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INTERNATIONAL TELECOMMUNICATION UNION

RADIO REGULATIONS

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COVERING NOTE

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Replacement pages for updating the 1976 Edition
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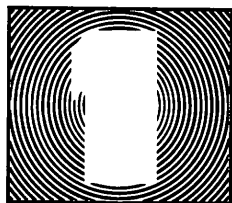
Articles, Appendices, etc.	Pages to be removed	Pages to be inserted
	Label for outer cover First inner cover	Label for outer cover First inner cover
Foreword	1-5	1-5
Table of Contents	I-II V-VIII XI-XXIV XXXI-XXXII XXXV-XXXVI XXXIX-XL	I-II V-VIII XI-XXIV, XXIVa, XXIVb XXXI-XXXII XXXV-XXXVI XXXIX-XL, XLa, XLb
Radio Regulations	RR5-19, 20, 23, 24 RR7-7 to 34 RR9-19 to 22 RR19-6a, 6b RR28-3, 4 RR29-3 to 14 RR32-9 to 31 RR35-5, 6, 15, 16 RR45-3, 4	RR5-19, 20, 23, 24 RR7-7 to 32 RR9-19 to 22 RR19-6a, 6b RR28-3, 4 RR29-3 to 11 RR32-9 to 21 RR35-5, 6, 15, 16 RR45-3, 4
Appendices to the Radio Regulations	AP1-1, 2, 15 AP3-1 to 4, 9, 10 AP15 Mar2-1 AP17 Rev.-5 AP18-5, 6	AP1-1, 2, 15 AP3-1 to 4, 9, 10 AP15 Mar2-1 AP17 Rev.-5 AP18-5, 6

Articles, Appendices, etc.	Pages to be removed	Pages to be inserted
Resolutions (abrogated)	RES14-1, 2 RES Aer 1-1 RES Aer 2-1, 2 RES Aer 3-1, 2 RES Aer 4-1 RES Aer 5-1 RES Aer 6-1 to 3	RES14-1 RES Aer 1/2/3/-1 RES Aer 4/5/6/-1
Resolutions (new)		RES Sat-1/1, 2 RES Sat-2/1, 2 RES Sat-3/1, 2 RES Sat-4/1, 2 RES Sat-5/1, 2 RES Sat-6/1 RES Sat-7/1 RES Sat-8/1 RES Sat-9/1, 2 RES Sat-10/1 to 3 RES Aer2-1/1 RES Aer2-2/1, 2 RES Aer2-3/1 to 4 RES Aer2-4/1 to 4 RES Aer2-5/1, 2 RES Aer2-6/1 RES Aer2-7/1 to 3 RES Aer2-8/1, 2
Recommendations (abrogated) (new)	REC Aer 1-1	REC Aer 1-1 REC Sat-1/1, 2 REC Sat-2/1 REC Sat-3/1, 2 REC Sat-4/1, 2 REC Sat-5/1 to 3 REC Sat-6/1, 2 REC Sat-7/1 REC Sat-8/1 to 3 REC Aer2-1/1 REC Aer2-2/1 REC Aer2-3/1, 2 REC Aer2-4/1, 2 REC Aer2-5/1 to 6 REC Aer2-6/1 REC Aer2-7/1 REC Aer2-8/1, 2 REC Aer2-9/1, 2

Note : Appendix 25 will be distributed separately.

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RADIO REGULATIONS



**Radio
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TABLE OF CONTENTS

Radio Regulations

	Page
FOREWORD	1/5
 CHAPTER I. Terminology	
ARTICLE 1. Terms and Definitions	RR 1-1/22
Preamble	RR 1-1
Section I. General Terms	RR 1-1
Section II. Radio Systems, Services and Stations	RR 1-3
Section IIA. Space Systems, Services and Stations	RR 1-10
Section IIB. Space, Orbits and Types of Objects in Space	RR 1-16
Section III. Technical Characteristics	RR 1-18
ARTICLE 2. Designation of Emissions	RR 2-1/7
Section I. Classification	RR 2-1
Section II. Bandwidths	RR 2-6
Section III. Nomenclature of the Frequency and Wave-length Bands Used in Radiocommunication ..	RR 2-7
 CHAPTER II. Frequencies	
ARTICLE 3. General Rules for the Assignment and Use of Frequencies	RR 3-1/2
ARTICLE 4. Special Agreements	RR 4-1/2
ARTICLE 5. Frequency Allocations 10 kHz to 275 GHz	RR 5-1/117
Section I. Regions and Areas	RR 5-1
Section II. Categories of Services and Allocations	RR 5-3

<i>Section III.</i>	Description of the Table of Frequency Allocations	RR5-6
<i>Section IV.</i>	Table of Frequency Allocations—10 kHz to 275 GHz	RR5-7
ARTICLE 6.	Special Rules for the Assignment and Use of Frequencies	RR6-1/2
ARTICLE 7.	Special Rules Relating to Particular Services	RR7-1/32
<i>Section I.</i>	Broadcasting Service	RR7-1
<i>Section IA.</i>	Broadcasting-Satellite Service	RR7-2
<i>Section II.</i>	Aeronautical Mobile Service	RR7-2
<i>Section III.</i>	Aeronautical Radiobeacons	RR7-3
<i>Section IV.</i>	Maritime Mobile Service	RR7-3
<i>Section IVA.</i>	Ship Movement Service	RR7-12
<i>Section V.</i>	Maritime Radiobeacons	RR7-12
<i>Section VI.</i>	Fixed Service	RR7-13
<i>Section VII.</i>	Terrestrial Radiocommunication Services sharing Frequency Bands with Space Radiocommunication Services above 1 GHz	RR7-14
<i>Section VIII.</i>	Space Radiocommunication Services sharing Frequency Bands with Terrestrial Radiocommunication Services above 1 GHz	RR7-18
<i>S������ IX.</i>	Space Radiocommunication Services	RR7-29
CHAPTER III.	Notification and Registration of Frequencies. International Frequency Registration Board	
ARTICLE 8.	General Provisions	RR8-1/2
ARTICLE 9.	Notification and Recording in the Master International Frequency Register of Frequency Assignments to Terrestrial Radiocommunication Stations	RR9-1/39

CHAPTER IV. Measures against Interference

ARTICLE 12.	Technical Characteristics of Equipment and Emissions	RR12-1/2
ARTICLE 13.	International Monitoring	RR13-1/3
ARTICLE 14.	Interference and Tests	RR14-1/3
<i>Section I.</i>	General Interference	RR14-1
<i>Section II.</i>	Industrial Interference	RR14-2
<i>Section III.</i>	Special Cases of Interference	RR14-2
<i>Section IV.</i>	Tests	RR14-2
ARTICLE 15.	Procedure in a Case of Harmful Interference	RR15-1/3
ARTICLE 16.	Reports of Infringements	RR16-1

CHAPTER V. Administrative Provisions for Stations

ARTICLE 17.	Secrecy	RR17-1
ARTICLE 18.	Licences	RR18-1/2
ARTICLE 19.	Identification of Stations	RR19-1/15 RR19-6a/6b
<i>Section I.</i>	General Provisions	RR19-1
<i>Section II.</i>	Allocation of International Series, and Assignment of Call Signs	RR19-2
	Note by the General Secretariat	RR19-6a/6b
<i>Section III.</i>	Formation of Call Signs	RR19-8
<i>Section IV.</i>	Identification of Stations using Radiotelephony	RR19-11
<i>Section IVA.</i>	Selective Call Numbers in the Maritime Mobile Service	RR19-13
<i>Section V.</i>	Special Provisions	RR19-14

ARTICLE 20.	Service Documents	RR20-1/8
ARTICLE 21.	Inspection of Mobile Stations and Mobile Earth Stations in the Maritime Mobile-Satellite Service	RR21-1/2
 CHAPTER VI. Personnel of Stations in the Mobile Service and the Maritime Mobile-Satellite Service		
ARTICLE 22.	Authority of the Master	RR22-1
ARTICLE 23.	Operators' Certificates for Ship and Aircraft Stations and Mobile Earth Stations in the Maritime Mobile-Satellite Service	RR23-1/16
<i>Section I.</i>	General Provisions	RR23-1
<i>Section II.</i>	Classes and Categories of Certificates except for the Operators of Ship Stations	RR23-3
<i>Section IIA.</i>	Categories of Certificates for Ship Station Operators	RR23-5
<i>Section III.</i>	Conditions for the Issue of Operators' Certificates	RR23-7
<i>Section IV.</i>	Qualifying Service	RR23-15
ARTICLE 24.	Class and Minimum Number of Operators for Stations on Board Ships and Aircraft	RR24-1/2
ARTICLE 25.	Working Hours of Stations in the Maritime and Aeronautical Mobile Services	RR25-1/5
<i>Section I.</i>	Preamble	RR25-1
<i>Section II.</i>	Coast Stations	RR25-1
<i>Section III.</i>	Aeronautical Stations	RR25-2
<i>Section IV.</i>	Ship Stations	RR25-2
<i>Section V.</i>	Aircraft Stations	RR25-5
ARTICLE 26.	Personnel of Coast and Aeronautical Stations ...	RR26-1

CHAPTER VII. Working Conditions in the Mobile Services and in the Maritime Mobile-Satellite Service

ARTICLE 27.	Aeronautical Stations and Stations on Board Aircraft	RR27-1/2
ARTICLE 28.	Conditions to be Observed by Mobile Stations ...	RR28-1/8
<i>Section I.</i>	General Provisions	RR28-1
<i>Section II.</i>	Special Provisions regarding Safety	RR28-2
<i>Section III.</i>	Ship Stations using Radiotelegraphy	RR28-3
<i>Section IV.</i>	Ship Stations using Radiotelephony	RR28-5
<i>Section V.</i>	Aircraft Stations	RR28-7
<i>Section VI.</i>	Survival Craft Stations	RR28-7
ARTICLE 28A.	International Use of Selective Calling in the Maritime Mobile Service	RR28A-1/3
<i>Section I.</i>	Sequential Single-Frequency Code System ...	RR28A-1
<i>Section II.</i>	Digital Selective Calling System	RR28A-3
ARTICLE 28B.	Narrow-Band Direct-Printing Telegraphy	RR28B-1/2
<i>Section I.</i>	General Provisions	RR28B-1
<i>Section II.</i>	Bands between 405 and 535 kHz	RR28B-1
<i>Section III.</i>	Bands between 1 605 and 4 000 kHz	RR28B-2
<i>Section IV.</i>	Bands between 4 000 and 27 500 kHz	RR28B-2
<i>Section V.</i>	Bands between 156 and 174 MHz	RR28B-2
ARTICLE 29.	General Radiotelegraph Procedure in the Maritime Mobile and Aeronautical Mobile Services ..	RR29-1/11
<i>Section I.</i>	General Provisions	RR29-1
<i>Section II.</i>	Preliminary Operations	RR29-1
<i>Section III.</i>	Calls, Reply to Calls and Signals Preparatory to Traffic	RR29-2
<i>Section IV.</i>	Forwarding (Routing) of Traffic	RR29-8
<i>Section V.</i>	End of Traffic and Work	RR29-10
<i>Section VI.</i>	Control of Working	RR29-11
<i>Section VII.</i>	Tests	RR29-11

VIII

ARTICLE 29A.	Procedures for Narrow-Band Direct-Printing Telegraphy in the Maritime Mobile Service	RR29A-1/6
<i>Section I.</i>	General	RR29A-1
<i>Section II.</i>	Procedures for Manual Operation	RR29A-2
<i>Section III.</i>	Procedures for Automatic Operation	RR29A-3
<i>Section IV.</i>	Message Format	RR29A-4
<i>Section V.</i>	Procedures for Operation in the Forward-Error- Correcting Mode	RR29A-5
ARTICLE 30.	Calls by Radiotelegraphy	RR30-1/4
ARTICLE 31.	Radiotelegraphic Call to Several Stations	RR31-1
ARTICLE 32.	Use of Frequencies for Radiotelegraphy in the Maritime Mobile and Aeronautical Mobile Ser- vices	RR32-1/21
<i>Section I.</i>	General	RR32-1
<i>Section II.</i>	Bands between 405 and 535 kHz	RR32-1
<i>Section III.</i>	Bands between 1 605 and 4 000 kHz	RR32-6
<i>Section IV.</i>	Additional Provisions Applicable in Region 3 Areas North of the Equator Only	RR32-6
<i>Section V.</i>	Bands between 4 000 and 27 500 kHz	RR32-7
<i>Section VI.</i>	Aeronautical Mobile Service	RR32-21
ARTICLE 33.	General Radiotelephone Procedure in the Mari- time Mobile Service	RR33-1/19
<i>Section I.</i>	General Provisions	RR33-1
<i>Section II.</i>	Preliminary Operations	RR33-2
<i>Section III.</i>	Calls, Reply to Calls and Signals Preparatory to Traffic	RR33-3
<i>Section IV.</i>	Forwarding (Routing) of Traffic	RR33-15
<i>Section V.</i>	Duration and Control of Working	RR33-18
<i>Section VI.</i>	Tests	RR33-18
ARTICLE 34.	Calls by Radiotelephony	RR34-1/5

ARTICLE 42.	Experimental Stations	RR42-1/2
ARTICLE 43.	Radiodetermination Service and Radiodetermination-Satellite Service	RR43-1/3
<i>Section I.</i>	General Provisions	RR43-1
<i>Section II.</i>	Radio Direction-Finding Stations	RR43-2
<i>Section III.</i>	Radiobeacon Stations	RR43-3
ARTICLE 44.	Special Services	RR44-1/4
<i>Section I.</i>	Meteorology	RR44-1
<i>Section II.</i>	Notices to Mariners	RR44-3
<i>Section III.</i>	Medical Advice	RR44-3
<i>Section IV.</i>	Standard Frequency and Time Signals	RR44-4
CHAPTER XI.		
ARTICLE 45.	Effective Date of the Radio Regulations	RR45-1/4

Additional Radio Regulations

ARTICLE 1.	Application of the Telegraph Regulations and the Telephone Regulations to Radiocommunications except in the Maritime Mobile Service	AR1-1
ARTICLE 1A.	Application of the Telegraph Regulations and the Telephone Regulations to Radiocommunications in the Maritime Mobile Service	AR1A-1
ARTICLE 2.	Address of Radiotelegrams	AR2-1/2
ARTICLE 3.	Time of Handing-in of Radiotelegrams	AR3-1

ARTICLE 4.	Charges for Radiotelegrams except in the Maritime Mobile Service	AR4-1/7
<i>Section I.</i>	General. Full-rate Radiotelegrams	AR4-1
<i>Section II.</i>	Reduced-rate Radiotelegrams	AR4-4
ARTICLE 4A.	Charges for Radiotelegrams in the Maritime Mobile Service	AR4A-1/5
<i>Section I.</i>	General. Full-rate Radiotelegrams	AR4A-1
<i>Section II.</i>	Reduced-rate Radiotelegrams	AR4A-4
ARTICLE 5.	Charges for Radiotelephone Calls in the Aeronautical Mobile Service	AR5-1/4
<i>Section I.</i>	Mobile Station Charge, Land Station Charge, Land-line Charge	AR5-1
<i>Section II.</i>	Supplementary Charge	AR5-3
ARTICLE 5A.	Charges for Radiotelephone Calls in the Maritime Mobile Service	AR5A-1/4
<i>Section I.</i>	Mobile Station Charge, Land Station Charge, Land-Line Charge	AR5A-1
<i>Section II.</i>	Supplementary Charge	AR5A-4
ARTICLE 5B.	Charges for Radiotelex Calls in the Maritime Mobile Service	AR5B-1/4
<i>Section I.</i>	Mobile Station Charge, Land Station Charge, Land-Line Charge	AR5B-1
<i>Section II.</i>	Supplementary Charge	AR5B-4
ARTICLE 6.	Radio Air Letters	AR6-1/3
ARTICLE 6A.	Radiomaritime Letters	AR6A-1/2
ARTICLE 7.	Special Radiotelegrams. Paid Service Indications except in the Maritime Mobile Service	AR7-1/2
ARTICLE 7A.	Special Radiotelegram Services in the Maritime Mobile Service	AR7A-1

ARTICLE 8.	Period of Retention of Radiotelegrams at Land Stations	AR8-1/3
<i>Section I.</i>	Radiotelegrams destined for Ships at Sea	AR8-1
<i>Section II.</i>	Radiotelegrams destined for Aircraft in Flight	AR8-3
ARTICLE 9.	Doubtful Reception. Transmission by "Ampliation". Long-distance Radiocommunications ...	AR9-1/3
ARTICLE 10.	Retransmission by Mobile Stations, except in the Maritime Mobile Service	AR10-1/2
<i>Section I.</i>	Retransmission at the Request of the Sender ..	AR10-1
<i>Section II.</i>	Routine Retransmission	AR10-1
ARTICLE 10A.	Routine Retransmission by Maritime Mobile Stations	AR10A-1
ARTICLE 11.	Advice of Non-Delivery	AR11-1
ARTICLE 12.	Radiotelegrams originating in or destined for Aircraft	AR12-1
ARTICLE 13.	Radiocommunications for Multiple Destinations (not applicable in the Maritime Mobile Service) ..	AR13-1
ARTICLE 14.	Effective Date of the Additional Radio Regulations	AR14-1/2

Appendices to the Radio Regulations

APPENDIX 1.	AP1-1/17
<i>Section A.</i>	Basic Characteristics to be furnished for Notification under No. 486 of the Regulations	AP1-1

<i>Section B.</i>	Basic Characteristics to be furnished for Notification under No. 487 of the Regulations	AP1-2
<i>Section C.</i>	Basic Characteristics to be furnished for Notification under No. 490 of the Regulations	AP1-3
<i>Section D.</i>	Form of Notice	AP1-4
<i>Section E.</i>	General Instructions	AP1-5
<i>Annex</i>	Geographical Zones for Broadcasting	AP1-17

APPENDIX 1A.

	Notices Relating to Space Radiocommunication and Radio Astronomy Stations	AP1A-1/25
<i>Section A.</i>	General Instructions	AP1A-1
<i>Section B.</i>	Basic Characteristics to be furnished in Notices relating to Frequencies used by Earth Stations for transmitting	AP1A-3
<i>Section C.</i>	Basic Characteristics to be furnished in Notices relating to Frequencies to be received by Earth Stations	AP1A-7
<i>Section D.</i>	Basic Characteristics to be furnished in Notices relating to Frequencies used by Space Stations for transmitting	AP1A-10
<i>Section E.</i>	Basic Characteristics to be furnished in Notices relating to Frequencies to be received by Space Stations	AP1A-15
<i>Section F.</i>	Basic Characteristics to be furnished in Notices relating to Frequencies to be received by Radio Astronomy Stations	AP1A-19
<i>Section G.</i>	Form of Notice (Earth Station)	AP1A-23
<i>Section H.</i>	Form of Notice (Space Station)	AP1A-25

APPENDIX 1B.

	Advance Publication Information to be furnished for a Satellite Network	AP1B-1/6
<i>Section A.</i>	General Instructions	AP1B-1
<i>Section B.</i>	General Characteristics to be furnished for a Satellite Network	AP1B-1

<i>Section C.</i>	Characteristics of the Satellite Network in the Earth-to-Space direction	AP1B-3
<i>Section D.</i>	Characteristics of the Satellite Network in the Space-to-Earth direction	AP1B-4
<i>Section E.</i>	Characteristics to be furnished for Space-to-Space Relay	AP1B-6
APPENDIX 1C.		
	Information to be supplied in Accordance with No. 639DY	AP1C-1/2
APPENDIX 2.	AP2-1/7
<i>Section A.</i>	Form of Notice	AP2-1
<i>Section B.</i>	General Instructions	AP2-2
APPENDIX 3.		
	Table of Frequency Tolerances	AP3-1/10
APPENDIX 4.		
	Table of Tolerances for the Levels of Spurious Emissions	AP4-1/3
APPENDIX 5.		
	Examples of Necessary Bandwidths and Designations of Emissions	AP5-1/6
APPENDIX 6.		
	Reports of Monitoring Data	AP6-1/2
APPENDIX 7.		
	Report of an Irregularity or of an Infringement of the Convention or the Radio Regulations	AP7-1/2
APPENDIX 8.		
	Report of Harmful Interference	AP8-1
APPENDIX 9.		
	Service Documents	AP9-1/29

APPENDIX 10.		
Service Document Symbols		AP10-1/4
APPENDIX 11.		
Documents with which Ship and Aircraft Stations shall be provided		AP11-1/3
<i>Section I.</i>	Ship Stations for which a Radiotelegraph Installation is required by International Agreement ...	AP11-1
<i>Section II.</i>	Other Ship Radiotelegraph Stations	AP11-2
<i>Section III.</i>	Ship Stations for which a Radiotelephone Installation is required by International Agreement ...	AP11-2
<i>Section IV.</i>	Other Ship Radiotelephone Stations	AP11-3
<i>Section V.</i>	Ship Stations equipped with Multiple Installations	AP11-3
<i>Section VI.</i>	Aircraft Stations	AP11-3
APPENDIX 12.		
Hours of Service for Ship Stations of the Second and Third Categories		AP12-1/5
<i>Section I.</i>	Table	AP12-1
<i>Section II.</i>	Diagram and Map	AP12-2
APPENDIX 13.		
Miscellaneous Abbreviations and Signals to be used in Radiotelegraphy Communications except in the Maritime Mobile Service ...		AP13-1/28
<i>Section I.</i>	Q Code	AP13-1
<i>Section II.</i>	Miscellaneous Abbreviations and Signals	AP13-26
APPENDIX 13A.		
Miscellaneous Abbreviations and Signals to be used for Radiocommunications in the Maritime Mobile Service		AP13A-1/32
<i>Section I.</i>	Q Code	AP13A-1
<i>Section II.</i>	Miscellaneous Abbreviations and Signals	AP13A-30
APPENDIX 14.		
SINPO and SINPFEMO Codes		AP14-1/3

APPENDIX 15 Mar2.

Table of Frequencies to be used in the Bands between 4 and
27.5 MHz allocated exclusively to the Maritime Mobile Service ... **AP15 Mar2-1/7**

APPENDIX 15A.

Channelling of the Maritime Mobile Bands between 4 000 and
23 000 kHz used for Narrow-Band Direct-Printing Telegraphy and
Data Systems (Frequencies Paired) **AP15A-1/5**

APPENDIX 15B.

Channelling of the Maritime Mobile Bands between 4 000 and
27 500 kHz used for Narrow-Band Direct-Printing Telegraphy and
Data Transmission (Non-Paired) **AP15B-1/2**

APPENDIX 15C.

Table of Calling Frequencies assignable to Ship Stations for A1
Morse Telegraphy at Speeds not exceeding 40 Bauds **AP15C-1/3**

APPENDIX 15D.

Table of Working Frequencies, in kHz, assignable to Ship Stations
for A1 Morse Telegraphy at Speeds not exceeding 40 Bauds **AP15D-1/7**

APPENDIX 16.

Phonetic Alphabet and Figure Code **AP16-1/3**

XVIII

APPENDIX 17 Rev.

Channelling of the Maritime Mobile Radiotelephone Bands between
4 000 and 23 000 kHz AP17 Rev.-1/7

Section A. Table of Single Sideband Transmitting Frequen-
cies for Duplex (Two-Frequency) Operation (in
kHz) AP17 Rev.-5

Section B. Table of Single Sideband Transmitting Frequen-
cies for Simplex (Single-Frequency) Operation
and for Intership Cross-Band (Two-Frequency)
Operation (in kHz) AP17 Rev.-7

APPENDIX 17A.

Technical Characteristics of Single Sideband Transmitters used in
the Maritime Mobile Service for Radiotelephony in the Bands be-
tween 1 605 and 4 000 kHz and between 4 000 and 23 000 kHz ... AP17A-1/4

APPENDIX 18.

Table of Transmitting Frequencies in the Band 156-174 MHz for
Stations in the Maritime Mobile Service AP18-1/6

APPENDIX 19.

Technical Characteristics for Transmitters and Receivers Used in
the Maritime Mobile Service in the 156—174 MHz Band AP19-1

APPENDIX 19A.

Characteristics of Equipment used for On-Board Communication
in the 450—470 MHz Bands AP19A-1/2

APPENDIX 20.

Automatic Receiving Equipment for Radiotelegraph and Radiotelephone Alarm Signals	AP20-1/2
---	----------

APPENDIX 20A.

Technical Characteristics of Emergency Position-indicating Radio-beacons Operating on the Carrier Frequency 2 182 kHz	AP20A-1
---	---------

APPENDIX 20B.

Narrow-Band Direct-Printing Telegraph Equipment	AP20B-1/3
---	-----------

APPENDIX 20C.

Selective Calling System for Use in the International Maritime Mobile Service	AP20C-1/6
---	-----------

APPENDIX 20D.

Linked Compressor and Expander Systems	AP20D-1/2
--	-----------

APPENDIX 21.

Specimen Form of Statement of Account for Radiotelegrams and Radiotelephone Calls except in the Maritime Mobile Service	AP21-1
---	--------

APPENDIX 21A.

Specimen Form of Statement of Account for Radiotelegrams, Radiotelephone Calls and Radiotelex Calls in the Maritime Mobile Service	AP21A-1
--	---------

APPENDIX 22.

Payment of Balance of Accounts	AP22-1/4
--------------------------------------	----------

APPENDIX 23.

Procedure for Obtaining Radio Direction-Finding Bearings and Positions	AP23-1/7
Section I. General Instructions	AP23-1
Section II. Rules of Procedure	AP23-2

APPENDIX 24.

Chart of Regions as Defined in Table of Frequency Allocations . . . AP24-1

APPENDIX 25.

Frequency Allotment Plan for Coast Radiotelephone Stations operating in the Exclusive Maritime Mobile Bands between 4 000 and 23 000 kHz *

APPENDIX 26.

Frequency Allotment Plan for the Aeronautical Mobile Service and Related Information *

APPENDIX 27.

Frequency Allotment Plan for the Aeronautical Mobile (R) Service and Related Information *†

APPENDIX 28.

Procedure for Determination of the Co-ordination Area around an Earth Station in Frequency Bands between 1 and 40 GHz shared between Space and Terrestrial Radiocommunication Services . . . AP28-1/54

Table I. Parameters required for the Determination of Co-ordination Distance for a Transmitting Earth Station AP28-17

Table II. Parameters required for the Determination of Co-ordination Distance for a Receiving Earth Station AP28-19

Annex A to Appendix 28.

Determination of Co-ordination Distance in allocated Frequency Bands AP28-45

* Published separately.

*† Appendix 27 Aer2, which will replace Appendix 27 as from 1 February 1983, will be published before it enters into force. The modifications to Appendix 27 (Appendix 27 Aer2) are contained in the Final Acts of the Aeronautical Conference (Geneva, 1978).

<i>Table III.</i>	Earth Station Transmission	AP28-47
<i>Table IV.</i>	Earth Station Reception	AP28-48
<i>Annex B to Appendix 28.</i>	Determination and Use of auxiliary Contours ..	AP28-53

APPENDIX 29.

Method of Calculation to evaluate the Degree of Interference between geostationary Satellite Networks Sharing the same Frequency Bands	AP29-1/11
<i>Annex to Appendix 29.</i>	
Example of an Interference Calculation between two geostationary Satellite Links Sharing the same Frequency Band	AP29-7

APPENDIX A.

Studies and Prediction of Radio Propagation and Radio Noise	APA-1
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Resolutions*)

RESOLUTION No. 1 Relating to the Establishment of the Master International Frequency Register	RES1-1/15
<i>Annex 1</i> — Method of Transfer from the Master Radio Frequency Record	RES1-4
<i>Annex 2</i> — Bands allocated exclusively to the Aeronautical Mobile Service between 2 850 and 18 030 kHz	RES1-9

**) Note by the General Secretariat:*

The Resolutions are arranged in the chronological order of the Conferences at which they were adopted, i.e.:

- Administrative Radio Conference (Geneva, 1959) (RES 1, etc.)
- Space Conference (Geneva, 1963) (RES Spa 1, etc.)
- Aeronautical Conference (Geneva, 1966) (RES Aer 1, etc.)
- Maritime Conference (Geneva, 1967) (RES Mar 1, etc.)
- Space Conference (Geneva, 1971) (RES Spa2-1, etc.)
- Maritime Conference (Geneva, 1974) (RES Mar2-1, etc.)
- Satellite-Broadcasting Conference (Geneva, 1977) (RES Sat-1, etc.)
- Aeronautical Conference (Geneva, 1978) (RES Aer2-1, etc.)

<i>Annex 3</i> — Bands allocated exclusively to the Maritime Mobile Service between 4 000 and 23 000 kHz for Radio-telephone Coast Stations	RES1-9
<i>Annex 4</i> — Bands allocated exclusively to the Maritime Mobile Service between 4 000 and 23 000 kHz for Radio-telephone Ship Stations	RES1-10
<i>Annex 5</i> — Bands between 3 950 kHz (4 000 kHz in Region 2) and 27 500 kHz other than those allocated exclusively to the Aeronautical Mobile Service, Maritime Mobile Service or Amateur Service	RES1-11
<i>Annex 6</i> — Frequency Bands above 27 500 kHz	RES1-12
 RESOLUTION No. 2 Relating to the Application from 1st March, 1960 to 30th April, 1961, of the Procedure specified in Article 10 of the Radio Regulations, Geneva, 1959, for the Bands allocated exclusively to the Broadcasting Service between 5 950 and 26 100 kHz	 RES2-1/2
 RESOLUTION No. 3 Relating to a Study by a Panel of Experts of Measures to Reduce Congestion in the Bands between 4 and 27·5 MHz	 RES3-1/5
<i>Annex 1</i> — Preliminary Study to be made before convening the Panel of Experts	RES3-3
<i>Annex 2</i> — Terms of Reference for a Panel of Experts to study Measures to reduce Congestion in the Bands between 4 and 27·5 MHz	RES3-4
 RESOLUTION No. 4 Relating to Certain Entries in the Master Radio Frequency Record in the Bands below 27 500 kHz	 RES4-1/6
<i>Annex 1</i> — Bands below 3 950 kHz (4 000 kHz Region 2) except the Bands allocated exclusively to the Aeronautical Mobile Service above 2 850 kHz	RES4-3
<i>Annex 2</i> — Shared Bands between 3 950 kHz (4 000 kHz Region 2) and 27 500 kHz	RES4-6
 RESOLUTION No. 5 Relating to Notification of Frequency Assignments	 RES5-1

RESOLUTION No. 6 Relating to Frequency Terminology	RES6-1
RESOLUTION No. 7 Relating to Radio Emissions from Artificial Satellites and other Space Vehicles	RES7-1
RESOLUTION No. 8 Relating to the Formation of Call Signs and the Allocation of New International Series	RES8-1/2
RESOLUTION No. 9 Relating to the Publication of Service Documents	RES9-1
RESOLUTION No. 10 Relating to the Use of the Bands 7 000 to 7 100 kHz and 7 100 to 7 300 kHz by the Amateur Service and the Broadcasting Service	RES10-1
RESOLUTION No. 11 Relative to the Convening of a Special Regional Conference	RES11-1
RESOLUTION No. 12 Relating to the Establishment of a Manual for Use by the Mobile Services	RES12-1/3
RESOLUTION No. 13 Relating to the Preparation of revised Allotment Plans for the Aeronautical Mobile Service	RES13-1/3
RESOLUTION No. 14 Relating to the Use of Frequencies of the Aeronautical Mobile (R) Service	*
RESOLUTION No. 15 Relating to Inter-ship Frequencies in the Bands between 1 605 and 3 600 kHz in Region 1	RES15-1/2
RESOLUTION No. Spa 1 Relating to the Provision and Use of Information Regarding International Satellite Systems	*
RESOLUTION No. Spa 2 Relating to Space Vehicles in Distress and Emergency	*
RESOLUTION No. Spa 3 Relating to the Category of the Fixed and Mobile Services in the Band 1 525-1 540 MHz	*

* Abrogated.

XXIV

RESOLUTION No. Spa 4 Relating to International Co-operation and Technical Assistance in the Field of Space Radiocommunications	RES Spa 4-1/2
RESOLUTION No. Aer 1 Relating to the Use of Frequencies 3 023.5 and 5 680 kHz common to the Aeronautical Mobile (R) and (OR) Services	*
RESOLUTION No. Aer 2 Relating to the Use of Frequencies in the HF Bands allocated exclusively to the Aeronautical Mobile (R) Service	*
RESOLUTION No. Aer 3 Relating to the Introduction of Single Sideband Techniques in the HF Bands allocated to the Aeronautical Mobile (R) Service	*
RESOLUTION No. Aer 4 Relating to the Use of VHF for Communication in the Aeronautical Mobile (R) Service	*
RESOLUTION No. Aer 5 Relating to the Use of VHF for Meteorological Broadcasts in the Aeronautical Mobile (R) Service	*
RESOLUTION No. Aer 6 Relating to the Treatment of Notices concerning Frequency Assignments to Aeronautical Stations in the Aeronautical Mobile (R) Service in the Bands allocated exclusively to that Service between 2 850 and 17 970 kHz ..	*
RESOLUTION No. Mar 1 Relating to the Abrogation of Obsolete Recommendations of the Administrative Radio Conference, Geneva, 1959	RES Mar 1-1/2
RESOLUTION No. Mar 2 Relating to the Establishment of a Manual for Use by the Maritime Mobile Service	RES Mar 2-1/2
RESOLUTION No. Mar 3 Relating to the Classes of Emissions to be used for remote-controlled Coast Stations in the Maritime Mobile Radiotelephone Service	*

* Abrogated.

(Rev. 1979)

RESOLUTION No. Sat – 1 relating to the preparation and publication of information not contained in the broadcasting-satellite Plan for Regions 1 and 3	RES Sat-1/1-2
RESOLUTION No. Sat – 2 relating to the updating of the Master International Frequency Register for Regions 1 and 3 on the date of entry into force of the Final Acts	RES Sat-2/1-2
RESOLUTION No. Sat – 3 relating to the period between the entry into force of the Final Acts of the Conference and the date on which the provisions and associated Plan are annexed to the Radio Regulations	RES Sat-3/1-2
RESOLUTION No. Sat – 4 relating to the annexing to the Radio Regulations of the provisions and associated Plan contained in the Final Acts of the Conference	RES Sat-4/1-2
RESOLUTION No. Sat – 5 relating to the coordination, notification and recording in the Master International Frequency Register of frequency assignments to stations in the broadcasting-satellite service in Region 2	RES Sat-5/1-2
RESOLUTION No. Sat – 6 relating to the coordination, notification and recording in the Master International Frequency Register of assignments to stations in the fixed-satellite service with respect to stations in the broadcasting-satellite service in Region 2	RES Sat-6/1
RESOLUTION No. Sat – 7 relating to use, by space stations operating in the frequency bands 11.7-12.2 GHz (in Regions 2 and 3) and 11.7-12.5 GHz (in Region 1), of the geostationary orbit and no other	RES Sat-7/1
RESOLUTION No. Sat – 8 relating to the preparation for an administrative radio conference for the detailed planning of the space services in the frequency band 11.7-12.2 GHz in Region 2	RES Sat-8/1
RESOLUTION No. Sat – 9 relating to submission of requirements for the broadcasting-satellite service in Region 2	RES Sat-9/1-2

XXIV, b

RESOLUTION No. Sat – 10 relating to the Possible Re-arrangement of the Radio Regulations and the Additional Radio Regulations . .	RES Sat-10/1-3
RESOLUTION No. Aer2 – 1 Relating to the Use of Frequencies 3 023 and 5 680 kHz common to the Aeronautical Mobile (R) and (OR) Services.	RES Aer2-1/1
RESOLUTION No. Aer2 – 2 Relating to the Unauthorized Use of Frequencies in the Bands Allocated to the Aeronautical Mobile (R) Service.	RES Aer2-2/1-2
RESOLUTION No. Aer2 – 3 Relating to the Implementation of the New Arrangement applicable to Bands Allocated Exclusively to the Aeronautical Mobile (R) Service between 2 850 and 17 970 kHz .	RES Aer2-3/1-4
RESOLUTION No. Aer2 – 4 Relating to the Treatment of Notices Concerning Frequency Assignments to Aeronautical Stations in the Bands Allocated Exclusively to the Aeronautical Mobile (R) Service between 2 850 and 17 970 kHz.	RES Aer2-4/1-4
RESOLUTION No. Aer2 – 5 Relating to the Implementation of the Frequency Allotment Plan in the bands Allocated Exclusively to the Aeronautical Mobile (R) Service between 2 850 and 17 970 kHz .	RES Aer2-5/1-2
RESOLUTION No. Aer2 – 6 Relating to the Use of Frequency Bands, higher than the HF Bands, in the Aeronautical Mobile (R) Service and the Aeronautical Mobile-Satellite (R) Service for Communication and for Meteorological Broadcasts.	RES Aer2-6/1
RESOLUTION No. Aer2 – 7 Relating to the Use of Frequencies of the Aeronautical Mobile (R) Service	RES Aer2-7/1-3
RESOLUTION No. Aer2 – 8 Relating to the Abrogation of various Resolutions and a Recommendation of the Extraordinary Administrative Radio Conference, Geneva, 1966, and a Resolution of the Administrative Radio Conference, Geneva, 1959.	RES Aer2-8/1-2

Recommendations *)

RECOMMENDATION No. 1 to the C.C.I.R. Relating to the Frequency Tolerances of Transmitters	REC1-1/2
RECOMMENDATION No. 2 Relating to the Technical Standards of the I.F.R.B.	REC2-1
RECOMMENDATION No. 3 to the C.C.I.R. Relating to Signal to Interference Protection Ratios and Minimum Field Strengths Required	REC3-1
RECOMMENDATION No. 4 to the C.C.I.R. Relating to Studies of Radio Propagation and Radio Noise	REC4-1
RECOMMENDATION No. 5 to the C.C.I.R. and to Administrations Relating to International Monitoring in the Bands below 28 000 kHz	REC5-1/2
RECOMMENDATION No. 6 to the C.C.I.R. Relating to Studies of the Technical Characteristics of Equipment	REC6-1
RECOMMENDATION No. 7 Relating to Specifications of Broadcasting Receivers at Low Cost	REC7-1/2
RECOMMENDATION No. 8 Relating to the Classification of Emissions	REC8-1/2
RECOMMENDATION No. 9 Relating to the Use of the Rationalized M.K.S. System of Units	REC9-1
RECOMMENDATION No. 10 Relating to the Means of reducing the Congestion in Band 7 (3-30 MHz)	REC10-1

****) Note by the General Secretariat:***

The Recommendations are arranged in the chronological order of the Conferences at which they were adopted, i.e.:

- Administrative Radio Conference (Geneva, 1959) (REC 1, etc.)
- Space Conference (Geneva, 1963) (REC Spa 1, etc.)
- Aeronautical Conference (Geneva, 1966) (REC Aer 1, etc.)
- Maritime Conference (Geneva, 1967) (REC Mar 1, etc.)
- Space Conference (Geneva, 1971) (REC Spa2—1, etc.)
- Maritime Conference (Geneva, 1974) (REC Mar2—1, etc.)
- Broadcasting-Satellite Conference (Geneva, 1977) (REC Sat-1, etc.)
- Aeronautical Conference (Geneva, 1978) (REC Aer2-1, etc.)

XXXII

RECOMMENDATION No. 11 Relating to the More Efficient Consolidation of National and International Radiocommunication Circuits operating in the Bands between 4 000 and 27 500 kHz	REC11-1/2
RECOMMENDATION No. 12 Relating to the Use of the Band 9 300-9 500 MHz	REC12-1/2
RECOMMENDATION No. 13 Relating to the Technical Standards to be applied when preparing Plans for the Broadcasting Stations in the Bands 68-73 MHz and 76-87.5 MHz	REC13-1/2
RECOMMENDATION No. 14 to Administrations in Region 1. Relating to the Broadcasting Service in the Band 100-108 MHz	REC14-1
RECOMMENDATION No. 15 Relating to Frequency Modulation Transmissions	REC15-1
RECOMMENDATION No. 16 Relating to the Measures to be taken to prevent the Operation of Broadcasting Stations on Board Ships or Aircraft outside National Territories	REC16-1
RECOMMENDATION No. 17 Relating to the Adoption of Standard Forms for Ship Station Licences and Aircraft Station Licences	REC17-1/4
<i>Annex 1</i> — Principles for the Formulation of Standard Ship and Aircraft Station Licences	REC17-2
<i>Annex 2</i> — Ship Station Licence	REC17-3
<i>Annex 3</i> — Aircraft Station Licence	REC17-4
RECOMMENDATION No. 18 Relating to Operator Certificates	REC18-1
RECOMMENDATION No. 19 Relating to International Co-ordination in the Selection of an appropriate Frequency Band for the Development of Air-Ground Public Correspondence Systems	REC19-1
RECOMMENDATION No. 20 Concerning the Matter of providing a Suitable Frequency Allocation for a Collision Avoidance System in the Aeronautical Radionavigation Service	REC20-1

RECOMMENDATION No. Spa 6 Relating to the Frequency Requirements in the HF Bands Exclusively Allocated to the Aeronautical Mobile (R) Service	*
RECOMMENDATION No. Spa 7 Relating to the Use of the Band 136-137 MHz by the Fixed and Mobile Services	REC Spa 7-1
RECOMMENDATION No. Spa 8 Relating to the Need to Cease Operations of the Fixed and Mobile Services in the Bands 149.9-150.05 MHz and 399.9-400.05 MHz Allocated to the Radionavigation-Satellite Service	REC Spa 8-1
RECOMMENDATION No. Spa 9 Relating to the Review of Progress in the Field of Space Radiocommunications	REC Spa 9-1/2
RECOMMENDATION No. Spa 10 Relating to the Utilization and Sharing of Frequency Bands Allocated to Space Radiocommunications	REC Spa 10-1
RECOMMENDATION No. Spa 11 Relating to the Radio Astronomy Service	REC Spa 11-1
RECOMMENDATION No. Aer 1 Relating to the Development of Techniques which would help to reduce Congestion in the High Frequency Bands allocated to the Aeronautical Mobile (R) Service	*
RECOMMENDATION No. Aer 2 Relating to a Study of the Utilization of Space Communication Techniques in the Aeronautical Mobile (R) Service	REC Aer 2-1/5
<i>Annex to Recommendation No. Aer 2</i>	REC Aer 2-2
RECOMMENDATION No. Mar 1 Relating to a Reprint of the Radio Regulations and of the Additional Radio Regulations	*

* Abrogated.

XXXVI

RECOMMENDATION No. Mar 2 Relating to a Regrouping of the Radio Regulations and the Additional Radio Regulations appertaining to the Maritime Mobile Service	REC Mar 2-1/2
RECOMMENDATION No. Mar 3 Relating to the Utilization of Space Communication Techniques in the Maritime Mobile Service	REC Mar 3-1/2
RECOMMENDATION No. Mar 4 Relating to Transmission by Television of Port Radar Images to Ships	*
RECOMMENDATION No. Mar 5 Relating to the Designation of Common Frequencies in the Medium Frequency Bands for Use by Coast Radiotelephone Stations for Communicating with Ships of other Nationalities	REC Mar 5-1/2
RECOMMENDATION No. Mar 6 Relating to the Preparation of a new Frequency Allotment Plan for High Frequency Coast Radiotelephone Stations	REC Mar 6-1/2
RECOMMENDATION No. Mar 7 Relating to Harmonic Relationship and Channel Spacing in the High Frequency Bands used by Ship Stations for Radiotelegraphy	*
RECOMMENDATION No. Mar 8 Relating to the Study of a Selective-Calling System for future operational Requirements of the Maritime Mobile Service	*
RECOMMENDATION No. Spa2-1 Relating to the Examination by World Administrative Radio Conferences of the Situation with Regard to Occupation of the Frequency Spectrum in Space Radiocommunications	REC Spa2-1/1-2
RECOMMENDATION No. Spa2-2 Relating to the preferred Frequency Bands for Tropospheric Scatter Systems	REC Spa2-2/1

* Abrogated.

(Rev. 1979)

- RECOMMENDATION No. Mar2 – 6 Relating to the Frequencies in Appendix 17, Section C, and Appendix 17 Rev., Section B, of the Radio Regulations, provided for World-Wide Use by Ships of all Categories and by Coast Stations** **REC Mar2-6/1**
- RECOMMENDATION No. Mar2 – 7 Relating to the Improved Used of the HF Radiotelephone Channels for Coast Stations in the Bands allocated exclusively to the Maritime Mobile Service** **REC Mar2-7/1-2**
- RECOMMENDATION No. Mar2 – 8 Relating to the Use of Frequency Bands between 23 000 and 27 500 kHz by the Maritime Mobile Service** **REC Mar2-8/1-2**
- RECOMMENDATION No. Mar2 – 9 Relating to a Study of the Feasibility of expanding the High-Frequency Bands allocated to the Maritime Mobile Service** **REC Mar2-9/1**
- RECOMMENDATION No. Mar2 – 10 Relating to the Establishment of a Watch by Coast Stations for Distress Purposes on the Frequency 156.8 MHz** **REC Mar2-10/1**
- RECOMMENDATION No. Mar2 – 11 Relating to the Use of Channels 15 and 17 of Appendix 18 by On-Board Communication Stations** **REC Mar2-11/1-2**
- RECOMMENDATION No. Mar2 – 12 Relating to the Future Use and Characteristics of Emergency Position-Indicating Radiobeacons** **REC Mar2-12/1-2**
- RECOMMENDATION No. Mar2 – 13 Relating to the Development of Fixed Frequency Radar Beacons (Racons)** **REC Mar2-13/1-2**
- RECOMMENDATION No. Mar2 – 14 Relating to the Frequency Requirements for Shipborne Transponders** **REC Mar2-14/1-2**
- RECOMMENDATION No. Mar2 – 15 Relating to Temporary Provisions covering the Technical and Operational Aspects of the Maritime Mobile-Satellite Service** **REC Mar2-15/1**

RECOMMENDATION No. Mar2 – 16 Relating to Distress, Urgency and Safety Traffic	REC Mar2-16/1-2
RECOMMENDATION No. Mar2 – 17 Relating to the Use of Radiocommunications for Marking, Identifying, Locating, and Communicating with the Means of Transport protected under the Geneva Conventions of 12 August 1949, concerning the Protection of War Victims and any Additional Instruments of those Conventions, as well as for ensuring the Safety of Ships and Aircraft of States not Parties to an Armed Conflict	REC Mar2-17/1-2
RECOMMENDATION No. Mar2 – 18 Relating to Accounting for Public Correspondence in Maritime Radiocommunications	REC Mar2-18/1
RECOMMENDATION No. Mar2 – 19 Relating to Studies of the Interconnection of Maritime Mobile Radiocommunication Systems with the International Telephone and Telegraph Networks	REC Mar2-19/1-2
RECOMMENDATION No. Mar2 – 20 Relating to the Presentation of Draft Amendments to the Radio Regulations	REC Mar2-20/1
RECOMMENDATION No. Mar2 – 21 Relating to the Possible Re-arrangement of the Radio Regulations and the Additional Radio Regulations	REC Mar2-21/1-3

RECOMMENDATION No. Sat – 1 relating to up-links for the broadcasting-satellite service	REC Sat-1/1-2
RECOMMENDATION No. Sat – 2 relating to the radiation of harmonics of the fundamental frequency by broadcasting-satellite stations.	REC Sat-2/1
RECOMMENDATION No. Sat – 3 to the CCIR relating to studies of propagation at 12 GHz for the broadcasting-satellite service.	REC Sat-3/1-2
RECOMMENDATION No. Sat – 4 to the CCIR relating to transmitting antennae for the broadcasting-satellite service	REC Sat-4/1-2
RECOMMENDATION No. Sat – 5 to the CCIR relating to up-links for the broadcasting-satellite service	REC Sat-5/1-3
RECOMMENDATION No. Sat – 6 to the CCIR relating to spurious emissions in the broadcasting-satellite service	REC Sat-6/1-2
RECOMMENDATION No. Sat – 7 to the CCIR relating to the interdependence of receiver design, channel grouping and sharing criteria	REC Sat-7/1
RECOMMENDATION No. Sat – 8 relating to the convening of a regional administrative radio conference for the detailed planning of the space services in the frequency band 11.7-12.2 GHz in Region 2	REC Sat-8/1-3
RECOMMENDATION No. Aer2 – 1 Relating to the Development of Techniques which, would help to reduce Congestion in the High Frequency Bands Allocated to the Aeronautical Mobile (R) Service	REC Aer2-1/1
RECOMMENDATION No. Aer2 – 2 Relating to the Efficient Use of Aeronautical Mobile (R) World-Wide Frequencies	REC Aer2-2/1
RECOMMENDATION No. Aer2 – 3 Relating to Cooperation in the Efficient Use of World-Wide Frequencies in the Aeronautical Mobile (R) Service	REC Aer2-3/1-2

XL, b

RECOMMENDATION No. Aer2 – 4 Relating to the Transition from the Existing to the Revised Frequency Allotment Plan in the Bands Allocated Exclusively to the Aeronautical Mobile (R) Service between 2 850 and 17 970 kHz	REC Aer2-4/1-2
RECOMMENDATION No. Aer2 – 5 Relating to the Inclusion of the Band 21 924 – 22 000 kHz in the Frequency Allotment Plan for the Aeronautical Mobile (R) Service (Appendix 27 Aer2 to the Radio Regulations)	REC Aer2-5/1-2
ANNEX – Outline of changes to be made to Appendix 27 Aer2 and related Radio Regulations	REC Aer2-5/3-6
RECOMMENDATION No. Aer2 – 6 Relating to the Concordance of the French, English and Spanish Texts of No. 429 of the Radio Regulations	REC Aer2-6/1
RECOMMENDATION No. Aer2 – 7 Relating to No. 27/123 of Appendix 27 Aer2 – Sub-Area 5B	REC Aer2-7/1
RECOMMENDATION No. Aer2 – 8 To the World Administrative Radio Conference, 1979, Relating to the Inapplicability of Resolution No. 13 to the Aeronautical Mobile (R) Service	REC Aer2-8/1-2
RECOMMENDATION No. Aer2 – 9 Relating to Public Correspondence with aircraft	REC Aer2-9/1-2
ANALYTICAL TABLE	1-

FOREWORD

1. This revised 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 the provisions of the 1959 (Geneva) Radio Regulations and the partial revisions of those Regulations by:

- a) the Extraordinary Administrative Radio Conference to allocate frequency bands for space radiocommunication purposes, Geneva, 1963 (referred to hereafter as "the 1963 Space Conference");
- b) the Extraordinary Administrative Radio Conference for the preparation of a revised allotment plan for the Aeronautical Mobile (R) Service, Geneva, 1966 (referred to hereafter as "the 1966 Aeronautical Conference");
- c) the World Administrative Radio Conference to deal with matters relating to the Maritime Mobile Service, Geneva, 1967 (referred to hereafter as "the 1967 Maritime Conference");
- d) the World Administrative Radio Conference for Space Telecommunications, Geneva, 1971 (referred to hereafter as "the 1971 Space Conference");
- e) the World Maritime Administrative Radio Conference, Geneva, 1974 (referred to hereafter as "the 1974 Maritime Conference");
- f) the World Broadcasting-Satellite Administrative Radio Conference, Geneva, 1977 (referred to hereafter as "the 1977 Broadcasting-Satellite Conference");
- g) the World Administrative Radio Conference on the Aeronautical Mobile (R) Service, Geneva, 1978 (referred to hereafter as "the 1978 Aeronautical Conference").

1.1 The final signature clauses (Nos. 1632 and 2165) and the signatures themselves which follow the Radio Regulations (Geneva, 1959) and the text of the Additional Protocol to those Regulations, have not been reproduced; nor have the signatures and the texts of the Additional Protocols contained in the Final Acts of the 1963 Space Conference and the 1966 Aeronautical Conference; nor have the signatures and the texts of the Final Protocols contained in the Final Acts of the 1967 Maritime Conference, the 1971 Space Conference, the 1974 Maritime Conference, the 1977 Broadcasting-Satellite Conference and the 1978 Aeronautical Conference. For these details reference should be made direct to the volume containing the 1959 Radio Regulations and to the Final Acts of the afore-mentioned Conferences.

2. Wherever one of the under-mentioned symbols appears it indicates an addition, substitution or amendment made by a Conference as follows:

- Spa** — 1963 Space Conference
- Aer** — 1966 Aeronautical Conference
- Mar** — 1967 Maritime Conference
- Spa2** — 1971 Space Conference
- Mar2** — 1974 Maritime Conference
- Aer2** — 1978 Aeronautical Conference

2.1 In the case of a provision, if more than one of the above-mentioned Conferences has been concerned in a variation of it, the symbol shown under the number indicates the last Conference to make a change.

2.2 In the Table of Frequency Allocations from 10 kHz to 275 GHz [Article 5 of the Radio Regulations] the appropriate symbol appears at the top of the page under the indication of the frequency range if one of the above-mentioned Conferences has amended the allocation or conditions of use of any band in the frequency range.

2.3 A symbol which appears under the number of an appendix, and which is underlined, signifies that the appendix has been added or completely substituted by the Conference represented by that symbol: a symbol which is not underlined indicates that the appendix has been amended.

It was not practicable to include symbols in the texts of the appendices to indicate all the changes made by the above-mentioned Conferences. Therefore symbols have not been inserted in these texts.

3. In a few cases the General Secretariat has updated a provision to bring it into conformity with a change made by a Conference. In these cases, the symbol associated with the provision is shown with an asterisk.

3.1 References to provisions of the Convention have been brought into line with those of the International Telecommunication Convention (Malaga-Torremolinos, 1973).

4. No change has been made to the numbering of the Resolutions and Recommendations of the Administrative Radio Conference, Geneva, 1959, but the following numbering has been used for the Resolutions and Recommendations of the subsequent Conferences:

- a) 1963 Space Conference: No. Spa 1, No. Spa 2, No. Spa 3, etc.*
- b) 1966 Aeronautical Conference: No. Aer 1, No. Aer 2, No. Aer 3, etc.
- c) 1967 Maritime Conference: No. Mar 1, No. Mar 2, No. Mar 3, etc.
- d) 1971 Space Conference: No. Spa2-1, No. Spa2-2, No. Spa2-3, etc.
- e) 1974 Maritime Conference: No. Mar2-1, No. Mar2-2, No. Mar2-3, etc.
- f) 1977 Broadcasting-Satellite Conference: No. Sat-1, No. Sat-2, No. Sat-3, etc.
- g) 1978 Aeronautical Conference: No. Aer2-1, No. Aer2-2, No. Aer2-3, etc.

The Resolutions and Recommendations of the subsequent Conferences are listed after those of the 1959 Conference and in the order shown above.

* The numbering adopted by the 1963 Space Conference was: No. 1A, No. 2A, No. 3A, etc.

5. Pages are separately numbered by article, appendix, resolution and recommendation. The following symbols have been adopted for this numbering, which appears at the top of the pages:

RR = Radio Regulations
 AR = Additional Radio Regulations
 AP = Appendix
 RES = Resolution
 REC = Recommendation

For example:

RR5-14 = Article 5 of the Radio Regulations, page 14
 AP13A-20 = Appendix 13A, page 20
 RES Mar 12-4 = Resolution No. Mar 12, page 4

5.1 In the Table of Contents there is a summary of the total number of pages for each category of information.

For example:

RR1-1/22 shows that Article 1 has 22 pages
 RR17-1 shows that Article 17 has only one page
 RR19-1/15 shows that in Article 19, in addition to pages 1 to
 RR19-6a/6b 15, there are two extra pages 6a and 6b

6. The under-mentioned notes are included in this edition:

- a) in Article 19 of the Radio Regulations, a note giving the international series of call signs allocated on a provisional basis from 1959 up to 15 March 1979 by the Secretary-General under the

terms of No. 749 of the Regulations;

- b) in Article 45 of the Radio Regulations, notes concerning the entry into force of the Radio Regulations (1959) and, subsequently, of provisions of them which were revised by the Conferences mentioned in point 1 above;
- c) in Article 14 of the Additional Radio Regulations, notes concerning the entry into force of the Additional Radio Regulations (1959) and of those provisions of them which were revised by the 1967 and 1974 Maritime Conferences.

7. Those provisions applicable to the Maritime Mobile Service in Article 40 of the Radio Regulations and in Articles 1, 4, 5, 6, 7 and 10 of the Additional Radio Regulations were revised by the 1974 Maritime Conference and entered in the new Articles RR40A, AR1A, AR4A, AR5A, AR6A, AR7A and AR10A, respectively.

The titles of Article 40 of the Radio Regulations and of Articles 1, 4, 5, 6, 7 and 10 of the Additional Radio Regulations were amended by the said Conference so as to exclude from them the Maritime Mobile Service, but no amendments were made to the texts of these Articles. Any provisions relating to the Maritime Mobile Service in these texts [with the exception of those in AR4 which are mentioned in AR4A] should now be disregarded, as should the references to the Telegraph Regulations, which take no account of the new structure of these Regulations or of the fact that the provisions of many of them have been transferred to the Instructions which form part of C.C.I.T.T. Recommendations.

kHz
2 000—2 194
(Spa2) (Mar2)

RR5-19

Allocation to Services		
Region 1	Region 2	Region 3
2 000 — 2 045 FIXED MOBILE except aeronautical mobile 193 195A	2 000 — 2 065 FIXED MOBILE	
2 045 — 2 065 METEOROLOGICAL AIDS FIXED MOBILE except aeronautical mobile 193 195A		
2 065 — 2 170 FIXED MOBILE except aeronautical mobile (R) 193 195A	2 065 — 2 107 MARITIME MOBILE 200	
	2 107 — 2 170 FIXED MOBILE	
2 170 — 2 194 MOBILE (distress and calling) 201 201A		

200 In Region 2, except in Greenland, coast stations and ship stations using
Mar radiotelephony shall be limited to class A3A or A3J emissions and to a peak envelope power not exceeding 1 kW. Preferably, the following carrier frequencies should be used: 2 065.0, 2 079.0, 2 082.5, 2 086.0, 2 093.0, 2 096.5, 2 100.0, 2 103.5 kHz;

201 The frequency 2 182 kHz is the international distress and calling frequency
Mar for radiotelephony. The conditions for the use of the band 2 170—2 194 kHz are prescribed in Article 35.

201A The frequencies 2 182 kHz, 3 023 kHz, 5 680 kHz, 8 364 kHz,
Aer2 121·5 MHz, 156·8 MHz and 243 MHz may also be used, in accordance
with the procedures in force for terrestrial radiocommunication services,
for search and rescue operations concerning manned space vehicles.

 The same applies to the frequencies 10 003 kHz, 14 993 kHz and
19 993 kHz, but in each of these cases emissions must be confined in
a band of ± 3 kHz about the frequency.

kHz
2 850—3 500
(Spa2) (Mar2)

RR5-23

Allocation to Services		
Region 1	Region 2	Region 3
2 850—3 025	AERONAUTICAL MOBILE (R)	
	201A	205A
3 025—3 155	AERONAUTICAL MOBILE (OR)	
3 155—3 200	FIXED	
	MOBILE except aeronautical mobile (R)	
3 200—3 230	FIXED	
	MOBILE except aeronautical mobile (R)	
	BROADCASTING	202
3 230—3 400	FIXED	
	MOBILE except aeronautical mobile	
	BROADCASTING	202
3 400—3 500	AERONAUTICAL MOBILE (R)	

kHz
3 500—4 000

Allocation to Services		
Region 1	Region 2	Region 3
3 500—3 800 AMATEUR FIXED MOBILE except aeronautical mobile	3 500—4 000 AMATEUR FIXED MOBILE except aeronautical mobile (R)	3 500—3 900 AMATEUR FIXED MOBILE
3 800—3 900 FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE		206 207
3 900—3 950 AERONAUTICAL MOBILE (OR)		3 900—3 950 AERONAUTICAL MOBILE BROADCASTING
3 950—4 000 FIXED BROADCASTING		3 950—4 000 FIXED BROADCASTING

205A The carrier (reference) frequencies 3 023 kHz and 5 680 kHz
Aer2 may also be used, in accordance with Nos. 1326C and 1353B respectively, by stations of the maritime mobile service engaged in coordinated search and rescue operations.

206 In Australia, the band 3 500-3 700 kHz is allocated to the amateur service; the band 3 700-3 900 kHz is allocated to the fixed and mobile services.

207 In India, the band 3 500-3 890 kHz is allocated to the fixed and mobile services; the band 3 890-3 900 kHz is allocated to the amateur service.

4 063 - 4 143.6 kHz
 6 200 - 6 218.6 kHz
 8 195 - 8 291.1 kHz
 12 330 - 12 429.2 kHz
 16 460 - 16 587.1 kHz
 22 000 - 22 124 kHz

448
Mar2

b) *Coast stations, telephony, duplex operation (two-frequency channels)*

4 361 - 4 438 kHz
 6 514 - 6 525 kHz
 8 728.5 - 8 815 kHz
 13 107.5 - 13 200 kHz
 17 255 - 17 360 kHz
 22 624.5 - 22 720 kHz

As from 1 January 1978, the bands listed above will be replaced by:

4 357.4 - 4 438 kHz
 6 506.4 - 6 525 kHz
 8 718.9 - 8 815 kHz
 13 100.8 - 13 200 kHz
 17 232.9 - 17 360 kHz
 22 596 - 22 720 kHz

449
Mar2

c) *Ship stations and coast stations, telephony, simplex operation (single-frequency channels) and intership cross-band operation (two-frequencies)*

4 139.5 - 4 142.5 kHz
 6 210.4 - 6 216.5 kHz
 8 281.2 - 8 288 kHz
 12 421 - 12 431.5 kHz
 16 565 - 16 576 kHz
 22 094.5 - 22 112 kHz

As from 16 July 1977, the following bands will be in use simultaneously with the bands listed above and, as from 1 January 1978, will replace them:

4 143.6 - 4 146.6 kHz
6 218.6 - 6 224.6 kHz
8 291.1 - 8 297.3 kHz
12 429.2 - 12 439.5 kHz
16 587.1 - 16 596.4 kHz
22 124 - 22 139.5 kHz

450 SUP (Mar)

451
Mar2

e) Ship stations, wide-band telegraphy, facsimile and special transmission systems

4 146.6 - 4 162.5 kHz
4 166 - 4 170 kHz
6 224.6 - 6 244.5 kHz
6 248 - 6 256 kHz
8 300 - 8 328 kHz
8 331.5 - 8 343.5 kHz
12 439.5 - 12 479.5 kHz
12 483 - 12 491 kHz
16 596.4 - 16 636.5 kHz
16 640 - 16 660 kHz
22 139.5 - 22 160.5 kHz
22 164 - 22 192 kHz

451A
Mar2*

- f) Ship stations, oceanographic data transmission (see note c) in Appendix 15)*

4 162.5 - 4 166 kHz
6 244.5 - 6 248 kHz
8 328 - 8 331.5 kHz
12 479.5 - 12 483 kHz
16 636.5 - 16 640 kHz
22 160.5 - 22 164 kHz

451B
Mar2

- g) Ship stations, narrow-band direct-printing telegraph and data transmission systems, at speeds not exceeding 100 bauds (frequencies paired with those in No. 452C)*

4 170 - 4 177.25 kHz
6 256 - 6 267.75 kHz
8 343.5 - 8 357.25 kHz
12 491 - 12 519.75 kHz
16 660 - 16 694.75 kHz
22 192 - 22 225.75 kHz

451C
Mar2

- ga) Ship stations, narrow-band direct-printing telegraph and data transmission systems, at speeds not exceeding 100 bauds (non-paired frequencies)*

4 177.25 - 4 179.75 kHz
6 267.75 - 6 269.75 kHz
8 297.3 - 8 300 kHz
8 357.25 - 8 357.75 kHz
12 519.75 - 12 526.75 kHz
16 694.75 - 16 705.8 kHz
22 225.75 - 22 227 kHz
25 076 - 25 090.1 kHz

452 *h) Ship stations, A1 Morse telegraphy, calling*
Mar2

4 179.75 - 4 187.2 kHz
6 269.75 - 6 280.8 kHz
8 359.75 - 8 374.4 kHz
12 539.6 - 12 561.6 kHz
16 719.8 - 16 748.8 kHz
22 227 - 22 247 kHz
25 070 - 25 076 kHz

452.1 **SUP** (**Mar**)

452A *ha) Ship stations, digital selective calling*
Mar2

4 187.2 - 4 188 kHz
6 280.8 - 6 282 kHz
8 374.4 - 8 376 kHz
12 561.6 - 12 564 kHz
16 748.8 - 16 752 kHz
22 247 - 22 250 kHz

452B *hb) Ship stations, A1 Morse telegraphy, working*
Mar2

4 188 - 4 219.4 kHz
6 282 - 6 325.4 kHz
8 357.75 - 8 359.75 kHz
8 376 - 8 435.4 kHz
12 526.75 - 12 539.6 kHz
12 564 - 12 652.3 kHz
16 705.8 - 16 719.8 kHz
16 752 - 16 859.4 kHz
22 250 - 22 310.5 kHz
25 090.1 - 25 110 kHz

- 452C** *hc) Coast stations, narrow-band direct-printing telegraph and*
Mar2 *data transmission systems, at speeds not exceeding 100*
bauds (frequencies paired with those in No. 451B)

4 349.4 - 4 356.75 kHz
 6 493.9 - 6 505.75 kHz
 8 704.4 - 8 718.25 kHz
 13 070.8 - 13 099.75 kHz
 17 196.9 - 17 231.75 kHz
 22 561 - 22 594.75 kHz

- 452D** *hd) Coast stations, digital selective calling*
Mar2

4 356.75 - 4 357.4 kHz
 6 505.75 - 6 506.4 kHz
 8 718.25 - 8 718.9 kHz
 13 099.75 - 13 100.8 kHz
 17 231.75 - 17 232.9 kHz
 22 594.75 - 22 596 kHz

- 453** *i) Coast stations, wide-band and A1 Morse telegraphy, fac-*
Mar2 *simile, special and data transmission systems and direct-*
printing telegraph systems

4 219.4 - 4 349.4 kHz
 6 325.4 - 6 493.9 kHz
 8 435.4 - 8 704.4 kHz
 12 652.3 - 13 070.8 kHz
 16 859.4 - 17 196.9 kHz
 22 310.5 - 22 561 kHz

453.1 **SUP** (Mar)

- 453A** (1A) Frequencies in the bands 25 010-25 070 kHz, 25 110-25 600
Mar kHz and 26 100-27 500 kHz may be assigned to coast stations.

454 - 455 **SUP** (Mar)

456 § 13. (1) Appendix 17 and Appendix 17 Rev. show the radio-
Mar2 telephone channels of the maritime mobile service in the frequency
bands listed in Nos. 447, 448 and 449.

457 (2) The Frequency Allotment Plan for coast radiotelephone
Mar2 stations in the high frequency bands is contained in Appendix 25 MOD
which remains in force up to and including 31 December 1977, and in
Appendix 25 Mar2 which will enter into force on 1 January 1978 (see
Resolution No. Mar2 - 12).

Mar2 **Section IVA. Ship Movement Service**

457A The ship movement service should be operated only on
Mar2 frequencies allocated to the maritime mobile service in the band
156-174 MHz.

Section V. Maritime Radiobeacons

458 § 14. (1) The protection ratio required for maritime radiobeacons
operating in the bands between 285 and 325 kHz is based on the
radiated power being kept to the value necessary to give the desired
field strength at the service range.

459 (2) The daylight service range of the radiobeacons referred to
in No. 458 shall be based on the following field strengths :

460 (3) *Region 1*

- 50 microvolts per metre for radiobeacons north of 43°N.
- 75 microvolts per metre for radiobeacons between 43°N and 30°N.
- 100 microvolts per metre for radiobeacons between 30°N and 30°S.
- 75 microvolts per metre for radiobeacons between 30°S and 43°S.
- 50 microvolts per metre for radiobeacons south of 43°S.

461 (4) *Region 2*

- 50 microvolts per metre for radiobeacons north of 40°N.
- 75 microvolts per metre for radiobeacons between 40°N and 31°N.
- 100 microvolts per metre for radiobeacons between 31°N and 30°S.
- 75 microvolts per metre for radiobeacons between 30°S and 43°S.
- 50 microvolts per metre for radiobeacons south of 43°S.

462 (5) *Region 3*

- 75 microvolts per metre for radiobeacons north of 40°N.
- 100 microvolts per metre for radiobeacons between 40°N and 50°S.
- 75 microvolts per metre for radiobeacons south of 50°S.

463 (6) In Region 1, for maritime radiobeacons in these bands, the assignment of frequencies is based on a separation of 2.3 kHz between adjacent frequencies used for class A2 emissions.

464 (7) In Region 1, for maritime radiobeacons, the depth of modulation should be at least 70 %.

Section VI. Fixed Service

General

465 § 15. (1) Administrations are urged to discontinue, in the fixed service, the use of double sideband radiotelephone transmissions in the bands below 30 MHz, if possible as from January 1, 1970.

466 (2) Class F3 emissions are prohibited in the fixed service in the bands below 30 MHz.

*Selection of Frequencies for the International Exchange
of Police Information.*

467 § 16. (1) The frequencies necessary for the international exchange of information to assist in the apprehension of criminals shall be selected from the bands allocated to the fixed service, if necessary by special agreement among interested administrations, in accordance with Article 31 of the Convention.

468 (2) To obtain economy in the use of frequencies, the International Frequency Registration Board should be consulted by the administrations concerned whenever such agreements are under discussion on a regional or world-wide basis.

*Selection of Frequencies for the International Exchange
of Synoptic Meteorological Information.*

469 § 17. (1) The frequencies necessary for the international exchange of synoptic meteorological information shall be selected from the bands allocated to the fixed service if necessary by special agreement among interested administrations, in accordance with Article 31 of the Convention.

470 (2) To obtain economy in the use of frequencies, the International Frequency Registration Board should be consulted by the administrations concerned whenever such agreements are under discussion on a regional or world-wide basis.

Spa2 **Section VII. Terrestrial Radiocommunication Services sharing
Frequency Bands with Space Radiocommunication
Services above 1 GHz**

Choice of Sites and Frequencies

470A § 18. Sites and frequencies for terrestrial stations, operating in
Spa2 frequency bands shared with equal rights between terrestrial radio-communication and space radiocommunication services shall be selected having regard to the relevant Recommendations of the C.C.I.R. with respect to geographical separation from earth stations.

470AA § 18A. (1) As far as practicable, sites for transmitting¹ stations, **Spa2** in the fixed or mobile service, employing maximum values of equivalent isotropically radiated power exceeding +35 dBW in the frequency bands between 1 and 10 GHz, should be selected so that the direction of maximum radiation of any antenna will be at least 2° away from the geostationary satellite orbit, taking into account the effect of atmospheric refraction².

470AB (2) As far as practicable, sites for transmitting³ stations, in **Spa2** the fixed or mobile service, employing maximum values of equivalent isotropically radiated power exceeding +45 dBW in the frequency bands between 10 and 15 GHz, should be selected so that the direction of maximum radiation of any antenna will be at least 1.5° away from the geostationary satellite orbit, taking into account the effect of atmospheric refraction⁴.

470AC (3) In the frequency bands above 15 GHz there shall be no **Spa2** restriction as to the direction of maximum radiation for stations in the fixed or mobile service.

470AA.1 ¹ For their own protection receiving stations in the fixed or mobile services **Spa2** operating in bands shared with space radiocommunication services (space-to Earth) should also avoid directing their antennae towards the geostationary satellite orbit if their sensitivity is sufficiently high that interference from space station transmissions may be significant.

470AA.2 ² Information on this subject is given in the most recent version of C.C.I.R. **Spa2** Report No. 393.

470AB.1 ³ See No. 470AA.1. **Spa2**

470AB.2 ⁴ See No. 470AA.2. **Spa2**

Power Limits

470B § 19. (1) The maximum equivalent isotropically radiated power of
Spa2 a station in the fixed or mobile service shall not exceed +55 dBW.

470BA (1A) Where compliance with No. **470AA** is impracticable the
Spa2 maximum equivalent isotropically radiated power of a station in the
fixed or mobile service shall not exceed:

+47 dBW in any direction within 0.5° of the geostationary
satellite orbit; or

+47 dBW to +55 dBW, on a linear decibel scale (8 dB per
degree), in any direction between 0.5° and 1.5° of the geo-
stationary satellite orbit, taking into account the effect of
atmospheric refraction¹.

470C (2) The power delivered by a transmitter to the antenna of
Spa2 a station in the fixed or mobile service in frequency bands between
1 and 10 GHz, shall not exceed +13 dBW.

470CA (2A) The power delivered by a transmitter to the antenna of a
Spa2 station in the fixed or mobile service in frequency bands above
10 GHz shall not exceed +10 dBW.

470D (3) The limits given in Nos. **470AA**, **470B**, **470BA** and **470C**
Spa2 apply in the following frequency bands allocated to the fixed-satellite

470BA.1 ¹ See No. **470AA.2**.
Spa2

service and the meteorological-satellite service for reception by space stations, where these bands are shared with equal rights with the fixed or mobile service:

- 2 655 - 2 690 MHz (for Regions 2 and 3)
- 5 800 - 5 850 MHz (for the countries mentioned in No. 390)
- 5 850 - 5 925 MHz (for Regions 1 and 3)
- 5 925 - 6 425 MHz
- 7 900 - 7 975 MHz
- 7 975 - 8 025 MHz (for the countries mentioned in No. 392H)
- 8 025 - 8 400 MHz

470DA (4) The limits given in Nos. **470AB**, **470B** and **470CA** apply
Spa2 in the following frequency bands allocated to the fixed-satellite service for reception by space stations, where these bands are shared with equal rights with the fixed or mobile service:

- 10.95 - 11.20 GHz (Region 1)
- 12.50 - 12.75 GHz (Regions 1 and 2)
- 14.175 - 14.300 GHz (for the countries mentioned in No. 407)
- 14.4 - 14.5 GHz

470DB (5) The limits given in Nos. **470B** and **470CA** apply in the
Spa2 following frequency bands allocated to the fixed-satellite service for reception by space stations, where these bands are shared with equal rights with the fixed or mobile service:

- 27.5 - 29.5 GHz
- 29.5 - 31.0 GHz (for the country mentioned in No. 409E)

Spa2 Section VIII. Space Radiocommunication Services sharing Frequency Bands with Terrestrial Radiocommunication Services above 1 GHz

Choice of Sites and Frequencies

470E § 20. Sites and frequencies for earth stations, operating in frequency bands shared with equal rights between terrestrial radiocommunication and space radiocommunication services, shall be selected having regard to the relevant Recommendations of the C.C.I.R. with respect to geographical separation from terrestrial stations.
Spa2

Power Limits

470F § 21. (1) Earth stations.
Spa2

470G (2) The equivalent isotropically radiated power transmitted in any direction towards the horizon by an earth station operating in frequency bands between 1 and 15 GHz, shall not exceed the following limits except as provided in Nos. **470H** or **470GC**:
Spa2

+40 dBW in any 4 kHz band for $\theta \leq 0^\circ$

+40 + 3 θ dBW in any 4 kHz band for $0^\circ < \theta \leq 5^\circ$

where θ is the angle of elevation of the horizon viewed from the centre of radiation of the antenna of the earth station and measured in degrees as positive above the horizontal plane and negative below it.

470GA (2A) The equivalent isotropically radiated power transmitted in any direction towards the horizon by an earth station operating in frequency bands above 15 GHz shall not exceed the following limits except as provided in Nos. **470H** or **470GD**:
Spa2

+ 64 dBW in any 1 MHz band for $\theta \leq 0^\circ$

+ 64 + 3 θ dBW in any 1 MHz band for $0^\circ < \theta \leq 5^\circ$

where θ is as defined in No. 470G.

470GB (2B) For angles of elevation of the horizon greater than 5° there
Spa2 shall be no restriction as to the equivalent isotropically radiated power transmitted by an earth station towards the horizon.

470GC (2C) As an exception to the limits given in No. 470G, the
Spa2 equivalent isotropically radiated power towards the horizon for an earth station in the space research service (deep-space) shall not exceed +55 dBW in any 4 kHz band.

470GD (2D) As an exception to the limits given in No. 470GA, the equi-
Spa2 valent isotropically radiated power towards the horizon for an earth station in the space research service (deep-space) shall not exceed +79 dBW in any 1 MHz band.

470H (3) The limits given in No. 470G, No. 470GA, No. 470GC and
Spa2 No. 470GD, as applicable, may be exceeded by not more than 10 dB. However, when the resulting co-ordination area extends into the territory of another country, such increase shall be subject to agreement by the administration of that country.

470I SUP (Spa2)

470J (3A) The limits given in No. 470G apply in the following fre-
Spa2 quency bands allocated to transmission by earth stations in the fixed-satellite service and earth exploration-satellite service, and in particular the meteorological-satellite service, where these bands are shared with equal rights with the fixed or mobile service:

2 655 - 2 690 MHz (Regions 2 and 3)
4 400 - 4 700 MHz
5 800 - 5 850 MHz (for the countries mentioned in No. 390)
5 850 - 5 925 MHz (Regions 1 and 3)
5 925 - 6 425 MHz
7 900 - 7 975 MHz
7 975 - 8 025 MHz (for the countries mentioned in No. 392H)
8 025 - 8 400 MHz
10.95 - 11.20 GHz (Region 1)
12.50 - 12.75 GHz (Regions 2 and 3 and for the countries mentioned in No. 405BD)
14.175 - 14.300 GHz (for the countries mentioned in No. 407)
14.4 - 14.5 GHz

470JA (3B) The limits given in No. 470GA apply in the following frequency band allocated to transmission by earth stations in the fixed-satellite service, where this is shared with equal rights with the fixed or mobile service:

27.5 - 29.5 GHz

Minimum Angle of Elevation

470K § 22. (1) Earth stations.
Spa2

470L (2) Earth station antennae shall not be employed for transmission at elevation angles of less than 3 degrees measured from the horizontal plane to the direction of maximum radiation, except when agreed to by administrations concerned or those whose services may be affected. In case of reception by an earth station, the above value shall be used for co-ordination purposes if the operating angle of elevation is less than that value.
Spa2

470LA (2A) As an exception to No. **470L**, earth station antennae in the
Spa2 space research service (near-earth) shall not be employed for transmission at elevation angles of less than 5 degrees, and earth station antennae in the space research service (deep-space) shall not be employed for transmission at elevation angles of less than 10 degrees, both angles being those measured from the horizontal plane to the direction of maximum radiation. In case of reception by an earth station, the above values shall be used for co-ordination purposes if the operating angle of elevation is less than those values.

470M SUP (Spa2)

Spa2 *Limits of Power Flux Density from Space Stations*

470N § 23. (1) Power flux density limits between 1 690 MHz and 1 700
Spa2 MHz.

470NA a) The power flux density at the Earth's surface produced
Spa2 by emissions from a space station or reflected from a passive satellite for all conditions and for all methods of modulation shall not exceed -133 dBW/m² in any 1.5 MHz band. This limit relates to the power flux density which would be obtained under assumed free-space propagation conditions.

470NB b) The limit given in No. **470NA** applies in the frequency
Spa2 band listed in No. **470NC** which is allocated to transmission by space stations in the earth exploration-satellite service and in particular the meteorological-satellite service where this band is shared with equal rights with the meteorological aids service.

470NC 1 690 - 1 700 MHz
Spa2

470ND (2) Power flux density limits between 1 670 MHz and 2 535
Spa2 MHz.

470NE a) The power flux density at the Earth's surface produced
Spa2 by emissions from a space station or reflected from a passive satellite for all conditions and for all methods of modulation shall not exceed the following values:

— 154 dBW/m² in any 4 kHz band for angles of arrival between 0 and 5 degrees above the horizontal plane;

— $154 + \frac{\delta - 5}{2}$ dBW/m² in any 4 kHz band for angles of arrival δ (in degrees) between 5 and 25 degrees above the horizontal plane;

— 144 dBW/m² in any 4 kHz band for angles of arrival between 25 and 90 degrees above the horizontal plane.

These limits relate to the power flux density which would be obtained under assumed free-space propagation conditions.

470NF b) The limits given in No. **470NE** apply in the frequency
Spa2 bands listed in No. **470NG** which are allocated to transmission by space stations in the following space radiocommunication services:

- Earth exploration-satellite service and in particular meteorological-satellite service (space-to-Earth)
- space research service (space-to-Earth)
- fixed-satellite service (space-to-Earth)

where these bands are shared with equal rights with the fixed or mobile service:

470NG
Spa2 1 670 - 1 690 MHz
 1 690 - 1 700 MHz (for the countries mentioned in No. 354A)
 1 700 - 1 710 MHz
 1 770 - 1 790 MHz (for the countries mentioned in No. 356AA)
 2 200 - 2 290 MHz
 2 290 - 2 300 MHz
 2 500 - 2 535 MHz

470NGA
Spa2 c) The power flux density values given in No. 470NE are derived on the basis of protecting the fixed service using line-of-sight techniques. Where a fixed service using tropospheric scatter operates in the bands listed in No. 470NG and where there is insufficient frequency separation, there must be sufficient angular separation between the direction to the space station and the direction of maximum radiation of the antenna of the receiving station of the fixed service using tropospheric scatter to ensure that the interference power at the receiver input of the station of the fixed service does not exceed — 168 dBW in any 4 kHz band.

470NH (3) Power flux density limits between 2 500 MHz and
Spa2 2 690 MHz.

470NI
Spa2 a) The power flux density at the Earth's surface produced by emissions from a space station in the broadcasting-satellite service for all conditions and for all methods of modulation shall not exceed the following values:

— 152 dBW/m² in any 4 kHz band for angles of arrival between 0 and 5 degrees above the horizontal plane;

— $152 + \frac{3(8-5)}{4}$ dBW/m² in any 4 kHz band for angles of arrival δ (in degrees) between 5 and 25 degrees above the horizontal plane;

— 137 dBW/m² in any 4 kHz band for angles of arrival between 25 and 90 degrees above the horizontal plane.

These limits relate to the power flux density which would be obtained under assumed free-space propagation conditions.

470NJ
Spa2

- b) The limits given in No. **470NI** apply in the frequency band:

2 500 - 2 690 MHz

which is shared by the broadcasting-satellite service with the fixed or mobile service.

470NK
Spa2

- c) The power flux density values given in No. **470NI** are derived on the basis of protecting the fixed service using line-of-sight techniques. Where a fixed service using tropospheric scatter operates in the band mentioned in No. **470NJ** and where there is insufficient frequency separation, there must be sufficient angular separation between the direction to the space station and the direction of maximum radiation of the antenna of the receiving station of the fixed service using tropospheric scatter to ensure that the interference power at the receiver input of the station of the fixed service does not exceed — 168 dBW in any 4 kHz band.

470NL (4) Power flux density limits between 3 400 MHz and 7 750
Spa2 MHz.

470NM a) The power flux density at the Earth's surface produced
Spa2 by emissions from a space station or reflected from a passive satellite for all conditions and for all methods of modulation shall not exceed the following values:

— 152 dBW/m² in any 4 kHz band for angles of arrival between 0 and 5 degrees above the horizontal plane;

— $152 + \frac{\delta - 5}{2}$ dBW/m² in any 4 kHz band for angles of arrival δ (in degrees) between 5 and 25 degrees above the horizontal plane;

— 142 dBW/m² in any 4 kHz band for angles of arrival between 25 and 90 degrees above the horizontal plane.

These limits relate to the power flux density which would be obtained under assumed free-space propagation conditions.

470NN b) The limits given in No. **470NM** apply in the frequency
Spa2 bands listed in No. **470NO** which are allocated to transmission by space stations in the following space radiocommunication services:

— fixed-satellite service (space-to-Earth)

— meteorological-satellite service (space-to-Earth)

where these bands are shared with equal rights with the fixed or mobile service:

470NO	3 400 - 4 200 MHz
Spa2	7 250 - 7 300 MHz (for the countries mentioned in No. 392G)
	7 300 - 7 750 MHz

470NP (5) Power flux density limits between 8 025 MHz and 11.7 GHz.
Spa2

470NQ a) The power flux density at the Earth's surface, produced by emissions from a space station, or reflected from a passive satellite for all conditions and for all methods of modulation shall not exceed the following values:
Spa2

— 150 dBW/m² in any 4 kHz band for angles of arrival between 0 and 5 degrees above the horizontal plane;

— $150 + \frac{\delta - 5}{2}$ dBW/m² in any 4 kHz band for angles of arrival δ (in degrees) between 5 and 25 degrees above the horizontal plane;

— 140 dBW/m² in any 4 kHz band for angles of arrival between 25 and 90 degrees above the horizontal plane.

These limits relate to the power flux density which would be obtained under assumed free-space propagation conditions.

470NR b) The limits given in No. 470NQ apply in the frequency bands listed in No. 470NS which are allocated to transmission by space stations in the following space radiocommunication services:
Spa2

— earth exploration-satellite service (space-to-Earth)

- space research service (space-to-Earth)
- fixed-satellite service (space-to-Earth)

where these bands are shared with equal rights with the fixed or mobile service:

470NS	8 025 - 8 400 MHz
Spa2	8 400 - 8 500 MHz
	10.95 - 11.20 GHz
	11.45 - 11.70 GHz

470NT (6) Power flux density limits between 12.50 GHz and 12.75 GHz.
Spa2

470NU a) The power flux density at the Earth's surface, produced by emissions from a space station or reflected from a passive satellite for all conditions and for all methods of modulation shall not exceed the following values:
Spa2

— 148 dBW/m² in any 4 kHz band for angles of arrival between 0 and 5 degrees above the horizontal plane;

— $148 + \frac{\delta - 5}{2}$ dBW/m² in any 4 kHz band for angles of arrival δ (in degrees) between 5 and 25 degrees above the horizontal plane;

— 138 dBW/m² in any 4 kHz band for angles of arrival between 25 and 90 degrees above the horizontal plane.

These limits relate to the power flux density which would be obtained under assumed free-space propagation conditions.

470NV
Spa2

- b) The limits given in No. 470NU apply in the frequency band indicated in No. 470NW which is allocated to the fixed-satellite service for transmission by space stations where this band is shared with equal rights with the fixed or mobile service:

470NW
Spa2

12.50 - 12.75 GHz (Region 3 and for the countries mentioned in No. 405BD)

470NX
Spa2

- (7) Power flux density limits between 17.7 GHz and 22.0 GHz.

470NY
Spa2

- a) The power flux density at the Earth's surface produced by emissions from a space station or reflected from a passive satellite for all conditions and for all methods of modulation shall not exceed the following values:

—115 dBW/m² in any 1 MHz band for angles of arrival between 0 and 5 degrees above the horizontal plane;

— $115 + \frac{\delta - 5}{2}$ dBW/m² in any 1 MHz band for angles of arrival δ (in degrees) between 5 and 25 degrees above the horizontal plane;

—105 dBW/m² in any 1 MHz band for angles of arrival between 25 and 90 degrees above the horizontal plane.

These limits relate to the power flux density which would be obtained under assumed free-space propagation conditions.

470NZ
Spa2 b) The limits given in No. **470NY** apply in the frequency bands listed in No. **470NZA** which are allocated to transmission by space stations in the following space radiocommunication services:

— fixed-satellite service (space-to-Earth)

— earth exploration-satellite service (space-to-Earth)

where these bands are shared with equal rights with the fixed or mobile service:

470NZA	17.7 - 19.7	GHz
Spa2	21.2 - 22.0	GHz

470NZB (8) The limits given in Nos. **470NA**, **470NE**, **470NI**,
Spa2 **470NM**, **470NQ**, **470NU** and **470NY** may be exceeded on the territory of any country the administration of which has so agreed.

470O-470U **SUP** (**Spa2**)

Spa2 **Section IX. Space Radiocommunication Services**

Cessation of Emissions

470V § 24. Space stations shall be fitted with devices to ensure imme-
Spa2 diate cessation of their radio emissions by telecommand, whenever such cessation is required under the provisions of these Regulations.

Spa2 *Control of Interference between Geostationary-Satellite Systems and non-synchronous inclined Orbit-Satellite Systems*

470VA § 25. Non-geostationary space stations in the fixed-satellite service shall cease or reduce to a negligible level radio emissions, and their associated earth stations shall not transmit to them whenever there is insufficient angular separation between the non-geostationary satellite and geostationary satellites and unacceptable interference¹ to geostationary satellite space systems operating in accordance with these Regulations.

Spa2 *Station Keeping of Space Stations*²

470VB § 26. Space stations on geostationary satellites:
Spa2

470VC — shall have the capability of maintaining their positions within ± 1 degree of the longitude of their nominal positions, but efforts should be made to achieve a capability of maintaining their positions at least within ± 0.5 degree of the longitude of their nominal positions;
Spa2

470VD — shall maintain their positions within ± 1 degree of longitude of their nominal positions irrespective of the cause of variation; but
Spa2

470VA.1 ¹ The level of unacceptable interference shall be fixed by agreement between the administrations concerned, using the relevant C.C.I.R. Recommendations as a guide.

Spa2 ² In the case of space stations on geosynchronous satellites with orbits having an angle of inclination greater than 5 degrees the positional tolerance shall relate to the nodal point.

- 470VE** — need not comply with No. **470VD** as long as the satellite network to which the space station belongs does not produce an unacceptable level of interference¹ into any other satellite network whose space station complies with the limits given in No. **470VD**.
- Spa2**

Spa2 *Pointing Accuracy of Antennae on Geostationary Satellites*

- 470VF** § 27. The pointing direction of maximum radiation of any earth-ward beam of antennae on geostationary satellites shall be capable of being maintained within:
- Spa2**

10% of the half power beamwidth relative to the nominal pointing direction, or

0.5 degree relative to the nominal pointing direction,

whichever is greater. This provision applies only when such a beam is intended for less than global coverage.

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.

This accuracy shall be maintained only if it is required to avoid unacceptable interference² to other systems.

470VE.1 ¹ The level of unacceptable interference shall be fixed by agreement between the administrations concerned, using the relevant C.C.I.R. Recommendations as a guide.

Spa2

470VF.1 ² The level of unacceptable interference shall be fixed by agreement between the administrations concerned, using the relevant C.C.I.R. Recommendations as a guide.

Spa2

Spa2 *Power Flux Density at the Geostationary Satellite Orbit*

470VG § 28. In the frequency band 8 025 to 8 400 MHz, which the Earth
Spa2 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 dBW/m² in any 4 kHz band.

549A (4) Any frequency assignment for reception by a coast
Mar2 radiotelephone station for which the finding is unfavourable with respect to No. **548A** shall be examined with respect to Nos. **520** and **521**. The date to be entered in Column 2b shall be that determined according to the relevant provisions of Section III of this Article.

550 SUP (Mar2)

551 (5) Any assignment of a frequency for reception by a coast
Mar2 radiotelephone station which has received a favourable finding with respect to No. **548A** but unfavourable with respect to No. **548B** shall be recorded in the Master Register. The date to be entered in Column 2b shall be that determined according to the relevant provisions of Section III of the present Article.

552 § 21. (1) *Examination of Notices concerning Frequency Assignments to Aeronautical Stations in the Aeronautical Mobile (R) Service in the Bands allocated exclusively to that Service between 2 850 and 17 970 kHz (see No. 500).*

553 (2) The Board shall examine each notice covered by No. **552** to determine whether :

553A aa) the notice is in conformity with the provisions of No.501;
Aer2

554 a) the frequency corresponds to one of the frequencies
Aer specified in Column 1 of the Allotment Plan for the aeronautical mobile (R) service contained in Part II, Section II, Article 2 of Appendix 27, or the assignment is the result of a permissive change from one class of emission to another and the necessary bandwidth is within the channelling arrangement provided for in Appendix 27;

555 b) the limitations of use set forth in Column 3 of the
 Plan have been appropriately observed ;

556 c) the notice is in conformity with the technical principles
Aer of the Plan set forth in Appendix 27;

557 d) the area of use is within the boundaries of the
Areas as set forth in Column 2 of the Plan;

557A (2A) A notice which is not in conformity with the provisions of
Aer2 No. 553A shall be examined with respect to Nos. 520 and 521. The
date to be entered in Column 2b shall be determined in accordance with
the relevant provisions of Section III of this Article.

558 (3) In the case of a notice in conformity with the provisions of
Aer2 Nos. 553A to 556, but not with those of No. 557, the Board shall exa-
mine whether the protection specified in Appendix 27 **Aer2** (Part I, Sec-
tion II A, paragraph 5) is afforded to the allotments in the Plan. In doing
so, the Board shall assume that the frequency will be used in accordance
with the "Sharing conditions between areas" specified in Appendix 27
Aer2, Part I, Section II B, paragraph 4.

559 SUP (**Aer**)

560 (4) All frequency assignments referred to in No. 552 shall
Aer be recorded in the Master Register according to the findings reached
by the Board. The date to be entered in Column 2a or 2b shall be
that determined according to the relevant provisions of Section III
of this Article.

561 § 22. (1) *Examination of Notices concerning Frequency Assign-
ments to Aeronautical Stations in the Aeronautical Mobile (OR)
Service in the Bands allocated exclusively to that Service between
3 025 and 18 030 kHz (see No. 500).*

562 (2) The Board shall examine each notice covered by No. 561
to determine whether :

563 a) the assignment is in conformity with the primary
allotments in the Allotment Plan for the aeronautical
mobile (OR) service and the conditions specified in
Appendix 26 (Parts III and IV) ;

564 b) the assignment is in conformity with or satisfies the requirements for secondary allotments in the Allotment Plan for the aeronautical mobile (OR) service and the conditions specified in Appendix 26 (Part III, Section II, paragraph 4, sub-paragraph *d*), and Part IV). In applying these provisions, the Board shall assume that the frequency will be used on a day-time basis ;

565 c) the assignment is the result of a permissive change from one class of emission to another, its occupied bandwidth is within the channelling arrangement provided for in Appendix 26 (Part III, Section II, paragraphs 1 and 2), and it meets all the conditions for a primary or secondary allotment in the Plan, except that the assigned frequency does not correspond numerically with one of the frequencies specified therein.

566 (3) The technical criteria to be employed by the Board in its examination of these notices shall be those in Appendix 26 (Part III).

567 (4) All frequency assignments referred to in No. **561** shall be recorded in the Master Register according to the findings reached by the Board. The date to be entered in Column 2a or 2b shall be that determined according to the relevant provisions of Section III of this Article.

568 § 23. (1) *Frequency Assignments to Broadcasting Stations in the Bands allocated exclusively to the Broadcasting Service between 5 950 and 26 100 kHz (see No. 500).*

569 (2) When the Board has prepared according to the provisions of Article 10 the High Frequency Broadcasting Schedule for a particular season, this Schedule shall be compared with the listings in the Master Register, to determine whether all the frequency assignments included in that Schedule correspond to frequency assignments recorded in the Master Register on behalf of the administrations concerned.

570 (3) In the case where a frequency assignment included in a Schedule for a particular season is not covered by any listing in the Master Register, that frequency assignment shall be considered as being notified, and the Board, without further examination, shall make an appropriate entry in the Master Register. The date to be entered in the appropriate part of Column 2 according to the relevant provisions of Section III of this Article shall be the date of receipt by the Board of the projected seasonal schedule.

Spa2 Sub-Section IIB. Procedure to be followed in cases where terrestrial stations are in the same frequency band as, and within the co-ordination area of, an existing earth station or one for which co-ordination has been effected or initiated

570AA § 23A. The Board shall examine each notice:

Spa

570AB a) with respect to its conformity with the Convention, the
Spa 2 Table of Frequency Allocations and the other provisions of the Radio Regulations (with the exception of those relating to the co-ordination procedure and the probability of harmful interference);

570AC b) with respect to its conformity with the provisions of
Spa No. 492A relating to co-ordination of the use of the frequency assignment with the other administrations concerned;

570AD c) where appropriate, with respect to the probability of
Spa2 harmful interference to the service rendered by an earth receiving station for which a frequency assignment already recorded in the Master Register is in conformity with the provisions of No. 639BM, and if the corresponding frequency assignment to the space transmitting station has not, in fact, caused harmful interference to any frequency assignment in conformity with No. 501 or 570AB, as appropriate, previously recorded in the Master Register.

Note by the General Secretariat

Since 1959 and until 15 March 1979, the following call sign series have been allocated on a provisional basis under the terms of No. 749:

Call Sign Series	Allocated to :	Call Sign Series	Allocated to :
A2A-A2Z	Botswana (Republic of)	H4A-H4Z	Solomon Islands
A3A-A3Z	Tonga (Kingdom of)	H6A-H7Z	Nicaragua
A4A-A4Z	Oman (Sultanate of)	I2A-I2Z	Djibouti (Republic of)
A5A-A5Z	Bhutan (Kingdom of)	I3A-I3Z	Grenada
A6A-A6Z	United Arab Emirates	I4A-I4Z	Greece
A7A-A7Z	Qatar (State of)	I5A-I5Z	Guinea-Bissau (Repu- blic of)
A8A-A8Z	Liberia (Republic of)	I6A-I6Z	Saint Lucia
A9A-A9Z	Bahrain (State of)	I7A-I7Z	Dominica
C2A-C2Z	Nauru (Republic of)	L2A-L9Z	Argentine (Republic)
C3A-C3Z	Andorra (Principality of)	P2A-P2Z	Papua New Guinea
C4A-C4Z	Cyprus (Republic of)	P3A-P3Z	Cyprus (Republic of)
C5A-C5Z	Gambia (Republic of the)	P4A-P4Z	Netherland Antilles
C6A-C6Z	Bahamas (Commonwealth of the)	P5A-P9Z	Democratic People's Republic of Korea
*C7A-C7Z	World Meteorological Organization	S2A-S3Z	Bangladesh (People's Republic of)
C8A-C9Z	Mozambique	S6A-S6Z	Singapore (Republic of)
D2A-D3Z	Angola	S7A-S7Z	Seychelles (Republic of)
D4A-D4Z	Cape Verde (Republic of)	S8A-S8Z	1)
D5A-D5Z	Liberia (Republic of)	S9A-S9Z	Sao Tome and Principe (Democratic Repu- blic of)
D6A-D6Z	Comoros (Federal and Islamic Republic of the)	TJA-TJZ	Cameroon (United Republic of)
D7A-D9Z	Korea (Republic of)	TLA-TLZ	Central African Republic
H2A-H2Z	Cyprus (Republic of)		
H3A-H3Z	Panama (Republic of)		

1) In September 1976, the Republic of South Africa requested a call sign series for the Transkei.

Call Sign Series	Allocated to:	Call Sign Series	Allocated to:
TNA-TNZ	Congo (People's Republic of the)	5XA-5XZ	Uganda (Republic of)
TRA-TRZ	Gabon (Republic)	5YA-5ZZ	Kenya (Republic of)
TSN-TSZ	Tunisia	6VA-6WZ	Senegal (Republic of the)
TTA-TTZ	Chad (Republic of the)	6XA-6XZ	Malagasy Republic
TUA-TUZ	Ivory Coast (Republic of the)	6YA-6YZ	Jamaica
TYA-TYZ	Dahomey (Republic of)	6ZA-6ZZ	Liberia (Republic of)
TZA-TZZ	Mali (Republic of)	7OA-7OZ	Yemen (People's Democratic Republic of)
T2A-T2Z	Tuvalu	7PA-7PZ	Lesotho (Kingdom of)
XTA-XTZ	Upper Volta (Republic of)	7QA-7QZ	Malawi
Y2A-Y9Z	German Democratic Republic	7RA-7RZ	Algeria (Algerian Democratic and Popular Republic)
3BA-3BZ	Mauritius	7TA-7YZ	Algeria (Algerian Democratic and Popular Republic)
3CA-3CZ	Equatorial Guinea (Republic of)	8OA-8OZ	Botswana (Republic of)
3DA-3DM	Swaziland (Kingdom of)	8PA-8PZ	Barbados
3DN-3DZ	Fiji	8QA-8QZ	Maldives (Republic of)
3EA-3FZ	Panama (Republic of)	8RA-8RZ	Guyana
5BA-5BZ	Cyprus (Republic of)	9HA-9HZ	Malta (Republic of)
5HA-5IZ	Tanzania (United Republic of)	9IA-9JZ	Zambia (Republic of)
5NA-5OZ	Nigeria (Federal Republic of)	9LA-9LZ	Sierra Leone
5RA-5SZ	Malagasy Republic	9UA-9UZ	Burundi (Republic of)
5TA-5TZ	Mauritania (Islamic Republic of)	9VA-9VZ	Singapore (Republic of)
5UA-5UZ	Niger (Republic of the)	9WA-9WZ	Malaysia
5VA-5VZ	Togolese Republic	9XA-9XZ	Rwanda (Republic of)
5WA-5WZ	Western Samoa	9YA-9ZZ	Trinidad and Tobago

- 969A** (3) The aeronautical carrier (reference) frequencies 3 023 kHz
Aer2 and 5 680 kHz may be used by mobile stations for search and rescue scene-of-action coordination purposes, including communication between these stations and participating land stations, in accordance with any special arrangements by which the aeronautical mobile service is regulated (see Nos. 1326C and 1353B).

Section III. Ship Stations using Radiotelegraphy

- 970** § 12. Ship stations equipped with radiotelegraph apparatus in-
Mar2 tended to be used for normal traffic by Morse telegraphy shall be provided with devices permitting changeover from transmission to reception and vice versa without manual switching. In addition these stations should be able to listen on the reception frequency during the course of periods of transmission.

971 SUP (Mar)

Bands between 405 and 535 kHz

- 972** § 14. Transmitters used in ship stations working in the author-
ized bands between 405 and 535 kHz shall be provided with devices readily permitting a material reduction of power.
- 973** § 15. All ship stations equipped with radiotelegraph apparatus to work in the authorized bands between 405 and 535 kHz shall be able to :

974 *a)* send class A2 or A2H emissions and receive class
Mar A2 and A2H emissions with a carrier frequency of
500 kHz;

975 *b)* send, in addition, class A1 and either A2 or A2H emis-
Mar sions on at least two working frequencies;

976 *c)* receive, in addition, class A1, A2 and A2H emissions
Mar on all the other frequencies necessary for their service.

977 § 16. The provisions of Nos. 975 and 976 do not apply to
apparatus provided solely for distress, urgency and safety purposes.

Bands between 1 605 and 2 850 kHz

978 § 17. In Region 2, any radiotelegraph station installed on board
Mar a ship which uses frequencies in the band 2 089.5-2 092.5 kHz for
call and reply shall be provided with at least one other frequency
in the authorized bands between 1 605 and 2 850 kHz.

Bands between 4 000 and 27 500 kHz

979 § 18. In ship stations, all apparatus using class A1 emissions on
frequencies in the authorized bands between 4 000 and 27 500 kHz
shall satisfy the following conditions :

980 *a)* in each of the bands necessary to carry on the sta-
Mar2* tion's service, it shall have at least two working
frequencies in addition to one in the calling band (see
No. 1200);

981 *b)* changes of frequency in transmitting apparatus shall
Mar be effected as quickly as practicable, but within fifteen
seconds in any event;

1013 (2) However, in the bands between 4 000 and 27 500 kHz, when the conditions of establishing contact are difficult, the call signs may be transmitted more than three times, but not more than ten times each. In this case, the call signs of the called and the calling station shall be transmitted in alternate sequence up to a total of twenty call signs altogether (e.g. ABC ABC de WXYZ WXYZ . . . or ABC ABC ABC de WXYZ WXYZ WXYZ . . .). This call may be sent three times at intervals of two minutes; thereafter it shall not be repeated until an interval of fifteen minutes has elapsed.

1013A (3) The procedure described in Nos. 1012 and 1013 is not
Mar2 applicable to the maritime mobile service.

1013AA (4) When selective calling in accordance with Article 28A, Sec-
Mar2 tion I, is used in the maritime mobile service, the procedures prescribed in Nos. 999B, 999C and 999D shall be observed.

1013AB (5) When digital selective calling is used in the maritime mobile
Mar2 service, the procedures described in No. 999F shall be observed.

Mar2 *Method of Calling in the Maritime Mobile Service — Morse Telegraphy*

1013B § 6A.(1) The call consists of:
Mar2

- the call sign of the station called, not more than twice;
- the word DE;
- the call sign of the calling station, not more than twice;
- the information required by No. 1016A and, as appropriate, by Nos. 1020A and 1021;
- the letter K.

1013C (2) For normal calling, when the requirements of No. **1162**
Mar2 have been met, the call specified in No. **1013B** may be transmitted twice at an interval of not less than one minute; thereafter it shall not be repeated until after an interval of three minutes.

1013D **1013E** **1013E.1** **SUP** (**Mar2**)

Frequency to be used for Calling and for Preparatory Signals

1014 § 7. (1) For making the call and for transmitting preparatory signals, the calling station shall use a frequency on which the station called keeps watch.

1015 (2) A ship station calling a coast station in any of the frequency bands allocated to the maritime mobile service between 4 000 and 27 500 kHz shall use a frequency in the calling band specially reserved for this purpose.

1015A (3) However, when using direct-printing telegraphy or similar
Mar2 systems in any of the frequency bands allocated to the maritime mobile service, the call may, by prior arrangement, be made on a working frequency available for such systems.

Indication of the Frequency to be used for Traffic

1016 § 8. (1) Except in the maritime mobile service, the call, as described
Mar2 in Nos. **1012** and **1013**, shall be followed by the service abbreviation indicating the working frequency and, if useful, the class of emission which the calling station proposes to use for the transmission of its traffic.

1016A (1A) In the maritime mobile service, the call, as described in No.
Mar2 **1013B** **Mar2**, shall contain the service abbreviation indicating the working frequency and, if useful, the class of emission which the calling station proposes to use for the transmission of its traffic.

1017 (2) When, in the aeronautical mobile service, as an exception
Mar to this rule, the call is not followed by an indication of the frequency to be used for the traffic, this indicates:

1018 a) where the calling station is a land station, that it proposes
Mar to use for traffic its normal working frequency shown in the appropriate document;

1019 b) where the calling station is a mobile station, that the
 frequency to be used for traffic is to be chosen by the station called from the frequencies on which the calling station can transmit.

1019A (3) When, in the maritime mobile service, the call by a coast
Mar2 station does not contain an indication of the frequency to be used for the traffic, this indicates that the coast station proposes to use for traffic its normal working frequency shown in the List of Coast Stations.

Mar2 *Indication of Priority, of the Reason for the Call, and of Transmission of Radiotelegrams in Series*

1020 § 9. (1) Except in the maritime mobile service, when the calling sta-
Mar2 tion has more than one radiotelegram to transmit to the station called, the above-mentioned preparatory signals shall be followed by the service abbreviation and the figure giving the number of such radiotelegrams.

1020A (1A) In the maritime mobile service the calling station shall
Mar2 transmit the service abbreviation after the above-mentioned preparatory signals to indicate a priority message other than a distress, urgency or safety message (see No. **1496A**) and to indicate the reason for the call.

1021 (2) Moreover, when the calling station wishes to send its
 radiotelegrams in series, it shall indicate this by adding the service abbreviation for requesting the consent of the station called.

Form of Reply to Calls

1022 § 10. Except in the maritime mobile service, the reply to calls
Mar2 consists of:

- the call sign of the calling station, not more than three times;
- the word DE;
- the call sign of the station called.

1022A § 10A. In the maritime mobile service the reply to calls consists of:
Mar2

- the call sign of the calling station, not more than twice;
- the word DE;
- the call sign of the station called, once only.

Frequency for Reply

1023 § 11. (1) Except as otherwise provided in these Regulations, for
Mar transmitting the reply to calls and to preparatory signals, the station called shall use the frequency on which the calling station keeps watch, unless the calling station has specified a frequency for the reply.

1024-1026 SUP (Mar)

Agreement on the Frequency to be used for Traffic

1027 § 12. (1) If the station called is in agreement with the calling station, it shall transmit :

- 1028** a) the reply to the call ;
- 1029** b) the service abbreviation indicating that from that moment onwards it will listen on the working frequency announced by the calling station ;
- 1030** c) if necessary, the indications referred to in No. **1038** ;
- 1031** d) if useful, the service abbreviation and figure indicating the
Mar2 strength and/or intelligibility of the signals received (see Appendix 13 for Aeronautical Mobile Service and Appen-

dix 13A for the Maritime Mobile Service).

- 1032** **Mar2** e) the letter K if the station called is ready to receive the traffic of the calling station.
- 1033** (2) If the station called is not in agreement with the calling station on the working frequency to be used, it shall transmit :
- 1034** a) the reply to the call ;
- 1035** b) the service abbreviation indicating the working frequency to be used by the calling station and, if necessary, the class of emission ;
- 1036** c) if necessary, the indications specified in No. **1038**.
- 1037** (3) When agreement is reached regarding the working frequency which the calling station shall use for its traffic, the station called shall transmit the letter K after the indications contained in its reply.

Reply to the Request for Transmission by Series

- 1038** § 13. The station called, in replying to a calling station which has proposed to transmit its radiotelegrams by series (see No. **1021**), shall indicate, by means of the service abbreviation, its acceptance or refusal. In the former case it shall specify, if necessary, the number of radiotelegrams which it is ready to receive in one series.

Difficulties in Reception

- 1039** § 14 (1) If the station called is unable to accept traffic immediately, it shall reply to the call as indicated in Nos. **1027** to **1032**, but it shall replace the letter K by the signal · — · · · (wait), followed by a number indicating in minutes the probable duration of the waiting time. If the probable duration exceeds ten minutes (five minutes in the case of an aircraft station communicating with a station of the maritime mobile service), the reason for the delay shall be given.

- 1040** (2) When a station receives a call without being certain that such a call is intended for it, it shall not reply until the call has been repeated and understood. When, on the other hand, a station receives a call which is intended for it but is uncertain of the call sign of the calling station, it shall reply immediately using the service abbreviation in place of the call sign of this latter station.

Section IV. Forwarding (Routing) of Traffic

Traffic Frequency

- 1041** § 15. (1) As a general rule a station of the mobile service shall transmit its traffic on one of its working frequencies in that band in which the call has been made.
- 1042** (2) In addition to its normal working frequency, printed in heavy type in the List of Coast Stations, a coast station may use one or more supplementary frequencies in the same band, in accordance with the provisions of Article 32.
- 1043** (3) The use of frequencies reserved for calling shall be forbidden for traffic, except distress traffic (see Article 32).
- 1044** (4) If the transmission of a radiotelegram is to take place on a
Mar2 frequency and/or with a class of emission other than those used for the call, the transmission of the radiotelegram shall be preceded by:
- the call sign of the station called, not more than twice;
 - the word DE;
 - the call sign of the calling station, once only.

1045 (5) If the transmission is to be made on the same frequency and with the same class of emission as the call, the transmission of the radiotelegram shall be preceded, if necessary, by :

- the call sign of the station called ;
- the word DE ;
- the call sign of the calling station.

Numbering in Daily Series

1046 § 16. (1) As a general rule, radiotelegrams of all kinds transmitted by ship stations, and radiotelegrams in the public correspondence service transmitted by aircraft stations, shall be numbered in a daily series ; number 1 shall be given to the first radiotelegram sent each day to each separate station.

1047 (2) A series of numbers which has begun in radiotelegraphy should be continued in radiotelephony and vice versa.

Long Radiotelegrams

1048 § 17. (1) In cases where both stations are able to change from sending to receiving without manual switching, the transmitting station may continue to send until completion of the message or until the receiving station breaks in on the transmission with the service abbreviation BK. Before commencing, both stations normally agree on such a method of working by means of the abbreviation QSK.

1049 (2) If this method of working cannot be employed, long radiotelegrams, whether in plain language or in secret language shall, as a general rule, be transmitted in sections, each section containing fifty words in the case of plain language and twenty words or groups if secret language is used.

1050 (3) At the end of each section the signal *-. — -.-* (?) meaning "Have you received the radiotelegram correctly up to this point ?" shall be transmitted. If the section has been correctly received, the receiving station shall reply by sending the letter K and the transmission of the radiotelegram shall be continued.

Suspension of Traffic

- 1051** § 18. When a mobile station transmits on a working frequency of a land station and causes interference with the transmission of such land station, it shall suspend working at the first request of the latter.

Section V. End of Traffic and Work*Signal for the End of Transmission*

- 1052** § 19. (1) The transmission of a radiotelegram shall be terminated by the signal - - - - (end of transmission), followed by the letter K.
- 1053** (2) In the case of transmission by series, the end of each radiotelegram shall be indicated by the signal - - - - (end of transmission) and the end of the series by the letter K.

Acknowledgment of Receipt

- 1054** § 20. (1) The acknowledgment of receipt of a radiotelegram or a series of radiotelegrams shall be given by the receiving station in the following manner :
- the call sign of the sending station ;
 - the word DE ;
 - the call sign of the receiving station ;
 - the letter R followed by the number of the radiotelegram ;
- or*
- the letter R followed by the number of the last radiotelegram of a series.

- 1055** (2) The acknowledgment of receipt shall be transmitted by the receiving station on the traffic frequency (see Nos. **1041** and **1042**).

End of Work

- 1056** § 21. (1) The end of work between two stations shall be indicated by each of them by means of the signal - - - - - (end of work).

- 1057** (2) The signal . . . — — (end of work) shall also be used :
- when the transmission of radiotelegrams of general information, meteorological information and general safety notices is finished, and
 - when transmission is ended in long-distance radio-communication services with deferred acknowledgment of receipt or without acknowledgment of receipt.

Section VI. Control of Working

- 1058** § 22. The provisions of this section are not applicable in cases of distress, urgency or safety (see No. **1000**).
- 1059** § 23. In communication between land stations and mobile stations, the mobile station shall comply with the instructions given by the land station, in all questions relating to the order and time of transmission, to the choice of frequency and class of emission, and to the duration and suspension of work.
- 1060** § 24. In communication between mobile stations, the station called shall control the working in the manner indicated in No. **1059**. However, if a land station finds it necessary to intervene, these stations shall comply with the instructions given by the land station.

Section VII. Tests

- 1061** § 25. When it is necessary for a mobile station to send signals for testing or adjustment which are liable to interfere with the working of neighbouring coast or aeronautical stations, the consent of these stations shall be obtained before such signals are sent.
- 1062** § 26. When it is necessary for a station in the mobile service to make test signals, either for the adjustment of a transmitter before making a call or for the adjustment of a receiver, such signals shall not be continued for more than ten seconds and shall be composed of a series of VVV followed by the call sign of the station emitting the test signals.

B. Call and Reply

- 1160** § 22. (1) In order to establish communication with a station in the
Mar2 maritime mobile service, each ship and aircraft station shall use an appropriate calling frequency in one of the bands listed in No. 1174.
- 1161** (2) Frequencies in the A1 Morse telegraphy calling bands are
Mar2 assigned to each mobile station in accordance with the provisions of Nos. 1176A to 1179.
- 1162** § 23. In order to reduce interference, mobile stations shall, within the means at their disposal, endeavour to select for calling the band with the most favourable propagational characteristics for effecting reliable communication. In the absence of more precise data, a mobile station shall, before making a call, listen for the signals of the station with which it desires to communicate. The strength and intelligibility of such signals are useful as a guide to propagational conditions and indicate which is the preferable band for calling.
- 1162A** § 23A. In order to reduce interference on the common calling
Mar2 channels, they shall be used only when a ship cannot use a calling frequency within the group indicated as a coast station receiving channel of the station with which it desires to communicate or when the coast station has indicated that it is keeping watch only on the common calling channels.
- 1163** § 24. (1) The calling frequency to be used by a coast station, in each of the bands for which it is equipped, is its normal working frequency as shown in heavy type in the List of Coast Stations (see No. 1173).
- 1164** (2) So far as is practicable, a coast station shall transmit its calls at specified times in the form of traffic lists on the frequency or frequencies indicated in the List of Coast Stations (see Nos. 1067 and 1069).

1164A § 24A.(1) The frequencies assignable to coast stations using the
Mar2 bands between 4 000 and 27 500 kHz for digital selective calling are included within the following band limits (see also No. **1238D**):

4 356.75 - 4 357.4	kHz
6 505.75 - 6 506.4	kHz
8 718.25 - 8 718.9	kHz
13 099.75 - 13 100.8	kHz
17 231.75 - 17 232.9	kHz
22 594.75 - 22 596	kHz

1164B (2) The exclusive digital selective calling frequencies within the
Mar2 bands indicated in No. **1164A** (see No. **1238D**) may be assigned to any coast station for use in accordance with No. **999F**.

1165 § 25. Unless the calling station specifies otherwise, the frequency
for reply to a call made in any maritime mobile band is as follows :

1166 a) for a mobile station, one of its assigned calling frequencies
Mar2 in the same band, with due regard to No. **1162A**.

1167 b) for a coast station, its normal working frequency in
the same band as that used by the calling station.

1168 § 26. Administrations shall indicate, in respect of each coast sta-
Mar2 tion, in which of the ship calling bands and on which coast station receiving channels that coast station keeps watch and, as far as possible, the approximate hours of watchkeeping in Greenwich Mean Time (G.M.T.). This information shall be published in the List of Coast Stations.

1168A § 26A. Exceptionally, a coast station may indicate that it is keep-
Mar2 ing watch on calling frequencies other than those specified as its own
 receiving frequencies.

1168B § 26B. In order to reduce interference on calling frequencies, a
Mar2 coast station shall take adequate steps to ensure, under normal con-
 ditions, the prompt receipt of calls (see No. **1013B**).

C. Traffic

1169 § 27. (1) A mobile station, after establishing communication on a
 calling frequency (see No. **1160**) shall change to a working frequency
 for the transmission of traffic. The use of frequencies in the calling
 bands for any purpose other than calling shall be prohibited.

1170 (2) Working frequencies shall be assigned to mobile stations
 in accordance with the provisions of Nos. **1180** to **1200** inclusive.

1171 § 28. (1) A coast station shall transmit its traffic on its normal
 working frequency or on other working frequencies assigned to it.

1172 (2) Countries which share a channel in one of the exclusive
 maritime mobile bands between 4 000 and 27 500 kHz should give
 special consideration to the countries among them which have no
 other channel in the same band and should endeavour to use
 their primary channel to the greatest extent possible, in order to
 permit the latter countries to satisfy their minimum communication
 requirements.

1173 (3) Working frequencies assignable to coast stations using the
Mar2 bands between 4 000 and 27 500 kHz are included within the following
 band limits:

- 1173A** *a)* for wide-band and A1 Morse telegraphy, facsimile, special
Mar2 and data transmission systems and direct-printing
 telegraph systems:

4 219.4 - 4 349.4 kHz
 6 325.4 - 6 493.9 kHz
 8 435.4 - 8 704.4 kHz
 12 652.3 - 13 070.8 kHz
 16 859.4 - 17 196.9 kHz
 22 310.5 - 22 561 kHz
 (see also No. 453A)

- 1173B** *b)* for narrow-band direct-printing telegraph and data
Mar2 transmission systems, at speeds not exceeding 100 bauds
 (frequencies paired with those in No. 451B):

4 349.4 - 4 356.75 kHz
 6 493.9 - 6 505.75 kHz
 8 704.4 - 8 718.25 kHz
 13 070.8 - 13 099.75 kHz
 17 196.9 - 17 231.75 kHz
 22 561 - 22 594.75 kHz

D. Assignment of Frequencies to Mobile Stations

1. Calling Frequencies of Ship Stations

- 1174 § 29.** The frequencies assignable to ship stations for A1 Morse
Mar2 telegraphy calling are included within the following band limits:

4 179.75 - 4 187.2 kHz
 6 269.75 - 6 280.8 kHz
 8 359.75 - 8 374.4 kHz
 12 539.6 - 12 561.6 kHz
 16 719.8 - 16 748.8 kHz
 22 227 - 22 247 kHz
 25 070 - 25 076 kHz

1175 - 1176 SUP (Mar2)

1176A Each calling band between 4 000 and 23 000 kHz indicated
Mar2* in No. 1174 **Mar2** is divided into four groups of channels and two common channels. The 25 MHz band is divided into three channels of which one is a common channel (see Appendix 15C).

1176B § 29B. (1) Coast stations shall, when providing international service as published in the List of Coast Stations, keep watch on the common calling channels in each band throughout their hours of service in the bands concerned, and on the appropriate group channel or channels during busy periods. The times during which watch will be kept on the group channel or channels shall be published for each country in the List of Coast Stations.

1176C (2) If necessary, an indication of the channels on which watch
Mar2 is kept may be included in the coast station transmissions.

1177 § 30. In the bands between 4 000 and 23 000 kHz, the administration to which a ship station is subject shall assign to it at least two calling frequencies in each band in which the station is equipped to transmit.¹ One of the calling frequencies in each band shall be within one of the common coast station receiving channels contained in Appendix 15C; another in each band shall be selected from within the other channels in Appendix 15C, taking account of the receiving channel or channels of the coast station with which the ship station most frequently communicates. In the 25 MHz band, administrations shall assign to ship stations under their control a frequency within the common channel. Another calling frequency in this band shall be selected from within Channel A or B of Appendix 15C, taking account of the receiving channel of the coast station with which the ship station most frequently communicates.

1177.1 ¹Up to 1 January 1980 ship stations whose transmitters are capable of using only
Mar2 three frequencies in each of the bands between 4 000 and 23 000 kHz may, exceptionally, be assigned a single calling frequency in each of the frequency bands in which they can transmit. This exception may be made only if the administration concerned considers that the assignment of a minimum of two working frequencies in each band is necessary for the ship's service.

1177A § 30A. A ship station should, wherever possible, be assigned
Mar2 additional calling frequencies (see No. 1162A).

1177B § 30B. If it is not intended to maintain watch on all the receiving
Mar2 channels within a group, the administration concerned, in order to ensure an even distribution of calls, shall determine the channel or channels on which watch will be maintained but only after coordination as far as possible with administrations sharing the same group (see Resolution No. Mar2 – 5).

1177C § 30C. Administrations which assign to their ships frequencies in
Mar2 two or more calling channels within their group shall take the necessary steps to distribute such assignments uniformly throughout the channels taken into use.

1177D § 30D. In order to ensure an even distribution of calls on the com-
Mar2 mon calling channels, administrations should, as far as practicable, assign frequencies in each of the two channels to an equal number of their ships.

1177E § 30E. Administrations shall ensure, as far as possible, that ship
Mar2 stations under their jurisdiction are capable of keeping their transmission within the limits of the assigned channels (see Appendix 3).

1178 SUP (Mar2)

1179 § 31. The frequency 8 364 kHz is designated for use by survival
Mar2 craft stations if they are equipped to transmit on frequencies in the bands between 4 000 and 27 500 kHz and if they desire to establish communications relating to search and rescue operations with stations of the maritime and aeronautical mobile services.

1179A § 31A. (1) The frequencies assignable for digital selective calling to
Mar2 ship stations using the bands between 4 000 and 27 500 kHz are included within the following band limits:

4 187.2 - 4 188 kHz
6 280.8 - 6 282 kHz
8 374.4 - 8 376 kHz
12 561.6 - 12 564 kHz
16 748.8 - 16 752 kHz
22 247 - 22 250 kHz

1179B (2) The exclusive digital selective calling frequencies within the
Mar2 bands indicated in No. **1179A** (see No. **1238C**) may be assigned to any ship station for use in accordance with No. **999F**.

2. Working Frequencies of Mobile Stations

a) Channel Spacing and Assignment of Frequencies

1180 § 32. In all bands the working frequencies for ship stations equipped
Mar2 to use wide-band telegraphy, facsimile and special transmission systems are spaced 4 kHz apart. The frequencies assignable are shown in Appendix 15.

1180A § 32A. In all bands, the frequencies assignable for oceanographic
Mar data transmissions are spaced 0.3 kHz apart. The frequencies assignable are shown in Appendix 15.

1180B § 32B. In all bands, the working frequencies for ship stations using
Mar2 narrow-band direct-printing telegraph and data transmission systems, at speeds not exceeding 100 bauds, including those paired with the working frequencies assignable to coast stations (see No. **452C**) are spaced 0.5 kHz apart. The frequencies assignable to ship stations which

are paired with those used by the coast stations are shown in Appendix 15A (see also No. 1191D). The frequencies assignable to ship stations which are not paired with those used by the coast stations are shown in Appendix 15B (see also No. 1191F).

1181 SUP (Mar2)

1182 § 33. In all bands, except the 6 MHz band, the working frequencies for ship stations using A1 Morse telegraphy, at speeds not exceeding 40 bauds, are spaced 0.5 kHz apart; in the 6 MHz band they are spaced 0.75 kHz apart (see also Note e) to Appendix 15). The extreme frequencies assignable in each of these bands are shown in Appendix 15.

1183 § 34. In the 4, 6, 8, 12 and 16 MHz bands, certain frequencies are harmonically related as shown in Appendix 15D.

1184-1187 SUP (Mar2)

b) Working Frequencies for Ship Stations using Wide-Band Telegraphy, Facsimile and Special Transmission Systems

1188 § 37. The working frequencies assignable to ship stations using wide-band telegraphy, facsimile and special transmission systems are included within the following band limits:

4 146.6 -	4 162.5	kHz	
4 166	- 4 170	kHz	
6 224.6 -	6 244.5	kHz	
6 248	- 6 256	kHz	(see overleaf)

8 300	-	8 328	kHz
8 331.5	-	8 343.5	kHz
12 439.5	-	12 479.5	kHz
12 483	-	12 491	kHz
16 596.4	-	16 636.5	kHz
16 640	-	16 660	kHz
22 139.5	-	22 160.5	kHz
22 164	-	22 192	kHz

1189 § 38. (1) Each administration shall assign to each ship station under
Mar its jurisdiction and employing wide-band telegraphy, facsimile and special transmission systems, one or more series of the working frequencies reserved for this purpose and shown in Appendix 15. The total number of series assigned to each ship shall be determined by traffic requirements.

1190 (2) When ship stations employing wide-band telegraphy, facsimile and special transmission systems are assigned less than the total number of working frequencies in a band, the administration concerned shall assign working frequencies to such ships in accordance with an orderly system of rotation that will ensure approximately the same number of assignments on any one working frequency.

1191 (3) However, within the limits of the bands given in No. 1188
Mar2* **Mar2**, administrations may, to meet the needs of specific systems, assign frequencies in a different manner from that shown in Appendix 15 Mar2. Nevertheless administrations shall take into account, as far as possible, the provisions of Appendix 15 Mar2 concerning channelling and 4 kHz spacing.

c) Working Frequencies for Oceanographic Data Stations

1191A § 38A. The working frequencies assignable to ship stations for
Mar oceanographic data transmissions are included within the following band limits:

4 162.5 - 4 166	kHz
6 244.5 - 6 248	kHz
8 328 - 8 331.5	kHz
12 479.5 - 12 483	kHz
16 636.5 - 16 640	kHz
22 160.5 - 22 164	kHz

1191B § 38B. The frequency bands in No. **1191A** may also be used by buoy stations for oceanographic data transmission and by stations interrogating these buoys.

1191C § 38C. Each administration may assign to each station under its jurisdiction of a type specified in Nos. **1191A** and **1191B** one or more of the assignable frequencies designated in Appendix 15.

Mar2 d) Working Frequencies (paired with those in No. 452C) for Ship Stations using Narrow-Band Direct-Printing Telegraph and Data Transmission Systems, at Speeds not exceeding 100 Bauds

1191D § 38D. (1) Working frequencies assignable to ship stations using narrow-band direct-printing telegraph and data transmission systems are included within the following band limits:

4 170 - 4 177.25	kHz
6 256 - 6 267.75	kHz
8 343.5 - 8 357.25	kHz
12 491 - 12 519.75	kHz
16 660 - 16 694.75	kHz
22 192 - 22 225.75	kHz

1191DA (2) The frequency pairs assignable to coast stations and ship stations using narrow-band direct-printing telegraph and data transmission systems are indicated in Appendix 15A.

1191E § 38E. When assigning frequencies listed in Appendix 15A for
Mar2 narrow-band direct-printing telegraph and data transmission systems, administrations shall apply the procedure described in Resolution No. Mar2 – 7.

Mar2 *da) Working Frequencies (Non-Paired) for Ship Stations using Narrow-Band Direct-Printing Telegraph and Data Transmission Systems, at Speeds not exceeding 100 Bauds*

1191F § 38F. Working frequencies assignable to ship stations using
Mar2 narrow-band direct-printing telegraph and data transmission systems are included within the following band limits:

4 177.25 - 4 179.75	kHz
6 267.75 - 6 269.75	kHz
8 297.3 - 8 300	kHz
8 357.25 - 8 357.75	kHz
12 519.75 - 12 526.75	kHz
16 694.75 - 16 705.8	kHz
22 225.75 - 22 227	kHz
25 076 - 25 090.1	kHz

1191G § 38G. When assigning frequencies listed in Appendix 15B for
Mar2 narrow-band direct-printing telegraph and data transmission systems, administrations shall take due account of the information entries in the Master Register resulting from the notification procedure contained in Resolution No. Mar2 – 8.

1192-1195 SUP (Mar2)

Mar2 *f) Working Frequencies for Ship Stations using A1 Morse Telegraphy*

1196 § 42. Working frequencies assignable to ship stations using A1
Mar2 Morse telegraphy are included within the following band limits:

4 188	-	4 219.4	kHz
6 282	-	6 325.4	kHz
8 357.75	-	8 359.75	kHz
8 376	-	8 435.4	kHz
12 526.75	-	12 539.6	kHz
12 564	-	12 652.3	kHz
16 705.8	-	16 719.8	kHz
16 752	-	16 859.4	kHz
22 250	-	22 310.5	kHz
25 090.1	-	25 110	kHz

1197-1199 SUP (Mar2)

1200 § 43. Each administration shall assign to each ship station under
Mar2 its jurisdiction a sufficient number of working frequencies, in any of the
 4, 6, 8, 12, 16, 22 and 25 MHz bands, to meet the traffic needs of the
 ship. In each band used, preferably not less than two working frequen-
 cies should be assigned to each ship. Administrations shall ensure a
 uniform distribution of assignments throughout the bands.

1200A § 43A. For the exclusive purpose of communication with stations
Mar2 of the maritime mobile service, an aircraft station may be assigned one
 or more working frequencies in the bands shown in No. 1196. These
 frequencies shall be assigned in accordance with the same principles of
 uniform distribution as for ship stations.

1201-1202 SUP (Mar2)

Mar2* g) *Abbreviations for the Indication of Working Frequencies*

(Rev. 1979)

1203 § 45. In the bands between 4 000 and 27 500 kHz the following
Mar2 abbreviations may be used to designate a working frequency:

1204 a) if the frequency expressed in kHz has no decimal value, the
Mar2 last three figures shall be transmitted;

1204A b) if the frequency expressed in kHz has a decimal value, the
Mar2 last three figures before the decimal point and the first decimal figure shall be transmitted.

1205-1206 SUP (Mar2)

Section VI. Aeronautical Mobile Service

1207 § 46. Governments may, by agreement, decide the frequencies to be used for call and reply in the aeronautical mobile service.

1208 § 47. 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. **1107** and **1108** shall apply.

1324 (2) However, ship and aircraft stations which cannot transmit
Mar2 on the carrier frequency 2 182 kHz or, in accordance with No. 1323A, on the carrier frequencies 4 136.3 kHz or 6 204 kHz (as from 1 January 1978 to be replaced by the carrier frequencies 4 125 kHz and 6 215.5 kHz respectively) should use any other available frequency on which attention might be attracted.

1325 (3) Except for transmissions authorized on the carrier frequency
Mar 2 182 kHz, all transmissions on the frequencies between 2 173.5 and 2 190.5 kHz are forbidden.

1325A (3A) Selective calling under the provisions of Article 28A may
Mar2 be used on the carrier frequency 2 182 kHz in the shore-to-ship, ship-to-shore and ship-to-ship directions and on this frequency shall be confined to distress and urgency and to vital navigational warnings. In no circumstances shall such selective calling be used in place of the procedures given in Nos. 1402, 1403, 1416, 1417 and 1465.

1326 (4) Any coast station using the carrier frequency 2 182 kHz for
Mar distress purposes shall be able to transmit the radiotelephone alarm signal described in No. 1465 (see also Nos. 1471, 1472 and 1473).

1326AA (4A) Any coast station authorized to send navigational warnings
Mar2 should be able to transmit the navigational warning signal described in No. 1476AA, 1476AB and 1476AC.

1326A (5) Before transmitting on the carrier frequency 2 182 kHz, a
Mar station in the mobile service should listen on this frequency for a reasonable period to make sure that no distress traffic is being sent (see No. 1217).

1326B (6) The provisions of No. **1326A** do not apply to stations in dis-
Mar tress.

C. Search and Rescue

1326C § 3A. The aeronautical carrier (reference) frequency 3 023 kHz
Aer 2 may be used for intercommunication between mobile stations when engaged in coordinated search and rescue operations, including communication between these stations and participating land stations, in accordance with the provisions of Appendix 27 Aer2.

D. Call and Reply

1327 § 4. (1) The frequency 2 182 kHz may also be used :

1328 *a)* for call and reply in accordance with the provisions of Article 33 ;

1329 *b)* by coast stations to announce the transmission, on
Mar another frequency, of traffic lists (see Nos. **1301** to **1304**);

1329A *c)* by coast stations when using the selective calling system
Mar2 defined in Appendix 20C with class of emission A2H, until 1 April 1977 (see No. **999E.1**).

1330 (2) In addition, an administration may assign to its stations other frequencies for call and reply.

1331 § 5. To facilitate the reception of distress calls, all transmissions on 2 182 kHz shall be kept to a minimum.

1352B – 1353A **SUP** **(Mar2)**

Mar2

D. Search and Rescue

1353B § 15A. The aeronautical carrier (reference) frequency 5 680 kHz **Aer2** may be used for intercommunication between mobile stations when engaged in coordinated search and rescue operations, including communication between these stations and participating land stations, in accordance with the provisions of Appendix 27 **Aer2**.

Mar2

E. Watch

1354 § 16. The hours of service of coast stations open to public **Mar** correspondence and the frequency or frequencies on which watch is maintained shall be indicated in the List of Coast Stations.

1354A § 16A. (1) In the zone of Regions 1 and 2 south of latitude 15° N, including Mexico, and in the zone of Region 3 south of latitude 25° N, all **Mar2** coast stations which are open to public correspondence and which form an essential part of the coverage of the area for distress purposes may, during their hours of service, maintain a watch on the carrier frequencies 4 136.3 kHz and/or 6 204 kHz (as from 1 January 1978 to be replaced by the carrier frequencies 4 125 kHz and 6 215.5 kHz respectively), as appropriate (see Nos. **1351E** and **1351F**). Such watch should be indicated in the List of Coast Stations.

1354B (2) These stations should maintain this watch by means of an **Mar2** operator using some aural method, such as headphones, split headphones or loudspeaker.

Mar2

F. Traffic

1355 § 17. (1) For the conduct of duplex telephony, the transmitting
Mar2 frequencies of the coast stations and of the corresponding ship stations shall be associated in pairs, as indicated in Appendix 17 and Appendix 17 Rev., except temporarily in cases where working conditions prohibit the use of paired frequencies in order to meet operational needs.

1356 (2) The frequencies to be used for the conduct of simplex
Mar2 radiotelephony are shown in Appendix 17, Section C, or in Appendix 17 Rev., Section B. In these cases, the peak envelope power of the coast station transmitter shall not exceed 1 kW.

1357 (3) The frequencies indicated in Appendix 17 or in Appendix
Mar2 17 Rev. for ship station transmissions may be used by ships of any category according to traffic requirements.

1358 (4) The technical characteristics of transmitters used for radio-
Mar telephony in the maritime mobile service in the bands between 4 000 and 23 000 kHz are specified in Appendix 17A.

Section IV. Bands between 156 and 174 MHz

Mar2

A. Distress, Safety, Call and Reply

1359 § 18. (1) The frequency 156.8 MHz is the international distress, safe-
Mar2 ty and calling frequency for radiotelephony for stations of the maritime mobile service when using frequencies in the authorized bands between 156 and 174 MHz. It is used for the distress signal and call and distress traffic, for the urgency signal, urgency traffic and the safety signal. 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 F3 (see Appendix 19).

The Final Acts of the World Administrative Radio Conference to deal with matters relating to the Maritime Mobile Service (Geneva, 1967), signed on 3 November 1967, include the following provisions :

“The revised provisions of the Radio Regulations, Geneva, 1959, shall form an integral part of the Radio Regulations which are annexed to the International Telecommunication Convention. They shall come into force on 1 April 1969 upon which date the provisions of the Radio Regulations, Geneva, 1959, which are cancelled or modified by these revisions shall be abrogated.

The delegates signing this revision of the Radio Regulations, Geneva, 1959, hereby declare that, should an administration make reservations concerning the application of one or more of the revised provisions of the Radio Regulations, Geneva, 1959, no other administration shall be obliged to observe that provision or those provisions in its relations with that particular administration.”

The Final Acts of the World Administrative Radio Conference for Space Telecommunications (Geneva, 1971), signed on 17 July 1971, include the following provisions :

“The revised provisions of the Radio Regulations shall form an integral part of the Radio Regulations which are annexed to the International Telecommunication Convention. They shall come into force on 1 January, 1973, on which date the provisions of the Radio Regulations which are cancelled or modified by this revision shall be abrogated.

The delegates signing this revision of the Radio Regulations hereby declare that, should an administration make reservations concerning the application of one or more of the revised provisions of the Radio Regulations, no other administration shall be obliged to observe that provision or those provisions in its relations with that particular administration.”

The Final Acts of the World Administrative Radio Conference for Maritime Radiocommunications (Geneva, 1974), signed on 8 June 1974, include the following provisions:

“The revised provisions of the Radio Regulations shall form an integral part of the Radio Regulations which are annexed to the International Telecommunication Convention. They shall come into force on 1 January 1976, upon which date the provisions of the Radio Regulations which are cancelled or modified by this revision shall be abrogated.

The delegates signing this revision of the Radio Regulations hereby declare that, should an administration make reservations concerning the application of one or more of the revised provisions of the Radio Regulations, no other administration shall be obliged to observe that provision or those provisions in its relations with that particular administration.”

The Final Acts of the World Administrative Radio Conference on the Aeronautical Mobile (R) Service (Geneva, 1978), signed on 5 March 1978, include the following provisions:

“The revised provisions of the Radio Regulations shall form an integral part of the Radio Regulations which are annexed to the International Telecommunication Convention. These revised provisions shall come into force on and from 1 September 1979, except for the Frequency Allotment Plan for the aeronautical mobile (R) service contained in Appendix 27 Aer2 which shall come into force at 00.01 hours G.M.T. on 1 February 1983. The provisions of the Radio Regulations which are cancelled, superseded or modified by these revised provisions shall be abrogated on the dates of the entry into force of the revised provisions.

The delegates signing this revision of the Radio Regulations hereby declare that, should an administration make reservations concerning the application of one or more of the revised provisions of the Radio Regulations, no other administrations shall be obliged to observe that provision, or those provisions, in its relations with that particular administration.”

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**Appendices to
the Radio
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Resolutions and
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APPENDIX 1

Spa	Aer
Spa2	Aer2

(See Article 9)

**Section A. Basic Characteristics to be Furnished for Notification
under No. 486 of the Regulations**

Column 1 Assigned frequency.

Column 2c Date of putting into use.

Column 3 Call sign (Identification).

This is not a basic characteristic for stations referred to in No. 735.1.

Column 4a Name of the transmitting station.

Column 4b Country in which the transmitting station is located.

Column 4c Longitude and latitude of the transmitter site.

Column 5a Locality(ies) or area(s) with which communication is established.

This is not a basic characteristic for land, radionavigation land, radiolocation land or standard frequency stations, or for ground-based stations in the meteorological aids service.

Column 5b Length of circuit (km).

This is a basic characteristic only for land, radionavigation land, radiolocation land and standard frequency stations.

Column 6 Class of station and nature of service.

Column 7 Class of emission, necessary bandwidth and description of transmission.

Column 8 Power (in kW).

Column 9a Azimuth of maximum radiation.

Column 10 Maximum hours of operation of the circuit to each locality or area (G.M.T.).

Column 11 Megacycle order of the other frequencies normally utilized for the same circuit.

This is a basic characteristic only for fixed stations within the range 4 000 kHz to 28 000 kHz.

Supplementary information:

- a) reference frequency, if any, and any co-ordination required by No. 492A;
- b) the name of any administration with which an agreement has been effected to exceed the limits prescribed in these Regulations and the contents of such agreement.

Section B. Basic Characteristics to be Furnished for Notification under No. 487 of the Regulations

Column 1 Assigned frequency.

Column 2c Date of putting into use.

Column 4a The letter " R "

Column 4b Country in which the receiving land station is located.

Column 4c Longitude and latitude of the site of the receiving land station.

Column 5a Name of the receiving land station.

Column 5b Maximum distance in km between mobile stations and the receiving land station.

Column 6 Class of mobile stations and nature of service.

Column 7 Class of emission of mobile stations and necessary bandwidth.

3. In any case where there are one or more reference frequencies in a particular transmission (e.g. in the case of *a*) the frequency of the reduced carrier in an independent or single-sideband emission, and *b*) the frequencies of the sound and vision carriers in a television emission), such reference frequencies shall be supplied. In the case of television broadcasting stations in Region 1, each notice shall include, as supplementary information, both the frequency of the other carrier and the assigned frequency.

4. Any other information which the administration considers to be relevant should be indicated, such as, for example, an indication that the assignment concerned would be operating in accordance with No. 115 of these Regulations, or information concerning the use of the notified frequency if such use is restricted or if the frequency is not used during all the time which is possible according to propagation conditions.

5. Only the information specified in paragraph 3 above is a basic characteristic; it is recommended, however, that the information under paragraphs 1 and 2 above be supplied. However, in the case of stations in the fixed or mobile service referred to in No. 492A, the name of any administration with which co-ordination of the use of the frequency has been sought and the name of any administration with which such co-ordination has been effected are basic characteristics.

APPENDIX 3

Mar Mar2
Aer2

Table of Frequency Tolerances *

(See Article 12)

1. Frequency tolerance is defined in Article 1 and is expressed in parts in 10^6 or, in some cases, in hertz.

2. The power shown for the various categories of stations is the mean power as defined in Article 1.

Frequency Bands (lower limit exclusive, upper limit inclusive) and Categories of Stations	Tolerances applicable until 1st January, 1966* to transmitters in use and to those to be installed before 1st January, 1964	Tolerances applicable to new transmitters installed after 1st January, 1964 and to all transmitters after 1st January, 1966*
	* 1st January, 1970 in the case of all tolerances marked with an asterisk.	
Band : 10 to 535 kHz		
1. Fixed Stations :		
— 10 to 50 kHz	1 000	1 000
— 50 to 535 kHz	200	200
2. Land Stations:		
a) Coast Stations:		
— power 200 W or less	500	500 l)
— power above 200 W	200	200 l)
b) Aeronautical Stations	200 *	100 *

★ Certain services may need tighter tolerances for technical and operational reasons.

(Rev. 1979)

Frequency Bands (lower limit exclusive, upper limit inclusive) and Categories of Stations	Tolerances applicable until 1st January, 1966* to transmitters in use and to those to be installed before 1st January, 1964	Tolerances applicable to new transmitters installed after 1st January, 1964 and to all transmitters after 1st January, 1966*
	* 1st January, 1970 in the case of all tolerances marked with an asterisk.	
3. Mobile Stations : a) Ship Stations b) Ship's Emergency Transmitters c) Survival Craft Stations d) Aircraft Stations 4. Radiodetermination Stations 5. Broadcasting Stations	1 000 5 000 5 000 500 200 * 20 Hz	1 000 <i>k)</i> 5 000 5 000 500 100 * 10 Hz
Band : 535 to 1 605 kHz Broadcasting Stations	20 Hz	10 Hz <i>b)</i>
Band: 1 605 to 4 000 kHz 1. Fixed Stations : — power 200 W or less — power above 200 W 2. Land Stations — power 200 W or less — power above 200 W 3. Mobile Stations a) Ship Stations	100 50 100 50 200	100 50 100 <i>h) l) r)</i> 50 <i>h) l) r)</i> 200 <i>i) k)</i>

Frequency Bands (lower limit exclusive, upper limit inclusive) and Categories of Stations	Tolerances applicable until 1st January, 1966* to transmitters in use and to those to be installed before 1st January, 1964	Tolerances applicable to new transmitters installed after 1st January, 1964 and to all transmitters after 1st January, 1966*
	* 1st January, 1970 in the case of all tolerances marked with an asterisk.	
b) Survival Craft Stations	—	300
b A) Emergency Position- Indicating Radiobeacons	—	300
c) Aircraft Stations	200 *	100* r)
d) Land Mobile Stations	200	200
4. <i>Radiodetermination Stations :</i>		
—power 200 W or less	100	100
—power above 200 W	50	50
5. <i>Broadcasting Stations</i>	50	20
<i>Band: 4 to 29.7 MHz</i>		
1. <i>Fixed Stations :</i>		
—power 500 W or less	100	50
—power above 500 W	30	15
2. <i>Land Stations:</i>		
a) <i>Coast Stations:</i>		
— power 500 W or less	50	50 h) l)
— power above 500 W and less than or equal to 5 kW	50 *	30 * h) l)
— power above 5 kW	50	15 h) l)

Frequency Bands (lower limit exclusive, upper limit inclusive) and Categories of Stations	Tolerances applicable until 1st January, 1966* to transmitters in use and to those to be installed before 1st January, 1964	Tolerances applicable to new transmitters installed after 1st January, 1964 and to all transmitters after 1st January, 1966*
	* 1st January, 1970 in the case of all tolerances marked with an asterisk.	
b) Aeronautical Stations: —power 500 W or less —power above 500 W	100 50	100 <i>r)</i> 50 <i>r)</i>
c) Base Stations: —power 500 W or less —power above 500 W	100 50	100 50
3. <i>Mobile Stations:</i>		
a) Ship Stations:		
1) Class A1 emissions	200	50 <i>p) q)</i>
2) Emissions other than Class A1	50	50 <i>l) k)</i>
— power 50 W or less	50 <i>c)</i>	50 <i>c) i) k)</i>
— power above 50 W	50	50 <i>i) k)</i>
b) Survival Craft Stations	200	200
c) Aircraft Stations	200 *	100* <i>r)</i>
d) Land Mobile Stations	200	200
4. <i>Broadcasting Stations</i>	30	15

Notes referring to Table of Frequency Tolerances

- a) SUP
- b) In the area covered by the North American Regional Broadcasting Agreement (NARBA) the tolerance of 20 Hz may continue to be applied.
- c) SUP
- d) This tolerance is not applicable to survival craft stations operating on the frequency 243 MHz.
- e) Where specific frequencies are not assigned to radar stations, the bandwidth occupied by the emissions of such stations shall be maintained wholly within the band allocated to the service and the indicated tolerance does not apply.
- f) For transmitters using time division multiplex the tolerance of 300 may be increased to 500.
- g) This tolerance applies only to such emissions for which the necessary bandwidth does not exceed 3 000 kHz; for larger bandwidth emissions a tolerance of 300 applies.
- h) For coast station single sideband radiotelephone transmitters the tolerance is 20 Hz.
- i) For ship station single sideband radiotelephone transmitters the tolerance is:
 - 1) in the band 1 605—4 000 kHz:
 - 100 Hz for transmitters in use or to be installed before 1 January 1982;
 - 50 Hz for transmitters installed after 1 January 1982;
 - 2) in the band 4 000—23 000 kHz:
 - 100 Hz for transmitters in use or to be installed before 1 January 1978;
 - 50 Hz for transmitters installed after 1 January 1978.
 (See also Appendix 17A).
- j) SUP
- k) For ship station transmitters used for direct-printing telegraphy or for data transmissions, the tolerance is 40 Hz. This tolerance is applicable to equipment installed after 1 January 1976 and to all equipment after 1 January 1985. For equipment installed before 2 January 1976 the tolerance is 100 Hz (with a maximum deviation of 40 Hz for short periods of the order of 15 minutes).
- l) For coast station transmitters used for direct-printing telegraphy and for data transmission the tolerance is 15 Hz. This tolerance is applicable to equipment installed after 1 January 1976 and to all equipment after 1 January 1985. For equipment installed before 2 January 1976 the tolerance is 40 Hz.

AP3-10

m) SUP

n) For coast and ship station transmitters in the band 156—174 MHz put into service after 1 January 1973 a tolerance of 10 parts in 10^6 shall apply. This tolerance is applicable to all transmitters, including survival craft stations, after 1 January 1983.

o) For transmitters used by on-board communication stations a tolerance of 5 parts in 10^6 shall apply.

p) Applicable from 1 June 1977. However, in the A1 Morse working frequency bands a frequency tolerance of 200 parts in 10^6 may be applicable to existing transmitters after 1 June 1977, provided that the emissions are contained within the band in question.

q) In the A1 Morse calling frequency bands frequency tolerances of 40 parts in 10^6 in the bands between 4 and 23 MHz and of 30 parts in 10^6 in the 25 MHz band are recommended as far as possible.

r) For single-sideband transmitters operating in the frequency bands 1 605-4 000 kHz and 4-29.7 MHz which are allocated exclusively to the aeronautical mobile (R) service, the tolerance on the carrier (reference) frequency is:

- | | |
|---|---------|
| 1. for all aeronautical stations | 10 Hz |
| 2. for all aircraft stations operating on international services | 20 Hz |
| 3. for aircraft stations operating exclusively on national services | 50 Hz** |

**** Note.** — In order to achieve maximum intelligibility it is suggested that administrations encourage the reduction of this tolerance to 20 Hz.

APPENDIX 15

Mar Mar2

Table of Frequencies to be used in the Bands between 4 and 27.5 MHz allocated exclusively to the Maritime Mobile Service

(see Articles 32 and 35)

In the table, where appropriate, the assignable frequencies in a given band for each usage are:

- indicated by the lowest and highest frequency, in heavy type, assigned in that band;
- regularly spaced, the number of assignable frequencies and the spacing in kHz being indicated in italics.

For technical reasons connected with the assembly of the sheets, page AP 17
Rev-5 appears at the end of the collection.

- h)* The frequency 156-300 MHz (channel 06) (see No. 953) may also be used for communication between ship stations and aircraft stations engaged in coordinated search and rescue operations. Ship stations shall avoid harmful interference to such communications on channel 06 as well as to communications between aircraft stations, ice-breakers and assisted ships during ice seasons.
- i)* In France and in Belgium, the frequencies 156 050, 156 150 and 156 175 MHz are used as ship station frequencies in channels 01.03 and 63 respectively and as coast station frequencies in channels 21.23 and 83 respectively when the latter are used in the special semiduplex public correspondence systems employed with 1 MHz separation between transmitting and receiving frequencies. These special provisions will cease to be used not later than 1 January 1983.
- j)* Channels 60 and 88 can be used subject to special arrangements between interested and affected administrations.
- k)* The frequencies in this Table may also be used for radiocommunications on inland waterways in accordance with the conditions specified in No. 287.
- l)* Channels 15 and 17 may also be used for on-board communications provided the effective radiated power does not exceed 1 W, and subject to the national regulations of the administration concerned when these channels are used in its territorial waters. (However, see Recommendation No. Mar2 - 11).
- m)* This guard-band will apply after 1 January 1983 (see Nos. 1363 and 1363.1).
- n)* Within the European Maritime area and in Canada these frequencies (channels 10, 67, 73) may also be used, if so required, by the individual administrations concerned, for communication between ship stations, aircraft stations and participating land stations engaged in coordinated search and rescue and anti-pollution operations in local areas, under the conditions specified in Nos. 952, 952A, 952B, 952C, 952D, and 952E.
- o)* The preferred first three frequencies for the purpose indicated in Note c) are 156-450 MHz (channel 09), 156-525 MHz (channel 70) and 156-625 MHz (channel 72).

AP18-6

- p)* These channels (68, 69, 11, 71, 12, 13, 14, 74, 79, 80) are the preferred channels for the ship movement service. They may, however, be assigned to the port operations service until required for the ship movement service if this should prove to be necessary in any specific area.

- q)* This channel (86) may be used as a calling channel if such a channel is required in an automatic radiotelephone system when such a system is recommended by the C.C.I.R.

RESOLUTION No. 14

**Relating to the Use of Frequencies
of the Aeronautical Mobile (R) Service**

(Abrogated by Resolution No. Aer2 – 8)

RESOLUTION No. Aer 1

**relating to the use of frequencies 3 023.5 and 5 680 kHz
common to the aeronautical mobile (R) and (OR) services**

(Abrogated by Resolution No. Aer2 – 8)

RESOLUTION No. Aer 2

**relating to the use of frequencies in the HF bands allocated
exclusively to the aeronautical mobile (R) service**

(Abrogated by Resolution No. Aer2 – 8)

RESOLUTION No. Aer 3

**relating to the introduction of single sideband techniques in the
HF bands allocated to the aeronautical mobile (R) service**

(Abrogated by Resolution No. Aer2 – 8)

RESOLUTION No. Aer 4

**relating to the use of VHF for communication
in the aeronautical mobile (R) service**

(Abrogated by Resolution No. Aer2 – 8)

RESOLUTION No. Aer 5

**relating to the use of VHF for meteorological broadcasts
in the aeronautical mobile (R) service**

(Abrogated by Resolution No. Aer2 – 8)

RESOLUTION No. Aer 6

**relating to the treatment of notices concerning frequency
assignments to aeronautical stations in the aeronautical
mobile (R) service in the bands allocated exclusively to
that service between 2 850 and 17 970 kHz**

(Abrogated by Resolution No. Aer2 – 8)

RESOLUTION No. Sat – 1

**Relating to the preparation and publication of
information not contained in the broadcasting-satellite
Plan for Regions 1 and 3**

The World Broadcasting-Satellite Administrative Radio Conference,
Geneva, 1977,

considering

- a) that the planning work for Regions 1 and 3 has been based on the calculation of the protection margins at a number of test points;
- b) that it would be useful to know the equivalent protection margin at each of these test points for all the assignments in the Plan, in order to assess any degradation which may result from subsequent amendments to the Plan;
- c) that it would be helpful, in applying the method set forth in Annex 3, for any administration wishing to bring terrestrial stations into service to know the elevation angle of the receiving antennae of the earth stations in the broadcasting-satellite service;

invites the IFRB

to prepare, with a view to its publication by the Secretary-General in 1977, a document containing the following information:

- a) *column 1:* country symbol and IFRB serial number for the beam;
- b) *column 2:* geographical coordinates of the test points as given in Document No. 149 of the Conference;

- c)* *column 3:* elevation angle of the receiving antenna at each of these test points;
- d)* *column 4:* azimuth in degrees clockwise from True North of the major beam axis of the receiving antenna;
- e)* *column 5:* the equivalent protection margin in dB at each of these test points for all the assignments in the Plan.

RESOLUTION No. Sat – 2

**Relating to the updating of the Master International Frequency
Register for Regions 1 and 3 on the date of entry
into force of the Final Acts**

The World Broadcasting-Satellite Administrative Radio Conference,
Geneva, 1977,

considering

- a)* that the Final Acts of this Conference will take effect before the entry into force of the revised Radio Regulations adopted by the 1979 World Administrative Radio Conference, and that meanwhile the relevant provisions of the current Radio Regulations and Resolutions Nos. Spa2 – 2 and Spa2 – 3 remain valid;
- b)* that No. 405BA of the Radio Regulations provides that in the band 11·7-12·2 GHz in Region 3 and in the band 11·7-12·5 GHz in Region 1, existing and future fixed, mobile and broadcasting services shall not cause harmful interference to broadcasting-satellite stations operating in accordance with the decisions of the present Conference;
- c)* that the coordination procedures described in Resolution No. Spa2 – 3 are to be applied only until the entry into force of plans pursuant to Resolution No. Spa2 – 2;

resolves

- 1. that all administrations using or intending to use frequency assignments to terrestrial stations in the bands covered by the Plan shall decide as soon as possible, whether or not these assignments will affect frequency assignments in accordance with the Plan (if necessary, with the assistance of the IFRB);

2. that, if it is found that frequency assignments in accordance with the Plan may be subject to interference, administrations shall inform the IFRB of the measures they intend to take to ensure the protection of the frequency assignments concerned before the date of entry into force of these Final Acts;
3. that administrations may continue to use frequency assignments which are not in accordance with the Plan, provided that agreement is reached with the administration whose broadcasting-satellite stations are affected;
4. that the administrations seeking agreement shall inform the IFRB of the terms of the agreement reached;
5. that, upon receipt of such information, the IFRB shall insert a symbol in the Remarks column of the Master Register indicating the duration specified in the agreement. The duration specified shall also be published in a special section of its weekly circular;
6. that, on the date of entry into force of the Final Acts, the frequency assignments in the Plan will be entered in the Master Register. The date of signature of these Final Acts will be entered, together with an appropriate symbol, in Column 13c opposite these assignments;

invites the IFRB

to assist administrations in implementing the provisions of this Resolution.

RESOLUTION No. Sat – 3

**Relating to the period between the entry into force of the
Final Acts of the Conference and the date on which the
provisions and associated Plan are annexed to the Radio Regulations**

The World Broadcasting-Satellite Administrative Radio Conference,
Geneva, 1977.

considering

- a) that its Final Acts will come into force on 1 January 1979;
- b) that, in its Resolution No. Sat – 4, it has requested the 1979 World Administrative Radio Conference to annex to the Radio Regulations the provisions and associated Plan established by the Conference;
- c) that there will be an interim period between the date of entry into force of these Final Acts and the date on which the provisions and associated Plan are annexed to the Radio Regulations;

further considering

that these Final Acts are regarded as including a World Agreement and associated Plan in accordance with Resolution No. Spa2 – 2 of the World Administrative Radio Conference for Space Telecommunications, Geneva, 1971;

resolves

- 1. that both during this interim period and after the date on which they have been annexed to the Radio Regulations, the provisions and the associated Plan shall retain their integrity as a legal instrument;

2. that during this period the IFRB and the other appropriate organs of the Union shall be guided by the provisions of these Final Acts and the Radio Regulations.

RESOLUTION No. Sat — 4

**Relating to the annexing to the Radio Regulations of the
provisions and associated Plan contained in the
Final Acts of the Conference**

The World Broadcasting-Satellite Administrative Radio Conference,
Geneva, 1977.

noting

- a) that the World Administrative Radio Conference for Space Telecommunications, Geneva, 1971, adopted Resolution No. Spa2 — 2 envisaging that stations in the broadcasting-satellite service shall be established and operated in accordance with agreements and associated plans adopted by world or regional administrative radio conferences;
- b) that the present Conference has adopted provisions for all Regions and an associated Plan for Regions 1 and 3;

considering

the wish expressed by the Conference to annex the provisions and associated Plan to the Radio Regulations;

resolves

that the 1979 World Administrative Radio Conference be requested to annex the provisions and associated Plan to the Radio Regulations as an integral part thereof, in the form and to the extent it deems most appropriate without thereby affecting their content or integrity;

RES Sat-4/2

requests

the Administrative Council to include the request referred to in the above paragraph in the agenda of the 1979 World Administrative Radio Conference.

RESOLUTION No. Sat – 5

**Relating to the coordination, notification and recording
in the Master International Frequency Register of frequency assignments
to stations in the broadcasting-satellite service in Region 2**

The World Broadcasting-Satellite Administrative Radio Conference,
Geneva, 1977,

considering

- a)* that a plan will be established for the broadcasting-satellite service in Region 2 in accordance with Recommendation No. Sat – 8;
- b)* that in Region 2 the broadcasting-satellite service should be operated on the basis of the principles contained in Article 12 and Annexes 6 and 7 of these Final Acts;
- c)* that some of the provisions adopted by this Conference concerning the broadcasting-satellite service in Regions 1 and 3 may also be applied in Region 2 prior to the entry into force of the plan for that Region to be established pursuant to Recommendation No. Sat – 8;
- d)* that, in the interim period, the procedures described in Resolution No. Spa2 – 3 will continue to apply in Region 2;

resolves

- 1. that an administration intending to bring into use a space station in the broadcasting-satellite service in Region 2 shall, for the purpose of coordination with space systems of other administrations, apply the relevant provisions of Article 9A of the Radio Regulations, i.e. Nos. 639AA to 639AI inclusive;

2. that the relevant provisions of Resolution No. Spa2 – 3 shall apply to the coordination, notification and recording of stations in the broadcasting-satellite service in Region 2, wherever a station in the broadcasting-satellite service or the fixed-satellite service in Region 2 is involved;
- 2.1 that an administration notifying a frequency assignment to a space station in the broadcasting-satellite service in Region 2 under paragraph 4.1 of Resolution No. Spa2 – 3 shall also notify a typical receiving earth station;
3. that the coordination, notification and recording procedures for stations in the fixed-satellite service specified in Article 7 of these Final Acts shall also apply to stations in the broadcasting-satellite service in Region 2 with respect to stations in the broadcasting-satellite service for which a frequency assignment appears in the Plan whenever
 - any portion of the necessary bandwidth of the proposed frequency assignment in Region 2 falls within the necessary bandwidth of a frequency assignment in Region 1 or Region 3, and
 - the power flux density which would be produced by the proposed broadcasting-satellite frequency assignment in Region 2 exceeds the value specified in Annex 1;
4. that Annex 2 of these Final Acts shall be used in supplying the information referred to in Section B of Resolution No. Spa2 – 3 and Section II of Article 7 of these Final Acts;
5. that an individual notice for each frequency assignment shall be drawn up as prescribed in Annex 2 for any frequency assignment notified under paragraph 4.1 of Resolution No. Spa2 – 3 or paragraph 2.1 of this Resolution or Section III of Article 7 of these Final Acts.

RESOLUTION No. Sat — 6

**Relating to the coordination, notification and recording
in the Master International Frequency Register of assignments to
stations in the fixed-satellite service with respect to stations in the
broadcasting-satellite service in Region 2**

The World Broadcasting-Satellite Administrative Radio Conference,
Geneva, 1977,

considering

that the Radio Regulations contain no provisions governing the coordination, notification or recording in the Master International Frequency Register of frequency assignments to stations in the fixed-satellite service in the band 11·7-12·2 GHz with respect to stations in the broadcasting-satellite service in Region 2;

resolves

that the provisions of Article 9A of the Radio Regulations shall be applied in such cases until the matter is considered by a competent administrative radio conference.

RESOLUTION No. Sat – 7

Relating to the use, by space stations operating in the frequency bands 11·7-12·2 GHz (in Regions 2 and 3) and 11·7-12·2 GHz (in Region 1), of the geostationary orbit and no other

The World Broadcasting-Satellite Administrative Radio Conference,
Geneva, 1977,

considering

- a)* that a Plan designating frequency assignments in the above-mentioned frequency bands and positions in the geostationary orbit has been adopted by the Conference for Regions 1 and 3;
- b)* that a similar plan for Region 2 is expected to result from a regional administrative radio conference in 1982;
- c)* that the operation of space radiocommunication services in the frequency bands concerned in orbits other than the geostationary orbit would be incompatible with the plans referred to in *a)* and *b)* above;

resolves

that administrations shall ensure that their space stations in these frequency bands are operated in the geostationary orbit and no other.

RESOLUTION No. Sat – 8

**Relating to the preparation for an administrative
radio conference for the
detailed planning of the space services in the frequency
band 11·7-12·2 GHz in Region 2**

The World Broadcasting-Satellite Administrative Radio Conference,
Geneva, 1977,

considering

- a)* that a regional administrative radio conference is to be held not later than 1982 for the detailed planning of the space services in the frequency band 11·7-12·2 GHz in Region 2;
- b)* that the technical criteria and procedures adopted at this Conference, the 1979 World Administrative Radio Conference and the latest CCIR Recommendations will be used in the interim period;
- c)* that a considerable amount of technical information will be required to ensure the success of this regional conference;

invites the CCIR

to carry out such additional studies as are necessary to ensure timely provision of the technical information likely to be required as a basis for the work of the regional conference.

RESOLUTION No. Sat - 9

**Relating to the submission of requirements
for the broadcasting-satellite service in Region 2**

The World Broadcasting-Satellite Administrative Radio Conference,
Geneva, 1977,

considering

- a) the decision taken by the Conference that an administrative radio conference for Region 2 is to be held not later than 1982;
- b) that the said regional administrative radio conference is to draw up a detailed plan for the orbit spectrum resource available for the broadcasting-satellite services in the frequency band 11·7-12·2 GHz, taking into account the need to make equitable provision for the requirements of the other services to which this frequency band is also allocated in Region 2;
- c) that the plan is to provide for the detailed assignment of the orbital positions and frequency channels available, ensuring that the broadcasting-satellite service requirements of the various administrations are met in an equitable manner satisfactory to all the countries concerned;

invites the IFRB

1. to request all administrations in Region 2 to submit their broadcasting-satellite service requirements to the IFRB not later than one year before the start of the said regional administrative radio conference. These requirements are understood to include the number and boundaries of service areas and the number of channels requested

for each of them. They may be updated as required by each administration;

2. to remind administrations, by means of a circular letter and/or telegram six months before the above deadline for submitting requirements, of the need to submit them;
3. to assemble the information submitted by administrations in a form permitting a comparative study thereof and to communicate it to the Secretary-General for publication and despatch to administrations not later than nine months prior to the said regional administrative radio conference.

RESOLUTION No. Sat – 10 *

**Relating to the Possible Re-arrangement of
the Radio Regulations and
the Additional Radio Regulations**

The World Broadcasting-Satellite Administrative Radio Conference,
Geneva, 1977,

considering

- a) the Report “Possible Re-arrangement of the Radio Regulations and the Additional Radio Regulations” of the Group of Experts set up by the Administrative Council at its 30th Session in June 1975;
- b) item 2.7 of the agenda of the 1979 World Administrative Radio Conference (1979 WARC) contained in Resolution No. 801 of the Administrative Council (32nd Session, May/June 1977) which provides for the consideration of the recommendations of this Conference on the re-arrangement of the Radio Regulations and the Additional Radio Regulations and to make such consequential changes as may be necessary to harmonize the revisions of the Radio Regulations since 1959;

recognizing

- a) that such harmonization can include the further refinement of the re-arrangement of the Radio Regulations and any deletion, which the Group of Experts was unable to make, of superfluous or redundant provisions;
- b) that Member countries may submit proposals for harmonization under item 2.7 of the agenda for the 1979 WARC as well as proposals relating to other items of the agenda;

* Text updated after the 32nd session of the Administrative Council.

- c) that the 1979 WARC will make the final decision on the re-arrangement of the Radio Regulations and the Additional Radio Regulations, including harmonization under item 2.7 of its agenda;

endorses in principle

the re-arrangement proposed in the Report of the Group of Experts;

resolves

1. that the re-arrangement of the Radio Regulations proposed by the Group of Experts, as endorsed by this Conference, which includes two new Appendices B and C, established by the Group of Experts and the re-arrangement, by titles only, of other appendices, resolutions and recommendations shall be published by the Secretary-General by September 1977;
2. that the Additional Radio Regulations and the texts of appendices, resolutions and recommendations contained in the 1976 loose-leaf edition should not be so published;

urges the CCITT

to complete as soon possible the studies being carried out in accordance with Resolutions No. Mar2 - 22 and No. Mar2 - 23 and Recommendation No. Mar2 - 18 and to distribute the results to administrations to enable them to prepare their proposals on this basis for the 1979 WARC under agenda item 2.8 of that Conference;

urges Member countries

to use the re-arranged form of the Radio Regulations in *resolves* 1 and the present form of the Additional Radio Regulations as a basis

for submitting proposals to the 1979 WARC for the revision of the Radio Regulations and the Additional Radio Regulations in accordance with its agenda, including any proposals relating specifically to harmonization under item 2.7 of its agenda (Resolution No. 801 of the Administrative Council);

requests the 1979 WARC

to agree that the documents in *resolves* 1 and 2 above should be used as the basic reference documents by delegates to that conference in discussing proposals.

RESOLUTION No. Aer2 – 1

**Relating to the Use of Frequencies 3 023 kHz and 5 680 kHz
Common to the Aeronautical Mobile (R) and (OR) Services**

The World Administrative Radio Conference on the Aeronautical Mobile (R) Service, Geneva, 1978,

having noted

that some anomalies appeared to exist in the conditions prescribed in Appendix 26 to the Radio Regulations, Geneva, 1959, for the use of the frequencies [3 023-5] kHz and 5 680 kHz, as contained in Article 2 of the Frequency Allotment Plan, column 3, clauses 2 a) and 2 b) and having taken steps to remove these anomalies;

considering

- a) that the coordination of search and rescue operations at the scene of a disaster would be improved if the use of the frequencies 3 023 (previously 3 023-5) kHz and 5 680 kHz, in such operations, were extended to include communications between mobile stations and participating land stations;
- b) that it would be in the general interests of the aeronautical mobile service if the same provisions relating to the use of the frequencies 3 023 (previously 3 023-5) kHz and 5 680 kHz were applied to operations both in the aeronautical mobile (R) service and the aeronautical mobile (OR) service;

resolves

to invite administrations to apply in the aeronautical mobile (OR) service, as from the date of coming into force of the Final Acts of the Conference, the provisions governing the use of the frequencies 3 023 kHz and 5 680 kHz specified in Appendix 27 Aer2 (Part II, Section II, Article 3).

RESOLUTION No. Aer2 – 2

**Relating to the Unauthorized Use of Frequencies
in the Bands Allocated to the Aeronautical Mobile (R) Service**

The World Administrative Radio Conference on the Aeronautical Mobile (R) Service, Geneva, 1978,

considering

- a)* that monitoring observations of the use of the frequencies in the bands between 2 850 and 17 970 kHz allocated exclusively to the aeronautical mobile (R) service show that a number of frequencies in these bands are still being used by stations of services other than the aeronautical mobile (R) service, notably by high-powered broadcasting stations, some of which are operating in contravention of No. 422 of the Radio Regulations;
- b)* that these stations are causing harmful interference to the aeronautical mobile (R) service and that a considerable number of emissions, the sources of which could not be positively identified, have been observed in these bands;
- c)* that radio is the sole means of communication available to the aeronautical mobile (R) service and that this service is a safety service;

considering, in particular

- d)* that it is of paramount importance that channels directly concerned with the safe and regular conduct of aircraft operations be kept free from harmful interference, since they are essential for the protection of the safety of life and property;

resolves to urge administrations

1. to ensure that stations of services other than the aeronautical mobile (R) service refrain from using frequencies allocated to this service other than under the conditions specified in Nos. 115 and 415 of the Radio Regulations;
2.
 - a) to make every effort to identify and locate the source of any unauthorized emission capable of causing harmful interference to the aeronautical mobile (R) service, thereby endangering this safety service;
 - b) and to communicate their findings to the IFRB;
3. to participate in the monitoring programmes that the IFRB may organize pursuant to this Resolution;
4. to request their governments to enact such legislation as is necessary to prevent stations located on board aircraft operating in contravention of No. 422 of the Radio Regulations;

requests the IFRB

1. to continue to organize monitoring programmes in the bands exclusively allocated to the aeronautical mobile (R) service with a view to eliminating the emissions of out-of-band stations which cause, or are likely to cause, harmful interference to the aeronautical mobile (R) service;
2. to take steps to eliminate the emissions of out-of-band stations which cause, or are likely to cause, harmful interference to the aeronautical mobile (R) service;
3. to seek, as appropriate, the co-operation of administrations in identifying the sources of out-of-band emissions by all available means, and in securing the cessation of these emissions.

RESOLUTION No. Aer2 – 3

**Relating to the Implementation of the New Arrangement
Applicable to Bands Allocated Exclusively to
the Aeronautical Mobile (R) Service between
2 850 and 17 970 kHz**

The World Administrative Radio Conference on the Aeronautical Mobile (R) Service, Geneva, 1978,

considering

- a)* that the use of each of the frequency bands between 2 850 and 17 970 kHz allocated exclusively to the aeronautical mobile (R) service by the Administrative Radio Conference, Geneva, 1959, was modified by the Extraordinary Administrative Radio Conference, Geneva, 1966;
- b)* that the 1966 Conference resolved that administrations shall effect, as soon as possible, a progressive conversion of their radiocommunications in the aeronautical mobile (R) service from double-sideband to single-sideband operation, in consequence of which the use of the above bands has been further modified by the present Conference to provide for SSB techniques;
- c)* that a considerable number of frequency assignments of both aircraft and aeronautical stations will be transferred from existing frequencies to the new frequencies and channels designated by the present Conference;
- d)* that changes in frequency assignments should be made as soon as possible so that the advantages of the new channels designated by the present Conference may be realized at the earliest opportunity;

- e) that the transfer of assignments should be made with the least possible disruption of the service rendered by each station;
- f) that the transfer of assignments should be made so as to avoid harmful interference between the stations involved during the implementation period;
- g) that the Final Acts of the present Conference will enter into force on 1 September 1979;
- h) that the new Frequency Allotment Plan contained in Appendix 27 Aer2 will enter into force on 1 February 1983;

recognizing

- a) that the aeronautical mobile (R) service is primarily a safety service;
- b) that some frequencies have been allotted for world-wide-use;
- c) that the implementation of the decisions made by the present Conference relating to the new arrangement of the frequency bands allocated to the aeronautical mobile (R) service between 2 850 and 17 970 kHz should follow an orderly procedure for the transfer of existing services from the old to the new assignments;

resolves

- 1. that between the entry into force of the Final Acts of this Conference on 1 September 1979 and the entry into force of the new Frequency Allotment Plan contained in Appendix 27 Aer2 on 1 February 1983, channel utilization for any new SSB operation shall be in accordance with the following provisions:
 - 1.1 the carrier (reference) frequency of the single-sideband channel in the upper half of the previous double-sideband channel shall be the

same as the carrier (reference) frequency of that channel;

- 1.2 the carrier (reference) frequency of the single-sideband channel in the lower half of the previous double-sideband channel shall be 3 kHz lower than the carrier (reference) frequency of that channel;
- 1.3 that, prior to 1 February 1983, aeronautical and aircraft stations fitted with single-sideband equipment may employ either half of the previous double-sideband channel (the single-sideband carrier (reference) frequency being that in 1.1 and 1.2 above);
- 1.4 channels in the new Plan may be used by any administration provided that no harmful interference occurs to users of channels in the present Plan. For the operational use of the channels concerned administrations should take into account the provisions of No. 27/20 of Appendix 27 Aer2 to the Radio Regulations;
2. that on 1 February 1983, the frequencies appearing in Appendix 27 to the Radio Regulations, shall be replaced by the frequencies appearing in Part II, Section II, Article 2, Appendix 27 Aer2;
3. that administrations take all the necessary measures with a view to converting to single-sideband operation as soon as possible by not permitting the installation of new double-sideband equipment as from 1 April 1981. Aircraft and aeronautical stations shall be capable of single-sideband operation at the earliest possible date; furthermore, they shall discontinue double-sideband emissions as early as possible, and, in any event, not later than 1 February 1983;
4. that, until 1 February 1983, aeronautical and aircraft stations equipped for single-sideband operation shall also be equipped to transmit

class **A3H** emissions where required to be compatible with reception by double-sideband equipment;

5. that, unless otherwise specified in the Final Acts of the present Conference, the use of classes of emissions **A2H**, **A3J**, **A7J** and **A9J** only shall be authorized as of 1 February 1983. Double-sideband operations may, however, be continued for domestic use until 1 February 1987, provided this operation is conducted in accordance with Nos. 667 and 674 of the Radio Regulations and that no harmful interference is caused to the international aeronautical mobile (R) service operating in the single-sideband mode. Administrations requiring such an extension of the period of full implementation of single-sideband operations are, nevertheless, urged to cease double-sideband operations as soon as possible.

RESOLUTION No. Aer2 — 4

**Relating to the Treatment of Notices Concerning Frequency
Assignments to Aeronautical Stations in the Bands Allocated
Exclusively to the Aeronautical Mobile (R) Service
between 2 850 and 17 970 kHz**

The World Administrative Radio Conference on the Aeronautical
Mobile (R) Service, Geneva, 1978,

considering

- a) that the Final Acts of the present Conference will enter into force on 1 September 1979;
- b) that the new Frequency Allotment Plan contained in Appendix 27 Aer2 will enter into force at 00.01 hours GMT on 1 February 1983;
- c) that some administrations may wish to implement certain provisions of the new Frequency Allotment Plan in advance of the latter date when this may be done without causing harmful interference to stations operating in accordance with the present Frequency Allotment Plan;
- d) that it will therefore be necessary to provide an interim procedure to facilitate transition from the existing Frequency Allotment Plan to the new Frequency Allotment Plan:

resolves

- 1. that during the interim period between the date of entry into force of the Final Acts and the date of entry into force of the new Frequency Allotment Plan:
- 1.1 the provisions of Nos. 553 to 558 of the Radio Regulations shall continue to be applied in the examination of notices concerning fre-

quency assignments to aeronautical stations in the aeronautical mobile (R) service in the allotments of the existing Plan;

- 1.2 all such assignments shall be recorded in the Master International Frequency Register in accordance with the findings reached by the IFRB;
- 1.3 frequency assignments in a channel of the new Plan shall be examined by the IFRB in order to determine whether the protection specified in Appendix 27 Aer2 (Part I, Section IIA, paragraph 5) is afforded to the allotments in the existing Plan. In so doing, the Board shall assume that the frequency will be used in accordance with the sharing conditions between areas specified in Appendix 27 Aer2, Part I, Section IIB, paragraph 4;
- 1.4 all such assignments mentioned in paragraph 1.3 having received a favourable finding shall be recorded in the Master International Frequency Register;
- 1.5 the date to be entered in Column 2a or 2b of the Master International Frequency Register shall be as follows:
 - a) if the finding is favourable with respect to Nos. 554 to 557, the date of 29 April 1966 shall be entered in Column 2a;
 - b) if the finding is favourable with respect to No. 558, the date of 29 April 1966 shall be entered in Column 2b;
 - c) for all other assignments (including those which may be in conformity with the new Frequency Allotment Plan but not in conformity with the present Frequency Allotment Plan) the date of receipt of the notice by the IFRB shall be entered in Column 2b;
- 1.6 any assignment which is in accordance with the new Frequency Allotment Plan shall be so indicated by the insertion by the IFRB of an appropriate symbol in the Remarks Column of the Master International Frequency Register;

2. that on the date of the entry into force of the new Frequency Allotment Plan, the IFRB shall examine those frequency assignments to aeronautical stations in the aeronautical mobile (R) service in the bands allocated exclusively to that service between 2 850 and 17 970 kHz which are contained in the Master International Frequency Register from the point of view of their conformity with the new Frequency Allotment Plan, following the relevant parts of the procedure described in Nos. 553 to 558 of the Radio Regulations, and shall record against them in the Master International Frequency Register a date in Column 2a or 2b as follows:
 - 2.1 assignments with double-sideband emissions (A3) already appearing in the Master Register on the date of the entry into force of the new Frequency Allotment Plan shall retain the date recorded in Column 2a or 2b, as appropriate, until 1 February 1983. A date in Column 2a for a frequency assignment using double-sideband emissions (A3) shall be transferred to Column 2b on 2 February 1983. On 1 January 1987 the IFRB shall review the entries and, in consultation with the administrations concerned, cancel those entries which are no longer in use, retaining the others for information only, without a date in Column 2b;
 - 2.2 assignments found favourable with respect to Nos. 553A to 557 shall have the date of 5 March 1978 entered in Column 2a;
 - 2.3 assignments found favourable with respect to Nos. 553A and 558 shall have the date of 5 March 1978 entered in Column 2b;
 - 2.4 all other assignments shall have the date of 6 March 1978 entered in Column 2b;
3. that, on the date of the entry into force of the new Frequency Allotment Plan, the allotments contained therein shall replace in the Master International Frequency Register the allotments appearing in the existing Frequency Allotment Plan;

invites

administrations to notify to the IFRB as soon as possible the cancellation of frequency assignments released as a consequence of bringing into use the allotments in the new Plan.

RESOLUTION No. Aer2 – 5

**Relating to the Implementation of the Frequency
Allotment Plan in the Bands Allocated
Exclusively to the Aeronautical Mobile (R) Service
Between 2 850 and 17 970 kHz**

The World Administrative Radio Conference on the Aeronautical Mobile (R) Service, Geneva, 1978,

considering

- a)* that the bands allocated exclusively to the aeronautical mobile (R) service between 2 850 and 17 970 kHz by the Administrative Radio Conference, Geneva, 1959, were modified by the Extraordinary Administrative Radio Conference, Geneva, 1966;
- b)* that the Extraordinary Administrative Radio Conference, Geneva, 1966, established procedures to be followed by administrations relating to the implementation of the modifications;
- c)* that the necessary arrangements were made for the IFRB to carry out these procedures;

recognizing

- a)* that the aeronautical mobile (R) service is primarily a safety service;
- b)* that the present Conference has further modified the said bands to provide for single-sideband techniques;
- c)* that there is a need for all administrations to implement the modifi-

cations made by the present Conference with a view to avoiding any harmful interference to the services rendered by stations operating in accordance with the Radio Regulations;

resolves

1. that, not later than ninety days before the entry into force of the new Plan, administrations shall notify the IFRB of the modifications necessary to bring the assignments existing in the Master Register into conformity with this Plan;
2. that the assignments existing in the Master Register on 1 February 1983 which are not in conformity with the decisions of the present Conference on that date shall be treated as follows:
 - 2.1 within thirty days from 1 February 1983, the IFRB will send relevant extracts from the Master Register to the administrations concerned advising them that, in accordance with the terms of the present Resolution, the assignments in question are to be transferred to the appropriate frequencies within a period of one hundred and eighty days after the dispatch of the extracts;
 - 2.2 if an administration fails to notify the IFRB of the transfer within the prescribed period, the original entry will be retained in the Master Register without a date in Column 2 and with a suitable remark in the Remarks Column. The administrations will be advised of this action;
3. that, if an administration so desires, the IFRB will provide it with all necessary assistance. In so doing, the IFRB will apply the provisions of Nos. 629 to 633 of the Radio Regulations.

RESOLUTION No. Aer 2 – 6

**Relating to the Use of Frequency Bands, higher than the HF bands, in
the Aeronautical Mobile (R) Service and the Aeronautical
Mobile-Satellite (R) Service for Communication
and for Meteorological Broadcasts**

The World Administrative Radio Conference on the Aeronautical
Mobile (R) Service, Geneva, 1978,

considering

- a) that from an aeronautical viewpoint, higher frequency bands can provide a more reliable and more interference-free communication system than HF;
- b) that from a technical and operational viewpoint, the use of VHF by aviation has progressed significantly;
- c) that the future possibility of communications utilizing satellite technology is now recognized;
- d) that, owing to the ever increasing development of aeronautical telecommunications in all areas of the world, there is an increasing demand for frequencies for communication with and for meteorological broadcasts to aircraft in flight:

resolves

that administrations, taking into account the relevant economic and technical factors, consider to the maximum extent possible meeting their requirements for communication and for meteorological broadcasts by frequencies in frequency bands, higher than the HF bands, which are allocated to the aeronautical mobile (R) service and the aeronautical mobile-satellite (R) service.

RESOLUTION No. Aer2 – 7

**Relating to the Use of Frequencies of the Aeronautical
Mobile (R) Service**

The World Administrative Radio Conference on the Aeronautical
Mobile (R) Service, Geneva, 1978,

considering

- a)* that the Frequency Allotment Plan adopted in 1966 and developed for the use of high frequency channels for the aeronautical mobile (R) service (Appendix 27 to the Radio Regulations) has been substantially revised by this Conference;
- b)* that air operations are subject to continuous changes;
- c)* that these changes require attention by the administrations concerned; but
- d)* that, in seeking to satisfy new communication requirements, no decision should be taken that will prevent or handicap the coordinated utilization of those high frequency aeronautical mobile (R) band allotments as prescribed in the Plan;
- e)* that the families of frequencies allotted to the Major World Air Route Areas (MWARAs), Regional and Domestic Air Route Areas (RDARAs) and Sub-Areas and VOLMET areas have been chosen considering propagation conditions which allow for the selection of the most suitable frequencies for the distances involved;
- f)* that specific steps should be taken to ensure that the correct order of frequency is used;
- g)* that it is essential to distribute the communication traffic load as uniformly as possible over the frequencies available;

h) that frequencies have been allotted for world-wide use;

resolves

that administrations, individually or in collaboration, take the necessary steps:

1. to make as great a use as possible of higher frequencies in order to lessen the load on the high frequency aeronautical mobile (R) bands;
2. to make as great a use as possible of antennae of appropriate directivity and efficiency in order to minimize the possibilities of mutual interference within an area or between areas;
3. to coordinate the use of families of frequencies necessary for a given route segment in accordance with the technical principles in Appendix 27 Aer2 and in the light of the propagation data available, to ensure that the most appropriate frequencies are used with an aircraft at a given distance from the aeronautical station providing service over the route segment concerned;
4. to improve operating techniques and procedures and to use equipment which will make it possible to attain the highest possible efficiency in handling air-ground high frequency communications;
5. to collect precise data on the operation of their high frequency communication systems, particularly data having a bearing on technical and operating standards, so as to facilitate re-examination of the Plan;

6. to establish, through regional arrangements, the best method of providing the communications required for any new long-distance international or regional air operation which is not or cannot be accommodated within the system of MWARA and RDARA, in such a manner as not to cause harmful interference to the utilization of frequencies as prescribed in the Plan.

RESOLUTION No. Aer2 — 8

**Relating to the Abrogation of various Resolutions and a
Recommendation of the Extraordinary Administrative Radio
Conference, Geneva, 1966, and a Resolution of the
Administrative Radio Conference, Geneva, 1959**

The World Administrative Radio Conference on the Aeronautical
Mobile (R) Service, Geneva, 1978,

considering

- a) that the following Resolutions and Recommendation of the Extraordinary Administrative Radio Conference, Geneva, 1966, were superseded as indicated:

Resolution No. Aer 1 relating to the use of frequencies 3 023.5 and 5 680 kHz common to the aeronautical mobile (R) and (OR) services, by Resolution No. Aer2 — 1;

Resolution No. Aer 2 relating to the use of frequencies in the HF bands allocated exclusively to the aeronautical mobile (R) service, by Resolution No. Aer2 — 2;

Resolution No. Aer 4 relating to the use of VHF for communication in the aeronautical mobile (R) service, and Resolution No. Aer 5 relating to the use of VHF for meteorological broadcasts in the aeronautical mobile (R) service, by Resolution No. Aer2 — 6;

Resolution No. Aer 6 relating to the treatment of notices concerning frequency assignments to aeronautical stations in the aeronautical mobile (R) service in the bands allocated exclusively to that service between 2 850 and 17 970 kHz, by Resolution No. Aer2 — 4;

Recommendation No. Aer 1 relating to the development of techniques which would help to reduce congestion in the high frequency bands allocated to the aeronautical mobile (R) service, by Recommendation No. Aer2 – 1;

- b)* that Resolution No. 14 of the Administrative Radio Conference, Geneva, 1959, relating to the use of frequencies of the aeronautical mobile (R) service, was replaced by Resolution No. Aer2 – 7;
- c)* that Resolution No. Aer 3 of the Extraordinary Administrative Radio Conference, Geneva, 1966, relating to the introduction of single sideband techniques in the HF bands allocated to the aeronautical mobile (R) service is now obsolete;

resolves

that all the said Resolutions and the Recommendation are abrogated.

RECOMMENDATION No. Aer 1

**relating to the development of techniques which would help
to reduce congestion in the high frequency bands allocated
to the aeronautical mobile (R) service**

(Abrogated by Resolution No. Aer2 – 8)

RECOMMENDATION No. Sat – 1

Relating to up-links for the broadcasting-satellite service

The World Broadcasting-Satellite Administrative Radio Conference,
Geneva, 1977,

considering

- a)* that, according to the definition given in No. 84AG of the Radio Regulations, the fixed-satellite service includes Earth-to-space links for the broadcasting-satellite service;
- b)* that there is an imbalance between the width of the bands allocated to Earth-to-space links and those allocated to space-to-Earth links in the fixed-satellite and broadcasting-satellite services between 10 and 15 GHz;
- c)* that, in consequence, the Earth-to-space capacity may be insufficient to meet future demands for space-to-Earth links for the broadcasting-satellite and fixed-satellite services;
- d)* that, due to interference considerations, space stations in both services may be subject to severe up-link constraints;
- e)* that Recommendation No. Sat – 5 invites the CCIR to continue the studies on up-links for the broadcasting-satellite service;

invite administrations

to estimate their future technical requirements for such links for the purpose of the studies mentioned in *e)* above, and to forward them to the appropriate CCIR Study Groups and to the Special Joint Meeting of CCIR Study Groups to be held in preparation for the 1979 World Administrative Radio Conference.

RECOMMENDATION No. Sat – 2

**Relating to the radiation of harmonics of the fundamental frequency
by broadcasting-satellite stations**

The World Broadcasting-Satellite Administrative Radio Conference,
Geneva, 1977,

considering

- a)* that the frequency band 23.6-24 GHz is allocated to the radio astronomy service on a primary basis;
- b)* that the second harmonic of the fundamental frequency of broadcasting-satellite stations operating within the band 11.8-12 GHz may seriously disturb radio astronomy observations in the band 23.6-24 GHz if effective steps are not taken to reduce the radiation level produced by this harmonic;

in view of

the provisions of No. 673 of the Radio Regulations;

recommends

that, when defining the characteristics of their space stations operating in the broadcasting-satellite service, particularly within the band 11.8-12 GHz, administrations take all necessary steps to reduce the radiation level of the second harmonic below the values indicated in the relevant CCIR Recommendations.

RECOMMENDATION No. Sat – 3

**To the CCIR relating to studies of propagation at 12 GHz
for the broadcasting-satellite service**

The World Broadcasting-Satellite Administrative Radio Conference,
Geneva, 1977,

considering

- a)* the need for ample information on the various propagation factors required for the planning of the broadcasting-satellite service;
- b)* the technical data required to enable the 1979 World Administrative Radio Conference to revise the Radio Regulations;
- c)* the studies being pursued by the CCIR under the appropriate Study Programmes;

invites the CCIR

- 1. to continue the study of the effects of precipitation attenuation at low angles of incidence in all climatic zones;
- 2. to initiate the study of the effects of sand and dust storms;
- 3. to examine the relationship between the propagation characteristics for 99^o/o of the worst month and those for the year;
- 4. to examine, for emissions using circular polarization, the level of the depolarized component relative to the polarized component;

5. to submit as much information as possible on these problems to the 1979 World Administrative Radio Conference.

RECOMMENDATION No. Sat – 4

**To the CCIR relating to transmitting antennae
for the broadcasting-satellite service**

The World Broadcasting-Satellite Administrative Radio Conference,
Geneva, 1977,

considering

- a) the need for ample information on transmitting antennae for the planning of the broadcasting-satellite service;
- b) the technical data required to enable the 1979 World Administrative Radio Conference to revise the Radio Regulations;
- c) the studies being pursued by the CCIR under the appropriate Questions and Study Programmes;

invites the CCIR

1. to continue the study of reference patterns for the co-polar and cross-polar components of transmitting antennae for the broadcasting-satellite service for both individual and community reception, and in particular the practicable means of achieving various degrees of improved side-lobe suppression and the economic implication thereof;
2. to initiate the study of the technical characteristics designed to achieve a pointing accuracy for transmitting antennae such that:
 - the deviation of the antenna beam from its nominal direction of pointing shall not exceed 0.1° ;
 - the angle of rotation of the transmitting beam about its axis shall not exceed $\pm 2^{\circ}$;

3. to submit as much information as possible on these problems to the 1979 World Administrative Radio Conference.

RECOMMENDATION No. Sat - 5

**To the CCIR relating to up-links for the
broadcasting-satellite service**

The World Broadcasting-Satellite Administrative Radio Conference,
Geneva, 1977,

considering

- a) the need for ample information on the characteristics of up-links for planning the broadcasting-satellite service;
- b) the technical data required to enable the 1979 World Administrative Radio Conference to revise the Radio Regulations;
- c) the studies being pursued by the CCIR under the appropriate Study Programme;
- d) that the carrier-to-noise ratios for the up-links to broadcasting satellites should be of the order of ten times greater than those for the down-links;
- e) that, as regards up-links interference between broadcasting satellites at different orbital positions, adequate up-link protection ratios (approximately 10 dB greater than those in the down-link) would appear to be readily achievable by antenna pattern discrimination in earth station transmitting antennae which would clearly have to be larger in diameter than the receiving antennae used in the down-links;
- f) that, where planning is based on isolation parameters such as radiation patterns for space station transmitting antennae, carrier inter-

leaving, and/or polarization discrimination in meeting the down-link carrier-to-interference requirements between service areas served from a single orbital position, the increased carrier-to-interference requirements in the up-links serving the satellite(s) at that same orbital position will have to use the same isolation parameters provided that this produces an improvement of about 10 dB in net isolation. The characteristics of the transmitting Earth station will clearly not affect this isolation, apart from the purity of their on-beam polarization;

- g) that in the implementation of broadcasting-satellite systems, consideration must be given to all aspects of associated space operation service functions (tracking, telemetry, telecommand and ranging) in connection with the operation of broadcasting satellites;

invites the CCIR

1. to continue the study of those radiation characteristics of receiving antennae of space stations in the broadcasting-satellite service which, singly or in combination with other means of discrimination, would give the necessary protection ratios for the up-links of systems in the broadcasting-satellite service for (a) satellite(s) occupying a given position in the geostationary satellite orbit;
2. to continue the study of those polarization characteristics of receiving antennae of space stations in the broadcasting-satellite service which, singly or in combination with other means of discrimination, would give the necessary protection ratios for the up-links of systems in the broadcasting-satellite service for (a) satellite(s) occupying a given position in the geostationary satellite orbit;

3. to continue the study of the technical up-link characteristics required to implement the plan for this service;
4. to study the technical and design characteristics and requirements which affect the provision of "space operation service functions" of space stations in the broadcasting-satellite service;
5. to study the requirements for adjacent-channel isolation in up-links for (a) satellite(s) in the broadcasting-satellite service occupying a given position in the geostationary satellite orbit;
6. to draw up a Report at the Special Joint Meeting of CCIR Study Groups to be held for the preparation of technical data for the 1979 World Administrative Radio Conference.

RECOMMENDATION No. Sat – 6

**To the CCIR relating to spurious emissions
in the broadcasting-satellite service**

The World Broadcasting-Satellite Administrative Radio Conference,
Geneva, 1977,

considering

- a)* that space stations in the broadcasting-satellite service operating at high power levels are likely to cause interference to services in adjacent and in harmonically related frequency bands due to spurious emissions;
- b)* that, in the planning of the broadcasting-satellite service, account must be taken of the need to reduce interference to services operating in adjacent bands to acceptable levels at the lower and upper edges of the bands 11.7-12.2 GHz in Regions 2 and 3 and 11.7-12.5 GHz in Region 1, and to the radio astronomy service which has an exclusive allocation at 23.6-24 GHz in all three Regions;
- c)* the technical data required to enable the 1979 World Administrative Radio Conference to revise the Radio Regulations;
- d)* the studies being pursued by the CCIR under the appropriate Study Programme;

invites the CCIR

to continue, as a matter of urgency, the study of the technical and operational aspects of spurious emissions from space stations in the broadcasting-satellite service to enable the Special Joint Meeting of CCIR Study Groups to draw up a report for the 1979 World Administrative Radio Conference.

RECOMMENDATION No. Sat – 7

**To the CCIR relating to the interdependence of
receiver design, channel grouping and sharing criteria**

The World Broadcasting-Satellite Administrative Radio Conference,
Geneva, 1977,

considering

- a)* that receiver design, channel grouping and sharing criteria are inter-related and have a considerable influence on the development of a plan for the broadcasting-satellite service;
- b)* that, so far, insufficient attention may have been give to these factors and to their influence on the implementation of such a plan;

invites the CCIR

to study the problem of the interdependence of receiver design, channel grouping and sharing criteria, together with the effects of these factors on the operation of the broadcasting-satellite service.

RECOMMENDATION No. Sat – 8

**Relating to the convening of a regional administrative radio
conference for the detailed planning of the space services
in the frequency band 11.7-12.2 GHz in Region 2**

The World Broadcasting-Satellite Administrative Radio Conference,
Geneva, 1977,

noting

- a)* that the detailed requirements of all administrations in Region 2 for the broadcasting-satellite service in the frequency band 11.7-12.2 GHz are not yet known;
- b)* that, in view of the large demands expected for the other services with which this band is shared, there is a need to ensure that this frequency band and the geostationary orbit are used as efficiently as possible;
- c)* that a future regional administrative radio conference for the detailed planning of space services in the frequency band 11.7-12.2 GHz would be able to take advantage of experiments now being carried out, of further technological advances, and of additional studies by the CCIR;

considering

the provisions adopted by this Conference to govern the implementation of space services in the frequency band 11.7-12.2 GHz pending the establishment of a detailed plan for Region 2;

recommends

1. that a regional administrative radio conference be held not later than 1982 for the purpose of carrying out detailed planning for the broadcasting-satellite and fixed-satellite services in Region 2, in accordance with 2., 3., 4., 5. and 6. below;
2. that the said regional administrative radio conference draw up a detailed plan for the orbit/spectrum resource available for the broadcasting-satellite services in the 11.7-12.2 GHz band. The plan shall provide for the detailed assignment of the orbital positions and frequency channels available, ensuring that the broadcasting-satellite service requirements submitted by the various administrations are met in an equitable manner satisfactory to all the countries concerned. It should be laid down as a matter of principle that each administration in the Region should be guaranteed a minimum number of channels (4) for the operation of the broadcasting-satellite service. Above this minimum, the special characteristics of the countries (size, time zones, language differences, etc.) shall be taken into account;
3. that planning be based on individual reception, but each administration may use the reception system which best meets its requirements, namely, individual or community reception, or both. Account shall also be taken of the decisions of the 1977 and 1979 World Administrative Radio Conferences and of the latest CCIR Recommendations in the case of parameters covered by its studies and research;
4. that, when planning the broadcasting-satellite service, it be borne in mind that systems should be designed with a view to reducing to a minimum technical differences and incompatibilities with the systems of other Regions;
5. that the conference also take into account the need to make equitable provision for the requirements of the fixed-satellite service to which this frequency band is also allocated in Region 2;

6. that in drafting the above-mentioned detailed plan, account also be taken of the terrestrial radio services sharing the same band;

invites the Administrative Council

to make preparations for convening the said regional administrative radio conference using the provisions of this Recommendation as a basis for the agenda and the terms of reference of the conference.

RECOMMENDATION No. Aer2 — 1

**Relating to the Development of Techniques which
would help to reduce Congestion in the High Frequency Bands
Allocated to the Aeronautical Mobile (R) Service**

The World Administrative Radio Conference on the Aeronautical Mobile (R) Service, Geneva, 1978,

considering

- a) that several administrations are actively engaged in the development of communication techniques the wider use of which, in the aeronautical mobile (R) service, would help to reduce congestion in the high frequency bands allocated to that service; such developments include the use of higher frequencies with remotely controlled stations, directional antennae, space radiocommunication techniques and automatic data transmission;
- b) that knowledge of these developments would be useful to other administrations in considering the application of these techniques to their aeronautical mobile (R) communication services;
- c) that the International Civil Aviation Organization (ICAO) is actively engaged in coordinating the operational development of such techniques;

recommends

administrations engaged in the development of techniques which would help to reduce congestion in the HF bands to inform the IFRB periodically of the progress achieved;

instructs

the IFRB to circulate periodically the information so obtained to administrations and to the ICAO.

RECOMMENDATION No. Aer2 – 2

**Relating to the Efficient Use of
Aeronautical Mobile (R) World-Wide Frequencies**

The World Administrative Radio Conference on the Aeronautical Mobile (R) Service, Geneva, 1978,

considering

that the Conference has allotted a limited number of world-wide frequencies for exercising control over regularity of flight and for safety of aircraft;

recommends to administrations

1. that the number of HF aeronautical stations on the world-wide channels should be kept to a minimum consistent with the economic and efficient use of frequencies;
2. that, if possible and practicable, one such station should serve aircraft operating agencies in adjacent countries and there should not normally be more than one station per country.

RECOMMENDATION No. Aer2 — 3

**Relating to Cooperation in the Efficient Use
of World-Wide Frequencies in the Aeronautical Mobile (R) Service**

The World Administrative Radio Conference on the Aeronautical Mobile (R) Service, Geneva, 1978,

considering

- a)* the need to make the most efficient use of world-wide frequencies in the aeronautical mobile (R) service;
- b)* that a plan has been adopted for the allotment by areas of world-wide frequencies in the aeronautical mobile (R) service;
- c)* the desirability of coordination between administrations within the areas to which the Allotment Plan applies;
- d)* the right of an administration to select and notify to the IFRB for recording in the Master International Frequency Register any frequency assignment in a channel allotted to the area in which its country is located;
- e)* the role played by the IFRB in regulatory procedures under Article 9 of the Radio Regulations;
- f)* the role played by ICAO in the field of international aeronautical operations;

invites

1. administrations within a world-wide allotment area, as they consider it appropriate, and the International Civil Aviation Organization, to seek the advice of the IFRB in determining the best choice of frequencies from a technical viewpoint in order to make the most efficient use of aeronautical mobile (R) world-wide frequencies;
2. administrations within a world-wide allotment area, as they consider it appropriate, to coordinate mutually the use of these frequencies from the viewpoint of aeronautical operations and, in this connection, to bear in mind the benefit that could be gained by obtaining the advice of ICAO in this process;
3. the IFRB to assist any administration or group of administrations in a world-wide allotment area wishing to coordinate their requirements for world-wide frequencies and to continue its cooperation with ICAO for this purpose;

requests

the Secretary-General to bring this Recommendation to the attention of the International Civil Aviation Organization.

RECOMMENDATION No. Aer2 — 4

**Relating to the Transition from the Present to
the New Frequency Allotment Plan in the
Bands Allocated Exclusively to the
Aeronautical Mobile (R) Service between
2 850 and 17 970 kHz**

The World Administrative Radio Conference on the Aeronautical Mobile (R) Service, Geneva, 1978,

considering

- a) that the Final Acts of this Conference will enter into force on 1 September 1979;
- b) that the new Frequency Allotment Plan contained in Appendix 27 Aer2 will enter into force at 00.01 hours GMT on 1 February 1983;
- c) that some administrations may wish to implement certain provisions of the new Frequency Allotment Plan in advance of the latter date when this may be done without causing harmful interference to stations working in accordance with the present Frequency Allotment Plan;
- d) that, following the Extraordinary Administrative Radio Conference, Geneva, 1966, the International Civil Aviation Organization (ICAO), under the provisions of No. 27/20 of Appendix 27 and within the spirit and framework of Resolution No. Aer 6 of that Conference, developed a transition programme for the aeronautical mobile (R) service to convert the Frequency Allotment Plan in Appendix 26 to that in Appendix 27;
- e) that the ICAO transition programme was subsequently provided to the International Frequency Registration Board for distribution to ITU Member administrations;

- f) that it will be useful again to adopt a programme to facilitate transition from the existing to the new Frequency Allotment Plan;

recommends

1. that the International Civil Aviation Organization be invited to develop a transition programme, within the framework of Appendix 27 Aer2, for the operational use by aeronautical stations of the frequencies contained in the Frequency Allotment Plan except for those RDARAs which are not involved in international operations;
2. that the International Civil Aviation Organization be invited to forward the transition programme for the new Frequency Allotment Plan to the International Frequency Registration Board for distribution to administration;
3. that administrations implement the provisions of the transition programme in coordination with ICAO and in conformity with the principles set forth in No. 27/20;

requests

the Secretary-General to bring this Recommendation to the attention of the International Civil Aviation Organization.

RECOMMENDATION No. Aer2 — 5

**Relating to the Inclusion of the Band
21 924-22 000 kHz in the Frequency
Allotment Plan for the Aeronautical Mobile (R)
Service (Appendix 27 Aer2 to the Radio Regulations)**

The World Administrative Radio Conference on the Aeronautical Mobile (R), Service, Geneva, 1978,

considering

- a) that there is a need to add a further frequency band to Appendix 27 Aer2, to provide world-wide frequencies suitable for long-range communications and to reduce congestion in the bands currently used;
- b) that there is a suitable band at 21 924-22 000 kHz at present allocated to the aeronautical fixed and aeronautical mobile (R) services;
- c) that if the band were to be allocated exclusively to the aeronautical mobile (R) service it could be incorporated into Appendix 27 Aer2;
- d) that the decision to re-allocate the band could be taken by the World Administrative Radio Conference, 1979;
- e) that the decision to incorporate a plan for the band into Appendix 27 Aer2 could be taken by the World Administrative Radio Conference, 1979;

has established

a plan for the band 21 924- 22 000 kHz with the relevant associated provisions for modifying the procedures of Appendix 27 Aer2 and related Radio Regulations (see *Annex*);

recommends

1. that the World Administrative Radio Conference, 1979, should consider the allocation of the band 21 924-22 000 kHz exclusively to the aeronautical mobile (R) service to meet the requirements mentioned in considering *a)* above;
2. that, if the World Administrative Radio Conference, 1979 decides on such a re-allocation, it should include the plan for this band with the associated provisions in Appendix 27 Aer2 as an integral part thereof, to come into force on 1 February, 1983; and should make the necessary consequential changes to the Radio Regulations;

urges administrations

to submit proposals to this effect to the World Administrative Radio Conference, 1979.

ANNEX

**Outline of changes to be made to
Appendix 27 Aer2 and related Radio Regulations**

A. APPENDIX 27 Aer2

Table of Contents *Part II. In the title, replace 17 970 kHz by 22 000 kHz.*

No. 27/10 *Replace 17 970 kHz by 22 000 kHz.*

No. 27/16 *Add the following new frequencies to the Table of Frequencies;*

kHz

21 924 - 22 000

21 925	21 964
21 928	21 967
21 931	21 970
21 934	21 973
21 937	21 976
21 940	21 979
21 943	21 982
21 946	21 985
21 949	21 988
21 952	21 991
21 955	21 994
21 958	21 997
21 961	
<hr style="width: 100px; margin-left: auto; margin-right: 0;"/>	
25 channels	

No. 27/31A *In the title preceding the number 27/31A, replace 13 MHz and 18 MHz by between 13 MHz and 22 MHz; in the text, replace 13 MHz and 18 MHz by 13 MHz, 18 MHz and 22 MHz;*

No. 27/31B *In the second line, replace 18 MHz by the 18 MHz and 22 MHz bands;
In the fourth line, after 18 MHz add and 22 MHz.*

Part II

In the title replace 17 970 kHz by 22 000 kHz.

No. 27/189

Add a new column for the new 22 MHz band to the Table as follows:

Areas	Band (MHz)
	22
	kHz
W I	21 940
	21 946
	21 952
	21 958
	21 967
	21 973
	21 979
	21 988
W II	21 997
	21 964
	21 985

Areas	Band (MHz)
	22
	kHz
W III	21 949
	21 970
W IV	
	21 955
	21 976
W V	21 991
	21 943
	21 961
	21 982
	21 994

Immediately after No. 27/207, add a new Table for the new 22 MHz band as follows:

ADD 27/207A

bande/band/banda 21 924-22 000

22 MHz

1	2				3
21 940	W	MONDIALE	WORLDWIDE	MUNDIAL	C100/I
21 943	W	MONDIALE	WORLDWIDE	MUNDIAL	C100/V
21 946	W	MONDIALE	WORLDWIDE	MUNDIAL	C100/I
21 949	W	MONDIALE	WORLDWIDE	MUNDIAL	C100/III
21 952	W	MONDIALE	WORLDWIDE	MUNDIAL	C100/I
21 955	W	MONDIALE	WORLDWIDE	MUNDIAL	C100/IV
21 958	W	MONDIALE	WORLDWIDE	MUNDIAL	C100/I
21 961	W	MONDIALE	WORLDWIDE	MUNDIAL	C100/V
21 964	W	MONDIALE	WORLDWIDE	MUNDIAL	C100/II
21 967	W	MONDIALE	WORLDWIDE	MUNDIAL	C100/I
21 970	W	MONDIALE	WORLDWIDE	MUNDIAL	C100/III
21 973	W	MONDIALE	WORLDWIDE	MUNDIAL	C100/I
21 976	W	MONDIALE	WORLDWIDE	MUNDIAL	C100/IV
21 979	W	MONDIALE	WORLDWIDE	MUNDIAL	C100/I
21 982	W	MONDIALE	WORLDWIDE	MUNDIAL	C100/V
21 985	W	MONDIALE	WORLDWIDE	MUNDIAL	C100/II
21 988	W	MONDIALE	WORLDWIDE	MUNDIAL	C100/I
21 991	W	MONDIALE	WORLDWIDE	MUNDIAL	C100/IV
21 994	W	MONDIALE	WORLDWIDE	MUNDIAL	C100/V
21 997	W	MONDIALE	WORLDWIDE	MUNDIAL	C100/I

B. RADIO REGULATIONS

Article 5

Modify the Table of Frequency Allocations as follows:

MOD

kHz
21 870 - 22 000

Region 1	Region 2	Region 3
21 870 - 22 000 <u>21 924</u>	AERONAUTICAL FIXED AERONAUTICAL MOBILE (R)	
<u>21 924</u> - 22 000	AERONAUTICAL FIXED AERONAUTICAL MOBILE (R)	

Article 7

No. 7378 431

Section II

Replace 18 030 kHz by 22 000 kHz.

Article 9

No. 4351 552

Section II

Replace 17 970 kHz by 22 000 kHz.

Article 9

No. 4421 589

Section III

Replace 17 970 kHz by 22 000 kHz.

RECOMMENDATION No. Aer2 – 6

**Relating to the Concordance of the French,
English and Spanish Texts of No. 429
of the Radio Regulations**

The World Administrative Radio Conference on the Aeronautical Mobile (R) Service, Geneva, 1978,

considering

- a)* that doubts have been expressed concerning the concordance of the expressions “régularité de la navigation aérienne” in French, “regularity of flight” in English and “regularidad de la navegación aérea” in Spanish;
- b)* that this phrase originates from the Convention on International Civil Aviation, Chicago, 1944, drafted in English;
- c)* that it is essential that the three texts be equivalent in form and content;
- d)* that its terms of reference do not include the revision of No. 429 of the Radio Regulations;

recommends

that the World Administrative Radio Conference, 1979, should endeavour to overcome this apparent lack of concordance in the texts of No. 429 of the Radio Regulations.

RECOMMENDATION No. Aer2 – 7

**Relating to No. 27/123
of Appendix 27 Aer2 – Sub-Area 5B**

The World Administrative Radio Conference on the Aeronautical Mobile (R) Service, Geneva, 1978,

considering

- a) the discussions which took place on the proposed modification of No. 27/123 of Appendix 27 Aer2;
and
- b) that the interested administrations have agreed to continue consultations between themselves on the matter of Sub-Area 5B;

recommends

- 1. that consultations should be carried out by the interested administrations in order to arrive at a satisfactory solution;
- 2. that the administrations concerned would report on the results of their consultation to the World Administrative Radio Conference, 1979, in order to enable the Conference to arrive at a definitive solution on No. 27/123.

RECOMMENDATION No. Aer2 – 8.

**To the World Administrative Radio Conference, 1979, Relating
to the Inapplicability of Resolution No. 13
to the Aeronautical Mobile (R) Service**

The World Administrative Radio Conference on the Aeronautical Mobile (R) Service, Geneva, 1978,

considering

- a)* that Resolution No. 13, Geneva, 1959, expressed the opinion that the aeronautical mobile service plans contained in the then Appendix 26 to the Radio Regulations would have to be reviewed;
- b)* that Resolution No. 13 also stated that an Extraordinary Administrative Radio Conference should be convened to review Appendix 26 and the associated Radio Regulations and to complete its work before the next Ordinary Administrative Radio Conference;
- c)* that administrative radio conferences of the aeronautical mobile service were held in 1964, 1966, and 1978 and the plans were reviewed;
- d)* that no further Administrative Conferences are to be convened before the World Administrative Radio Conference, 1979;

recommends

that, in so far as the aeronautical mobile (R) service is concerned, the World Administrative Radio Conference, 1979, should abrogate Resolution No. 13;

invites administrations

to consider whether Resolution No. 13 could be abrogated and to submit proposals to this effect to the World Administrative Radio Conference, 1979.

RECOMMENDATION No. Aer2 – 9

Relating to Public Correspondence with Aircraft

The World Administrative Radio Conference on the Aeronautical Mobile (R) Service, Geneva, 1978,

considering

- a)* that Recommendation No. 19 (Geneva, 1959) gave an initial indication of interest in public correspondence with aircraft;
- b)* that some administrations have expressed requirements for long-distance public correspondence with aircraft;
- c)* that provisions of No. 432 of the Radio Regulations do not permit public correspondence in the exclusive aeronautical mobile bands, unless permitted by special aeronautical regulations;
- d)* that appropriate satellite systems for this purpose are not yet operational;

recommends

- 1. that administrations should give due consideration to the technical, operational and administrative aspects of public correspondence with aircraft in order to permit orderly implementation at the appropriate time;
- 2. that administrations should make proposals on this subject to the next competent World Administrative Radio Conference;

REC Aer2-9/2

requests the Secretary-General

to bring this Recommendation to the attention of the World Administrative Radio Conference, 1979.

(Rev. 1979)

SECTION A

Table of Single Sideband Transmitting Frequencies
for Duplex (Two-Frequency) Operation (in kHz)

AP17 Rev.-5

Channel No.	4 MHz Band				Channel No.	6 MHz Band				Channel No.	8 MHz Band				Channel No.	12 MHz Band				Channel No.	16 MHz Band				Channel No.	22 MHz Band			
	Coast stations		Ship stations			Coast stations		Ship stations			Coast stations		Ship stations			Coast stations		Ship stations			Coast stations		Ship stations			Coast stations		Ship stations	
	Carrier frequency	Assigned frequency	Carrier frequency	Assigned frequency		Carrier frequency	Assigned frequency	Carrier frequency	Assigned frequency		Carrier frequency	Assigned frequency	Carrier frequency	Assigned frequency		Carrier frequency	Assigned frequency	Carrier frequency	Assigned frequency		Carrier frequency	Assigned frequency	Carrier frequency	Assigned frequency		Carrier frequency	Assigned frequency	Carrier frequency	Assigned frequency
401	4 357.4	4 358.8	4 063	4 064.4	601	6 506.4	6 507.8	6 200	6 201.4	801	8 718.9	8 720.3	8 195	8 196.4	1201	13 100.8	13 102.2	12 330	12 331.4	1601	17 232.9	17 234.3	16 460	16 461.4	2201	22 596	22 597.4	22 000	22 001.4
402	4 360.5	4 361.9	4 066.1	4 067.5	602	6 509.5	6 510.9	6 203.1	6 204.5	802	8 722	8 723.4	8 198.1	8 199.5	1202	13 103.9	13 105.3	12 333.1	12 334.5	1602	17 236	17 237.4	16 463.1	16 464.5	2202	22 599.1	22 600.5	22 003.1	22 004.5
403	4 363.6	4 365	4 069.2	4 070.6	603	6 512.6	6 514	6 206.2	6 207.6	803	8 725.1	8 726.5	8 201.2	8 202.6	1203	13 107	13 108.4	12 336.2	12 337.6	1603	17 239.1	17 240.5	16 466.2	16 467.6	2203	22 602.2	22 603.6	22 006.2	22 007.6
404	4 366.7	4 368.1	4 072.3	4 073.7	604	6 515.7	6 517.1	6 209.3	6 210.7	804	8 728.2	8 729.6	8 204.3	8 205.7	1204	13 110.1	13 111.5	12 339.3	12 340.7	1604	17 242.2	17 243.6	16 469.3	16 470.7	2204	22 605.3	22 606.7	22 009.3	22 010.7
405	4 369.8	4 371.2	4 075.4	4 076.8	605	6 518.8	6 520.2	6 212.4	6 213.8	805	8 731.3	8 732.7	8 207.4	8 208.8	1205	13 113.2	13 114.6	12 342.4	12 343.8	1605	17 245.3	17 246.7	16 472.4	16 473.8	2205	22 608.4	22 609.8	22 012.4	22 013.8
406	4 372.9	4 374.3	4 078.5	4 079.9	606	6 521.9*	6 523.3*	6 215.5**	6 216.9*	806	8 734.4	8 735.8	8 210.5	8 211.9	1206	13 116.3	13 117.7	12 345.5	12 346.9	1606	17 248.4	17 249.8	16 475.5	16 476.9	2206	22 611.5	22 612.9	22 015.5	22 016.9
407	4 376	4 377.4	4 081.6	4 083						807	8 737.5	8 738.9	8 213.6	8 215	1207	13 119.4	13 120.8	12 348.6	12 350	1607	17 251.5	17 252.9	16 478.6	16 480	2207	22 614.6	22 616	22 018.6	22 020
408	4 379.1	4 380.5	4 084.7	4 086.1						808	8 740.6	8 742	8 216.7	8 218.1	1208	13 122.5	13 123.9	12 351.7	12 353.1	1608	17 254.6	17 256	16 481.7	16 483.1	2208	22 617.7	22 619.1	22 021.7	22 023.1
409	4 382.2	4 383.6	4 087.8	4 089.2						809	8 743.7	8 745.1	8 219.8	8 221.2	1209	13 125.6	13 127	12 354.8	12 356.2	1609	17 257.7	17 259.1	16 484.8	16 486.2	2209	22 620.8	22 622.2	22 024.8	22 026.2
410	4 385.3	4 386.7	4 090.9	4 092.3						810	8 746.8	8 748.2	8 222.9	8 224.3	1210	13 128.7	13 130.1	12 357.9	12 359.3	1610	17 260.8	17 262.2	16 487.9	16 489.3	2210	22 623.9	22 625.3	22 027.9	22 029.3
411	4 388.4	4 389.8	4 094	4 095.4						811	8 749.9	8 751.3	8 226	8 227.4	1211	13 131.8	13 133.2	12 361	12 362.4	1611	17 263.9	17 265.3	16 491	16 492.4	2211	22 627	22 628.4	22 031	22 032.4
412	4 391.5	4 392.9	4 097.1	4 098.5						812	8 753	8 754.4	8 229.1	8 230.5	1212	13 134.9	13 136.3	12 364.1	12 365.5	1612	17 267	17 268.4	16 494.1	16 495.5	2212	22 630.1	22 631.5	22 034.1	22 035.5
413	4 394.6	4 396	4 100.2	4 101.6						813	8 756.1	8 757.5	8 232.2	8 233.6	1213	13 138	13 139.4	12 367.2	12 368.6	1613	17 270.1	17 271.5	16 497.2	16 498.6	2213	22 633.2	22 634.6	22 037.2	22 038.6
414	4 397.7	4 399.1	4 103.3	4 104.7						814	8 759.2	8 760.6	8 235.3	8 236.7	1214	13 141.1	13 142.5	12 370.3	12 371.7	1614	17 273.2	17 274.6	16 500.3	16 501.7	2214	22 636.3	22 637.7	22 040.3	22 041.7
415	4 400.8	4 402.2	4 106.4	4 107.8						815	8 762.3	8 763.7	8 238.4	8 239.8	1215	13 144.2	13 145.6	12 373.4	12 374.8	1615	17 276.3	17 277.7	16 503.4	16 504.8	2215	22 639.4	22 640.8	22 043.4	22 044.8
416	4 403.9	4 405.3	4 109.5	4 110.9	816	8 765.4	8 766.8	8 241.5	8 242.9	1216	13 147.3	13 148.7	12 376.5	12 377.9	1616	17 279.4	17 280.8	16 506.5	16 507.9	2216	22 642.5	22 643.9	22 046.5	22 047.9					
417	4 407	4 408.4	4 112.6	4 114	817	8 768.5	8 769.9	4 244.6	8 246	1217	13 150.4	13 151.8	12 379.6	12 381	1617	17 282.5	17 283.9	16 509.6	16 511	2217	22 645.6	22 647	22 049.6	22 051					
418	4 410.1	4 411.5	4 115.7	4 117.1	818	8 771.6	8 773	8 247.7	8 249.1	1218	13 153.5	13 154.9	12 382.7	12 384.1	1618	17 285.6	17 287	16 512.7	16 514.1	2218	22 648.7	22 650.1	22 052.7	22 054.1					
419	4 413.2	4 414.6	4 118.8	4 120.2	819	8 774.7	8 776.1	8 250.8	8 252.2	1219	13 156.6	13 158	12 385.8	12 387.2	1619	17 288.7	17 290.1	16 515.8	16 517.2	2219	22 651.8	22 653.2	22 055.8	22 057.2					
420	4 416.3	4 417.7	4 121.9	4 123.3	820	8 777.8	8 779.2	8 253.9	8 255.3	1220	13 159.7	13 161.1	12 388.9	12 390.3	1620	17 291.8	17 293.2	16 518.9	16 520.3	2220	22 654.9	22 656.3	22 058.9	22 060.3					
421	4 419.4*	4 420.8*	4 125 *	4 126.4*	821	8 780.9*	8 782.3*	8 257 *	8 258.4*	1221	13 162.8*	13 164.2*	12 392 *	12 393.4*	1621	17 294.9*	17 296.3*	16 522 *	16 523.4*	2221	22 658 *	22 659.4*	22 062 *	22 063.4*					
422	4 422.5	4 423.9	4 128.1	4 129.5	822	8 784	8 785.4	8 260.1	8 261.5	1222	13 165.9	13 167.3	12 395.1	12 396.5	1622	17 298	17 299.4	16 525.1	16 526.5	2222	22 661.1	22 662.5	22 065.1	22 066.5					
423	4 425.6	4 427	4 131.2	4 132.6	823	8 787.1	8 788.5	8 263.2	8 264.6	1223	13 169	13 170.4	12 398.2	12 399.6	1623	17 301.1	17 302.5	16 528.2	16 529.6	2223	22 664.2	22 665.6	22 068.2	22 069.6					
424	4 428.7	4 430.1	4 134.3	4 135.7	824	8 790.2	8 791.6	8 266.3	8 267.7	1224	13 172.1	13 173.5	12 401.3	12 402.7	1624	17 304.2	17 305.6	16 531.3	16 532.7	2224	22 667.3	22 668.7	22 071.3	22 072.7					
425	4 431.8	4 433.2	4 137.4	4 138.8	825	8 793.3	8 794.7	8 269.4	8 270.8	1225	13 175.2	13 176.6	12 404.4	12 405.8	1625	17 307.3	17 308.7	16 534.4	16 535.8	2225	22 670.4	22 671.8	22 074.4	22 075.8					
426	4 434.9	4 436.3	4 140.5	4 141.9	826	8 796.4	8 797.8	8 272.5	8 273.9	1226	13 178.3	13 179.7	12 407.5	12 408.9	1626	17 310.4	17 311.8	16 537.5	16 538.9	2226	22 673.5	22 674.9	22 077.5	22 078.9					
					827	8 799.5	8 800.9	8 275.6	8 277	1227	13 181.4	13 182.8	12 410.6	12 412	1627	17 313.5	17 314.9	16 540.6	16 542	2227	22 676.6	22 678	22 080.6	22 082					
					828	8 802.6	8 804	8 278.7	8 280.1	1228	13 184.5	13 185.9	12 413.7	12 415.1	1628	17 316.6	17 318	16 543.7	16 545.1	2228	22 679.7	22 681.1	22 083.7	22 085.1					
					829	8 805.7	8 807.1																						