.4 | 8 9/GR9 |
| B CE411 | -63.80 | 20 | -5097 | -15.26 | 3.86 | 1.38 | 49 | 2 | 87.4 | 8 9/GR7 |
| B CE412 | -44.80 | 20 | -50.71 | - 15.30 | 3.57 | 1.56 | 52 | 2 | 87.4 | 8 9/GR9 |
| B CE511 | -63.80 | 20 | -5311 | -2.98 | 2.42 | 2.15 | 107 | 2 | 87.4 | 8 9/GR7 |
| B NO611 | - 73.80 | 20 | -59 60 | - 11.62 | 2.86 | 169 | 165 | 1 | 87.4 | 8 9/GR8 |
| B NO711 | -73.80 | 20 | -60 70 | -1.78 | 3.54 | 178 | 126 | 1 | 87.4 | 8 9/GR8 |
| B N0811 | -73.80 | 20 | -6875 | -4.71 | 2.37 | 165 | 73 | 1 | 87.4 | 8 9/GR8 |
| B SE911 | - 101.80 | 20 | -45.99 | - 19.09 | 2.22 | 0.79 | 62 | 2 | 87.4 | 8 |
| B SU111 | -80.80 | 20 | -51.10 | -25.64 | 2.76 | 1.06 | 50 | 2 | 87.4 | 8 9/GR6 |
| B SU112 | -4480 | 20 | -50.76 | -25.62 | 2.47 | 148 | 56 | 2 | 87.4 | $89 / \mathrm{GR9}$ |
| B SU211 | -80.80 | 20 | -44.51 | -16.94 | 3.22 | 1.37 | 60 | 2 | 87.4 | 8 9/GR6 |
| B SU212 | -44.80 | 20 | -4399 | -16.97 | 3.27 | 1.92 | 59 | 2 | 87.4 | 8 9/GR9 |
| CAN01101 | - 137.80 | 20 | $-125.60$ | 5724 | 3.45 | 1.27 | 157 | 2 | 874 | 9/GR10 |
| CAN01201 | -137.80 | 20 | - 111.92 | 5589 | 3.33 | 0.98 | 151 | 2 | 874 | 9/GR10 |
| CAN01202 | -7230 | 20 | - 107.64 | 55.62 | 2.75 | 1.11 | 32 | 2 | 87.4 |  |
| CAN01203 | -128.80 | 20 | -111.43 | 5556 | 3.07 | 1.15 | 151 | 2 | 87.4 | 9/GR12 |
| CAN01303 | -12880 | 20 | -102.39 | 57.12 | 354 | 0.92 | 154 | 2 | 87.4 | 9/GR12 |
| CAN01304 | -90.80 | 20 | -99.00 | 57.33 | 1.96 | 1.73 | 1 | 2 | 87.4 | 9/GR13 |
| CAN01403 | -12880 | 20 | -89.70 | 52.02 | 4.67 | 0.79 | 148 | 2 | 87.4 | 9/GR12 |

17601,02 MHz (20)

| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CAN01404 | -90.80 | 20 | -84.78 | 52.41 | 3.09 | 2.06 | 153 | 2 | 87.4 | 9/GR13 |
| CAN01405 | -81.80 | 20 | -84.02 | 52.34 | 2.82 | 2.30 | 172 | 2 | 87.4 | 9/GR14 |
| CAN01504 | -90.80 | 20 | -72.68 | 53.78 | 3.57 | 1.67 | 157 | 2 | 87.4 | 9/GR13 |
| CAN01505 | -81.80 | 20 | -71.76 | 53.76 | 3.30 | 1.89 | 162 | 2 | 87.4 | 9/GR14 |
| CAN01605 | -81.80 | 20 | -61.54 | 49.50 | 2.66 | 1.39 | 144 | 2 | 87.4 | 9/GR14 |
| CAN01606 | -70.30 | 20 | -61.32 | 49.51 | 2.41 | 1.65 | 148 | 2 | 87.4 |  |
| CHLCONT4 | -105.80 | 20 | -69.59 | -23.20 | 2.21 | 0.69 | 68 | 2 | 87.4 | 9/GR16 |
| CHLCONT6 | - 105.80 | 20 | -73.52 | -55.52 | 3.65 | 1.31 | 39 | 2 | 87.4 | 9/GR16 |
| CRBBAH01 | -92.30 | 20 | -76.09 | 24.13 | 1.83 | 0.68 | 141 | 1 | 87.4 | 9/GR18 |
| CRBBER01 | -92.30 | 20 | -64.76 | 32.13 | 0.60 | 0.60 | 90 | 1 | 87.4 | 9/GR18 |
| CRBBLZ01 | -92.30 | 20 | -88.61 | 17.26 | 0.64 | 0.64 | 90 | 1 | 87.4 | 9/GR18 |
| CRBEC001 | -92.30 | 20 | -60.07 | 8.26 | 4.20 | 0.86 | 115 | 1 | 87.4 | 9/GR18 |
| CRBJMC01 | -92.30 | 20 | -79.45 | 17.97 | 0.99 | 0.68 | 151 | 1 | 87.4 | 9/GR18 |
| EQAC0001 | -94.80 | 20 | -78.31 | -1.52 | 1.48 | 1.15 | 65 | 1 | 87.4 | 9/GR19 |
| EQAG0001 | -94.80 | 20 | -90.36 | -0.57 | 0.94 | 0.89 | 99 | 1 | 87.4 | 9/GR19 |
| GRD00003 | -79.30 | 20 | -61.62 | 12.34 | 0.60 | 0.60 | 90 | 2 | 87.4 |  |
| GTMIFRB2 | - 107.30 | 20 | -90.50 | 15.64 | 1.03 | 0.74 | 84 | 1 | 87.4 |  |
| GUFMGG02 | -52.80 | 20 | -56.42 | 8.47 | 4.16 | 0.81 | 123 | 2 | 87.4 | 27 |
| HWA00002 | -165.80 | 20 | - 165.79 | 23.32 | 4.20 | 0.68 | 160 | 2 | 87.4 | 9/GR1 |
| HWA00003 | - 174.80 | 20 | -166.10 | 23.42 | 4.25 | 0.68 | 159 | 2 | 87.4 | 9/GR2 |
| MEX01NTE | -77.80 | 20 | -105.80 | 25.99 | 2.88 | 2.07 | 155 | 2 | 87.4 | 1 |
| MEX02NTE | - 135.80 | 20 | -107.36 | 26.32 | 3.80 | 1.57 | 149 | 2 | 87.4 | 1 |
| MEX02SUR | - 126.80 | 20 | -96.39 | 19.88 | 3.19 | 1.87 | 158 | 2 | 87.4 | 1 |
| PNRIFRB2 | - 121.00 | 20 | -80.15 | 8.46 | 1.01 | 0.73 | 170 | 1 | 87.4 |  |

17601,02 MHz (20)

| PRU00004 | -85.80 | 20 | -74.19 | -8.39 | 3.74 | 2.45 | 112 | 2 | 87.4 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| PTRVIR01 | -100.80 | 20 | -93.85 | 36.31 | 8.26 | 3.55 | 171 | 2 | 87.4 | 16 9/GR20 |
| PTRVIR02 | -109.80 | 20 | -95.47 | 36.38 | 8.10 | 3.45 | 168 | 2 | 87.4 | 16 9/GR21 |
| USAEH001 | -61.30 | 20 | -87.53 | 36.18 | 6.41 | 3.49 | 12 | 2 | 87.4 | 156 |
| USAEH002 | -100.80 | 20 | -93.85 | 36.31 | 8.26 | 3.55 | 171 | 2 | 87.4 | 16 9/GR20 |
| USAEH003 | -109.80 | 20 | -95.47 | 36.38 | 8.10 | 3.45 | 168 | 2 | 87.4 | 16 9/GR21 |
| USAEH004 | - 118.80 | 20 | -96.42 | 36.21 | 8.20 | 3.12 | 165 | 2 | 87.4 | 156 |
| USAPSA02 | -165.80 | 20 | - 109.83 | 36.82 | 6.03 | 1.12 | 137 | 2 | 87.4 | 9/GR1 |
| USAPSA03 | - 174.80 | 20 | - 116.10 | 37.47 | 5.60 | 0.76 | 132 | 2 | 87.4 | 9/GR2 |
| USAWH101 | - 147.80 | 20 | - 111.01 | 40.67 | 4.38 | 2.15 | 162 | 2 | 87.4 |  |
| USAWH102 | - 156.80 | 20 | -113.01 | 40.71 | 3.74 | 1.79 | 149 | 2 | 87.4 |  |
| VEN02VEN | - 103.80 | 20 | -66.79 | 6.90 | 2.50 | 1.77 | 122 | 2 | 87.4 | 9/GR22 |
| VEN11VEN | -103.80 | 20 | -66.79 | 6.90 | 2.50 | 1.77 | 122 | 2 | 87.4 | 9/GR22 |


| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALS00002 | -166.20 | 21 | -109.94 | 36.86 | 6.04 | 1.11 | 137 | 1 | 87.4 | 9/GR1 |
| ALS00003 | -175.20 | 21 | - 116.23 | 37.50 | 5.60 | 0.75 | 132 | 1 | 87.4 | 9/GR2 |
| ARGINSU4 | -94.20 | 21 | -52.98 | -59.81 | 3.40 | 0.68 | 19 | 1 | 87.4 | 9/GR3 |
| ARGINSU5 | -55.20 | 21 | -44.17 | -59.91 | 3.77 | 0.70 | 13 | 1 | 874 | 9/GR4 |
| ARGSUR04 | -94.20 | 21 | -65.04 | -43.33 | 3.32 | 1.50 | 40 | 1 | 87.4 | 9/GR3 |
| ARGSUR05 | -55.20 | 21 | -63.68 | -43.01 | 2.54 | 2.38 | 152 | 1 | 874 | 9/GR4 |
| B CE311 | -64.20 | 21 | -40.60 | -6.07 | 3.04 | 2.06 | 174 | 1 | 87.4 | 8 9/GR7 |
| B CE312 | -45.20 | 21 | -40.27 | -6.06 | 3.44 | 2.09 | 174 | 1 | 87.4 | 8 9/GR9 |
| B CE411 | -64.20 | 21 | -50.97 | -1527 | 3.86 | 1.38 | 49 | 1 | 87.4 | 8 9/GR7 |
| B CE412 | -45.20 | 21 | -50.71 | -15.30 | 3.57 | 1.56 | 52 | 1 | 87.4 | 8 9/GR9 |
| B CE511 | -64.20 | 21 | -5310 | -2.90 | 2.44 | 2.13 | 104 | 1 | 87.4 | 8 9/GR7 |
| B NO611 | -74.20 | 21 | -59.60 | -11.62 | 2.85 | 1.69 | 165 | 2 | 87.4 | 8 9/GR8 |
| B NO711 | -74.20 | 21 | -60.70 | -1.78 | 3.54 | 1.78 | 126 | 2 | 87.4 | 8 9/GR8 |
| B NO811 | -74.20 | 21 | -68.76 | -4.71 | 2.37 | 1.65 | 73 | 2 | 87.4 | 8 9/GR8 |
| B SU111 | -81.20 | 21 | -51.12 | -25.63 | 2.76 | 1.05 | 50 | 1 | 87.4 | 8 9/GR6 |
| B SU112 | -45.20 | 21 | -50.75 | - 25.62 | 2.47 | 1.48 | 56 | 1 | 87.4 | 8 9/GR9 |
| B SU211 | -81.20 | 21 | -44.51 | -16.95 | 3.22 | 1.36 | 60 | 1 | 87.4 | 8 9/GR6 |
| B SU212 | -45.20 | 21 | -44.00 | -1687 | 3.20 | 1.96 | 58 | 1 | 87.4 | 8 9/GR9 |
| BERBERMU | -96.20 | 21 | -64.77 | 32.32 | 0.60 | 0.60 | 90 | 2 | 87.4 |  |
| B OLAND01 | -115.20 | 21 | -71.37 | -4.69 | 6.49 | 257 | 87 | , | 87.4 | 9/GR5 |
| CAN01101 | -138.20 | 21 | - 125.63 | 57.24 | 345 | 1.27 | 157 | 1 | 87.4 | 9/GR10 |
| CAN01201 | - 138.20 | 21 | -112.04 | 55.95 | 335 | 0.97 | 151 | , | 87.4 | 9/GR10 |
| CAN01202 | -72.70 | 21 | -107.70 | 55.63 | 2.74 | 1.12 | 32 | 1 | 87.4 |  |
| CAN01203 | -129.20 | 21 | -11148 | 55.61 | 3.08 | 1.15 | 151 | 1 | 87.4 | 9/GR12 |

17615,60 MHz (21)

| CAN01303 | -129 20 | 21 | -102 42 | 57.12 | 3.54 | 0.91 | 154 | 1 | 87.4 | 9/GR12 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CAN01304 | -91.20 | 21 | -99.12 | 57.36 | 1.98 | 1.72 | 2 | 1 | 87.4 | 9/GR13 |
| CAN01403 | - 129.20 | 21 | -89.75 | 52.02 | 4.68 | 0.78 | 148 | 1 | 87.4 | 9/GR12 |
| CAN01404 | -91.20 | 21 | -84.82 | 52.42 | 3.10 | 2.05 | 152 | 1 | 87.4 | 9/GR13 |
| CAN01405 | -82.20 | 21 | -84.00 | 52.39 | 2.84 | 2.29 | 172 | 1 | 87.4 | 9/GR14 |
| CAN01504 | -91.20 | 21 | - 72.66 | 53.77 | 357 | 1.67 | 156 | 1 | 874 | 9/GR13 |
| CAN01505 | -82.20 | 21 | -71.77 | 53.79 | 3.30 | 1.89 | 162 | 1 | 874 | 9/GR14 |
| CAN01605 | -82.20 | 21 | -6150 | 49.55 | 265 | 1.40 | 143 | 1 | 874 | 9/GR14 |
| CAN01606 | -70.70 | 21 | -61.30 | 49.55 | 240 | 1.65 | 148 | 1 | 87.4 |  |
| CHLCONT5 | -106.20 | 21 | -72 23 | -35.57 | 2.60 | 068 | 55 | 1 | 87.4 | 9/GR17 |
| CHLPAC02 | -106.20 | 21 | -80 06 | -30 06 | 1.36 | 0.68 | 69 | 1 | 87.4 | 9/GR17 |
| CLMAND01 | - 115.20 | 21 | -7137 | -4.69 | 6.49 | 257 | 87 | 1 | 87.4 | 9/GR5 |
| CLM00001 | - 103.20 | 21 | -7450 | 587 | 3.98 | 1.96 | 118 | 1 | 87.4 |  |
| EQACAND1 | -115.20 | 21 | -7137 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | 9/GR5 |
| EQAGAND1 | -115.20 | 21 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | 9/GR5 |
| HWA00002 | -166.20 | 21 | -165 79 | 23.42 | 4.20 | 0.68 | 160 | 1 | 87.4 | 9/GR1 |
| HWA00003 | - 175.20 | 21 | - 166.10 | 23.42 | 4.25 | 0.68 | 159 | 1 | 87.4 | 9/GR2 |
| JMC00002 | -92.70 | 21 | -77.30 | 18.12 | 0.62 | 0.62 | 90 | 2 | 874 |  |
| MEX01NTE | -78.20 | 21 | - 105.81 | 26.01 | 2.89 | 208 | 155 | 1 | 87.4 | 1 |
| MEX01SUR | -69.20 | 21 | -94.84 | 19.82 | 3.05 | 2.09 | 4 | 1 | 87.4 | 1 |
| MEX02NTE | - 136.20 | 21 | - 107.21 | 26.31 | 3.84 | 1.55 | 148 | , | 87.4 | 1 |
| MEX02SUR | - 127.20 | 21 | -96.39 | 1988 | 3.18 | 1.87 | 157 |  | 87.4 | 1 |
| PAQPAC01 | - 106.20 | 21 | - 109.18 | -27.53 | 060 | 060 | 90 | 1 | 87.4 | 9/GR17 |
| PRG00002 | -99.20 | 21 | -58.66 | -23 32 | 145 | 104 | 76 | 1 | 87.4 |  |

17615,60 MHz (21)

| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| PRUAND02 | -115.20 | 21 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | 9/GR5 |
| PTRVIR01 | - 101.20 | 21 | -93.94 | 36.32 | 8.24 | 3.56 | 171 | 1 | 87.4 | 16 9/GR20 |
| PTRVIR02 | - 110.20 | 21 | -95.23 | 36.29 | 8.27 | 3.37 | 168 | 1 | 87.4 | 16 9/GR21 |
| SCN00001 | -79.70 | 21 | -62.46 | 17.44 | 0.60 | 0.60 | 90 | 1 | 87.4 |  |
| SPMFRAN3 | $-53.20$ | 21 | -67.24 | 47.51 | 3.16 | 0.79 | 7 | 1 | 87.4 | 27 |
| SURINAM2 | -84.70 | 21 | -55.69 | 4.35 | 1.00 | 0.69 | 86 | 1 | 87.4 |  |
| URG00001 | -71.70 | 21 | -56.22 | -32.52 | 1.02 | 0.89 | 11 | 1 | 87.4 |  |
| USAEH001 | -61.70 | 21 | -87.57 | 36.17 | 6.42 | 3.49 | 12 | 1 | 87.4 | 156 |
| USAEH002 | - 101.20 | 21 | -93.94 | 36.32 | 8.24 | 3.56 | 171 | 1 | 87.4 | 16 9/GR20 |
| USAEH003 | -110.20 | 21 | -95.23 | 36.29 | 8.27 | 3.37 | 168 | 1 | 87.4 | $169 / \mathrm{GR} 21$ |
| USAEH004 | -119.20 | 21 | -96.45 | 36.21 | 8.20 | 3.12 | 165 | 1 | 87.4 | 156 |
| USAPSA02 | -166.20 | 21 | -109.94 | 36.86 | 6.04 | 1.11 | 137 | 1 | 87.4 | 9/GR1 |
| USAPSA03 | -175.20 | 21 | -116.23 | 37.50 | 5.60 | 0.75 | 132 | 1 | 87.4 | 9/GR2 |
| USAWH101 | -148.20 | 21 | - 111.02 | 40.68 | 4.36 | 2.15 | 162 | 1 | 87.4 |  |
| USAWH102 | - 157.20 | 21 | -113.07 | 40.74 | 3.72 | 1.78 | 149 | 1 | 87.4 |  |
| VENAND03 | -115.20 | 21 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | 9/GR5 |

17630,18 MHz (22)

| ALS00002 | -165.80 | 22 | -109.83 | 36.82 | 6.03 | 1.12 | 137 | 2 | 87.4 | 9/GR1 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALS00003 | - 174.80 | 22 | - 116.10 | 3747 | 5.60 | 0.76 | 132 | 2 | 87.4 | 9/GR2 |
| ARGNORT4 | -93.80 | 22 | -63.96 | -30.01 | 3.86 | 1.99 | 48 | 2 | 87.4 |  |
| ARGNORT5 | -54.80 | 22 | -62.85 | -29.80 | 3.24 | 2.89 | 47 | 2 | 87.4 |  |
| ATNBEAM1 | -52.80 | 22 | -66.44 | 14.87 | 1.83 | 0.68 | 39 | 2 | 87.4 |  |
| B CE311 | -63.80 | 22 | -40.60 | -6.07 | 3.04 | 2.06 | 174 | 2 | 87.4 | 8 9/GR7 |
| B CE312 | -44.80 | 22 | -40.26 | -6.06 | 3.44 | 2.09 | 174 | 2 | 87.4 | 8 9/GR9 |
| B CE411 | -63.80 | 22 | -50.97 | -15.26 | 3.86 | 1.38 | 49 | 2 | 87.4 | 8 9/GR7 |
| B CE412 | -44.80 | 22 | -50.71 | - 15.30 | 3.57 | 1.56 | 52 | 2 | 874 | 8 9/GR9 |
| B CE511 | -63.80 | 22 | -53.11 | -2.98 | 2.42 | 2.15 | 107 | 2 | 87.4 | 8 9/GR7 |
| B NO611 | -73.80 | 22 | -59.60 | - 11.62 | 2.86 | 1.69 | 165 | 1 | 87.4 | 8 9/GR8 |
| B NO711 | -73.80 | 22 | -60.70 | -1.78 | 3.54 | 1.78 | 126 | 1 | 87.4 | 8 9/GR8 |
| B NO811 | -73.80 | 22 | -68.75 | -4.71 | 2.37 | 1.65 | 73 | 1 | 87.4 | 8 9/GR8 |
| B SE911 | - 101.80 | 22 | -45.99 | - 19.09 | 2.22 | 0.79 | 62 | 2 | 87.4 | 8 |
| B SU111 | -80.80 | 22 | -51.10 | -25.64 | 2.76 | 1.06 | 50 | 2 | 87.4 | 8 9/GR6 |
| B SU112 | -44.80 | 22 | -50.76 | -25.62 | 2.47 | 1.48 | 56 | 2 | 87.4 | 8 9/GR9 |
| B SU211 | -80.80 | 22 | -44.51 | -16.94 | 3.22 | 1.37 | 60 | 2 | 87.4 | 8 9/GR6 |
| B SU212 | -44.80 | 22 | -43.99 | -16.97 | 3.27 | 1.92 | 59 | 2 | 87.4 | 8 9/GR9 |
| B LZ00001 | -115.80 | 22 | -88.68 | 17.27 | 0.62 | 0.62 | 90 | 2 | 87.4 |  |
| CAN01101 | -137.80 | 22 | - 125.60 | 57.24 | 3.45 | 1.27 | 157 | 2 | 87.4 | 9/GR10 |
| CAN01201 | -137.80 | 22 | - 111.92 | 55.89 | 3.33 | 0.98 | 151 | 2 | 87.4 | 9/GR10 |
| CAN01202 | -72.30 | 22 | - 107.64 | 55.62 | 2.75 | 1.11 | 32 | 2 | 87.4 |  |
| CAN01203 | - 128.80 | 22 | -111.43 | 5556 | 3.07 | 1.15 | 151 | 2 | 87.4 | 9/GR12 |
| CAN01303 | -128.80 | 22 | -102.39 | 57.12 | 3.54 | 0.92 | 154 | 2 | 87.4 | 9/GR12 |

17630,18 MHz (22)

| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 |  | 9 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CAN01304 | -90.80 | 22 | -99.00 | 57.33 | 1.96 | 1.73 | 1 | 2 | 87.4 | 9/GR13 |  |
| CAN01403 | - 128.80 | 22 | -89.70 | 52.02 | 4.67 | 0.79 | 148 | 2 | 87.4 | 9/GR12 |  |
| CAN01404 | -90.80 | 22 | -84.78 | 52.41 | 3.09 | 2.06 | 153 | 2 | 87.4 | 9/GR13 |  |
| CAN01405 | -81.80 | 22 | -84.02 | 52.34 | 2.82 | 2.30 | 172 | 2 | 87.4 | 9/GR14 |  |
| CAN01504 | -90.80 | 22 | -72.68 | 53.78 | 3.57 | 1.67 | 157 | 2 | 87.4 | 9/GR13 |  |
| CAN01505 | -81.80 | 22 | -71.76 | 53.76 | 3.30 | 1.89 | 162 | 2 | 874 | 9/GR14 |  |
| CAN01605 | -81.80 | 22 | -61.54 | 49.50 | 2.66 | 1.39 | 144 | 2 | 87.4 | 9/GR14 |  |
| CAN01606 | -70.30 | 22 | -61.32 | 49.51 | 2.41 | 1.65 | 148 | 2 | 87.4 |  |  |
| CHLCONT4 | -105.80 | 22 | -69.59 | -23.20 | 2.21 | 0.69 | 68 | 2 | 87.4 | 9/GR16 |  |
| CHLCONT6 | -105.80 | 22 | -73.52 | -55.52 | 3.65 | 131 | 39 | 2 | 87.4 | 9/GR16 |  |
| CRBBAH01 | -92.30 | 22 | -76.09 | 24.13 | 1.83 | 068 | 141 | 1 | 87.4 | 9/GR18 |  |
| CRBBER01 | -92.30 | 22 | -64.76 | 32.13 | 060 | 0.60 | 90 | 1 | 87.4 | 9/GR18 |  |
| CRBBLZ01 | -92.30 | 22 | -88.61 | 17.26 | 0.64 | 0.64 | 90 | 1 | 87.4 | 9/GR18 |  |
| CRBEC001 | -92.30 | 22 | -60.07 | 8.26 | 4.20 | 0.86 | 115 | 1 | 87.4 | 9/GR18 |  |
| CRBJMC01 | -92.30 | 22 | - 79.45 | 17.97 | 0.99 | 0.68 | 151 | 1 | 87.4 | 9/GR18 |  |
| CTR00201 | -130.80 | 22 | -84.33 | 9.67 | 0.82 | 0.68 | 119 | 2 | 87.4 |  |  |
| DMAIFRB1 | -79.30 | 22 | -61.30 | 15.35 | 0.60 | 0.60 | 90 | 2 | 87.4 |  |  |
| EQAC0001 | -94.80 | 22 | -78.31 | -1.52 | 1.48 | 1.15 | 65 | 1 | 87.4 | 9/GR19 |  |
| EQAG0001 | -94.80 | 22 | -90.36 | -0.57 | 0.94 | 0.89 | 99 | 1 | 87.4 | 9/GR19 |  |
| HWA00002 | - 165.80 | 22 | - 165.79 | 23.32 | 4.20 | 0.68 | 160 | 2 | 87.4 | 9/GR1 |  |
| HWA00003 | - 174.80 | 22 | - 166.10 | 23.42 | 4.25 | 0.68 | 159 | 2 | 87.4 | 9/GR2 |  |
| MEX01NTE | -7780 | 22 | - 105.80 | 25.99 | 2.88 | 2.07 | 155 | 2 | 87.4 | 1 |  |
| MEX02NTE | -135.80 | 22 | -107.36 | 26.32 | 3.80 | 1.57 | 149 | 2 | 87.4 | 1 |  |
| MEX02SUR | - 126.80 | 22 | -96.39 | 19.88 | 3.19 | 1.87 | 158 | 2 | 874 | 1 |  |

17630, 18 MHz (22)

| NCG00003 | -107.30 | 22 | -84.99 | 12.90 | 1.05 | 101 | 176 | 1 | 87.4 |  |
| :--- | ---: | ---: | ---: | ---: | :--- | :--- | :--- | :--- | :--- | :--- |
| PRU00004 | -8580 | 22 | -74.19 | -839 | 3.74 | 245 | 112 | 2 | 87.4 |  |
| PTRVIR01 | -100.80 | 22 | -9385 | 36.31 | 8.26 | 3.55 | 171 | 2 | 87.4 | $169 /$ GR20 |
| PTRVIR02 | -109.80 | 22 | -95.47 | 3638 | 8.10 | 3.45 | 168 | 2 | 87.4 | $1699 /$ GR21 |
| USAEH001 | -61.30 | 22 | -87.53 | 36.18 | 6.41 | 3.49 | 12 | 2 | 87.4 | 156 |
| USAEH002 | -100.80 | 22 | -9385 | 3631 | 8.26 | 355 | 171 | 2 | 87.4 | $169 /$ GR20 |
| USAEH003 | -109.80 | 22 | -9547 | 3638 | 8.10 | 3.45 | 168 | 2 | 87.4 | $169 /$ GR21 |
| USAEH004 | -118.80 | 22 | -9642 | 36.21 | 8.20 | 3.12 | 165 | 2 | 87.4 | 156 |
| USAPSA02 | -165.80 | 22 | -10983 | 3682 | 6.03 | 1.12 | 137 | 2 | 87.4 | $9 /$ GR1 |
| USAPSA03 | -174.80 | 22 | -116.10 | 37.47 | 5.60 | 0.76 | 132 | 2 | 87.4 | $9 /$ GR2 |
| USAWH101 | -147.80 | 22 | -111.01 | 40.67 | 4.38 | 215 | 162 | 2 | 87.4 |  |
| USAWH102 | -156.80 | 22 | -113.01 | 4071 | 3.74 | 179 | 149 | 2 | 87.4 |  |
| VEN11VEN | -10380 | 22 | -6679 | 690 | 2.50 | 1.77 | 122 | 2 | 87.4 |  |

£6-v0Ed $\forall$
$17644,76 \mathrm{MHz}$ (23)


17644, 76 MHz (23)

| CAN01202 | -72.70 | 23 | - 107.70 | 5563 | 2.74 | 1.12 | 32 | 1 | 87.4 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CAN01203 | -129.20 | 23 | - 111.48 | 55.61 | 3.08 | 1.15 | 151 | 1 | 874 | 9/GR12 |
| CAN01303 | - 129.20 | 23 | - 102.42 | 5712 | 3.54 | 091 | 154 | 1 | 87.4 | 9/GR12 |
| CAN01304 | -91.20 | 23 | -99.12 | 57.36 | 1.98 | 1.72 | 2 | 1 | 87.4 | 9/GR13 |
| CAN01403 | - 129.20 | 23 | -89.75 | 52.02 | 4.68 | 078 | 148 | 1 | 87.4 | 9/GR12 |
| CAN01404 | -91.20 | 23 | -84.82 | 52.42 | 3.10 | 2.05 | 152 | 1 | 874 | 9/GR13 |
| CAN01405 | -82.20 | 23 | -84.00 | 52.39 | 2.84 | 2.29 | 172 | 1 | 87.4 | 9/GR14 |
| CAN01504 | -91.20 | 23 | -72.66 | 53.77 | 3.57 | 1.67 | 156 | 1 | 87.4 | 9/GR13 |
| CAN01505 | -82.20 | 23 | -71.77 | 5379 | 3.30 | 1.89 | 162 | 1 | 87.4 | 9/GR14 |
| CAN01605 | -82.20 | 23 | -61.50 | 49.55 | 265 | 1.40 | 143 | 1 | 87.4 | 9/GR14 |
| CAN01606 | -70.70 | 23 | -61.30 | 49.55 | 2.40 | 1.65 | 148 | 1 | 87.4 |  |
| CHLCONT5 | -106.20 | 23 | -72.23 | -35.57 | 2.60 | 0.68 | 55 | 1 | 87.4 | 9/GR17 |
| CHLPAC02 | -106.20 | 23 | -80.06 | -30.06 | 1.36 | 0.68 | 69 | 1 | 87.4 | 9/GR17 |
| CLMAND01 | -115.20 | 23 | -7137 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | 9/GR5 |
| CLM00001 | - 103.20 | 23 | -74.50 | 5.87 | 3.98 | 196 | 118 | 1 | 87.4 |  |
| CUB00001 | -89.20 | 23 | -79.81 | 21.62 | 2.24 | 0.68 | 168 | 1 | 874 |  |
| EQACAND1 | -115.20 | 23 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | 9/GR5 |
| EQAGAND1 | - 115.20 | 23 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 874 | 9/GR5 |
| GRD00059 | -57.20 | 23 | -61.58 | 12.29 | 0.60 | 0.60 | 90 | 1 | 87.4 |  |
| GRLDNK01 | - 53.20 | 23 | -44.89 | 66.56 | 2.70 | 0.82 | 173 | 1 | 87.4 | 2 |
| GUY00201 | -84.70 | 23 | -59.19 | 4.78 | 1.44 | 0.85 | 95 | 1 | 87.4 |  |
| HWA00002 | -166.20 | 23 | - 165.79 | 23.42 | 4.20 | 0.68 | 160 | 1 | 87.4 | 9/GR1 |
| HWA00003 | -175.20 | 23 | - 166.10 | 23.42 | 4.25 | 0.68 | 159 | 1 | 87.4 | 9/GR2 |
| MEX01NTE | -78.20 | 23 | -105.81 | 26.01 | 2.89 | 2.08 | 155 | 1 | 87.4 | 1 |

17644,76 MHz (23)


17659,34 MHz

| ALS00002 | - 165.80 | 24 | -109.83 | 36.82 | 6.03 | 1.12 | 137 | 2 | 87.4 | 9/GR1 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALS00003 | - 174.80 | 24 | - 116.10 | 3747 | 5.60 | 0.76 | 132 | 2 | 87.4 | 9/GR2 |
| ARGNORT4 | -93.80 | 24 | -63.96 | -30.01 | 3.86 | 1.99 | 48 | 2 | 87.4 |  |
| ARGNORT5 | -54.80 | 24 | -62.85 | -29.80 | 3.24 | 2.89 | 47 | 2 | 87.4 |  |
| B CE311 | -63.80 | 24 | -40.60 | -6.07 | 3.04 | 2.06 | 174 | 2 | 87.4 | 8 9/GR7 |
| B CE312 | -44.80 | 24 | -40.26 | -6.06 | 3.44 | 2.09 | 174 | 2 | 87.4 | 8 9/GR9 |
| B CE411 | -63.80 | 24 | -50.97 | -15.26 | 3.86 | 1.38 | 49 | 2 | 87.4 | 8 9/GR7 |
| B CE412 | -44.80 | 24 | -50.71 | -1530 | 3.57 | 1.56 | 52 | 2 | 87.4 | 8 9/GR9 |
| B CE511 | -63.80 | 24 | -53.11 | -2.98 | 2.42 | 2.15 | 107 | 2 | 87.4 | 8 9/GR7 |
| B NO611 | -73.80 | 24 | -59.60 | -11.62 | 2.86 | 1.69 | 165 | 1 | 87.4 | 8 9/GR8 |
| B NO711 | -73.80 | 24 | -60.70 | -1.78 | 3.54 | 1.78 | 126 | 1 | 87.4 | 8 9/GR8 |
| B NO811 | -73.80 | 24 | -68.75 | -4.71 | 2.37 | 1.65 | 73 | 1 | 87.4 | 8 9/GR8 |
| B SE911 | -101.80 | 24 | -45.99 | - 19.09 | 2.22 | 0.79 | 62 | 2 | 87.4 | 8 |
| B SU111 | -80.80 | 24 | -51.10 | -25.64 | 2.76 | 1.06 | 50 | 2 | 87.4 | 8 9/GR6 |
| B SU112 | -44.80 | 24 | -50.76 | -25.62 | 2.47 | 1.48 | 56 | 2 | 87.4 | 8 9/GR9 |
| B SU211 | -80.80 | 24 | -44.51 | -16.94 | 3.22 | 1.37 | 60 | 2 | 87.4 | 8 9/GR6 |
| B SU212 | -44.80 | 24 | -43.99 | -16.97 | 3.27 | 1.92 | 59 | 2 | 87.4 | 8 9/GR9 |
| CAN01101 | - 137.80 | 24 | - 125.60 | 57.24 | 3.45 | 1.27 | 157 | 2 | 87.4 | 9/GR10 |
| CAN01201 | $-137.80$ | 24 | -111.92 | 55.89 | 3.33 | 0.98 | 151 | 2 | 87.4 | 9/GR10 |
| CAN01202 | -72.30 | 24 | -107.64 | 55.62 | 2.75 | 1.11 | 32 | 2 | 87.4 |  |
| CAN01203 | - 128.80 | 24 | -111.43 | 55.56 | 3.07 | 1.15 | 151 | 2 | 87.4 | 9/GR12 |
| CAN01303 | - 128.80 | 24 | - 102.39 | 57.12 | 3.54 | 0.92 | 154 | 2 | 87.4 | 9/GR12 |
| CAN01304 | -90.80 | 24 | -99.00 | 57.33 | 1.96 | 1.73 | 1 | 2 | 87.4 | 9/GR13 |
| CAN01403 | -128.80 | 24 | -89.70 | 52.02 | 4.67 | 0.79 | 148 | 2 | 87.4 | 9/GR12 |


| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CAN01404 | -90.80 | 24 | -84.78 | 52.41 | 3.09 | 2.06 | 153 | 2 | 87.4 | 9/GR13 |
| CAN01405 | -81.80 | 24 | -84.02 | 52.34 | 2.82 | 2.30 | 172 | 2 | 87.4 | 9/GR14 |
| CAN01504 | -90.80 | 24 | -72.68 | 53.78 | 3.57 | 1.67 | 157 | 2 | 87.4 | 9/GR13 |
| CAN01505 | -81.80 | 24 | -71.76 | 53.76 | 3.30 | 1.89 | 162 | 2 | 87.4 | 9/GR14 |
| CAN01605 | -81.80 | 24 | -61.54 | 49.50 | 2.66 | 1.39 | 144 | 2 | 87.4 | 9/GR14 |
| CAN01606 | -70.30 | 24 | -61.32 | 49.51 | 241 | 1.65 | 148 | 2 | 87.4 |  |
| CHLCONT4 | -105.80 | 24 | -69.59 | -23.20 | 2.21 | 0.69 | 68 | 2 | 87.4 | 9/GR16 |
| CHLCONT6 | - 105.80 | 24 | -73.52 | -55.52 | 365 | 1.31 | 39 | 2 | 87.4 | 9/GR16 |
| CRBBAH01 | -92.30 | 24 | -76.09 | 24.13 | 1.83 | 0.68 | 141 | 1 | 87.4 | 9/GR18 |
| CRBBER01 | -92.30 | 24 | -64.76 | 32.13 | 060 | 0.60 | 90 | 1 | 87.4 | 9/GR18 |
| CRBBLZ01 | -92.30 | 24 | -88.61 | 17.26 | 0.64 | 0.64 | 90 | 1 | 87.4 | 9/GR18 |
| CRBEC001 | -92.30 | 24 | -60.07 | 8.26 | 4.20 | 0.86 | 115 | 1 | 87.4 | 9/GR18 |
| CRBJMC01 | -92.30 | 24 | - 79.45 | 17.97 | 0.99 | 0.68 | 151 | 1 | 87.4 | 9/GR18 |
| EQAC0001 | -94.80 | 24 | -78.31 | -1.52 | 1.48 | 1.15 | 65 | 1 | 87.4 | 9/GR19 |
| EQAG0001 | -94.80 | 24 | -90.36 | -0.57 | 0.94 | 0.89 | 99 | 1 | 87.4 | 9/GR19 |
| GRD00003 | - 79.30 | 24 | -61.62 | 12.34 | 060 | 0.60 | 90 | 2 | 87.4 |  |
| GTMIFRB2 | -107.30 | 24 | -90.50 | 15.64 | 1.03 | 0.74 | 84 | 1 | 87.4 |  |
| GUFMGG02 | - 52.80 | 24 | -56.42 | 8.47 | 4.16 | 0.81 | 123 | 2 | 87.4 | 27 |
| HWA00002 | -165.80 | 24 | - 165.79 | 23.32 | 4.20 | 0.68 | 160 | 2 | 87.4 | 9/GR1 |
| HWA00003 | - 17480 | 24 | - 166.10 | 23.42 | 4.25 | 0.68 | 159 | 2 | 87.4 | 9/GR2 |
| MEX01NTE | -77.80 | 24 | -105.80 | 25.99 | 2.88 | 2.07 | 155 | 2 | 87.4 | 1 |
| MEX02NTE | -135.80 | 24 | - 107.36 | 26.32 | 3.80 | 1.57 | 149 | 2 | 87.4 | 1 |
| MEX02SUR | -126.80 | 24 | -96.39 | 19.88 | 3.19 | 1.87 | 158 | 2 | 87.4 | 1 |
| PNRIFRB2 | - 121.00 | 24 | -80.15 | 8.46 | 1.01 | 0.73 | 170 | 1 | 87.4 |  |

17659,34 MHz (24)

| PRU00004 | -85.80 | 24 | -74.19 | -8.39 | 3.74 | 2.45 | 112 | 2 | 87.4 |  |
| :--- | ---: | ---: | ---: | ---: | ---: | :--- | :--- | :--- | :--- | :--- |
| PTRVIR01 | -100.80 | 24 | -93.85 | 36.31 | 8.26 | 3.55 | 171 | 2 | 87.4 | $1699 /$ GR20 |
| PTRVIR02 | -10980 | 24 | -95.47 | 36.38 | 8.10 | 3.45 | 168 | 2 | 87.4 | 169 9/GR21 |
| USAEH001 | -61.30 | 24 | -87.53 | 36.18 | 6.41 | 3.49 | 12 | 2 | 87.4 | 156 |
| USAEH002 | -100.80 | 24 | -93.85 | 36.31 | 8.26 | 3.55 | 171 | 2 | 87.4 | $169 /$ 9R20 |
| USAEH003 | -109.80 | 24 | -95.47 | 36.38 | 8.10 | 3.45 | 168 | 2 | 87.4 | $169 /$ GR21 |
| USAEH004 | -118.80 | 24 | -9642 | 36.21 | 8.20 | 3.12 | 165 | 2 | 87.4 | 156 |
| USAPSA02 | -165.80 | 24 | -109.83 | 36.82 | 6.03 | 1.12 | 137 | 2 | 87.4 | $9 /$ GR1 |
| USAPSA03 | -174.80 | 24 | -11610 | 37.47 | 5.60 | 0.76 | 132 | 2 | 87.4 | $9 /$ GR2 |
| USAWH101 | -147.80 | 24 | -111.01 | 40.67 | 4.38 | 2.15 | 162 | 2 | 87.4 |  |
| USAWH102 | -156.80 | 24 | -113.01 | 40.71 | 3.74 | 1.79 | 149 | 2 | 87.4 |  |
| VENO2VEN | -103.80 | 24 | -66.79 | 6.90 | 250 | 1.77 | 122 | 2 | 87.4 | 9/GR22 |
| VEN1IVEN | -103.80 | 24 | -66.79 | 6.90 | 2.50 | 1.77 | 122 | 2 | 87.4 | 9/GR22 |


| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALS00002 | -166.20 | 25 | -109.94 | 36.86 | 6.04 | 1.11 | 137 | 1 | 87.4 | 9/GR1 |
| ALS00003 | -175.20 | 25 | -116.23 | 37.50 | 5.60 | 0.75 | 132 | 1 | 87.4 | 9/GR2 |
| ARGINSU4 | -94.20 | 25 | -52.98 | -59.81 | 3.40 | 0.68 | 19 | 1 | 87.4 | 9/GR3 |
| ARGINSU5 | -55.20 | 25 | -44.17 | -59.91 | 3.77 | 0.70 | 13 | 1 | 87.4 | 9/GR4 |
| ARGSUR04 | -94.20 | 25 | -65.04 | -43.33 | 3.32 | 1.50 | 40 | 1 | 87.4 | 9/GR3 |
| ARGSUR05 | -55.20 | 25 | -63.68 | -43.01 | 2.54 | 2.38 | 152 | 1 | 87.4 | 9/GR4 |
| B CE311 | -64.20 | 25 | -40.60 | -6.07 | 3.04 | 2.06 | 174 | 1 | 87.4 | 8 9/GR7 |
| B CE312 | -45.20 | 25 | -40.27 | -6.06 | 3.44 | 2.09 | 174 | 1 | 87.4 | 8 9/GR9 |
| B CE411 | -64.20 | 25 | -50.97 | -15.27 | 3.86 | 1.38 | 49 | 1 | 87.4 | 8 9/GR7 |
| B CE412 | -45.20 | 25 | -50.71 | -15.30 | 3.57 | 1.56 | 52 | 1 | 87.4 | 8 9/GR9 |
| B CE511 | -64.20 | 25 | -53.10 | -2.90 | 2.44 | 2.13 | 104 | 1 | 87.4 | 8 9/GR7 |
| B N0611 | - 74.20 | 25 | -59.60 | -11.62 | 2.85 | 1.69 | 165 | 2 | 87.4 | 8 9/GR8 |
| B NO711 | -74.20 | 25 | -60.70 | -1.78 | 3.54 | 1.78 | 126 | 2 | 87.4 | 8 9/GR8 |
| B N0811 | - 74.20 | 25 | -68.76 | -4.71 | 2.37 | 1.65 | 73 | 2 | 87.4 | 8 9/GR8 |
| B SU111 | -81.20 | 25 | -51.12 | -25.63 | 2.76 | 1.05 | 50 | 1 | 87.4 | 8 9/GR6 |
| B SU112 | -45.20 | 25 | -50.75 | -25.62 | 2.47 | 1.48 | 56 | 1 | 87.4 | 8 9/GR9 |
| B SU211 | -81.20 | 25 | -44.51 | -16.95 | 3.22 | 1.36 | 60 | 1 | 87.4 | 8 9/GR6 |
| B SU212 | -45.20 | 25 | -44.00 | -16.87 | 3.20 | 1.96 | 58 | 1 | 87.4 | 8 9/GR9 |
| BERBERMU | -96.20 | 25 | -64.77 | 32.32 | 0.60 | 0.60 | 90 | 2 | 87.4 |  |
| B OLAND01 | -115.20 | 25 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 874 | 9/GR5 |
| CAN01101 | -138.20 | 25 | -125 63 | 57.24 | 3.45 | 1.27 | 157 | 1 | 87.4 | 9/GR10 |
| CAN01201 | -138.20 | 25 | - 112.04 | 55.95 | 3.35 | 0.97 | 151 | 1 | 87.4 | 9/GR10 |
| CAN01202 | -72.70 | 25 | -107.70 | 55.63 | 2.74 | 1.12 | 32 |  | 87.4 |  |
| CAN01203 | - 129.20 | 25 | -111.48 | 55.61 | 3.08 | 1.15 | 151 | 1 | 87.4 | 9/GR12 |

17673,92 MHz (25)

| CAN01303 | -129.20 | 25 | -102.42 | 57.12 | 3.54 | 091 | 154 | 1 | 87.4 | $9 /$ GR12 |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | :--- | :--- | :--- |
| CAN01304 | -91.20 | 25 | -99.12 | 57.36 | 1.98 | 1.72 | 2 | 1 | 87.4 | $9 /$ GR13 |
| CAN01403 | -129.20 | 25 | -89.75 | 52.02 | 4.68 | 0.78 | 148 | 1 | 87.4 | $9 /$ GR12 |
| CAN01404 | -91.20 | 25 | -84.82 | 52.42 | 3.10 | 2.05 | 152 | 1 | 87.4 | $9 /$ GR13 |
| CAN01405 | -82.20 | 25 | -84.00 | 52.39 | 2.84 | 2.29 | 172 | 1 | 87.4 | $9 /$ GR14 |
| CAN01504 | -91.20 | 25 | -72.66 | 53.77 | 3.57 | 1.67 | 156 | 1 | 87.4 | $9 /$ GR13 |
| CAN01505 | -8220 | 25 | -71.77 | 53.79 | 3.30 | 1.89 | 162 | 1 | 87.4 | $9 /$ GR14 |
| CAN01605 | -82.20 | 25 | -61.50 | 49.55 | 2.65 | 1.40 | 143 | 1 | 87.4 | $9 /$ GR14 |
| CAN01606 | -70.70 | 25 | -61.30 | 49.55 | 2.40 | 1.65 | 148 | 1 | 87.4 |  |
| CHLCONT5 | -106.20 | 25 | -72.23 | -35.57 | 2.60 | 0.68 | 55 | 1 | 87.4 | $9 /$ GR17 |
| CHLPAC02 | -106.20 | 25 | -80.06 | -30.06 | 1.36 | 0.68 | 69 | 1 | 87.4 | $9 /$ GR17 |
| CLMAND01 | -115.20 | 25 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | $9 /$ GR5 |
| CLM00001 | -103.20 | 25 | -74.50 | 5.87 | 3.98 | 1.96 | 118 | 1 | 87.4 |  |
| EQACAND1 | -115.20 | 25 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | $9 /$ GR5 |
| EQAGAND1 | -115.20 | 25 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | $9 /$ GR5 |
| HWA00002 | -166.20 | 25 | -165.79 | 23.42 | 4.20 | 0.68 | 160 | 1 | 87.4 | $9 /$ GR1 |
| HWA00003 | -175.20 | 25 | -166.10 | 23.42 | 4.25 | 0.68 | 159 | 1 | 87.4 | $9 /$ GR2 |
| JMCO0002 | -92.70 | 25 | -77.30 | 18.12 | 0.62 | 0.62 | 90 | 2 | 87.4 |  |
| MEX01NTE | -78.20 | 25 | -105.81 | 26.01 | 2.89 | 2.08 | 155 | 1 | 87.4 | 1 |
| MEX01SUR | -69.20 | 25 | -94.84 | 19.82 | 3.05 | 2.09 | 4 | 1 | 87.4 | 1 |
| MEX02NTE | -136.20 | 25 | -107.21 | 26.31 | 3.84 | 1.55 | 148 | 1 | 87.4 | 1 |
| MEX02SUR | -127.20 | 25 | -96.39 | 19.88 | 3.18 | 1.87 | 157 | 1 | 87.4 | 1 |
| PAQPAC01 | -106.20 | 25 | -109.18 | -27.53 | 0.60 | 0.60 | 90 | 1 | 87.4 | $9 /$ GR17 |
| PRG00002 | -99.20 | 25 | -58.66 | -23.32 | 1.45 | 1.04 | 76 | 1 | 87.4 |  |

17673,92 MHz (25)

| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| PRUAND02 | -115.20 | 25 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | 9/GR5 |
| PTRVIR01 | -101.20 | 25 | -93.94 | 36.32 | 8.24 | 3.56 | 171 | 1 | 87.4 | 16 9/GR20 |
| PTRVIR02 | - 110.20 | 25 | -95.23 | 36.29 | 8.27 | 3.37 | 168 | 1 | 87.4 | 16 9/GR21 |
| SCN00001 | -79.70 | 25 | -62.46 | 17.44 | 060 | 0.60 | 90 | 1 | 87.4 |  |
| SPMFRAN3 | -53.20 | 25 | -67.24 | 47.51 | 3.16 | 0.79 | 7 | 1 | 87.4 | 27 |
| SURINAM2 | -84.70 | 25 | -55.69 | 4.35 | 1.00 | 0.69 | 86 | 1 | 87.4 |  |
| URG00001 | - 71.70 | 25 | -56.22 | -32.52 | 1.02 | 0.89 | 11 | 1 | 87.4 |  |
| USAEH001 | -61.70 | 25 | -87.57 | 36.17 | 6.42 | 3.49 | 12 | 1 | 87.4 | 156 |
| USAEH002 | -101.20 | 25 | -93.94 | 36.32 | 8.24 | 3.56 | 171 | 1 | 87.4 | 16 9/GR20 |
| USAEH003 | -110.20 | 25 | -95.23 | 36.29 | 8.27 | 3.37 | 168 | 1 | 87.4 | 16 9/GR21 |
| USAEH004 | -119.20 | 25 | -96.45 | 36.21 | 8.20 | 3.12 | 165 | 1 | 87.4 | 156 |
| USAPSA02 | -166.20 | 25 | -109.94 | 36.86 | 6.04 | 1.11 | 137 | 1 | 87.4 | 9/GR1 |
| USAPSA03 | -175.20 | 25 | -116.23 | 37.50 | 5.60 | 0.75 | 132 | 1 | 87.4 | 9/GR2 |
| USAWH101 | - 148.20 | 25 | -111.02 | 40.68 | 4.36 | 2.15 | 162 | 1 | 87.4 |  |
| USAWH102 | - 157.20 | 25 | - 113.07 | 40.74 | 3.72 | 1.78 | 149 | 1 | 87.4 |  |
| VENAND03 | -115.20 | 25 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | 9/GR5 |

17688,50 MHz (26)

| ALS00002 | -165.80 | 26 | -109.83 | 3682 | 6.03 | 1.12 | 137 | 2 | 87.4 | 9/GR1 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALS00003 | - 174.80 | 26 | -116.10 | 37.47 | 5.60 | 0.76 | 132 | 2 | 87.4 | 9/GR2 |
| ARGNORT4 | -93.80 | 26 | -63.96 | -30 01 | 3.86 | 1.99 | 48 | 2 | 87.4 |  |
| ARGNORT5 | -54.80 | 26 | -62.85 | -2980 | 3.24 | 2.89 | 47 | 2 | 87.4 |  |
| ATNBEAM1 | -52.80 | 26 | -66.44 | 1487 | 1.83 | 0.68 | 39 | 2 | 87.4 |  |
| B CE311 | -63.80 | 26 | -40.60 | -607 | 3.04 | 2.06 | 174 | 2 | 87.4 | 8 9/GR7 |
| B CE312 | -44.80 | 26 | -40.26 | -6.06 | 3.44 | 2.09 | 174 | 2 | 87.4 | 8 9/GR9 |
| B CE411 | -63.80 | 26 | -50.97 | -15.26 | 3.86 | 1.38 | 49 | 2 | 87.4 | 8 9/GR7 |
| B CE412 | -44.80 | 26 | -50.71 | -15.30 | 3.57 | 1.56 | 52 | 2 | 87.4 | 8 9/GR9 |
| B CE511 | -63.80 | 26 | -53.11 | -2.98 | 2.42 | 2.15 | 107 | 2 | 87.4 | 8 9/GR7 |
| B N0611 | -73.80 | 26 | -59.60 | -11.62 | 2.86 | 1.69 | 165 | 1 | 87.4 | 8 9/GR8 |
| B NO711 | -73.80 | 26 | -60.70 | -1.78 | 3.54 | 1.78 | 126 | 1 | 87.4 | 8 9/GR8 |
| B NO811 | -73.80 | 26 | -68.75 | -4.71 | 237 | 1.65 | 73 | 1 | 87.4 | 8 9/GR8 |
| B SE911 | - 101.80 | 26 | -45.99 | -19.09 | 2.22 | 0.79 | 62 | 2 | 87.4 | 8 |
| B SU111 | -80.80 | 26 | -51.10 | -25.64 | 2.76 | 1.06 | 50 | 2 | 87.4 | 8 9/GR6 |
| B SU112 | -44.80 | 26 | -50.76 | -25.62 | 2.47 | 1.48 | 56 | 2 | 87.4 | 8 9/GR9 |
| B SU211 | -80.80 | 26 | -44.51 | -16.94 | 3.22 | 1.37 | 60 | 2 | 87.4 | 8 9/GR6 |
| B SU212 | -44.80 | 26 | -43.99 | -16.97 | 3.27 | 1.92 | 59 | 2 | 874 | 8 9/GR9 |
| B LZ00001 | - 115.80 | 26 | -88.68 | 17.27 | 0.62 | 0.62 | 90 | 2 | 87.4 |  |
| CAN01101 | - 137.80 | 26 | -125.60 | 57.24 | 3.45 | 1.27 | 157 | 2 | 874 | 9/GR10 |
| CAN01201 | -137.80 | 26 | -11192 | 55.89 | 3.33 | 0.98 | 151 | 2 | 874 | 9/GR10 |
| CAN01202 | -72.30 | 26 | -107.64 | 55.62 | 2.75 | 1.11 | 32 | 2 | 87.4 |  |
| CAN01203 | -128.80 | 26 | -11143 | 55.56 | 3.07 | 1.15 | 151 | 2 | 87.4 | 9/GR12 |
| CAN01303 | -128.80 | 26 | -102.39 | 57.12 | 3.54 | 0.92 | 154 | 2 | 87.4 | 9/GR12 |


| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CAN01304 | -90.80 | 26 | -99.00 | 57.33 | 1.96 | 1.73 | 1 | 2 | 87.4 | 9/GR13 |
| CAN01403 | - 128.80 | 26 | -89.70 | 52.02 | 4.67 | 0.79 | 148 | 2 | 87.4 | 9/GR12 |
| CAN01404 | -90.80 | 26 | -84.78 | 52.41 | 3.09 | 2.06 | 153 | 2 | 87.4 | 9/GR13 |
| CAN01405 | -81.80 | 26 | -84.02 | 52.34 | 2.82 | 2.30 | 172 | 2 | 87.4 | 9/GR14 |
| CAN01504 | -90.80 | 26 | -72.68 | 53.78 | 3.57 | 1.67 | 157 | 2 | 87.4 | 9/GR13 |
| CAN01505 | -81.80 | 26 | -71.76 | 53.76 | 3.30 | 1.89 | 162 | 2 | 87.4 | 9/GR14 |
| CAN01605 | -81.80 | 26 | -61.54 | 49.50 | 2.66 | 1.39 | 144 | 2 | 87.4 | 9/GR14 |
| CAN01606 | -70.30 | 26 | -61.32 | 49.51 | 2.41 | 1.65 | 148 | 2 | 87.4 |  |
| CHLCONT4 | -105.80 | 26 | -69.59 | -23.20 | 2.21 | 0.69 | 68 | 2 | 87.4 | 9/GR16 |
| CHLCONT6 | - 105.80 | 26 | - 73.52 | -55.52 | 3.65 | 1.31 | 39 | 2 | 87.4 | 9/GR16 |
| CRBBAH01 | -92.30 | 26 | -76.09 | 24.13 | 1.83 | 0.68 | 141 | 1 | 87.4 | 9/GR18 |
| CRBBER01 | -92.30 | 26 | -64.76 | 32.13 | 0.60 | 0.60 | 90 | 1 | 87.4 | 9/GR18 |
| CRBBLZ01 | -92.30 | 26 | -88.61 | 17.26 | 0.64 | 0.64 | 90 | 1 | 87.4 | 9/GR18 |
| CRBEC001 | -92.30 | 26 | -60.07 | 8.26 | 4.20 | 0.86 | 115 | 1 | 87.4 | 9/GR18 |
| CRBJMC01 | -92.30 | 26 | -79.45 | 17.97 | 0.99 | 0.68 | 151 | 1 | 87.4 | 9/GR18 |
| CTR00201 | $-130.80$ | 26 | -84.33 | 9.67 | 0.82 | 0.68 | 119 | 2 | 87.4 |  |
| DMAIFRB1 | -79.30 | 26 | -61.30 | 15.35 | 0.60 | 0.60 | 90 | 2 | 87.4 |  |
| EQAC0001 | -94.80 | 26 | -78.31 | -1.52 | 1.48 | 1.15 | 65 | 1 | 87.4 | 9/GR19 |
| EQAG0001 | -94.80 | 26 | -90.36 | -0.57 | 0.94 | 0.89 | 99 | , | 87.4 | 9/GR19 |
| HWA00002 | - 165.80 | 26 | - 165.79 | 23.32 | 4.20 | 0.68 | 160 | 2 | 87.4 | 9/GR1 |
| HWA00003 | -174.80 | 26 | - 166.10 | 23.42 | 4.25 | 0.68 | 159 | 2 | 87.4 | 9/GR2 |
| MEX01NTE | -77.80 | 26 | -105.80 | 25.99 | 2.88 | 2.07 | 155 | 2 | 87.4 | 1 |
| MEX02NTE | - 135.80 | 26 | -107.36 | 26.32 | 3.80 | 1.57 | 149 | 2 | 87.4 |  |
| MEX02SUR | -126.80 | 26 | -96.39 | 19.88 | 3.19 | 1.87 | 158 | 2 | 87.4 | 1 |

17688,50 MHz (26)

| NCG00003 | -107.30 | 26 | -84.99 | 12.90 | 1.05 | 1.01 | 176 | 1 | 87.4 |  |
| :--- | ---: | ---: | ---: | ---: | :--- | :--- | :--- | :--- | :--- | :--- |
| PRU00004 | -85.80 | 26 | -74.19 | -8.39 | 3.74 | 2.45 | 112 | 2 | 87.4 |  |
| PTRVIR01 | -100.80 | 26 | -9385 | 36.31 | 8.26 | 3.55 | 171 | 2 | 87.4 | $1699 /$ GR20 |
| PTRVIR02 | -109.80 | 26 | -95.47 | 36.38 | 8.10 | 3.45 | 168 | 2 | 87.4 | $1699 /$ GR21 |
| USAEH001 | -61.30 | 26 | -8753 | 36.18 | 6.41 | 3.49 | 12 | 2 | 87.4 | 156 |
| USAEH002 | -100.80 | 26 | -93.85 | 36.31 | 826 | 3.55 | 171 | 2 | 87.4 | $169 /$ GR20 |
| USAEH003 | -109.80 | 26 | -95.47 | 36.38 | 8.10 | 3.45 | 168 | 2 | 87.4 | $169 /$ GR21 |
| USAEH004 | -118.80 | 26 | -96.42 | 36.21 | 8.20 | 3.12 | 165 | 2 | 87.4 | 156 |
| USAPSA02 | -165.80 | 26 | -109.83 | 36.82 | 6.03 | 1.12 | 137 | 2 | 87.4 | $9 /$ GR1 |
| USAPSA03 | -174.80 | 26 | -11610 | 37.47 | 5.60 | 0.76 | 132 | 2 | 87.4 | $9 /$ GR2 |
| USAWH101 | -147.80 | 26 | -111.01 | 40.67 | 4.38 | 215 | 162 | 2 | 87.4 |  |
| USAWH102 | -156.80 | 26 | -113.01 | 40.71 | 3.74 | 1.79 | 149 | 2 | 87.4 |  |
| VEN11VEN | -103.80 | 26 | -66.79 | 6.90 | 2.50 | 1.77 | 122 | 2 | 87.4 |  |

17703,08 MHz (27)

| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALS00002 | -166.20 | 27 | - 109.94 | 36.86 | 6.04 | 1.11 | 137 | 1 | 87.4 | 9/GR1 |
| ALS00003 | - 175.20 | 27 | -116.23 | 37.50 | 5.60 | 0.75 | 132 | 1 | 87.4 | 9/GR2 |
| ARGINSU4 | -94.20 | 27 | -52.98 | -59.81 | 3.40 | 0.68 | 19 | 1 | 87.4 | 9/GR3 |
| ARGINSU5 | -55.20 | 27 | -44.17 | -59.91 | 3.77 | 0.70 | 13 | 1 | 87.4 | 9/GR4 |
| ARGSUR04 | -94.20 | 27 | -65.04 | -43.33 | 3.32 | 1.50 | 40 | 1 | 87.4 | 9/GR3 |
| ARGSUR05 | -55.20 | 27 | -63.68 | -43.01 | 2.54 | 238 | 152 | 1 | 87.4 | 9/GR4 |
| B CE311 | -64.20 | 27 | -40.60 | -6.07 | 3.04 | 2.06 | 174 | 1 | 87.4 | 8 9/GR7 |
| B CE312 | -45.20 | 27 | -40.27 | -6.06 | 3.44 | 2.09 | 174 | 1 | 87.4 | 8 9/GR9 |
| B CE411 | -64.20 | 27 | -50.97 | -15.27 | 3.86 | 1.38 | 49 | 1 | 87.4 | 8 9/GR7 |
| B CE412 | -45.20 | 27 | -50.71 | -15.30 | 3.57 | 1.56 | 52 | 1 | 87.4 | 8 9/GR9 |
| B CE511 | -64 20 | 27 | -53.10 | -2.90 | 2.44 | 2.13 | 104 | 1 | 87.4 | 8 9/GR7 |
| B NO611 | -74.20 | 27 | -59.60 | -11.62 | 2.85 | 1.69 | 165 | 2 | 87.4 | 8 9/GR8 |
| B N0711 | -74.20 | 27 | -60.70 | -1.78 | 354 | 1.78 | 126 | 2 | 87.4 | 8 9/GR8 |
| B NO811 | -74.20 | 27 | -68.76 | -4.71 | 2.37 | 1.65 | 73 | 2 | 87.4 | 8 9/GR8 |
| B SU111 | -81.20 | 27 | -51.12 | -25.63 | 2.76 | 1.05 | 50 | 1 | 87.4 | 8 9/GR6 |
| B SU112 | -45.20 | 27 | -50.75 | -25.62 | 2.47 | 1.48 | 56 | 1 | 87.4 | 8 9/GR9 |
| B SU211 | -81.20 | 27 | -44.51 | -16.95 | 3.22 | 1.36 | 60 | 1 | 87.4 | 8 9/GR6 |
| B SU212 | -45.20 | 27 | -44.00 | - 16.87 | 3.20 | 1.96 | 58 | 1 | 87.4 | 8 9/GR9 |
| BERBERMU | -96.20 | 27 | -64.77 | 32.32 | 0.60 | 0.60 | 90 | 2 | 87.4 |  |
| B OLAND01 | - 115.20 | 27 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | 9/GR5 |
| B OL00001 | -87.20 | 27 | -64.61 | - 16.71 | 2.52 | 2.19 | 85 | , | 87.4 |  |
| B RB00001 | -9270 | 27 | -59.85 | 12.93 | 0.60 | 0.60 | 90 | 2 | 87.4 |  |
| CAN01101 | -138.20 | 27 | -125.63 | 57.24 | 3.45 | 1.27 | 157 | 1 | 87.4 | 9/GR10 |
| CAN01201 | -138.20 | 27 | -112.04 | 55.95 | 335 | 0.97 | 151 | 1 | 87.4 | 9/GR10 |

17703,08 MHz

| CAN01202 | -7270 | 27 | $-107.70$ | 55.63 | 2.74 | 1.12 | 32 | 1 | 87.4 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CAN01203 | - 129.20 | 27 | -111.48 | 55.61 | 3.08 | 115 | 151 | 1 | 87.4 | 9/GR12 |
| CAN01303 | - 129.20 | 27 | - 102.42 | 57.12 | 3.54 | 0.91 | 154 | , | 87.4 | 9/GR12 |
| CAN01304 | -91.20 | 27 | -99.12 | 57.36 | 1.98 | 1.72 | 2 | 1 | 874 | 9/GR13 |
| CAN01403 | -129 20 | 27 | -89.75 | 52.02 | 4.68 | 0.78 | 148 | 1 | 87.4 | 9/GR12 |
| CAN01404 | -9120 | 27 | -84.82 | 52.42 | 3.10 | 2.05 | 152 | 1 | 87.4 | 9/GR13 |
| CAN01405 | -8220 | 27 | -84.00 | 52.39 | 2.84 | 2.29 | 172 | 1 | 87.4 | 9/GR14 |
| CAN01504 | -9120 | 27 | -7266 | 53.77 | 3.57 | 1.67 | 156 | 1 | 87.4 | 9/GR13 |
| CAN01505 | -82.20 | 27 | - 71.77 | 53.79 | 3.30 | 1.89 | 162 | 1 | 87.4 | 9/GR14 |
| CAN01605 | -82.20 | 27 | -61.50 | 49.55 | 2.65 | 1.40 | 143 | 1 | 87.4 | 9/GR14 |
| CAN01606 | -70.70 | 27 | -61.30 | 49.55 | 2.40 | 1.65 | 148 | 1 | 87.4 |  |
| CHLCONT5 | - 106.20 | 27 | -72.23 | -35 57 | 2.60 | 068 | 55 | , | 87.4 | 9/GR17 |
| CHLPAC02 | - 106.20 | 27 | -80.06 | -30 06 | 1.36 | 0.68 | 69 | 1 | 874 | 9/GR17 |
| CLMAND01 | -115.20 | 27 | -71.37 | -469 | 6.49 | 2.57 | 87 | 1 | 87.4 | 9/GR5 |
| CLM00001 | - 103.20 | 27 | -74.50 | 587 | 3.98 | 196 | 118 | 1 | 874 |  |
| CUB00001 | -89.20 | 27 | -79.81 | 2162 | 2.24 | 0.68 | 168 | 1 | 87.4 |  |
| EQACAND1 | - 115.20 | 27 | -71.37 | -469 | 6.49 | 2.57 | 87 | 1 | 87.4 | 9/GR5 |
| EQAGAND1 | - 115.20 | 27 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | 9/GR5 |
| GRD00059 | $-57.20$ | 27 | -61.58 | 1229 | 0.60 | 0.60 | 90 | 1 | 87.4 |  |
| GRLDNK01 | -53.20 | 27 | -44.89 | 66.56 | 2.70 | 0.82 | 173 | 1 | 87.4 | 2 |
| GUY00201 | -84.70 | 27 | -59.19 | 4.78 | 1.44 | 0.85 | 95 | 1 | 87.4 |  |
| HWA00002 | -166.20 | 27 | -165.79 | 23.42 | 4.20 | 0.68 | 160 | 1 | 87.4 | 9/GR1 |
| HWA00003 | - 175.20 | 27 | - 166.10 | 23.42 | 4.25 | 0.68 | 159 | 1 | 87.4 | 9/GR2 |
| MEX01NTE | -78.20 | 27 | - 105.81 | 26.01 | 2.89 | 2.08 | 155 | 1 | 87.4 | 1 |

17703,08 MHz (27)

| $\mathbf{1}$ | $\mathbf{2}$ | $\mathbf{3}$ | $\mathbf{4}$ |  |  | $\mathbf{5}$ | $\mathbf{6}$ | $\mathbf{7}$ | $\mathbf{8}$ |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | :--- | :--- | :--- |

17717,66 M Hz (28)

| ALS00002 | - 165.80 | 28 | -109.83 | 36.82 | 6.03 | 1.12 | 137 | 2 | 87.4 | 9/GR1 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALS00003 | - 174.80 | 28 | -116.10 | 37.47 | 5.60 | 0.76 | 132 | 2 | 87.4 | 9/GR2 |
| ARGNORT4 | -93.80 | 28 | -63.96 | -30.01 | 3.86 | 1.99 | 48 | 2 | 87.4 |  |
| ARGNORT5 | -54.80 | 28 | -62.85 | -29.80 | 3.24 | 2.89 | 47 | 2 | 87.4 |  |
| B CE311 | -63.80 | 28 | -40.60 | -6.07 | 3.04 | 2.06 | 174 | 2 | 87.4 | 8 9/GR7 |
| B CE312 | -44.80 | 28 | -40.26 | -6.06 | 3.44 | 2.09 | 174 | 2 | 874 | 8 9/GR9 |
| B CE411 | -63.80 | 28 | -50.97 | - 15.26 | 3.86 | 1.38 | 49 | 2 | 87.4 | 8 9/GR7 |
| B CE412 | -44.80 | 28 | -50.71 | - 15.30 | 3.57 | 1.56 | 52 | 2 | 87.4 | 8 9/GR9 |
| B CE511 | -63.80 | 28 | -53.11 | -2.98 | 2.42 | 2.15 | 107 | 2 | 87.4 | 8 9/GR7 |
| B N0611 | -73.80 | 28 | -59.60 | - 11.62 | 2.86 | 1.69 | 165 | 1 | 87.4 | 8 9/GR8 |
| B NO711 | -73.80 | 28 | -60.70 | -1.78 | 3.54 | 1.78 | 126 | 1 | 87.4 | 8 9/GR8 |
| B NO811 | -73.80 | 28 | -68.75 | -471 | 2.37 | 1.65 | 73 | 1 | 87.4 | 8 9/GR8 |
| B SE911 | - 101.80 | 28 | -45.99 | - 19.09 | 2.22 | 0.79 | 62 | 2 | 87.4 | 8 |
| B SU111 | -80.80 | 28 | -51.10 | -25.64 | 2.76 | 1.06 | 50 | 2 | 87.4 | 8 9/GR6 |
| B SU112 | -44.80 | 28 | -50.76 | -25.62 | 2.47 | 1.48 | 56 | 2 | 87.4 | 8 9/GR9 |
| B SU211 | -80.80 | 28 | -44.51 | - 16.94 | 3.22 | 1.37 | 60 | 2 | 87.4 | 8 9/GR6 |
| B SU212 | -44.80 | 28 | -43.99 | -16.97 | 3.27 | 1.92 | 59 | 2 | 87.4 | 8 9/GR9 |
| CAN01101 | $-137.80$ | 28 | - 125.60 | 57.24 | 3.45 | 1.27 | 157 | 2 | 87.4 | 9/GR10 |
| CAN01201 | - 137.80 | 28 | -111.92 | 55.89 | 3.33 | 0.98 | 151 | 2 | 87.4 | 9/GR10 |
| CAN01202 | -72.30 | 28 | -107.64 | 55.62 | 2.75 | 1.11 | 32 | 2 | 87.4 |  |
| CAN01203 | -128.80 | 28 | -111.43 | 55.56 | 307 | 1.15 | 151 | 2 | 87.4 | 9/GR12 |
| CAN01303 | - 128.80 | 28 | -102.39 | 57.12 | 3.54 | 0.92 | 154 | 2 | 87.4 | 9/GR12 |
| CAN01304 | -90.80 | 28 | -99.00 | 57.33 | 1.96 | 1.73 | 1 | 2 | 874 | 9/GR13 |
| CAN01403 | -128.80 | 28 | -8970 | 52.02 | 4.67 | 0.79 | 148 | 2 | 87.4 | 9/GR12 |


| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 |  | 9 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CAN01404 | -90.80 | 28 | -84.78 | 52.41 | 3.09 | 2.06 | 153 | 2 | 87.4 | 9/GR13 |  |
| CAN01405 | -81.80 | 28 | -84.02 | 52.34 | 2.82 | 2.30 | 172 | 2 | 87.4 | 9/GR14 |  |
| CAN01504 | -90.80 | 28 | -72.68 | 53.78 | 3.57 | 1.67 | 157 | 2 | 87.4 | 9/GR13 |  |
| CAN01505 | -81.80 | 28 | -71.76 | 53.76 | 3.30 | 1.89 | 162 | 2 | 87.4 | 9/GR14 |  |
| CAN01605 | -81.80 | 28 | -61.54 | 49.50 | 2.66 | 1.39 | 144 | 2 | 87.4 | 9/GR14 |  |
| CAN01606 | - 70.30 | 28 | -61.32 | 49.51 | 2.41 | 1.65 | 148 | 2 | 87.4 |  |  |
| CHLCONT4 | -105.80 | 28 | -69.59 | -23.20 | 2.21 | 0.69 | 68 | 2 | 87.4 | 9/GR16 |  |
| CHLCONT6 | - 105.80 | 28 | - 73.52 | -55.52 | 3.65 | 1.31 | 39 | 2 | 87.4 | 9/GR16 |  |
| CRBBAH01 | -92.30 | 28 | -76.09 | 24.13 | 1.83 | 0.68 | 141 | 1 | 87.4 | 9/GR18 |  |
| CRBBER01 | -92.30 | 28 | -64 76 | 32.13 | 0.60 | 0.60 | 90 | 1 | 87.4 | 9/GR18 |  |
| CRBBLZ 01 | -92.30 | 28 | -88.61 | 17.26 | 0.64 | 0.64 | 90 | 1 | 87.4 | 9/GR18 |  |
| CRBEC001 | -92.30 | 28 | -60.07 | 8.26 | 4.20 | 0.86 | 115 | 1 | 87.4 | 9/GR18 |  |
| CRBJMC01 | -92.30 | 28 | -79.45 | 17.97 | 0.99 | 0.68 | 151 | 1 | 87.4 | 9/GR18 |  |
| EQAC0001 | -94.80 | 28 | -78.31 | -152 | 1.48 | 1.15 | 65 | 1 | 87.4 | 9/GR19 |  |
| EQAG0001 | -94.80 | 28 | -90.36 | -0.57 | 0.94 | 0.89 | 99 | 1 | 87.4 | 9/GR19 |  |
| GRD00003 | -79.30 | 28 | -61.62 | 12.34 | 0.60 | 0.60 | 90 | 2 | 87.4 |  |  |
| GTMIFRB2 | - 107.30 | 28 | -90.50 | 15.64 | 1.03 | 0.74 | 84 | 1 | 87.4 |  |  |
| GUFMGG02 | -52.80 | 28 | -56.42 | 8.47 | 4.16 | 0.81 | 123 | 2 | 87.4 | 27 |  |
| HWA00002 | - 165.80 | 28 | - 165.79 | 23.32 | 4.20 | 0.68 | 160 | 2 | 87.4 | 9/GR1 |  |
| HWA00003 | -174.80 | 28 | - 166.10 | 23.42 | 4.25 | 0.68 | 159 | 2 | 87.4 | 9/GR2 |  |
| MEX01NTE | -77.80 | 28 | -105.80 | 25.99 | 2.88 | 2.07 | 155 | 2 | 87.4 | , |  |
| MEX02NTE | -135.80 | 28 | -107.36 | 26.32 | 3.80 | 1.57 | 149 | 2 | 87.4 | 1 |  |
| MEX02SUR | -126.80 | 28 | -96.39 | 19.88 | 3.19 | 1.87 | 158 | 2 | 87.4 | 1 |  |
| PNRIFRB2 | - 121.00 | 28 | -80.15 | 8.46 | 101 | 0.73 | 170 | 1 | 87.4 |  |  |

17717,66 MHz

| PRU00004 | -85.80 | 28 | -74.19 | -8.39 | 3.74 | 2.45 | 112 | 2 | 87.4 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| PTRVIR01 | - 100.80 | 28 | -93.85 | 36.31 | 8.26 | 3.55 | 171 | 2 | 87.4 | 16 9/GR20 |
| PTRVIR02 | - 109.80 | 28 | -95.47 | 36.38 | 8.10 | 3.45 | 168 | 2 | 87.4 | 16 9/GR21 |
| USAEH001 | -61.30 | 28 | -87.53 | 36.18 | 6.41 | 3.49 | 12 | 2 | 87.4 | 156 |
| USAEH002 | -100.80 | 28 | -93.85 | 36.31 | 8.26 | 3.55 | 171 | 2 | 87.4 | 16 9/GR20 |
| USAEH003 | -109.80 | 28 | -95.47 | 36.38 | 8.10 | 3.45 | 168 | 2 | 87.4 | 16 9/GR21 |
| USAEH004 | -118.80 | 28 | -96.42 | 36.21 | 8.20 | 3.12 | 165 | 2 | 87.4 | 156 |
| USAPSA02 | -165.80 | 28 | -109.83 | 36.82 | 6.03 | 1.12 | 137 | 2 | 87.4 | 9/GR1 |
| USAPSA03 | -174.80 | 28 | -116.10 | 37.47 | 5.60 | 0.76 | 132 | 2 | 87.4 | 9/GR2 |
| USAWH101 | - 147.80 | 28 | - 111.01 | 40.67 | 4.38 | 2.15 | 162 | 2 | 87.4 |  |
| USAWH102 | - 156.80 | 28 | -113.01 | 40.71 | 3.74 | 1.79 | 149 | 2 | 87.4 |  |
| VEN02VEN | - 103.80 | 28 | -66.79 | 6.90 | 2.50 | 1.77 | 122 | 2 | 87.4 | 9/GR22 |
| VEN11VEN | -103.80 | 28 | -66.79 | 6.90 | 2.50 | 1.77 | 122 | 2 | 87.4 | 9/GR22 |



17732,24 MHz
(29)

| CAN01303 | -129.20 | 29 | -10242 | 57.12 | 3.54 | 0.91 | 154 | 1 | 87.4 | $9 /$ GR12 |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | :--- | :--- | :--- |
| CAN01304 | -91.20 | 29 | -99.12 | 5736 | 1.98 | 1.72 | 2 | 1 | 87.4 | $9 /$ GR13 |
| CAN01403 | -129.20 | 29 | -89.75 | 52.02 | 4.68 | 0.78 | 148 | 1 | 87.4 | $9 /$ GR12 |
| CAN01404 | -91.20 | 29 | -84.82 | 52.42 | 3.10 | 2.05 | 152 | 1 | 87.4 | $9 /$ GR13 |
| CAN01405 | -82.20 | 29 | -84.00 | 52.39 | 2.84 | 2.29 | 172 | 1 | 87.4 | $9 /$ GR14 |
| CAN01504 | -91.20 | 29 | -72.66 | 53.77 | 3.57 | 1.67 | 156 | 1 | 87.4 | $9 /$ GR13 |
| CAN01505 | -82.20 | 29 | -71.77 | 53.79 | 3.30 | 1.89 | 162 | 1 | 87.4 | $9 /$ GR14 |
| CAN01605 | -82.20 | 29 | -61.50 | 4955 | 2.65 | 1.40 | 143 | 1 | 87.4 | $9 /$ GR14 |
| CAN01606 | -70.70 | 29 | -61.30 | 49.55 | 2.40 | 1.65 | 148 | 1 | 87.4 |  |
| CHLCONT5 | -106.20 | 29 | -72.23 | -35.57 | 2.60 | 0.68 | 55 | 1 | 87.4 | $9 /$ GR17 |
| CHLPAC02 | -106.20 | 29 | -80.06 | -30.06 | 1.36 | 0.68 | 69 | 1 | 87.4 | $9 /$ GR17 |
| CLMAND01 | -115.20 | 29 | -7137 | -469 | 6.49 | 2.57 | 87 | 1 | 87.4 | $9 /$ GR5 |
| CLM00001 | -103.20 | 29 | -74.50 | 587 | 3.98 | 1.96 | 118 | 1 | 87.4 |  |
| EQACAND1 | -115.20 | 29 | -7137 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | $9 /$ GR5 |
| EQAGAND1 | -115.20 | 29 | -71.37 | -469 | 6.49 | 2.57 | 87 | 1 | 87.4 | $9 /$ GR5 |
| HWA00002 | -166.20 | 29 | -165.79 | 23.42 | 4.20 | 0.68 | 160 | 1 | 87.4 | $9 /$ GR1 |
| HWA00003 | -175.20 | 29 | -166.10 | 2342 | 425 | 0.68 | 159 | 1 | 87.4 | $9 /$ GR2 |
| JMC00002 | -92.70 | 29 | -77.30 | 18.12 | 0.62 | 0.62 | 90 | 2 | 87.4 |  |
| MEX01NTE | -78.20 | 29 | -10581 | 26.01 | 2.89 | 2.08 | 155 | 1 | 87.4 | 1 |
| MEX01SUR | -69.20 | 29 | -94.84 | 1982 | 3.05 | 2.09 | 4 | 1 | 87.4 | 1 |
| MEX02NTE | -136.20 | 29 | -10721 | 26.31 | 3.84 | 1.55 | 148 | 1 | 87.4 | 1 |
| MEX02SUR | -127.20 | 29 | -96.39 | 19.88 | 3.18 | 1.87 | 157 | 1 | 874 | 1 |
| PAQPAC01 | -106.20 | 29 | -109.18 | -27.53 | 0.60 | 0.60 | 90 | 1 | 87.4 | $9 /$ GR17 |
| PRG00002 | -99.20 | 29 | -58.66 | -23.32 | 1.45 | 1.04 | 76 | 1 | 87.4 |  |

17732,24 MHz (29)

| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| PRUAND02 | - 115.20 | 29 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | 9/GR5 |
| PTRVIR01 | - 101.20 | 29 | -93.94 | 36.32 | 8.24 | 3.56 | 171 | 1 | 87.4 | $169 / \mathrm{GR} 20$ |
| PTRVIR02 | -110.20 | 29 | -95.23 | 36.29 | 8.27 | 3.37 | 168 | 1 | 87.4 | 16 9/GR21 |
| SCN00001 | -79.70 | 29 | -62.46 | 17.44 | 0.60 | 0.60 | 90 | 1 | 87.4 |  |
| SPMFRAN3 | -53.20 | 29 | -67.24 | 47.51 | 3.16 | 0.79 | 7 | 1 | 87.4 | 27 |
| SURINAM2 | -84.70 | 29 | -55.69 | 4.35 | 1.00 | 0.69 | 86 | 1 | 87.4 |  |
| URG00001 | -71.70 | 29 | -56.22 | - 32.52 | 1.02 | 0.89 | 11 | 1 | 87.4 |  |
| USAEH001 | -61.70 | 29 | -87.57 | 36.17 | 6.42 | 3.49 | 12 | 1 | 87.4 | 156 |
| USAEH002 | -101.20 | 29 | -93.94 | 36.32 | 8.24 | 3.56 | 171 | 1 | 87.4 | $169 / \mathrm{GR20}$ |
| USAEH003 | - 110.20 | 29 | -95.23 | 36.29 | 8.27 | 3.37 | 168 | 1 | 87.4 | 16 9/GR21 |
| USAEH004 | - 119.20 | 29 | -96.45 | 36.21 | 8.20 | 3.12 | 165 | 1 | 87.4 | 156 |
| USAPSA02 | -166.20 | 29 | -109.94 | 36.86 | 6.04 | 1.11 | 137 | 1 | 87.4 | 9/GR1 |
| USAPSA03 | - 175.20 | 29 | -116.23 | 37.50 | 5.60 | 0.75 | 132 | 1 | 87.4 | 9/GR2 |
| USAWH101 | - 148.20 | 29 | -111.02 | 40.68 | 4.36 | 2.15 | 162 | 1 | 87.4 |  |
| USAWH102 | -157.20 | 29 | -113.07 | 40.74 | 3.72 | 1.78 | 149 | 1 | 87.4 |  |
| VENAND03 | - 115.20 | 29 | - 71.37 | -4.69 | 6.49 | 257 | 87 | 1 | 87.4 | 9/GR5 |

17746,82 MHz (30)

| ALS00002 | -165.80 | 30 | - 109.83 | 36.82 | 6.03 | 112 | 137 | 2 | 87.4 | 9/GR1 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALS00003 | - 174.80 | 30 | - 116.10 | 3747 | 5.60 | 0.76 | 132 | 2 | 87.4 | 9/GR2 |
| ARGNORT4 | -93.80 | 30 | -63.96 | -30.01 | 3.86 | 1.99 | 48 | 2 | 87.4 |  |
| ARGNORT5 | -54.80 | 30 | -62.85 | -2980 | 3.24 | 2.89 | 47 | 2 | 87.4 |  |
| ATNBEAM1 | -52.80 | 30 | -66.44 | 14.87 | 1.83 | 0.68 | 39 | 2 | 87.4 |  |
| B CE311 | -63.80 | 30 | -40.60 | -6.07 | 3.04 | 2.06 | 174 | 2 | 87.4 | 8 9/GR7 |
| B CE312 | -44.80 | 30 | -40.26 | -6.06 | 3.44 | 2.09 | 174 | 2 | 87.4 | 8 9/GR9 |
| B CE411 | -63.80 | 30 | -50.97 | -15.26 | 3.86 | 1.38 | 49 | 2 | 87.4 | 8 9/GR7 |
| B CE412 | -44.80 | 30 | -50.71 | - 15.30 | 3.57 | 1.56 | 52 | 2 | 87.4 | 8 9/GR9 |
| B CE511 | -63.80 | 30 | -53.11 | -2.98 | 242 | 2.15 | 107 | 2 | 87.4 | 8 9/GR7 |
| B NO611 | -73.80 | 30 | -59.60 | -11.62 | 2.86 | 1.69 | 165 | 1 | 87.4 | 8 9/GR8 |
| B NO711 | -73.80 | 30 | -60.70 | -1.78 | 3.54 | 1.78 | 126 | 1 | 87.4 | 8 9/GR8 |
| B NO811 | -73.80 | 30 | -68.75 | -4.71 | 2.37 | 1.65 | 73 | 1 | 87.4 | 8 9/GR8 |
| B SE911 | - 101.80 | 30 | -45.99 | -19.09 | 2.22 | 0.79 | 62 | 2 | 87.4 | 8 |
| B SU111 | -80.80 | 30 | -51.10 | -25.64 | 2.76 | 1.06 | 50 | 2 | 87.4 | 8 9/GR6 |
| B SU112 | -44.80 | 30 | -50.76 | -25.62 | 2.47 | 1.48 | 56 | 2 | 87.4 | 8 9/GR9 |
| B SU211 | -80.80 | 30 | -44.51 | -16.94 | 3.22 | 1.37 | 60 | 2 | 87.4 | 8 9/GR6 |
| B SU212 | -44.80 | 30 | -43.99 | -16.97 | 3.27 | 1.92 | 59 | 2 | 87.4 | 8 9/GR9 |
| B LZ00001 | - 115.80 | 30 | -88.68 | 17.27 | 0.62 | 0.62 | 90 | 2 | 87.4 |  |
| CAN01101 | - 137.80 | 30 | -125.60 | 57.24 | 3.45 | 1.27 | 157 | 2 | 87.4 | 9/GR10 |
| CAN01201 | -137.80 | 30 | -111.92 | 55.89 | 3.33 | 0.98 | 151 | 2 | 87.4 | 9/GR10 |
| CAN01202 | -72.30 | 30 | - 107.64 | 55.62 | 2.75 | 1.11 | 32 | 2 | 87.4 |  |
| CAN01203 | -128.80 | 30 | -111.43 | 55.56 | 3.07 | 1.15 | 151 | 2 | 87.4 | 9/GR12 |
| CAN01303 | -128.80 | 30 | - 102.39 | 57.12 | 3.54 | 0.92 | 154 | 2 | 87.4 | 9/GR12 |


| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CAN01304 | -90.80 | 30 | -99.00 | 57.33 | 1.96 | 1.73 | 1 | 2 | 87.4 | 9/GR13 |
| CAN01403 | - 128.80 | 30 | -89.70 | 52.02 | 4.67 | 0.79 | 148 | 2 | 87.4 | 9/GR12 |
| CAN01404 | -90.80 | 30 | -84.78 | 52.41 | 3.09 | 2.06 | 153 | 2 | 87.4 | 9/GR13 |
| CAN01405 | -81.80 | 30 | -84.02 | 52.34 | 2.82 | 2.30 | 172 | 2 | 87.4 | 9/GR14 |
| CAN01504 | -90.80 | 30 | -72.68 | 53.78 | 3.57 | 1.67 | 157 | 2 | 87.4 | 9/GR13 |
| CAN01505 | -81.80 | 30 | -71.76 | 53.76 | 3.30 | 1.89 | 162 | 2 | 87.4 | 9/GR14 |
| CAN01605 | -81.80 | 30 | -61.54 | 49.50 | 2.66 | 1.39 | 144 | 2 | 87.4 | 9/GR14 |
| CAN01606 | -70.30 | 30 | -61.32 | 49.51 | 2.41 | 1.65 | 148 | 2 | 87.4 |  |
| CHLCONT4 | - 105.80 | 30 | -69.59 | -23.20 | 2.21 | 0.69 | 68 | 2 | 87.4 | 9/GR16 |
| CHLCONT6 | -105.80 | 30 | -73.52 | -55.52 | 3.65 | 1.31 | 39 | 2 | 87.4 | 9/GR16 |
| CRBBAH01 | -92.30 | 30 | -76.09 | 24.13 | 1.83 | 0.68 | 141 | 1 | 87.4 | 9/GR18 |
| CRBBER01 | -92.30 | 30 | -64.76 | 32.13 | 0.60 | 0.60 | 90 | 1 | 87.4 | 9/GR18 |
| CRBBLZ01 | -92.30 | 30 | -88.61 | 17.26 | 0.64 | 0.64 | 90 | 1 | 87.4 | 9/GR18 |
| CRBEC001 | -92.30 | 30 | -60.07 | 8.26 | 4.20 | 0.86 | 115 | 1 | 87.4 | 9/GR18 |
| CRBJMC01 | -9230 | 30 | $-79.45$ | 17.97 | 0.99 | 0.68 | 151 | 1 | 87.4 | 9/GR18 |
| CTR00201 | $-130.80$ | 30 | $-84.33$ | 9.67 | 0.82 | 0.68 | 119 | 2 | 87.4 |  |
| DMAIFRB1 | - 79.30 | 30 | $-61.30$ | 15.35 | 0.60 | 0.60 | 90 | 2 | 87.4 |  |
| EQAC0001 | -94.80 | 30 | - 78.31 | -1.52 | 1.48 | 1.15 | 65 | 1 | 87.4 | 9/GR19 |
| EQAG0001 | -94.80 | 30 | -90.36 | $-0.57$ | 0.94 | 0.89 | 99 | 1 | 87.4 | 9/GR19 |
| HWA00002 | - 165.80 | 30 | -165.79 | 23.32 | 4.20 | 0.68 | 160 | 2 | 87.4 | 9/GR1 |
| HWA00003 | - 174.80 | 30 | - 166.10 | 23.42 | 4.25 | 0.68 | 159 | 2 | 874 | 9/GR2 |
| MEX01NTE | - 77.80 | 30 | $-105.80$ | 25.99 | 2.88 | 2.07 | 155 | 2 | 87.4 | 1 |
| MEX02NTE | $-135.80$ | 30 | - 107.36 | 26.32 | 3.80 | 1.57 | 149 | 2 | 87.4 | 1 |
| MEX02SUR | $-12680$ | 30 | -96.39 | 19.88 | 3.19 | 1.87 | 158 | 2 | 87.4 | 1 |

17746,82 MHz (30)

| NCG00003 | -107.30 | 30 | -84.99 | 12.90 | 1.05 | 1.01 | 176 | 1 | 87.4 |  |
| :--- | ---: | ---: | ---: | ---: | :--- | :--- | :--- | :--- | :--- | :--- |
| PRU00004 | -85.80 | 30 | -74.19 | -8.39 | 3.74 | 2.45 | 112 | 2 | 87.4 |  |
| PTRVIR01 | -100.80 | 30 | -93.85 | 36.31 | 8.26 | 3.55 | 171 | 2 | 87.4 | $169 /$ GR20 |
| PTRVIR02 | -109.80 | 30 | -95.47 | 36.38 | 8.10 | 3.45 | 168 | 2 | 87.4 | $1699 /$ GR21 |
| USAEH001 | -61.30 | 30 | -87.53 | 36.18 | 6.41 | 3.49 | 12 | 2 | 87.4 | 156 |
| USAEH002 | -100.80 | 30 | -93.85 | 36.31 | 8.26 | 3.55 | 171 | 2 | 87.4 | $169 /$ GR20 |
| USAEH003 | -109.80 | 30 | -95.47 | 36.38 | 8.10 | 3.45 | 168 | 2 | 87.4 | $169 /$ GR21 |
| USAEH004 | -118.80 | 30 | -96.42 | 36.21 | 8.20 | 312 | 165 | 2 | 87.4 | 156 |
| USAPSA02 | -165.80 | 30 | -109.83 | 36.82 | 6.03 | 112 | 137 | 2 | 87.4 | $9 /$ GR1 |
| USAPSA03 | -174.80 | 30 | -116.10 | 37.47 | 5.60 | 0.76 | 132 | 2 | 87.4 | $9 /$ GR2 |
| USAWH101 | -147.80 | 30 | -111.01 | 40.67 | 4.38 | 2.15 | 162 | 2 | 87.4 |  |
| USAWH102 | -156.80 | 30 | -113.01 | 40.71 | 3.74 | 1.79 | 149 | 2 | 87.4 |  |
| VEN11VEN | -103.80 | 30 | -66.79 | 6.90 | 2.50 | 1.77 | 122 | 2 | 87.4 |  |


| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALS00002 | -166.20 | 31 | -109.94 | 36.86 | 6.04 | 1.11 | 137 | 1 | 87.4 | 9/GR1 |
| ALS00003 | - 175.20 | 31 | -116.23 | 37.50 | 5.60 | 0.75 | 132 | 1 | 87.4 | 9/GR2 |
| ARGINSU4 | -94.20 | 31 | -52.98 | -59.81 | 3.40 | 0.68 | 19 | 1 | 87.4 | 9/GR3 |
| ARGINSU5 | -55.20 | 31 | -44.17 | -59.91 | 3.77 | 0.70 | 13 | 1 | 87.4 | 9/GR4 |
| ARGSUR04 | -94.20 | 31 | -65.04 | -43.33 | 3.32 | 1.50 | 40 | 1 | 87.4 | 9/GR3 |
| ARGSUR05 | -55.20 | 31 | -63.68 | -43.01 | 2.54 | 2.38 | 152 | 1 | 87.4 | 9/GR4 |
| B CE311 | -64.20 | 31 | -40.60 | -6.07 | 3.04 | 2.06 | 174 | 1 | 87.4 | 8 9/GR7 |
| B CE312 | -45.20 | 31 | -40.27 | -6.06 | 3.44 | 2.09 | 174 | 1 | 87.4 | 8 9/GR9 |
| B CE411 | -64.20 | 31 | -50.97 | -15.27 | 3.86 | 1.38 | 49 | 1 | 87.4 | 8 9/GR7 |
| B CE412 | -45.20 | 31 | -50.71 | - 15.30 | 3.57 | 1.56 | 52 | 1 | 87.4 | 8 9/GR9 |
| B CE511 | -64.20 | 31 | -53.10 | -2.90 | 2.44 | 2.13 | 104 | 1 | 87.4 | 8 9/GR7 |
| B NO611 | -74.20 | 31 | -59.60 | -11.62 | 2.85 | 1.69 | 165 | 2 | 87.4 | 8 9/GR8 |
| B NO711 | -74.20 | 31 | -60.70 | -1.78 | 3.54 | 1.78 | 126 | 2 | 87.4 | 8 9/GR8 |
| B NO811 | -74.20 | 31 | -68.76 | -4.71 | 2.37 | 1.65 | 73 | 2 | 87.4 | 8 9/GR8 |
| B SU111 | -81.20 | 31 | -51.12 | -25.63 | 2.76 | 1.05 | 50 | 1 | 87.4 | 8 9/GR6 |
| B SU112 | -45.20 | 31 | -50.75 | -25.62 | 2.47 | 1.48 | 56 | 1 | 87.4 | 8 9/GR9 |
| B SU211 | -81.20 | 31 | -44.51 | -16.95 | 3.22 | 1.36 | 60 | 1 | 87.4 | 8 9/GR6 |
| B SU212 | -45.20 | 31 | -44.00 | - 16.87 | 3.20 | 1.96 | 58 | 1 | 87.4 | 8 9/GR9 |
| BERBERMU | -96.20 | 31 | -64.77 | 32.32 | 0.60 | 0.60 | 90 | 2 | 87.4 |  |
| B OLAND01 | -115.20 | 31 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | 9/GR5 |
| B OL00001 | -87.20 | 31 | -64.61 | -16.71 | 2.52 | 2.19 | 85 | 1 | 87.4 |  |
| B RB00001 | -92.70 | 31 | -59.85 | 12.93 | 0.60 | 0.60 | 90 | 2 | 87.4 |  |
| CAN01101 | -138.20 | 31 | -125.63 | 57.24 | 3.45 | 1.27 | 157 | 1 | 87.4 | 9/GR10 |
| CAN01201 | -138.20 | 31 | -112.04 | 55.95 | 3.35 | 0.97 | 151 | 1 | 87.4 | 9/GR10 |

17761,40 MHz (31)

| CAN01202 | -72.70 | 31 | -107.70 | 55.63 | 2.74 | 1.12 | 32 | 1 | 87.4 |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | :--- | :--- | :--- |
| CAN01203 | -129.20 | 31 | -111.48 | 55.61 | 3.08 | 1.15 | 151 | 1 | 87.4 | $9 /$ GR12 |
| CAN01303 | -129.20 | 31 | -102.42 | 57.12 | 3.54 | 0.91 | 154 | 1 | 87.4 | $9 / G R 12$ |
| CAN01304 | -91.20 | 31 | -99.12 | 57.36 | 1.98 | 1.72 | 2 | 1 | 87.4 | $9 / G R 13$ |
| CAN01403 | -129.20 | 31 | -89.75 | 52.02 | 4.68 | 0.78 | 148 | 1 | 87.4 | $9 /$ GR12 |
| CAN01404 | -91.20 | 31 | -84.82 | 52.42 | 3.10 | 2.05 | 152 | 1 | 87.4 | $9 /$ GR13 |
| CAN01405 | -82.20 | 31 | -84.00 | 52.39 | 2.84 | 2.29 | 172 | 1 | 87.4 | $9 / G R 14$ |
| CAN01504 | -91.20 | 31 | -72.66 | 53.77 | 3.57 | 1.67 | 156 | 1 | 87.4 | $9 / G R 13$ |
| CAN01505 | -82.20 | 31 | -71.77 | 53.79 | 3.30 | 1.89 | 162 | 1 | 87.4 | $9 / G R 14$ |
| CAN01605 | -82.20 | 31 | -61.50 | 49.55 | 2.65 | 1.40 | 143 | 1 | 87.4 | $9 /$ GR14 |
| CAN01606 | -70.70 | 31 | -61.30 | 49.55 | 2.40 | 1.65 | 148 | 1 | 87.4 |  |
| CHLCONT5 | -106.20 | 31 | -72.23 | -35.57 | 2.60 | 0.68 | 55 | 1 | 87.4 | $9 /$ GR17 |
| CHLPAC02 | -106.20 | 31 | -80.06 | -30.06 | 1.36 | 0.68 | 69 | 1 | 87.4 | $9 /$ GR17 |
| CLMAND01 | -115.20 | 31 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | $9 /$ GR5 |
| CLM00001 | -103.20 | 31 | -74.50 | 5.87 | 3.98 | 1.96 | 118 | 1 | 87.4 |  |
| CUB00001 | -89.20 | 31 | -79.81 | 21.62 | 2.24 | 0.68 | 168 | 1 | 87.4 |  |
| EQACAND1 | -115.20 | 31 | -71.37 | -469 | 6.49 | 2.57 | 87 | 1 | 87.4 | $9 /$ GR5 |
| EQAGAND1 | -115.20 | 31 | -71.37 | -4.69 | 6.49 | 2.57 | 87 | 1 | 87.4 | $9 /$ GR5 |
| GRD00059 | -57.20 | 31 | -61.58 | 12.29 | 0.60 | 0.60 | 90 | 1 | 87.4 |  |
| GRLDNK01 | -53.20 | 31 | -44.89 | 66.56 | 2.70 | 0.82 | 173 | 1 | 87.4 | 2 |
| GUY00201 | -8470 | 31 | -59.19 | 4.78 | 1.44 | 0.85 | 95 | 1 | 87.4 |  |
| HWA00002 | -166.20 | 31 | -165.79 | 23.42 | 4.20 | 0.68 | 160 | 1 | 87.4 | $9 /$ GR1 |
| HWA00003 | -175.20 | 31 | -166.10 | 23.42 | 4.25 | 0.68 | 159 | 1 | 87.4 | $9 /$ GR2 |
| MEX01NTE | -78.20 | 31 | -105.81 | 26.01 | 2.89 | 2.08 | 155 | 1 | 87.4 | 1 |

17761,40 MHz (31)

| $\mathbf{1}$ | $\mathbf{2}$ | $\mathbf{3}$ | $\mathbf{4}$ |  | $\mathbf{5}$ |  | $\mathbf{6}$ | $\mathbf{7}$ | $\mathbf{8}$ |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | :--- | :--- | :--- |

17775,98 MHz (32)

| ALS00002 | -165.80 | 32 | -109.83 | 36.82 | 6.03 | 1.12 | 137 | 2 | 87.4 | 9/GR1 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALS00003 | - 174.80 | 32 | -116.10 | 37.47 | 5.60 | 0.76 | 132 | 2 | 87.4 | 9/GR2 |
| ARGNORT4 | -93.80 | 32 | -6396 | -30.01 | 3.86 | 1.99 | 48 | 2 | 87.4 |  |
| ARGNORT5 | -54.80 | 32 | -62.85 | -29.80 | 3.24 | 2.89 | 47 | 2 | 87.4 |  |
| B CE311 | -63.80 | 32 | -40.60 | -6.07 | 3.04 | 2.06 | 174 | 2 | 87.4 | $89 / \mathrm{GR} 7$ |
| B CE312 | -44.80 | 32 | -40.26 | -6.06 | 3.44 | 2.09 | 174 | 2 | 87.4 | 8 9/GR9 |
| B CE411 | -63.80 | 32 | -50.97 | - 15.26 | 3.86 | 1.38 | 49 | 2 | 87.4 | 8 9/GR7 |
| B CE412 | -44.80 | 32 | -50.71 | - 15.30 | 3.57 | 1.56 | 52 | 2 | 87.4 | 8 9/GR9 |
| B CE511 | -63.80 | 32 | -53.11 | -2.98 | 242 | 2.15 | 107 | 2 | 87.4 | 8 9/GR7 |
| B N0611 | -73.80 | 32 | -59.60 | - 11.62 | 2.86 | 1.69 | 165 | 1 | 87.4 | 8 9/GR8 |
| B N0711 | -73.80 | 32 | -60.70 | -1.78 | 3.54 | 1.78 | 126 | 1 | 87.4 | 8 9/GR8 |
| B NO811 | -73.80 | 32 | -68.75 | -4.71 | 2.37 | 1.65 | 73 | 1 | 87.4 | 8 9/GR8 |
| B SE911 | - 101.80 | 32 | -45.99 | -19.09 | 2.22 | 0.79 | 62 | 2 | 87.4 | 8 |
| B SU111 | -80.80 | 32 | -51.10 | -25.64 | 2.76 | 1.06 | 50 | 2 | 87.4 | 8 9/GR6 |
| B SU112 | -44.80 | 32 | -50.76 | -25.62 | 2.47 | 1.48 | 56 | 2 | 87.4 | 8 9/GR9 |
| B SU211 | -80.80 | 32 | -44.51 | -16.94 | 3.22 | 1.37 | 60 | 2 | 87.4 | 8 9/GR6 |
| B SU212 | -44.80 | 32 | -43.99 | -16.97 | 3.27 | 1.92 | 59 | 2 | 874 | 8 9/GR9 |
| CAN01101 | - 137.80 | 32 | - 125.60 | 57.24 | 3.45 | 1.27 | 157 | 2 | 87.4 | 9/GR10 |
| CAN01201 | - 137.80 | 32 | -111.92 | 55.89 | 3.33 | 0.98 | 151 | 2 | 87.4 | 9/GR10 |
| CAN01202 | -72.30 | 32 | -107.64 | 55.62 | 2.75 | 1.11 | 32 | 2 | 87.4 |  |
| CAN01203 | - 128.80 | 32 | - 111.43 | 55.56 | 3.07 | 1.15 | 151 | 2 | 87.4 | 9/GR12 |
| CAN01303 | - 128.80 | 32 | - 102.39 | 57.12 | 3.54 | 0.92 | 154 | 2 | 87.4 | 9/GR12 |
| CAN01304 | -90.80 | 32 | -99.00 | 57.33 | 1.96 | 1.73 | 1 | 2 | 87.4 | 9/GR13 |
| CAN01403 | - 128.80 | 32 | -89.70 | 52.02 | 4.67 | 0.79 | 148 | 2 | 87.4 | 9/GR12 |

17775,98 MHz (32)

| 1 | 2 | 3 | 4 |  | 5 |  | 6 | 7 | 8 | 9 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CAN01404 | -90.80 | 32 | -84.78 | 52.41 | 3.09 | 2.06 | 153 | 2 | 87.4 | 9/GR13 |
| CAN01405 | -81.80 | 32 | -84.02 | 52.34 | 2.82 | 2.30 | 172 | 2 | 87.4 | 9/GR14 |
| CAN01504 | -90.80 | 32 | -72.68 | 53.78 | 3.57 | 1.67 | 157 | 2 | 87.4 | 9/GR13 |
| CAN01505 | -81.80 | 32 | -71.76 | 53.76 | 3.30 | 1.89 | 162 | 2 | 87.4 | 9/GR14 |
| CAN01605 | -81.80 | 32 | -61.54 | 49.50 | 2.66 | 1.39 | 144 | 2 | 87.4 | 9/GR14 |
| CAN01606 | -70.30 | 32 | -61.32 | 49.51 | 2.41 | 1.65 | 148 | 2 | 87.4 |  |
| CHLCONT4 | -105.80 | 32 | -69.59 | -23.20 | 2.21 | 0.69 | 68 | 2 | 87.4 | 9/GR16 |
| CHLCONT6 | -105.80 | 32 | - 73.52 | -55.52 | 3.65 | 1.31 | 39 | 2 | 87.4 | 9/GR16 |
| CRBBAH01 | -92.30 | 32 | -76.09 | 24.13 | 1.83 | 0.68 | 141 | 1 | 87.4 | 9/GR18 |
| CRBBER01 | -92.30 | 32 | -64.76 | 32.13 | 0.60 | 0.60 | 90 | 1 | 87.4 | 9/GR18 |
| CRBBLZ01 | -92.30 | 32 | -88.61 | 17.26 | 0.64 | 0.64 | 90 | 1 | 87.4 | 9/GR18 |
| CRBEC001 | -92.30 | 32 | -60.07 | 8.26 | 4.20 | 0.86 | 115 | 1 | 87.4 | 9/GR18 |
| CRBJMC01 | -92.30 | 32 | -79.45 | 17.97 | 0.99 | 0.68 | 151 | 1 | 87.4 | 9/GR18 |
| EQAC0001 | -94.80 | 32 | -78.31 | -1.52 | 1.48 | 1.15 | 65 | 1 | 87.4 | 9/GR19 |
| EQAG0001 | -94.80 | 32 | -90.36 | -0.57 | 0.94 | 0.89 | 99 | 1 | 87.4 | 9/GR19 |
| GRD00003 | -79.30 | 32 | -61.62 | 12.34 | 0.60 | 0.60 | 90 | 2 | 87.4 |  |
| GTMIFRB2 | -107.30 | 32 | -90.50 | 15.64 | 1.03 | 0.74 | 84 | 1 | 87.4 |  |
| GUFMGG02 | -52.80 | 32 | -56.42 | 8.47 | 4.16 | 0.81 | 123 | 2 | 87.4 | 27 |
| HWA00002 | - 165.80 | 32 | -165.79 | 23.32 | 4.20 | 0.68 | 160 | 2 | 87.4 | 9/GR1 |
| HWA00003 | - 174.80 | 32 | - 166.10 | 23.42 | 4.25 | 0.68 | 159 | 2 | 87.4 | 9/GR2 |
| MEX01NTE | -77.80 | 32 | - 105.80 | 25.99 | 2.88 | 2.07 | 155 | 2 | 87.4 | 1 |
| MEX02NTE | - 135.80 | 32 | -107.36 | 26.32 | 3.80 | 1.57 | 149 | 2 | 87.4 | 1 |
| MEX02SUR | -126.80 | 32 | -96.39 | 19.88 | 3.19 | 1.87 | 158 | 2 | 87.4 | 1 |
| PNRIFRB2 | -121.00 | 32 | -80.15 | 8.46 | 1.01 | 0.73 | 170 | 1 | 87.4 |  |

17775,98 MHz
(32)

| PRU00004 | -85.80 | 32 | -74.19 | -8.39 | 3.74 | 2.45 | 112 | 2 | 87.4 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| PTRVIR01 | -10080 | 32 | -93.85 | 36.31 | 8.26 | 3.55 | 171 | 2 | 87.4 | 16 9/GR20 |
| PTRVIR02 | - 109.80 | 32 | -95.47 | 36.38 | 8.10 | 3.45 | 168 | 2 | 87.4 | $169 / \mathrm{GR} 21$ |
| USAEH001 | -61.30 | 32 | -8753 | 36.18 | 6.41 | 3.49 | 12 | 2 | 87.4 | 156 |
| USAEH002 | - 100.80 | 32 | -93.85 | 36.31 | 8.26 | 3.55 | 171 | 2 | 87.4 | 16 9/GR20 |
| USAEH003 | -109.80 | 32 | -9547 | 36.38 | 8.10 | 3.45 | 168 | 2 | 87.4 | 16 9/GR21 |
| USAEH004 | - 118.80 | 32 | -9642 | 36.21 | 8.20 | 3.12 | 165 | 2 | 87.4 | 156 |
| USAPSA02 | - 165.80 | 32 | -109 83 | 36.82 | 603 | 1.12 | 137 | 2 | 874 | 9/GR1 |
| USAPSA03 | - 174.80 | 32 | -11610 | 37.47 | 5.60 | 0.76 | 132 | 2 | 87.4 | 9/GR2 |
| USAWH101 | - 147.80 | 32 | -111.01 | 40.67 | 4.38 | 2.15 | 162 | 2 | 87.4 |  |
| USAWH102 | - 156.80 | 32 | - 113.01 | 4071 | 3.74 | 1.79 | 149 | 2 | 87.4 |  |
| VENO2VEN | -103.80 | 32 | -66.79 | 6.90 | 2.50 | 177 | 122 | 2 | 87.4 | 9/GR22 |
| VEN11VEN | -103.80 | 32 | -66.79 | 6.90 | 2.50 | 1.77 | 122 | 2 | 87.4 | 9/GR22 |

## ARTICLE 10

## Interference

10.1 The Members of the Union in Region 2 shall endeavour to agree on the action required to reduce harmful interference which might be caused by the application of these provisions and the associated Plan.

## ARTICLE 11

## Period of Validity of the Provisions and Associated Plan

11.1 For Region 2, the provisions and associated Plan have been prepared in order to meet the requirements for feeder links for the broadcasting-satellite service in the bands concerned for a period extending until at least 1 January 1994.
11.2 In any event, the provisions and associated Plan shall remain in force until their revision by a competent administrative radio conference convened in accordance with the relevant provisions of the Convention in force.

## ANNEX 1

Limits for Determining Whether a Service of an Administration Is Considered to Be Affected by a Proposed Modification to the Plan or When It Is Necessary Under This Appendix to Seek the Agreement of Any Other Administration ${ }^{1}$

1. Limits applicable to protect a frequency assignment in the band $17.7-17.8 \mathrm{GHz}$ to an earth station in the fixed-satellite service (space-to-Earth)

An administration shall be considered as being affected if, upon application of the procedures of Section 3 of Annex 4 to this Appendix, that administration is included in the coordination area of the frequency assignment to a transmitting feeder-link earth station.

For this purpose, the parameters of the transmitting feeder-link earth station, as may be modified from those parameters given in Annex 3 to this Appendix, shall be used.
2. Limits applicable to protect a terrestrial station in the band 17.717.8 GHz

An administration shall be considered as being affected if, upon application of the procedures of Appendix 28 to the Radio Regulations, that administration is included in the coordination area of the frequency assignment to a transmitting feeder-link earth station.

For this purpose, the parameters of the transmitting feeder-link earth station, as may be modified from those parameters given in Annex 3 to this Appendix, shall be used.

[^56]3. Limits to the change in the overall equivalent protection margin with respect to frequency assignments in conformity with the Plan ${ }^{1}$

With respect to the modification to the Plan and when it is necessary under this Appendix to seek the agreement of any other administration, except in cases covered by Resolution 42 (Orb-85), an administration shall be considered as being affected if the overall equivalent protection margin ${ }^{2}$ corresponding to a test point of its entry in the Plan, including the cumulative effect of any previous modification to the Plan or any previous agreement, falls more than 0.25 dB below 0 dB , or, if already negative, more than 0.25 dB below the value resulting from:

- the Plan as established by the 1983 Conference; or
- a modification of the assignment in accordance with this Appendix; or
- a new entry in the Plan under Article 4 of this Appendix; or
- any agreement reached in accordance with this Appendix except for Resolution 42 (Orb-85).

[^57]
## ANNEX 2

## Basic Characteristics to be Furnished in Notices ${ }^{1}$ Relating to Feeder-Link Stations in the Fixed-Satellite Service Operating in the Frequency Band 17.3-17.8 GHz in Region $2^{2}$

1. The following information is required in notices relating to transmitting earth stations.
1.1 Country and beam identification.
1.2 Assigned frequency or channel number.
1.3 Assigned frequency band.
1.4 Date of bringing into use.
1.5 Identity of the transmitting feeder-link station.
1.6 Geographical coordinates of a feeder-link earth station transmitting in the band $17.7-17.8 \mathrm{GHz}$.
1.7 Feeder-link service area for a feeder-link earth station transmitting in the band $17.3-17.7 \mathrm{GHz}$ identified by a set of geographical coordinates of the polygon points of the feeder-link service area.

[^58]1.8 Identity of the space station with which communication is to be established.
1.9 Rain-climatic zone ${ }^{1}$.
1.10 Class of emission, necessary bandwidth and description of transmission.
1.11 Power characteristics of the transmission:
a) The following information is required for each assigned frequency:

- transmit power (dBW) supplied to the input of the antenna;
- maximum power density per $\mathrm{Hz}(\mathrm{dB}(\mathrm{W} / \mathrm{Hz})$ ), averaged over the worst 1 MHz band, supplied to the antenna.
b) Additional information required if power control is used (see Section 3.10 of Annex 3 to this Appendix):
- mode of control;
- range, expressed in dB , above the transmit power used in a) above.
c) Additional information required if site diversity is used (see Section 3.11 of Annex 3 to this Appendix):
- identity of other earth station with which diversity operation is to be employed.
d) Additional information required if depolarization compensation is used (see Section 3.12 of Annex 3 to this Appendix):
- characteristics.

[^59]
### 1.12 Transmitting antenna characteristics:

a) antenna diameter (metres);
b) gain of the antenna in the direction of maximum radiation referred to an isotropic radiator ( dBi );
c) beamwidth in degrees between the half-power points (describe in detail if not symmetrical);
d) the measured radiation diagram of the antenna (taking as a reference the direction of maximum radiation), or the reference radiation diagram to be used for coordination;
e) type of polarization;
f) sense of polarization;
g) the horizon elevation angle in degrees and the antenna gain in the direction of the horizon for each azimuth ${ }^{1}$ around the earth station ${ }^{2}$;
h) altitude of the antenna above mean sea level in metres ${ }^{2}$;
i) minimum elevation angle in degrees ${ }^{2}$.
1.13 Modulation characteristics:
a) type of modulation;
b) pre-emphasis characteristics;
c) TV system;
d) sound-broadcasting characteristics;
e) frequency deviation;
f) composition of the baseband;
g) type of multiplexing of the video and sound signals;
h) energy dispersal characteristics.

1 Every five degrees, in tabular or graphical form.
${ }^{2}$ This information is required for frequency assignments in the band 17.717.8 GHz.
1.14 Regular hours of operation (UTC).
1.15 Coordination.
1.16 Agreements.
1.17 Other information.
1.18 Operating administration or company.
2. The following information is required in notices relating to receiving space stations:
2.1 Country and beam identification.
2.2 Orbital position (xxx.xx degrees from the Greenwich meridian).
2.3 Assigned frequency or channel number.
2.4 Assigned frequency band.
2.5 Date of bringing into use.
2.6 Identity of the space station.
2.7 Class of station.
2.8 Class of emission and necessary bandwidth of the transmission to be received.
2.9 Antenna characteristics:
a) gain of the antenna in the direction of maximum radiation referred to an isotropic radiator ( dBi );
b) shape of the beam (circular, elliptical or other);
c) pointing accuracy;
d) type of polarization;
e) sense of polarization;
$f$ ) for circular beams, indicate the following:

- half-power beamwidth (degrees);
- co-polar and cross-polar radiation patterns;
- nominal intersection of the antenna beam axis with the Earth;
g) for elliptical beams, indicate the following:
- co-polar and cross-polar radiation patterns;
- rotation accuracy;
- orientation;
- major axis (degrees) at the half-power beamwidth;
- minor axis (degrees) at the half-power beamwidth;
- nominal intersection of the antenna beam axis with the Earth;
h) for beams of other than circular or elliptical shape, indicate the following:
- co-polar and cross-polar gain contours plotted on a map of the Earth's surface, preferably in a radial projection from the satellite onto a plane perpendicular to the axis from the centre of the Earth to the satellite. The isotropic or absolute gain shall be indicated at each contour which corresponds to a decrease in gain of $2,4,6,10$ and 20 dB and thereafter at 10 dB intervals down to a value of 0 dB relative to an isotropic radiator;
- wherever practicable, a numerical equation or table providing the necessary information to allow the gain contours to be plotted;
i) for an assignment in the band $17.7-17.8 \mathrm{GHz}$, the gain in the direction of those parts of the geostationary-satellite orbit which are not obstructed by the Earth. Use a diagram showing estimated gain versus orbit longitude.
2.10 Receiver system noise temperature referred to the output of the antenna.
2.11 Station-keeping accuracy.
2.12 Modulation characteristics:
a) type of modulation;
b) pre-emphasis characteristics;
c) TV system;
d) sound-broadcasting characteristics;
e) frequency deviation;
f) composition of the baseband;
$g$ ) type of multiplexing of the video and sound signals;
$h)$ energy dispersal characteristics.
2.13 Regular hours of operation (UTC).
2.14 Coordination.
2.15 Agreements.
2.16 Other information.
2.17 Operating administration or company.
2.18 Range of automatic gain control ${ }^{1}$.


## ANNEX 3 <br> Technical Data Used in Establishing the Provisions and Associated Plan and Which Should Be <br> Used for their Application

## 1. DEFINITIONS

### 1.1 Feeder link

In the Region 2 broadcasting-satellite service Plan, the term feeder link, as defined in No. 109 of the Radio Regulations is further qualified to indicate a fixed-satellite service link in the frequency band $17.3-17.8 \mathrm{GHz}$ from any earth station within the feeder-link service area to the associated space station in the broadcasting-satellite service.
${ }^{1}$ See Section 3.9 of Annex 3 to this Appendix.

The area delineated by the intersection of the half-power beam of the satellite receiving antenna with the surface of the Earth.

### 1.3 Feeder-link service area

The area on the surface of the Earth within the feeder-link beam area within which the administration responsible for the service has the right to locate transmitting earth stations for the purpose of providing feeder links to broadcasting-satellite space stations.

### 1.4 Nominal orbital position

The longitude of a position in the geostationary-satellite orbit associated with a frequency assignment to a space station in a space radiocommunication service. The position is given in degrees from the Greenwich meridian.

### 1.5 Adjacent channel

The RF channel in the broadcasting-satellite service frequency Plan, or in the associated feeder-link frequency Plan, which is situated immediately higher or lower in frequency with respect to the RF reference channel.

### 1.6 Second adjacent channel

The RF channel in the broadcasting-satellite service frequency Plan, or in the associated feeder-link frequency Plan, which is situated immediately beyond either of the adjacent channels.

### 1.7 Overall carrier-to-interference ratio

The overall carrier-to-interference ratio is the ratio of the wanted carrier power to the sum of all interfering RF powers in a given channel including both feeder links and down links. The overall carrier-to-interference ratio due to interference from the given channel is calculated as the reciprocal of the sum of the reciprocals of the feeder-link carrier-to-interference ratio and the down-link carrier-to-interference ratio referred to the satellite receiver input and earth station receiver input, respectively ${ }^{1}$.

### 1.8 Overall co-channel protection margin

The overall co-channel protection margin in a given channel is the difference in dB between the overall co-channel carrier-to-interference ratio and the co-channel protection ratio.

### 1.9 Overall adjacent channel protection margin

The overall adjacent channel protection margin is the difference, in dB , between the overall adjacent channel carrier-to-interference ratio and the adjacent channel protection ratio.

### 1.10 Overall second adjacent channel protection margin

The overall second adjacent channel protection margin is the difference in dB between the overall second adjacent channel carrier-tointerference ratio and the second adjacent channel protection ratio.

[^60]
### 1.11 Overall equivalent protection margin

The overall equivalent protection margin $M$ is given in dB by the expression:

$$
\begin{equation*}
M=-10 \log \left(\sum_{t=1}^{5} 10^{\left(-M_{t} / 10\right)}\right) \tag{dB}
\end{equation*}
$$

where:
$M_{1} \quad=$ overall co-channel protection margin, in dB (as defined in 1.8 ),
$M_{2}, M_{3}=$ overall adjacent channel protection margins for the upper and lower adjacent channels respectively, in dB (as defined in 1.9),
$M_{4}, M_{5}=$ overall second adjacent channel protection margins for the upper and lower second adjacent channels respectively, in dB (as defined in 1.10).

The adjective "equivalent" indicates that the protection margins for all interference sources from the adjacent and second adjacent channels as well as co-channel interference sources have been included.

## 2. RADIO PROPAGATION FACTORS

The propagation loss on an earth-space path is equal to the freespace path loss plus the atmospheric absorption loss plus the rain attenuation exceeded for $1 \%$ of the worst month.
(Rev. 1986)

### 2.1 Atmospheric absorption

The loss due to atmospheric absorption (i.e. clear sky attenuation) is given by:

$$
A_{a}=\frac{92.20}{\cos \theta}\left(0.020 F_{o}+0.008 \rho F_{w}\right) \quad \text { (dB) } \quad \text { for } \theta<5^{\circ}
$$

where:

$$
\begin{aligned}
& F_{o}=\left\{24.88 \tan \theta+0.339 \sqrt{1416.77 \tan ^{2} \theta+5.51}\right\}^{-1} \\
& F_{w}=\left\{40.01 \tan \theta+0.339 \sqrt{3663.79 \tan ^{2} \theta+5.51}\right\}^{-1}
\end{aligned}
$$

and:

$$
A_{a}=\frac{0.0478+0.0118 \rho}{\sin \theta} \quad \text { (dB) } \quad \text { for } \theta \geqslant 5^{\circ}
$$

where:
$\theta=$ the elevation angle (degrees),
$\rho=$ the surface water vapour concentration, $g / \mathrm{m}^{3}$, with $\rho=10 \mathrm{~g} / \mathrm{m}^{3}$ for rain-climatic zones A to K and $\rho=20 \mathrm{~g} / \mathrm{m}^{3}$ for rain-climatic zones M to P (see Figure 1 ).

### 2.2 Rain attenuation

For circularly polarized signals, the rain attenuation $A_{p}$ exceeded for $1 \%$ of the worst month at 17.5 GHz is calculated using the method outlined in Section 2.4.2 of Annex 5, Appendix 30 (Orb-85) by substituting the relation:

$$
\begin{equation*}
\gamma=0.0521 R^{1.114} \tag{dB/km}
\end{equation*}
$$

for the one given in that Section.
(Rev. 1986)


Rain climatic zones (Region 2)

Figure 2 presents plot of rain attenuation of circularly polarized signals exceeded for $1 \%$ of the worst month at 17.5 GHz , as a function of earth station latitude and elevation angle for each of the rain-climatic zones in Region 2.

### 2.3 Rain attenuation limit

In the analysis of the Plan, a maximum rain attenuation on the feeder link of 13 dB was considered assuming that other means would be used at the implementation stage to protect for larger rain attenuation on the feeder links.

### 2.4 Depolarization

Rain and ice can cause depolarization of radio frequency signals. The level of the co-polar component relative to the depolarized component is given by the cross-polarization discrimination (XPD) ratio. For the feeder link, the XPD ratio, in dB , exceeded for $99 \%$ of the worst month is given by:

$$
\mathrm{XPD}=30 \log f-40 \log (\cos \theta)-23 \log A_{p} \quad(\mathrm{~dB}) \quad \text { for } 5^{\circ} \leqslant \theta \leqslant 60^{\circ}
$$

where $A_{p}(\mathrm{~dB})$ is the co-polar rain attenuation exceeded for $1 \%$ of the worst month, $f$ is the frequency in GHz and $\theta$ is the elevation angle. For values of $\theta$ greater than $60^{\circ}$, use $\theta=60^{\circ}$ in the previous equation.
2.5 Procedure for calculating the carrier-to-interference ratio at a space station receiver input

The calculation of the feeder-link carrier-to-interference ratio (exceeded for $99 \%$ of the worst month) at a space station receiver input used to obtain the overall equivalent protection margin at a test point assumes a rain attenuation value exceeded for $1 \%$ of the worst month on the wanted feeder-link path.




For the interfering feeder-link signal path, clear sky propagation (i.e. including atmospheric absorption only) is assumed.

## 3. BASIC TECHNICAL CHARACTERISTICS

### 3.1 Translation frequency and guard bands

The feeder-link Plan is based on the use of a single frequency translation of 5.1 GHz between the 17 GHz feeder-link channels and the 12 GHz down-link channels. Other values of the translation frequency may be used, provided that the corresponding channels have been assigned to the space station of the administration concerned.

With a single value frequency translation between the feeder-link frequency band (17.3-17.8 GHz) and the down-link frequency band (12.212.7 GHz ), the guard bands present in the down-link Plan result in corresponding bandwidths of 12 MHz at the upper and lower feeder-link band edges. These feeder-link guard bands may be used for transmissions in the space operation service.

### 3.2 Carrier-to-noise ratio

Section 3.3 of Annex 5 to Appendix 30 (Orb-85) provides guidance for planning and the basis for the evaluation of the carrier-to-noise ratios of the feeder-link and down-link Plans.

As a guidance for planning, the reduction in quality in the downlink due to thermal noise in the feeder link is taken as equivalent to a degradation in the down-link carrier-to-noise ratio of approximately 0.5 dB not exceeded for $99 \%$ of the worst month.

Section 3.4 of Annex 5 to Appendix 30 (Orb-85) provides guidance for planning for the contribution of the feeder-link co-channel interference to the overall co-channel carrier-to-interference ratio. However, the feederlink and down-link Plans are evaluated on the overall equivalent protection margin which includes the combined down-link and feeder link contributions. Definitions $1.7,1.8,1.9,1.10$ and 1.11 of this Annex and the protection ratios given in Section 3.4 of Annex 5 to Appendix 30 (Orb-85) are used in the analysis of the Plans.

For the adjacent channels, the Plan is based on an orbital separation of $0.4^{\circ}$ between nominally co-located satellites having cross-polarized adjacent channel assignments.

For the second adjacent channels, the Plan is based on a 10 dB improvement on the feeder-link carrier-to-interference ratio due to the satellite receive filtering.

### 3.4 Transmitting antenna

### 3.4.1 Antenna diameter

The feeder-link Plan is based on an antenna diameter of 5 metres.

The minimum antenna diameter permitted in the Plan is 2.5 metres. However, the feeder-link carrier-to-noise ratio and carrier-to-interference ratio resulting from the use of antennas with diameters smaller than 5 metres would generally be less than those calculated in the Plan.

The use of antennas larger than 5 metres, with corresponding values of on-axis e.i.r.p. higher than the planned value (indicated in Section 3.4.3) but without augmented off-axis e.i.r.p., is permitted if the orbital separation between the assigned orbital location of the administration and the assigned orbital location of any other administration is greater than $0.5^{\circ}$.

Antennas with diameters larger than 5 metres can also be implemented if the above orbital separation is less than $0.5^{\circ}$ and if the e.i.r.p. of the desired feeder-link earth station does not exceed the planned value of e.i.r.p.

If the above orbital separation is less than $0.5^{\circ}$ and if the e.i.r.p. of the desired feeder-link earth station exceeds the planned value, agreement between administrations is required.

### 3.4.2 Reference patterns of transmitting antennas

The co-polar and cross-polar reference patterns of transmitting antennas used for planning in Region 2 are given in Figure 3.

### 3.4.3 Antenna efficiency

The Plan is based on an anteniaa efficiency of $65 \%$. The corresponding on-axis gain for an antenna having a 5 -metre diameter is 57.4 dBi at 17.55 GHz , and the corresponding value of e.i.r.p. used for planning purposes is 87.4 dBW .

### 3.4.4 Pointing accuracy

The Plan has been developed to accommodate a loss in gain due to earth station antenna mis-pointing of 1 dB . Under no circumstances shall the Plan allow for a mis-pointing angle greater than $0.1^{\circ}$.

### 3.5 Transmit power

The maximum transmit power delivered to the input of the antenna of the feeder-link earth station is 1000 watts per 24 MHz television channel. This level of power can only be exceeded under certain conditions specified in Section 3.10 of this Annex.


FIGURE 3
Reference patterns for co-polar and cross-polar components for transmitting antennas for Region 2
(Rev. 1986)

Curve A: Co-polar component (dBi)

| $36-20 \log \varphi$ | for | $0.1^{\circ} \leqslant \varphi<0.32^{\circ}$ |
| :--- | :--- | :--- |
| $51.3-53.2 \varphi^{2}$ | for | $0.32^{\circ} \leqslant \varphi<0.54^{\circ}$ |
| $29-25 \log \varphi$ | for | $0.54^{\circ} \leqslant \varphi<36^{\circ}$ |
| -10 | for | $\varphi \geqslant 36^{\circ}$ |

Curve B: Cross-polar component ( dBi )

$$
\begin{array}{ll}
G_{\max }-30 & \text { for } \quad \varphi<\left(\frac{0.6}{D}\right)^{\circ} \\
9-20 \log \varphi & \text { for } \quad\left(\frac{0.6}{D}\right)^{\circ} \leqslant \varphi<8.7^{\circ} \\
-10 & \text { for } \quad \varphi \geqslant 8.7^{\circ}
\end{array}
$$

where:
$\varphi \quad=$ off-axis angle referred to the main-lobe axis (degrees);
$G_{\text {max }}=$ on-axis co-polar gain of the antenna (dBi);
$D \quad=$ diameter of the antenna in metres $(D \geqslant 2.5)$.

Note 1: In the angular range between $0.1^{\circ}$ and $0.54^{\circ}$, the co-polar gain must not exceed the reference pattern.

Note 2: In the angular range between $0^{\circ}$ and $(0.6 / D)^{\circ}$, the cross polar gain must not exceed the reference pattern.

Note 3: At the larger off-axis angles and for $90 \%$ of all side-lobe peaks in each of the reference angular windows, the gain must not exceed the reference pattern. The reference angular windows are $0.54^{\circ}$ to $1^{\circ}, 1^{\circ}$ to $2^{\circ}, 2^{\circ}$ to $4^{\circ}, 4^{\circ}$ to $7^{\circ}, 7^{\circ}$ to $10^{\circ}, 10^{\circ}$ to $20^{\circ}, 20^{\circ}$ to $40^{\circ}, 40^{\circ}$ to $70^{\circ}, 70^{\circ}$ to $100^{\circ}$ and $100^{\circ}$ to $180^{\circ}$. The first reference angular window for evaluating the cross-polar component should be $(0.6 / D)^{\circ}$ to $1^{\circ}$.

### 3.6 Receiving antenna

### 3.6.1 Cross-section of receiving antenna beam

Planning has been based on beams of elliptical or circular crosssection. When the assignments are implemented, or when the Plan is modified, administrations may use non-elliptical or shaped beams.

If the cross-section of the receiving antenna beam is elliptical, the effective beamwidth $\varphi_{0}$ is a function of the angle of rotation $q$ between the plane containing the satellite and the major axis of the beam cross-section and the plane in which the beamwidth is required.

The relationship between the maximum gain of an antenna and the half-power beamwidth can be derived from the expression:

$$
G_{m}=27843 / a b
$$

or

$$
G_{m}(\mathrm{~dB})=44.44-10 \log a-10 \log b
$$

where:
$a$ and $b$ are the angles (in degrees) subtended at the satellite by the major and minor axes of the elliptical cross-section of the beam.

An antenna efficiency of $55 \%$ is assumed.

### 3.6.2 Minimum beamwidth

A minimum value of $0.6^{\circ}$ for the half-power beamwidth of the receiving antenna has been agreed on for planning.

### 3.6.3 Reference patterns

The reference patterns for the co-polar and cross-polar components of the satellite receiving antenna used in preparing the Plan are given in Figure 4.

Where it was necessary to reduce interference, the pattern shown in Figure 5 was used; this use will be indicated in the Plan by an appropriate symbol. This pattern is derived from an antenna producing an elliptical beam with fast roll-off in the main lobe. Three curves for different values of $\varphi_{0}$ are shown as examples.


FIGURE 4
Reference patterns for co-polar and cross-polar components
for satellite receiving antenna in Region 2

Curve A: Co-polar component ( dB relative to main beam gain)

$$
\begin{array}{lll}
-12\left(\varphi / \varphi_{0}\right)^{2} & \text { for } & 0 \leqslant\left(\varphi / \varphi_{0}\right) \leqslant 1.45 \\
-\left(22+20 \log \left(\varphi / \varphi_{0}\right)\right) & \text { for } & \left(\varphi / \varphi_{0}\right)>1.45
\end{array}
$$

after intersection with Curve C : as Curve C

Curve B: Cross-polar component ( dB relative to main beam gain)
-30 for $0 \leqslant\left(\varphi / \varphi_{0}\right) \leqslant 2.51$
after intersection with Curve A: as Curve A

Curve C: Minus the on-axis gain (Curve C in this figure illustrates the particular case of an antenna with an on-axis gain of 46 dBi )


FIGURE 5
Reference patterns for co-polar and cross-polar components for satellite receiving antennas with fast roll-off in the main beam
for Region 2

Curve A: Co-polar component ( dB relative to main beam gain)

$$
\begin{array}{lll}
-12\left(\varphi / \varphi_{0}\right)^{2} & \text { for } & 0 \leqslant \varphi / \varphi_{0} \leqslant 0.5 \\
-33.33 \varphi_{0}^{2}\left(\varphi / \varphi_{0}-x\right)^{2} & \text { for } & 0.5<\varphi / \varphi_{0} \leqslant \frac{0.87}{\varphi_{0}}+x \\
-25.23 & \text { for } & \frac{0.87}{\varphi_{0}}+x<\varphi / \varphi_{0} \leqslant 1.413 \\
-\left(22+20 \log \left(\varphi / \varphi_{0}\right)\right) & \text { for } & \frac{\varphi}{\varphi_{0}}>1.413
\end{array}
$$

after intersection with Curve C : as Curve C

Curve B: Cross-polar component (dB relative to main beam gain)
-30 for $0 \leqslant \varphi / \varphi_{0}<2.51$
after intersection with Curve A: as Curve A

Curve $C$ : Minus the on-axis gain (Curves $A$ and $C$ represent examples for three antennas having different values of $\varphi_{0}$ as labelled in Figure 5. The on-axis gains of these antennas are 37,43 and 49 dBi , respectively).
where:

$$
\varphi=\text { off-axis angle (degrees) }
$$

$\varphi_{0}=$ dimension of the minimum ellipse fitted around the feeder link service area in the direction of interest (degrees)
$x=0.5\left(1-\frac{0.6}{\varphi_{0}}\right)$.

### 3.6.4 Pointing accuracy

The deviation of the receiving antenna beam from its nominal pointing direction must not exceed $0.1^{\circ}$ in any direction. Moreover, the angular rotation of the receiving beam about its axis must not exceed $\pm 1^{\circ}$; this latter limit is not necessary for beams of circular cross-section using circular polarization.

### 3.7 System noise temperature

The Plan is based on a value of 1500 K for the satellite system noise temperature.

### 3.8 Polarization

3.8.1 In Region 2, for the purpose of planning the feeder links, circular polarization is used.
3.8.2 In the cases where there are polarization constraints, use of polarization other than circular is permitted only upon agreement of administrations that may be affected.

### 3.9 Automatic gain control

3.9.1 The Plan is based on the use of automatic gain control on board satellites to maintain a constant signal level at the satellite transponder output.
3.9.2 The dynamic range of automatic gain control is limited to 15 dB when satellites are located within $0.4^{\circ}$ of each other and operate on cross-polarized adjacent channels serving common or adjacent feeder-link service areas.
3.9.3 The 15 dB limit of automatic gain control does not apply to satellites other than those specified in paragraph 3.9.2 above.
(Rev. 1986)

### 3.10 Power control

The Plan has been developed without the use of power control.
The use of transmit power levels higher than those given in Section 3.5 is permitted only when rain attenuation exceeds 5 dB at 17 GHz . In such cases, the transmit power may be increased by the amount that the instantaneous rain attenuation exceeds 5 dB at 17 GHz up to the limit given in Table I.

## TABLE I

Transmit radio frequency power (delivered to the imput of the feeder-link earth station antenna) permitted in excess of 1000 watts as a function of elevation angle

| Elevation angle of feeder-link <br> earth station antenna <br> (degrees) | Transmit power <br> permitted in excess <br> of 1000 watts (dB) |
| :---: | :---: |
| 0 to 40 | 0 |
| 40 to 50 | 2 |
| 50 to 60 | 3 |
| 60 to 90 | 5 |

### 3.11 Site diversity

Site diversity refers to the alternate use during rain of two or more transmitting earth stations which may be separated by sufficient distance to ensure uncorrelated rainfall conditions.

The use of site diversity is permitted and is considered to be an effective technique for maintaining high carrier-to-noise ratio and carrier-tointerference ratio during periods of moderate to severe rain attenuation. However, the Plan is not based on the use of site diversity.

### 3.12 Depolarization compensation

The Plan is developed without the use of depolarization compensation. Depolarization compensation is permitted only to the extent that interference to other satellites does not increase by more than 0.5 dB relative to that calculated in the feeder-link Plan.

### 3.13 Minimum separation between satellites

Figure 6 illustrates two adjacent clusters of satellites separated by $0.9^{\circ}$ between the centres of the clusters. A $\eta$ identifies a satellite of administration $\eta$. A cluster is formed by two or more satellites separated by $0.4^{\circ}$ and located at two nominal orbital positions as specified in the Plan; one position for right-hand polarized channels and the other position for left-hand polarized channels.

### 3.13.1 Satellites of the same cluster

The Plan is based on an orbital separation of $0.4^{\circ}$ between satellites having cross-polarized adjacent channels (i.e. satellites located at $+0.2^{\circ}$ and $-0.2^{\circ}$ from the centre of the cluster). However, satellites within a cluster may be located at any orbital position within the cluster, requiring only the agreement of the other administrations having satellites sharing the same cluster. Such orbital positioning of satellites within a cluster is illustrated in Figure 6 by some of the satellites A5, A6 and A7.

The station-keeping tolerance of $\pm 0.1^{\circ}$ indicated in Section 3.11 of Annex 5 to Appendix 30 (Orb-85) must be applied to satellites located at any position within the $0.4^{\circ}$ wide cluster.

### 3.13.2 Satellites of different clusters

In the Plan, the orbital separation between the centres of adjacent clusters of satellites is at least $0.9^{\circ}$. The value of $0.9^{\circ}$ is also the minimum orbital separation to provide flexibility in the implementation of feeder links indicated in Section 3.4.1 of this Annex without the need for an agreement (see Section 3.13.1 of this Annex).


FIGURE 6
Exploded view of geostationary satellite orbit

## ANNEX 4

## Criteria for Sharing Between Services in Region 2

1. Threshold values for determining when coordination is required between a transmitting space station in the fixed-satellite service and a receiving space station in the feeder-link Plan in the frequency band 17.7-17.8 GHz

With respect to paragraph 7.1, Article 7 of this Appendix, coordination of a transmitting space station in the fixed-satellite service with a broadcasting-satellite in the Region 2 Plan is required, for inter-satellite geocentric angular separations less than $10^{\circ}$ or greater than $150^{\circ}$, when the power flux-density arriving at the receiving space station of a broadcastingsatellite feeder-link station of another administration would cause an increase in the noise temperature of the feeder-link space station which, calculated in accordance with the method given in Appendix 29, exceeds a threshold value of $\Delta T / T$ corresponding to $10 \%$. The above provision does not apply when the geocentric angular separation, between a transmitting space station in the fixed-satellite service and a receiving space station in the feeder-link Plan, exceeds $150^{\circ}$ of arc and the free-space power flux-density of the transmitting space station in the fixed-satellite service does not exceed a value of $-123 \mathrm{~dB}\left(\mathrm{~W} / \mathrm{m}^{2} / 24 \mathrm{MHz}\right)$ on the Earth's surface at the equatorial Earth limb.
2. Not used.
3. Method for the determination of the coordination area around a feeder-link transmitting earth station of the Region 2 Plan with respect to receiving earth stations in the fixed-satellite service in Region 2 in the frequency band $17.7-17.8 \mathrm{GHz}$

### 3.1 Introduction

In the frequency band $17.7-17.8 \mathrm{GHz}$, which is allocated to the fixed-satellite service, in both the Earth-to-space direction (for broadcasting-
satellite service feeder links only), and the space-to-Earth direction, emissions from transmitting feeder-link earth stations may cause interference at receiving earth stations in the fixed-satellite service.

Electromagnetic coupling of an emission originating at a feeder-link earth station into a receiving earth station may occur through two propagation mechanisms or "modes":

Propagation mode (1): coupling along a great circle tropospheric interference horizon path;

Propagation mode (2): coupling through scatter from hydrometeors.

The determination of whether emissions from a feeder-link earth station may cause unacceptable interference in a receiving earth station is by means of coordination contours drawn around a feeder-link earth station on a map. When a receiving earth station is located within either or both coordination contours, i.e., within the coordination area, there is a possibility of unacceptable interference.

The procedure for the determination of the coordination area for a feeder-link earth station in relation to a receiving earth station in the fixed-satellite service is similar to that described in Appendix 28 but differs from it in the details described below.

### 3.2 Determination of the coordination contour for propagation mode (1)

The distance at which a signal of power $P_{r^{\prime}}(\mathrm{dBW})$ applied to the antenna terminals of a feeder-link earth station will produce a received power $P_{r}(p)$ at the antenna terminals of a receiving earth station, for propagation mode (1), is given by:

$$
\begin{equation*}
d_{1}=\left(P_{t^{\prime}}+G_{r^{\prime}}+G_{r}-P_{r}(p)-A_{0}-A_{h}\right) / \beta \quad(\mathrm{km}) \tag{1}
\end{equation*}
$$

as derived from equations (2) and (8) of Appendix 28,
where:
$P_{t^{\prime}} \quad=$ maximum RF power (dBW) in any 1 MHz band applied to the antenna terminals of a feeder-link earth station;
$G_{t^{\prime}} \quad=$ gain (dB) of the feeder-link earth station antenna towards the physical horizon on the azimuth to the receiving earth station;
$G_{r} \quad=$ gain (dB) of the receiving earth station antenna towards the physical horizon on the azimuth to the feeder-link earth station;
$P_{r}(p)=$ permissible interfering RF power (dBW) in any 1 MHz band to be exceeded for no more than $p \%$ of the time at the antenna terminals of the receiving earth station;
$A_{0}=$ constant equal to 145.0 dB ;
$A_{h}=$ sum $(\mathrm{dB})$ of available site shielding at the feeder-link earth station, $A_{h t^{\prime}}$, and at the receiving earth station, $A_{h r}$, on the respective azimuth towards the other earth station (both in dB );
$\beta=$ rate of attenuation along the interference path ( $\mathrm{dB} / \mathrm{km}$ ), a function of the radio-climatic zone and of $p$ as used in $P_{r}(p)$ above.

To determine the coordination contour for propagation mode (1) for a feeder-link earth station, equation (1) is solved for all azimuths around the earth station site (in suitable increments; e.g., every $5^{\circ}$ ), and the resulting distances plotted for all azimuths on a map of suitable scale from the earth station site. The connection of the so marked distance points constitutes the coordination contour for the feeder-link earth station.

### 3.3 Determination of parameters used in equation (1)

The parameters used in equation (1) are determined as follows:

### 3.3.1 Determination of $G_{t^{\prime}}$ and $G_{r}$

The determination of $G_{\prime^{\prime}}$ follows the procedure set forth in Annex II to Appendix 28 using the notified feeder-link earth station antenna pattern.

For the receiving earth station, a minimum main beam elevation angle of $5^{\circ}$ is assumed for which the reference antenna radiation diagram of paragraph 4 of Annex II to Appendix 28 yields, in the absence of site shielding, a horizon antenna gain of $G_{r}=14.5 \mathrm{~dB}$.

### 3.3.2 Determination of $A_{h t^{\prime}}$ and $A_{h r}$

The calculation of $A_{h r^{\prime}}$ requires the determination of the horizon elevation angle $\theta$ (degrees) for all azimuths around a feeder-link earth station site. With these horizon elevation angles and the frequency of $f=17.75 \mathrm{GHz}, A_{h^{\prime}}$ is then calculated for each azimuth from equation (7a) of Appendix 28 for $\theta>0^{\circ}$, and it should be taken as equal to 0 dB for $\theta<0^{\circ}$.

For the fixed-satellite receiving earth station, the assumption must be made that no site shielding is available; hence, $A_{h r}=0 \mathrm{~dB}$.

### 3.3.3 Determination of $P_{r}(p)$ and $p$

The maximum permissible interfering RF power in any 1 MHz band is taken, under nominal conditions, to be limited to $15 \%$ of the total noise received at an earth station, or about $20 \%$ of the thermal noise of the receiving system. This corresponds to a value of -7 dB for the parameter $J$ of Appendix 28. For percentages of time of less than $0.003 \%$, a permissible increase in the interference by 5 dB is assumed (parameter $M(p)$ of Appendix 28). Considering further that the band $17.7-17.8 \mathrm{GHz}$ is also
shared with terrestrial services, the assumption is made that up to three equivalent entries of interference may be present which, however, produce their maximum interference during periods uncorrelated in time, thus allowing each to produce the maximum permissible value of interfering RF power during $p=0.001 \%$ of the time.

Therefore, according to equation (3) of Appendix 28:

$$
\begin{equation*}
P_{r}(p)=10 \log (k T B)-2 \quad(\mathrm{~dB}(\mathrm{~W} / \mathrm{MHz})) \tag{2}
\end{equation*}
$$

which, with

$$
\begin{aligned}
& k=\text { Boltzmann's constant, } \\
& B=1 \mathrm{MHz}, \text { and }
\end{aligned}
$$

$T=$ receiving system noise temperature, assumed to be 200 K
yields:

$$
P_{r}(p)=-147.6(\mathrm{~dB}(\mathrm{~W} / \mathrm{MHz})),
$$

with $\quad p=0.001 \%$ of the time.

### 3.3.4 Determination of $\beta$

The rates of attenuation for a percentage of time of $0.001 \%$, for the three radio-climatic zones as defined in paragraph 3.1 of Appendix 28 at 17.75 GHz , are the following:

Zone A: $\quad \beta_{\mathrm{A}}=0.198 \mathrm{~dB} / \mathrm{km}$
Zone B: $\quad \beta_{\mathrm{B}}=0.06 \mathrm{~dB} / \mathrm{km}$

Zone C: $\quad \beta_{C}=0.074 \mathrm{~dB} / \mathrm{km}$

### 3.3.5 Graphical method

Figure 1 provides curves by means of which $d_{1}$ may be determined when only a single radio-climatic zone is involved. The three curves shown are for the three radio-climatic zones as defined in Appendix 28. The abscissa is given in terms of the parameter $P$ as defined below:

$$
\begin{equation*}
P=P_{r^{\prime}}+G_{r^{\prime}}+G_{r}-P_{r}(p)-A_{0}-A_{h} \tag{dB}
\end{equation*}
$$

### 3.4 Mixed zone contours

When the solution of equation (1) yields a distance $d_{1}$, which, on the azimuth under consideration, produces a point which lies in a different radio-climatic zone from that in which the feeder-link earth station is located, it is necessary to determine a mixed-zone coordination distance for that azimuth. Thus, if the feeder-link earth station is located in a radioclimatic zone identified by the suffix " $a$ " and the solution of equation (1) produces a distance which ends in another radio-climatic zone, identified by the suffix " $b$ " ( $a$ and $b$ referring to any one of the zones A, B or C, with $a \neq b$ ), the coordination distance is calculated from:

$$
\begin{equation*}
d_{1}=\frac{P-d_{a} \beta_{a}}{\beta_{b}}+d_{a} \tag{3}
\end{equation*}
$$

where $d_{a}$ is the distance $(\mathrm{km})$ from the feeder-link earth station site to the boundary between the two climatic zones.

For the rare case where more than two radio-climatic zones are involved, the applicable equation would be:

$$
\begin{equation*}
d_{1}=\frac{P-d_{a} \beta_{a}-d_{b} \beta_{b}}{\beta_{c}}+d_{a}+d_{b} \tag{km}
\end{equation*}
$$

where the subscript " $c$ " denotes the zone farthest away from the feeder-link earth station site within which the coordination distance ends.


FIGURE 1
Coordination distance as a function of parameter $P$. Propagation mode(1); $17.75 \mathrm{GHz} ; p=0.001 \%$ of the time

### 3.5 Determination of the coordination contour for propagation mode (2)

In the case of scattering from hydrometeors, the high main beam e.i.r.p. from a transmitting feeder-link earth station antenna and the expected high sensitivity of a fixed-satellite service receiving earth station suggest that interference from a feeder-link earth station into a fixed-satellite earth station may be unacceptable only when either earth station can see the main beam of the other, below the maximum altitudes from which significant hydrometeor scatter reflectivity prevails.

Accordingly, to avoid such mutual visibility conditions, the rain scatter distance $d_{r}$ is to be that distance at which the receiving earth station's horizon intersects the maximum expected rain scatter altitude $h_{5}{ }^{1}$.

### 3.5.1 Rain scatter distance $d_{r}$

For an assumed horizon elevation angle of zero degree at the fixed-satellite receiving earth station, $d_{r}$ is given by:

$$
\begin{equation*}
d_{r}=130 \sqrt{h_{s}} \quad(\mathrm{~km}) \tag{5}
\end{equation*}
$$

in a 4/3 earth radius reference atmosphere, with

$$
\begin{equation*}
h_{s}=5.1-2.15 \log \left(1+10^{(\varphi-27) / 25}\right) \tag{km}
\end{equation*}
$$

where $\varphi$ is the latitude (North or South) of the feeder-link earth station site (degrees).

[^61]The rain scatter distance $d_{r}$ so calculated yields the rain scatter coordination contour for the feeder-link earth station by the procedure described in paragraph 4.5 of Appendix 28.

### 3.5.2 Graphical method

Figure 2 provides a curve by means of which the rain scatter distance $d_{r}$ may be read directly for a given feeder-link earth station latitude $\zeta$.

### 3.6 Minimum coordination distance

The minimum coordination distance for a feeder-link earth station shall be 100 km .

### 3.7 Coordination area

The coordination area for a feeder-link earth station is the total area contained within the combined coordination contours for propagation modes (1) and (2).


FIGURE 2
Rain scatter distance $d_{r}$ as a function of feeder-link earth station site latitude $\zeta$

| Call Sign Series | Allocated to |
| :---: | :---: |
| HOA-HPZ | Panama (Republic of) |
| HQA-HRZ | Honduras (Republic of) |
| HSA-HSZ | Thailand |
| HTA-HTZ | Nicaragua |
| HUA-HUZ | El Salvador (Republic of) |
| HVA-HVZ | Vatican City State |
| HWA-HYZ | France |
| HZA-HZZ | Saudi Arabia (Kingdom of) |
| H2A-H2Z | Cyprus (Republic of) |
| H3A-H3Z | Panama (Republic of) |
| H4A-H4Z | Solomon Islands |
| H6A-H7Z | Nicaragua |
| H8A-H9Z | Panama (Republic of) |
| IAA-IZZ | Italy |
| JAA-JSZ | Japan |
| JTA-JVZ | Mongolian People's Republic |
| JWA-JXZ | Norway |
| JYA-JYZ | Jordan (Hashemite Kingdom of) |
| JZA-JZZ | Indonesia (Republic of) |
| J2A-J2Z | Djibouti (Republic of) |
| J3A-J3Z | Grenada |
| J4A-J4Z | Greece |
| J5A-J5Z | Guinea-Bissau (Republic of) |
| J6A-J6Z | Saint Lucia |
| J7A-J7Z | Dominica |
| KAA-KZZ | United States of America |
| LAA-LNZ | Norway |
| LOA-LWZ | Argentine Republic |
| LXA-LXZ | Luxembourg |
| LYA-LYZ | Union of Soviet Socialist Republics |
| LZA-LZZ | Bulgaria (People's Republic of) |
| L2A-L9Z | Argentine Republic |
| MAA-MZZ | United Kingdom of Great Britain and Northern Ireland |
| NAA-NZZ | United States of America |
| OAA-OCZ | Peru |
| ODA-ODZ | Lebanon |
| OEA-OEZ | Austria |
| OFA-OJZ | Finland |
| OKA-OMZ | Czechoslovak Socialist Republic |
| ONA-OTZ | Belgium |
| OUA-OZZ | Denmark |
| PAA-PIZ | Netherlands (Kingdom of the) |
| PJA-PJZ | Netherlands Antilles |
| PKA-POZ | Indonesia (Republic of) |
| PPA-PYZ | Brazil (Federative Republic of) |

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|  |  |
| :--- | :--- |
| Call Sign |  |
| Series |  |
|  |  |
|  |  |
| PZA-PZZ | Allocated to |
| P2A-P2Z | Puriname (Republic of) |
| P3A-P3Z | Cyprus (Republic of) |
| P4A-P4Z | ** |
| P5A-P9Z | Democratic People's Republic of Korea |
| QAA-QZZ | (Service abbreviations) |
| RAA-RZZ | Union of Soviet Socialist Republics |
| SAA-SMZ | Sweden |
| SNA-SRZ | Poland (People's Republic of) |
| SSA-SSM | Egypt (Arab Republic of) |
| SSN-STZ | Sudan (Democratic Republic of the) |
| SUA-SUZ | Egypt (Arab Republic of) |
| SVA-SZZ | Greece |
| S2A-S3Z | Bangladesh (People's Republic of) |
| S6A-S6Z | Singapore (Republic of) |
| S7A-S7Z | Seychelles (Republic of) |
| S9A-S9Z | Sao Tome and Principe (Democratic Republic of) |
| TAA-TCZ | Turkey |
| TDA-TDZ | Guatemala (Republic of) |
| TEA-TEZ | Costa Rica |
| TFA-TFZ | Iceland |
| TGA-TGZ | Guatemala (Republic of) |
| THA-THZ | France |
| TIA-TIZ | Costa Rica |
| TJA-TJZ | Cameroon (United Republic of) |
| TKA-TKZ | France |
| TLA-TLZ | Central African Republic |
| TMA-TMZ | France |
| TNA-TNZ | Congo (People's Republic of the) |
| TOA-TQZ | France |
| TRA-TRZ | Gabon Republic |
| TSA-TSZ | Tunisia |
| TTA-TTZ | Chad (Republic of the) |
| TUA-TUZ | Ivory Coast (Republic of the) |
| TVA-TXZ | France |
| TYA-TYZ | Benin (People's Republic of) |
| TZA-TZZ | Mali (Republic of) |
| T2A-T2Z | Tuvalu |
| T3A-T3Z | Kiribati Republic |
| T4A-T4Z | Cuba |
| T5A-T5Z | Somali Democratic Republic |
| T6A-T6Z | Afghanistan (Democratic Republic of) |
| UAA-UQZ | Union of Soviet Socialist Republics |
| URA-UTZ | Ukrainian Soviet Socialist Republic |
|  | Union of Soviet Socialist Republics |

** Note by the General Secretariat: The call sign series P4A-P4Z, previously allocated to Netherlands Antilles, has now been released for use by Aruba.

| Call Sign Series | Allocated to |
| :---: | :---: |
| 6VA-6WZ | Senegal (Republic of the) |
| 6XA-6XZ | Madagascar (Democratic Republic of) |
| $6 \mathrm{YA}-6 \mathrm{YZ}$ | Jamaica |
| 6ZA-6ZZ | Liberia (Republic of) |
| 7AA-7IZ | Indonesia (Republic of) |
| 7JA-7NZ | Japan |
| 70A-70Z | Yemen (People's Democratic Republic of) |
| 7PA-7PZ | Lesotho (Kingdom of) |
| 7QA-7QZ | Malawi (Republic of) |
| 7RA-7RZ | Algeria (Algerian Democratic and Popular Republic) |
| 7SA-7SZ | Sweden |
| 7TA-7YZ | Algeria (Algerian Democratic and Popular Republic) |
| 7ZA-7ZZ | Saudi Arabia (Kingdom of) |
| 8AA-8IZ | Indonesia (Republic of) |
| 8JA-8NZ | Japan |
| 80A-8OZ | Botswana (Republic of) |
| 8PA-8PZ | Barbados |
| 8QA-8QZ | Maldives (Republic of) |
| 8RA-8RZ | Guyana |
| 8SA-8SZ | Sweden |
| 8TA-8YZ | India (Republic of) |
| 8ZA-8ZZ | Saudi Arabia (Kingdom of) |
| 9AA-9AZ | ** |
| 9BA-9DZ | Iran (Islamic Republic of) |
| 9EA-9FZ | Ethiopia |
| 9GA-9GZ | Ghana |
| 9HA-9HZ | Malta (Republic of) |
| 9IA-9JZ | Zambia (Republic of) |
| 9KA-9KZ | Kuwait (State of) |
| 9LA-9LZ | Sierra Leone |
| 9MA-9MZ | Malaysia |
| 9NA-9NZ | Nepal |
| 90A-9TZ | Zaire (Republic of) |
| 9UA-9UZ | Burundi (Republic of) |
| 9VA-9VZ | Singapore (Republic of) |
| 9WA-9WZ | Malaysia |
| 9XA-9XZ | Rwanda (Republic of) |
| 9YA-9ZZ | Trinidad and Tobago |

** Note by the General Secretariat: The call sign series 9AA-9AZ, previously allocated to the Republic of San Marino, has now been released.

## Note by the General Secretariat

The following call sign series were allocated by the Secretary-General on a provisional basis between the end of the WARC-79 and 29 January 1985:

| Call Sign <br> Series |  |
| :--- | :--- |
|  | Allocated to |
| J8A-J8Z | Saint Vincent and the Grenadines |
| P4A-P4Z | Aruba |
| T7A-T7Z | San Marino (Republic of) |
| V2A-V2Z | Antigua |
| V3A-V3Z | Belize |
| V4A-V4Z | Saint Christopher and Nevis |
| V8A-V8Z | Brunei |
| Z2A-Z2Z | Zimbabwe (Republic of) |
|  |  |

(Rev. 1986)

## APPENDIX 43

Mob-83

## Maritime Mobile Service Identities

## 1. General

1.1 Maritime mobile service identities are formed of a series of nine digits which are transmitted over the radio path in order to uniquely identify ship stations, ship earth stations, coast stations, coast earth stations and group calls.
1.2 Ship station identities shall be in accordance with relevant CCIR and CCITT Recommendations.
1.3 These identities are formed in such a way that the identity or part thereof can be used by telephone and telex subscribers connected to the general telecommunications network to call ships automatically in the shore-to-ship direction.
1.4 There are three kinds of maritime mobile service identities:
i) ship station identities,
ii) group call identities,
iii) coast station identities.
1.5 In this Appendix, the word "country" is used with the meaning attributed to it in No. 2246 of the Radio Regulations.

## 2. Maritime Identification Digits (MID)

Table 1 gives the Maritime Identification Digits (MID) allocated to each country. In accordance with No. 2087, the Secretary-General is responsible for allocating Maritime Identification Digits to countries not included in this table. No. 2087A authorizes the Secretary-General to allocate additional MIDs to countries in accordance with Resolution 320 (Mob-83).

## 3. Ship Station Identities

The 9 -digit code constituting a ship station identity is formed as follows:

$$
M_{1} I_{2} D_{3} X_{4} X_{5} X_{6} X_{7} X_{8} X_{9}
$$

wherein

$$
\mathrm{M}_{1} \mathrm{I}_{2} \mathrm{D}_{3}
$$

represent the Maritime Identification Digits and X is any figure from 0 to 9 .

## 4. Group Call Identities

Group call identities for calling simultaneously more than one ship are formed as follows:

$$
0_{1} M_{2} I_{3} D_{4} X_{5} X_{6} X_{7} X_{8} X_{9}
$$

where the first figure is zero and X is any figure from 0 to 9 .
The particular MID reflects only the country allocating the group call identity and so does not prevent group calls to fleets containing more than one ship nationality.

## 5. Coast Station Identities

Coast station identities are formed as follows:

$$
0_{1} 0_{2} M_{3} I_{4} D_{5} X_{6} X_{7} X_{8} X_{9}
$$

where the first two figures are zeros and X is any figure from 0 to 9 .
The MID reflects the country in which the coast station or coast earth station is located.

## Note by the General Secretariat

The following blocks of selective call numbers for ship stations and selective call numbers for groups of ship stations were supplied to Administrations by the Secretary-General between the end of the WARC-79 and 2 June 1986:

| Blocks* of selective call numbers for ship stations and selective call numbers for groups of ship stations | Supplied to |
| :---: | :---: |
| 02300-02399 | Saint Vincent and the Grenadines |
| 02400-02499 | Cook Islands |
| 02500-02599 | Niue Island |
| 02600-02699 | Western Samoa (Independent State of) |
| 04100-05049 | Denmark |
| 05051-05199 | Denmark |
| 05400-05899 | Denmark |
| 06000-06059 | Denmark |
| 06061-06299 | Denmark |
| 07000-07069 | Denmark |
| 07071-08079 | Denmark |
| 08081-08399 | Denmark |
| 08500-09089 | Spain |
| 09090* | Spain |
| 09091-09499 | Spain |
| 10101* $11400-11899$ | Spain |
| $\begin{aligned} & 11400-11899 \\ & 12121^{*} \end{aligned}$ | United States of America United States of America |
| 14200-14299 | France |
| 15600-16160 | France |
| 16162-16699 | France |
| 18700-18999 | Honduras (Republic of) |
| 20800-21211 | Italy |
| 21213-21299 | Italy |

* The numbers formed by the same digit repeated five times, or by two different digits repeated alternately, are reserved for calling predetermined groups of ship stations, and are to be considered as not included in the blocks of call numbers for ship stations supplied to administrations.
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| Blocks* of selective call numbers for ship stations and selective call numbers for groups of ship stations | Supplied to |
| :---: | :---: |
| $22600-22699$ $22900-22999$ $23000-23231$ $23232^{*}$ $23233-23299$ $24100-24199$ $25800-25999$ $2700-27271$ $27272^{*}$ $27273-27999$ $28282^{*}$ $28400-29291$ $29292^{*}$ $29293-30302$ $30303^{*}$ $30304-31299$ $31300-31312$ $31313^{*}$ $31314-31399$ $32100-32322$ $32324-32399$ $34500-35352$ $35354-35999$ $36363^{*}$ $41500-41899$ $42200-42423$ $42425-42499$ $44100-44399$ | Kuwait (State of) <br> Indonesia (Republic of) <br> Chile <br> Chile <br> Chile <br> Colombia (Republic of) <br> Sweden <br> Japan <br> Japan <br> Japan <br> Japan <br> Norway <br> Japan <br> Norway <br> Japan <br> Norway <br> Morocco (Kingdom of) <br> Morocco (Kingdom of) <br> Morocco (Kingdom of) <br> Norway <br> Norway <br> Norway <br> Norway <br> Japan <br> Germany (Federal Republic of) <br> Panama (Republic of) <br> Panama (Republic of) <br> Sweden |

* The numbers formed by the same digit repeated five times, or by two different digits repeated alternately, are reserved for calling predetermined groups of ship stations, and are to be considered as not included in the blocks of call numbers for ship stations supplied to administrations.
(Rev. 1986)

| Blocks* of selective call numbers for ship stations and selective call numbers for groups of ship stations | Supplied to |
| :---: | :---: |
| 44500-45453 | Sweden |
| 45455-45499 | Sweden |
| 46900-47473 | United Kingdom of Great Britain and Northern Ireland |
| 47475-47899 | United Kingdom of Great Britain and Northern Ireland |
| 50300-50399 | United Kingdom of Great Britain and Northern Ireland |
| 51500-51514 | Switzerland (Confederation of) |
| 51516-51599 | Switzerland (Confederation of) |
| 51800-51999 | Portugal |
| 56600-56699 | Thailand |
| 57575* | Yugoslavia (Socialist Federal Republic of) |
| 57600-57699 | Uruguay (Eastern Republic of) |
| 58300-58399 | Costa Rica |
| 58900-58999 | Sri Lanka (Democratic Socialist Republic of) |
| 59000-59099 | Ecuador |
| 59200-59299 | Iran (Islamic Republic of) |
| 60700-60999 | Pakistan (Islamic Republic of) |
| 61400-61499 | Bahamas (Commonwealth of the) |
| 61616* | Bahamas (Commonwealth of the) |
| 62100-62625 | Germany (Federal Republic of) |
| 62627-62999 | Germany (Federal Republic of) |
| 63700-64599 | Germany (Federal Republic of) |
| 64800-65599 | Germany (Federal Republic of) |
| 74300-74499 | Austria |
| 74800-75499 | Germany (Federal Republic of) |
| 76000-76599 | Germany (Federal Republic of) |
| 76700-76766 | Philippines (Republic of the) |
| 76767* | Philippines (Republic of the) |
| 76768-76799 | Philippines (Republic of the) |

[^62]| Blocks* of selective call <br> numbers for ship <br> stations and selective <br> call numbers for groups <br> of ship stations |  |
| :--- | :--- |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
| $78200-78299$ | Singapore (Republic of) |
| $79500-79599$ | Senegal (Republic of) |
| $7990-80807$ | Netherlands (Kingdom of the) |
| $80009-81799$ | Netherlands (Kingdom of the) |
| $81800-81817$ | Czechoslovak Socialist Republic |
| $81818 *$ | Czechoslovak Socialist Republic |
| $81819-81899$ | Czechoslovak Socialist Republic |
| $81900-81999$ | Djibouti (Republic of) |
| $8200-82799$ | Germany (Federal Republic of) |
| $82900-83799$ | France |
| $83900-84799$ | France |
| $84800-84847$ | Netherlands (Kingdom of the) |
| $84849-84899$ | Netherlands (Kingdom of the) |
| $84900-85799$ | Denmark |
| $8590-86799$ | Denmark |
| $86900-87799$ | Denmark |
| $87900-88799$ | Germany (Federal Republic of) |
| $88900-89799$ | Germany (Federal Republic of) |
| $90000-90908$ | Norway |
| 9091091918 | Norway |
| $91920-92928$ | Norway |
| $92930-93938$ | Norway |
| $93940-94899$ | Norway |
| $95000-95899$ | Sweden |
| $96000-96899$ | Sweden |
| $97000-97899$ | France |
| $98000-98599$ | France |
| $99400-99998$ | Germany (Federal Republic of) |
|  |  |
|  |  |

[^63](Rev. 1986)

## Part II. Table of Blocks <br> of Coast Station Identification Numbers Supplied to Administrations

| Blocks of coast station identification numbers | Supplied to |
| :---: | :---: |
| 0100-0119 | Argentine Republic |
| 0270-0279 | Algeria (Algerian Democratic and Popular Republic) |
| 0330-0339 | Australia |
| 0480-0489 | Belgium |
| 0580-0589 | Canada |
| 0810-0819 | Bulgaria (People's Republic of) |
| 0830-0899 | Denmark |
| 0990-1089 | Spain |
| 1090-1109 | United States of America |
| 1590-1609 | Finland |
| 1630-1669 | France |
| 1780-1789 | Greece |
| 1860-1889 | Chile |
| 1920-1929 | Ghana |
| 1980-1989 | Ireland |
| 2010-2019 | China (People's Republic of) |
| 2070-2109 | Italy |
| 2130-2149 | Iraq (Republic of) |
| 2180-2189 | Kuwait (State of) |
| 2280-2289 | Libya (Socialist People's Libyan Arab Jamahiriya) |
| 2300-2339 | India (Republic of) |
| 2480-2489 | Malta (Republic of) |
| 2500-2509 | Monaco |
| 2510-2519 | Cuba |
| 2550-2599 | Norway |
| 2740-2749 | Iceland |
| 2770-2779 | Netherlands (Kingdom of the) |
| 2830-2849 | Germany (Federal Republic of) |
| 2930-2949 | Poland (People's Republic of) |
| 2950-2959 | Sweden |
| 3200-3259 | United Kingdom of Great Britain and Northern Ireland |
| 3450-3459 | Israel (State of) |
| 3500-3509 | Switzerland (Confederation of) |
| 3620-3769 | Union of Soviet Socialist Republics |
| 3800-3809 | Malaysia |
| 3850-3859 | Yugoslavia (Socialist Federal Republic of) |
| 3910-3919 | Venezuela (Republic of) |
| 4330-4349 | South Africa (Republic of) |
| 4360-4369 | Turkey |
| 4400-4599 | Union of Soviet Socialist Republics |
| 4600-4619 | German Democratic Republic |
| 4620-4629 | Singapore (Republic of) |


| Blocks of coast station identification numbers | Supplied to |
| :---: | :---: |
| $\begin{aligned} & 4630-4639 \\ & 4640-4649 \\ & 4650-4659 \\ & 4660-4669 \\ & 4690-4699 \\ & 4710-4719 \\ & 4810-4819 \\ & 4820-4829 \\ & 4830-4839 \\ & 4900-4939 \\ & 4980-4999 \\ & 5010-5019 \end{aligned}$ | United Kingdom of Great Britain and Northern Ireland <br> Sierra Leone <br> Bahrain (State of) <br> Seychelles (Republic of) <br> Qatar (State of) <br> United Arab Emirates <br> Yemen (People's Democratic Republic of) <br> Egypt (Arab Republic of) <br> Saudi Arabia (Kingdom of) <br> Mexico <br> Syrian Arab Republic <br> Oman (Sultanate of) |

## Note by the General Secretariat

The following blocks of coast station identification numbers were supplied to Administrations by the Secretary-General between the end of the WARC-79 and 20 June 1986:

| Blocks of coast station <br> identification <br> numbers |  |
| :--- | :--- |
|  | Supplied to |
| $0180-0189$ | Cyprus (Republic of) <br> $0770-0799$ <br> $1110-1119$ <br> $1820-1859$ |
| Colombia (Republic of) |  |
| $2200-2209$ | United States of America |
| $2360-2409$ | Chile |
| $2450-2459$ | Indonesia (Republic of) |
| $2890-2899$ | Japan |
|  | Morocco (Kingdom of) |
|  |  |


| Blocks of coast station <br> identification <br> numbers |  |
| :--- | :--- |
| $3170-3179$ | Supplied to |
| $3560-3579$ | Maldives (Republic of) |
| $3810-3819$ | Portugal |
| $3830-3839$ | Malaysia |
| $3870-3879$ | Thailand |
| $3950-3959$ | Sudanay (Eastern Republic of) |
| $4010-4029$ | New Zealanocratic Republic of the) |
| $4050-4069$ | Pakistan (Islamic Republic of) |
| $4150-4159$ | Philippines (Republic of the) |
| $4670-4679$ | Czechoslovak Socialist Republic |
| $4680-4689$ | Djibouti (Republic of) |
| $4750-4759$ | Ecuador |
| $4800-4809$ | Zaire (Republic of) |
| $4860-4869$ | Suriname (Republic of) |
| $5100-5109$ | Senegal (Republic of) |

## Note by the General Secretariat

The Resolutions are arranged in order and numbered along the lines of the grouping and numbering system below. As some Resolutions in one group have direct relationship to Resolutions in other groups, this has been reflected, as far as possible, to facilitate consultation.

Numbers
RESOLUTIONS OF GENERAL APPLICATION . . . . . . . . . . . . . . . . . . . 1-99

- Principles, general procedures and cooperation . . . . . . . . . . . . . . 1-20

See also: Nos 35, 36, 37, 39, 90

- Specıfic procedures . . . . . . . . . . . . . . . . . . . . . . . . . . . . 30-43

See also $\quad$ Nos. 1, 6, 7, 8, 9
Nos. 100, 101. 102
Nos. 200, 201, 202, 203
Nos. 318, 321
Nos. 502, 503. 504, 506, 507
Nos. 700. 701

- Technıcal matters . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 60-69

FIXED SERVICE/FIXED-SATELLITE SERVICE . . . . . . . . . . . . . . . . . . 100-199
See also Nos. 8. 9
Nos. 31, 32, 33, 34, 40, 41, 42, 43
Nos. 502, 503, 504, 506, 507
Nos. 700, 701
MOBILE SERVICE/MOBILE-SATELLITE SERVICE .................
$\left.\qquad \begin{array}{l}\text { See also: } \quad \begin{array}{l}\text { No. } 38 \\ \\ \text { Nos. } 315,318\end{array}\end{array}\right)$.
MARITIME MOBILE SERVICE/MARITIME MOBILE-SATELLITE SERVICE . 300-399
See also: Nos. 200. 201, 206

AERONAUTICAL MOBILE SERVICE/AERONAUTICAL MOBILE-SATEL-
LITE SERVICE . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 400- 499

BROADCASTING SERVICE/BROADCASTING-SATELLITE SERVICE . . . . . 500-599
See also: $\quad$ Nos. $31,32,33,34,40,41,42,43$
Nos 100, 101, 102
Nos. 700, 701

OTHER SERVICES . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 600-699
RELATING TO MORE THAN ONE SERVICE . . . . . . . . . . . . . . . . . . . 700-799
See also. Nos. 31, 32, 33, 34, 40, 41, 42, 43
Nos 100, 101, 102
Nos. 502, 503, 504, 506, 507

In this respect, see also the Analytical Index.

## Relating to the Recording in the Master International Frequency Register of the Assignments for Region 2 Contained in Appendix 30 (Orb-85) and Appendix 30A

The World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (First Session - Geneva, 1985),
considering
that the provisions and associated Plans adopted by the Regional Administrative Conference for the Planning of the Broadcasting-Satellite Service In Region 2, Geneva, 1983, with the appropriate modifications have been incorporated in the Radio Regulations in Appendix 30 (Orb-85) and Appendix 30A;
resolves
that, on the date of signature of the Finals Acts of the First Session of the World Administrative Radio Conference on the Use of the Geosta-tionary-Satellite Orbit and the Planning of Space Services Utilizing It, Geneva, 1985, the frequency assignments in the Plans will be entered in the Master Register. The date of signature of these Finals Acts will be entered, together with an appropriate symbol, in Column 13c opposite these assignments.

# RESOLUTION No. 41 (Orb-85) 

## Relating to the Provisional Application of the Partial Revision of the Radio Regulations as Contained in the Final Acts of the WARC Orb-85 Prior to its Entry into Force

The World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (First Session - Geneva, 1985),

## considering

a) that the present session has decided to incorporate in the Radio Regulations the provisions and associated Plans for the broadcastingsatellite service in the band $12.2-12.7 \mathrm{GHz}$ and the fixed-satellite service for feeder links in the band 17.3-17.8 GHz in Region 2;
b) that during the period preceding the date of entry into force of the partial revision of the Radio Regulations, as contained in the Final Acts of the First Session of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (WARC Orb-85), administrations of countries of Region 2 may wish to bring into use assignments appearing in the Region 2 Plans or to modify them or to bring them into use as an interim system;
c) that there is a need to apply the interregional sharing criteria developed by this session for all Regions;
further considering
that there is a need for procedures to be applied by all administrations and the IFRB during the interim period referred to in $b$ ) above;
resolves

1. that during the period preceding the date of entry into force of the partial revision of the Radio Regulations, as contained in the Final Acts of the WARC Orb-85, administrations and the IFRB shall apply the said partial revision on a provisional basis;
2. that on the date of entry into force of the partial revision of the Radio Regulations, as contained in the Final Acts of the WARC Orb-85, the IFRB shall publish the modifications to the Plans introduced in application of resolves 1 above, in a Special Section of its weekly circular in order to enter them into the appropriate Regional Plan.

RESOLUTION No. 42 (Orb-85)

## Relating to the Provisional Application for Region 2 of Resolution No. 2 (Sat-R2)

The World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (First Session - Geneva, 1985),

considering

a) that the 1983 Conference adopted Resolution No. 2 (Sat-R2) with the intention of enabling the administrations of Region 2 to implement the assignments in the Plans of that Conference according to a phased approach and with due regard for the protection of the services of other administrations;
b) that assignments in conformity with Resolution No. 2 (Sat-R2) may be implemented only if they are in conformity with the Convention and with the relevant provisions of the Radio Regulations;
c) that conformity with Resolution No. 2 (Sat-R2) requires the agreement of all affected administrations;
d) that those affected administrations are to be determined in accordance with the limits in Annex 1 to Appendix 30 (Orb-85) and Annex 1 to Appendix 30A;
e) that Resolution 43 (Orb-85) also contains provisions concerning systems operating in accordance with Resolution No. 2 (Sat-R2);
f) that the question of the long-term application of the provisions of Resolution No. 2 (Sat-R2) should be studied further;

1. that the IFRB shall apply the provisions of the annex to Resolution No. 2 (Sat-R2) and shall examine the notifications of the administrations of Region 2, as appropriate, for conformity with that Resolution on a provisional basis until the subject is reviewed by the Second Session of the World Administrative Radio Conference on the Use of the GeostationarySatellite Orbit and the Planning of Space Services Utilizing It (WARC Orb(2)) and a definitive decision is taken on the matter;
2. that in the application of the annex to Resolution No. 2 (Sat-R2), the references to annexes to Part I and Part II shall be replaced by references to the appropriate annexes to Appendix 30 (Orb-85) and Appendix 30A respectively;

## invites the Administrative Council

to place on the agenda of WARC $\operatorname{Orb}(2)$ an item calling for the review of the possibility of the long-term applicability of Resolution No. 2 (Sat-R2), and for a definitive decision to be taken on this matter.

# Relating to Orbital Position Limitations for the BroadcastingSatellite Service in Regions 1 and 2 in the Band 12.2 - $\mathbf{1 2 . 5} \mathbf{~ G H z}$ and for the Fixed-Satellite Service (Feeder-Link Stations) in Region 2 for the Band 17.3 - $17.8 \mathbf{G H z}$ 

The World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (First Session - Geneva, 1985),
considering
a) that there is currently no feeder-link plan for the broadcastingsatellite service in Region 1, operating in the band $11.7-12.5 \mathrm{GHz}$, and that in the absence of such a plan, the usual approach to sharing cannot be applied;
b) that the 1983 Conference adopted Plans for Region 2 for the Broadcasting-Satellite Service in the band $12.2-12.7 \mathrm{GHz}$ and their associated feeder links in the band $17.3-17.8 \mathrm{GHz}$;
c) that this session has recommended in a draft agenda for the second session the planning of the feeder links for the Regions 1 and 3 Broad-casting-Satellite Service at the Second Session of the World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (WARC Orb(2)), including the band 17.3-18.1 GHz;
d) that some interaction is possible between the Region 2 Feeder-Link Plan and the Feeder-Link Plan to be established for Regions 1 and 3 at WARC Orb(2);
e) that there is a need to ensure that any modifications to the Plan for the Regions 1 and 3 Broadcasting-Satellite Service and the Region 2 Broadcasting-Satellite Service and Feeder-Link Plans will not hamper the development of the Regions 1 and 3 Feeder-Link Plan before its incorporation into the Radio Regulations;
resolves

1. that until the incorporation of the Regions 1 and 3 Feeder-Link Plan into the Radio Regulations, any administration seeking to modify the Region 2 Plans or to introduce an interim system operating in accordance with Resolution 42 (Orb-85) and involving an orbital position further east than $47^{\circ} \mathrm{W}$ shall obtain the agreement of all administrations having orbital assignments in the Regions 1 and 3 Plan within plus or minus ten degrees of the proposed orbital position;
2. that until the incorporation of the Regions 1 and 3 Feeder-Link Plan into the Radio Regulations, any administration seeking a modification to the Regions 1 and 3 Plan for the Broadcasting-Satellite Service in the band 12.2 to 12.5 GHz involving an orbital position further west than $28^{\circ} \mathrm{W}$ shall obtain the agreement of all administrations having orbital assignments in the Region 2 Plans within plus or minus ten degrees of the proposed orbital position;
3. that when the Regions 1 and 3 Feeder-Link Plan is considered for incorporation into the Radio Regulations and recording in the Master International Frequency Register at WARC Orb(2), it will have the same status as the Region 2 Feeder-Link Plan and that the Feeder-Link Plans shall be modified as required to make them compatible.

RESOLUTION No. 312

# Relating to the Introduction of New Calling Procedures for HF A1A Morse Telegraphy ${ }^{1}$ 

The World Administrative Radio Conference, Geneva, 1979,

## considering

a) that there is a need for more effective utilization of the radio frequency spectrum and of the time of operational personnel on board ships;
b) that it is desirable to improve the effectiveness of calling in the HF A1A Morse telegraphy bands;
c) that the World Maritime Administrative Radio Conference, Geneva, 1974 adopted a new calling procedure for the HF A1A Morse telegraphy bands (Article 60 and Appendix 34);
d) that the effectiveness of the new calling procedure requires agreement between administrations with respect to the groups specified in Appendix 34 in accordance with a planned distribution of coast stations on a regional and traffic basis;
e) that the administrations at the 1974 Conference agreed to the Distribution Plan of Coast Stations (annexed to this Resolution) arranged by countries and areas into four groups to ensure a better distribution of calls;

[^64]
## invites

administrations which are providing an international public correspondence service to indicate for publication in the List of Coast Stations the periods of service during which watch will be maintained on the common, and if necessary the group, channel or channels;

invites further

administrations which wish to enter into a group in the Distribution Plan, or administrations included in the Plan wishing to make a modification in the Plan, to coordinate as far as possible their proposed changes with other interested and affected administrations which are designated in the group concerned. An administration which has decided to enter into a group or change from a designated group in the Distribution Plan shall inform the Secretary-General of its decision and it shall be published in the Annex to the List of Coast Stations;

## instructs the Secretary-General

1. to circulate this Resolution to all administrations which are responsible for coast stations in countries or areas designated in the Distribution Plan in order to obtain their agreement to the Plan or an adjustment of the Plan to meet their needs;
2. in the light of the foregoing consultation with the administrations concerned, to update the Distribution Plan which is annexed to the List of Coast Stations;
3. that, in advance of the publication of any revision of the Distribution Plan in the List of Coast Stations, any variation in the Plan should be notified through the Operational Bulletin.

RESOLUTION No. 315

# Relating to the Eventual Abolition of Mobile Station Charges for Public Correspondence in the Maritime Mobile Service 

The World Administrative Radio Conference, Geneva, 1979,

## considering

a) that the VIth Plenary Assembly of the CCITT, Geneva, 1976, adopted a draft Recommendation relating to charging, accounting and refunds in the maritime mobile service with the exception of the points relating, inter alia, to mobile station charges for public correspondence in the maritime mobile service;
b) that the above draft Recommendation was subsequently amended, in the light of the decision of the VIth Plenary Assembly of the CCITT, Geneva, 1976, regarding mobile station charges and that this draft Recommendation has been approved by letter ballot;
c) that the amended Recommendation includes the following provisions ${ }^{1}$ :
"Mobile station charges may be applied in the radiotelegram, radiotelephone, and radiotelex services, in the MF and HF bands. They shall not be applied in any of the VHF services, nor in any of the mobile-satellite services, nor in any service with automatic operation; however, mobile station charges may also be applied for radiotelegrams transmitted via VHF."

[^65]
## RES315-2

"Mobile station charges shall be abolished for traffic exchanged after 2359 hours GMT 31 December, 1987.";
resolves
to adopt this recommended date for the abolition of mobile station charges for public correspondence in the maritime mobile service.


[^0]:    * Published separately.

[^1]:    * Abrogated by Resolution 90 (Mob-83).

[^2]:    * Abrogated by Resolution 90 (Mob-83).

[^3]:    * Abrogated by Resolution 90 (Mob-83).

[^4]:    * Abrogated by Resolution 90 (Mob-83).

[^5]:    * Abrogated by Resolution 90 (Mob-83).

[^6]:    * These Recommendations are of a general nature and are not limited to interregional sharing and interference.

[^7]:    * These Recommendations are of a general nature and are not limited to interregional sharing and interference.

[^8]:    * This IFRB Handbook flowchart is at present under revision and has not been reproduced in the "Notes" section of the Radio Regulations.

[^9]:    * This IFRB Handbook flowchart is at present under revision and has not been reproduced in the "Notes" section of the Radio Regulations.

[^10]:    * This IFRB Handbook flowchart is at present under revision and has not been reproduced in the "Notes" section of the Radio Regulations.

[^11]:    * Note by the General Secretariat: The following provisions: 4, $26,36,110,112$ and 163 contain definitions identical to those in the International Telecommunication Convention (Nairobi, 1982).

[^12]:    ${ }^{1}$ The full definition is contained in CCIR Recommendation 460-2.

[^13]:    * Note by the General Secretariat: Appendix 30 has been revised by the First Session of the World Administrative Radio Conference on the Use of the GeostationarySatellite Orbit and the Planning of Space Services Utilizing It, Geneva, 1985, and becomes Appendix 30 (Orb-85).

[^14]:    * Note by the General Secretariat: See Note relating to No. 838.

[^15]:    ${ }^{1}$ For the coordination of frequency assignments to stations in the broadcasting-satellite service and other services in the frequency bands $11.7-12.2 \mathrm{GHz}$ (in Region 3), 11.7-12.5 GHz (in Region 1) and $12.2-12.7 \mathrm{GHz}$ (in Region 2) as well as the coordination of frequency assignments to feeder-lınk stations utilizing the fixed-satellite service (Earth-to-space) in the frequency band $17.3-17.8 \mathrm{GHz}$ (in Region 2) and other services in these bands in Region 2, see also Article 15 and Article 15A respectively.

    2 These procedures may be applicable to stations on board satellite launching vehicles.

[^16]:    ${ }^{2}$ See Resolution 103.

[^17]:    ' The expression frequency assignment, wherever it appears in this Article, shall be understood to refer either to a new frequency assignment or to a change in an assignment already recorded in the Master International Frequency Register (hereinafter called Master Register).
    ${ }^{2}$ For notification and recording of frequency assignments to stations in the broadcasting-satellite service and other services in the frequency bands 11.7 . 12.2 GHz (in Region 3), $11.7-12.5 \mathrm{GHz}$ (in Region 1) and $12.2-12.7 \mathrm{GHz}$ (in Region 2), as well as the notification and recording of frequency assignments to feeder-link stations in the fixed-satellite service (Earth-to-space) in the frequency band $17.3-17.8 \mathrm{GHz}$ (in Region 2) and other services in these bands in Region 2, see also Article 15 and Article 15A respectively.

[^18]:    ${ }^{1}$ The notifying administration shall take this limit into account when deciding, where appropriate, to initiate the coordination procedure(s).

[^19]:    ${ }^{1}$ The level of accepted interference shall be fixed by agreement between the administrations concerned, using the relevant CCIR Recommendations as a guide.

[^20]:    ${ }^{1}$ The level of accepted interference shall be fixed by agreement between the administrations concerned, using the relevant CCIR Recommendations as a guide.
    ${ }^{2}$ The shielded zone of the Moon comprises the area of the Moon's surface and an adjacent volume of space which are shielded from emissions originating within a distance of 100000 km from the centre of the Earth.
    ${ }^{3}$ The level of harmful interference is determined by agreement between the administrations concerned, with the guidance of the relevant CCIR Recommendations.

[^21]:    ${ }^{1}$ Normally aircraft stations transmit distress and urgency messages on the working frequency in use at the time of the distress or urgency incident.

[^22]:    3046A. 1 Mob-83
    ${ }^{1}$ For additional information see the relevant provisions of the International Convention for the Safety of Life at Sea.

[^23]:    ${ }^{1}$ For the use of some of the frequencies in these sub-bands by ship and coast stations for distress and safety purposes, see Article 38.

[^24]:    * Note by the General Secretariat: See No. 1314 and Resolution 400.

[^25]:    * Note by the General Secretariat: Changes to the Frequency Allotment Plan adopted by the World Maritime Administrative Radio Conference, Geneva, 1974, resulting from the application of the procedures prescribed in Article 16 are indicated on pages AP25-97 and following.

[^26]:    ${ }^{1}$ In Region 2, such stations may also be used for transmissions in the fixed-satellite service (space-to-Earth) in accordance with No. 846 of the Radio Regulations.

[^27]:    ${ }^{1}$ The intention not to employ energy dispersal in accordance with paragraph 3.18 of Annex 5 shall be treated as a modification and thus subject to the appropriate provisions of this Article.
    ${ }^{2}$ The expression "frequency assignment to a space station", wherever it appears in this Article, shall be understood to refer to a frequency assignment associated with a given orbital position. See also Annex 7 and Resolution 43 (Orb-85) for the orbital limitations.

[^28]:    1 Where appropriate, the notifying administration shall initiate the procedure for modifying the Plan concerned in sufficient time to ensure that this limit is observed. For Region 2, see also Resolution 42 (Orb-85) and paragraph B of Annex 7.

[^29]:    1 These procedures do not replace the procedures prescribed for terrestrial stations in Articles 11 and 12 of the Radio Regulations.

[^30]:    ${ }^{1}$ The criteria to be employed in evaluating interference levels shall be based on the relevant CCIR Recommendations or, in the absence of such Recommendations, shall be agreed between the administrations concerned.

[^31]:    1 The attention of administrations is specifically drawn to the provisions of Section I of this Article.

[^32]:    1 These provisions do not replace the procedures prescribed in Articles 11 and $\mathbf{1 3}$ of the Radio Regulations when stations other than those of the broadcastingsatellite service are involved.

[^33]:    ${ }^{1}$ The criteria to be employed in evaluating interference levels shall be based upon the technical information contained in this Appendix or upon relevant CCIR Recommendations and shall be agreed between the administrations concerned.

[^34]:    1 The attention of administrations is specifically drawn to the application of paragraph 7.2.1 above.

[^35]:    ${ }^{1}$ The notifying administration shall take this limit into account when deciding, where appropriate, to initiate the coordination procedure(s).

[^36]:    ${ }^{1}$ See Annex 5 (section 3.2) of this Appendix.

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[^38]:    See Annex 5, paragraph 3.2.3.

[^39]:    ${ }^{1}$ The World Broadcasting-Satellite Administrative Radio Conference, Geneva, 1977.

[^40]:    1 With respect to this Annex, except for section 2 and sub-section $8 b$ ), the limits relate to the power flux-density which would be obtained assuming free-space propagation conditions.

    With respect to sub-section $8 b$ ) of this Annex, the limits relate to the power flux-density which would be obtained assuming clear-sky propagation conditions using the method contained in Annex 5.

    With respect to section 2 of this Annex, the limit specified relates to the overall equivalent protection margin calculated in accordance with section 2.4.4 of Annex 5.
    ${ }^{2}$ Final Acts of the 1977 Conference, which entered into force on 1 January 1979.

[^41]:    ${ }^{1}$ For the definition of the overall equivalent protection margin, see section 1.14 of Annex 5 to this Appendix.

[^42]:    ${ }^{1}$ See section 3.18 of Annex 5
    ${ }^{2}$ In the band 12.5-12.7 GHz in Region 1, these limits are applicable only to the territory of administrations mentioned in Nos. $\mathbf{8 4 8}$ and $\mathbf{8 5 0}$ of the Radio Regulations.
    ${ }^{3}$ See Resolution 34.

[^43]:    ${ }^{1}$ In the band $12.5-12.7 \mathrm{GHz}$ in Region 1, these limits are applicable only to the territory of administrations mentioned in Nos. 848 and $\mathbf{8 5 0}$ of the Radio Regulations.
    ${ }^{2}$ Final Acts of the 1977 Conference, which entered into force on 1 January 1979.

[^44]:    ${ }^{1}$ Final Acts of the 1985 Conference.

[^45]:    ${ }^{1}$ Final Acts of the 1977 Conference, which entered into force on 1 January 1979.
    ${ }^{2}$ Final Acts of the 1985 Conference.

[^46]:    1 The Board shall develop and keep up-to-date forms of notice to meet fully the statutory provisions of this Annex.
    ${ }^{2}$ In Region 2, only those notices relating to frequency assignments for space stations used for telemetry and tracking purposes associated with the Region 2 Plan shall be furnished in accordance with Appendix 3 to the Radio Regulations.

[^47]:    1 There are a total of five overall carrier-to-interference ratios used in the analysis of the Plan for the broadcasting-satellite service in Region 2, namely, co-channel, upper and lower adjacent channels, and upper and lower second adjacent channels.

[^48]:    ${ }^{1} M_{4}$ and $M_{5}$ are applicable only for Region 2.

[^49]:    ${ }^{1}$ The definitions in sections $1.10,1.11,1.12,1.13$ and 1.14 of this Annex apply to these calculations.
    ${ }^{2}$ See Annex 6 for the protection ratio template for Regions 1 and 3.

[^50]:    ${ }^{1}$ Sections 1 and 2 of this Annex are applicable when the services of Regions 1 or 3 are involved. Section 3 is applicable to all Regions.

[^51]:    ${ }^{1}$ Impairment grade on a 5 -point scale as defined in CCIR Recommendation 500.

[^52]:    ${ }^{1}$ Final Acts of the 1977 Conference, which entered into force on 1 January 1979.

[^53]:    1 The expression "frequency assignment for reception to a space station", wherever it appears in this Article, shall be understood to refer to a frequency assignment associated with a given orbital position.

[^54]:    1 Where appropriate, the notifying administration shall initiate the procedure of Article 4 of this Appendix for modifying the Plan in sufficient time to ensure that this limit is observed.

[^55]:    ${ }^{1}$ See Annex 3 (Section 3.8) to this Appendix.

[^56]:    ${ }^{1}$ Except for Section 3, the limits specified in this Annex relate to the power flux-densities which would be obtained assuming free space propagation conditions.

[^57]:    1 With respect to Section 3 the limit specified relates to the overall equivalent protection margin calculated in accordance with Section 2.5 of Annex 3 to this Appendix.
    ${ }^{2}$ For the definition of the overall equivalent protection margin, see Section 1.14 of Annex 5 to Appendix 30 (Orb-85).

[^58]:    1 The Board shall develop and keep up-to-date forms of notice to meet fully the statutory provisions of this Annex and related decisions of the 1983 Conference. The Board is further invited to consider the feasibility of a single notice for feeder-link earth stations operating within more than one feeder-link service area.
    ${ }^{2}$ Only those notices relating to frequency assignments for space stations and earth stations used for telecommand and tracking purposes associated with the Plan shall be furnished in accordance with Appendix 3.

[^59]:    ${ }^{1}$ This information as defined in Appendix 28 is required for frequency assignments in the band $17.7-17.8 \mathrm{GHz}$.

[^60]:    1 There are a total of five overall carrier-to-interference ratios used in the analysis of the Plan, namely, co-channel, upper and lower adjacent channels, and upper and lower second adjacent channels.

[^61]:    ${ }^{1}$ The maximum scatter height $h_{s}$ is similar to the maximum rain height $h_{R}$ of Section 2.4.2 of Annex 5, Appendix 30 (Orb-85), used in the calculation of effective path-length for the determination of rain attenuation, except that the factor " $c$ " of Section 2.4.2 of Annex 5, Appendix 30 (Orb-85), is omitted.

[^62]:    * The numbers formed by the same digit repeated five times, or by two different digits repeated alternately, are reserved for calling predetermined groups of ship stations, and are to be considered as not included in the blocks of call numbers for ship stations supplied to administrations.

[^63]:    * The numbers formed by the same digit repeated five times, or by two different digits repeated alternately, are reserved for calling predetermined groups of ship stations, and are to be considered as not included in the blocks of call numbers for ship stations supplied to administrations.

[^64]:    ${ }^{1}$ Replaces Resolution No. Mar2 - 5 of the World Maritime Administrative Radio Conference, Geneva, 1974.

[^65]:    ${ }^{1}$ See CCITT Recommendation D.90/F. 111 (paragraphs K12 and K13).

