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(ITU) للاتصالات الدولي الاتحاد في والمحفوظات المكتبة قسم أجراه الضوئي بالمسح تصوير نتاج (PDF) الإلكترونية النسخة هذه والمحفوظات المكتبة قسم في المتوفرة الوثائق ضمن أصلية ورقية وثيقة من نقلًا.

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INTERNATIONAL TELECOMMUNICATION UNION

RADIOCOMMUNICATION SECTOR

RADIOCOMMUNICATION
ASSEMBLY

Geneva, 8-16 November 1993

Book 1

Resolutions and Opinions



ITU RADIOCOMMUNICATION SECTOR

The functions of the ITU Radiocommunication Sector are to fulfil the purposes of the Union, as stated in Article 1 of the International Telecommunication Constitution, Geneva, 1992, relating to radiocommunication:

- by ensuring the rational, equitable, efficient and economical use of the radio-frequency spectrum by all radiocommunication services, including those using the geostationary-satellite orbit;
- by carrying out studies without limit of frequency range and adopting Recommendations on radiocommunication matters.

Radiocommunication Study Groups make Recommendations on the following*:

- a) use of the radio-frequency spectrum in terrestrial and space radiocommunication (and of the geostationary-satellite orbit);
- b) characteristics and performance of radio systems**;
- c) operation of radio stations;
- d) radiocommunication aspects of distress and safety matters.

* Article 11, *International Telecommunication Convention, Geneva, 1992.*

** *The ITU Telecommunication Standardization Study Groups make Recommendations on the interconnection of radio systems in public communication networks and on the performance required for these interconnections.*



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RESOLUTION ITU-R 1

**WORKING METHODS FOR THE RADIOCOMMUNICATION ASSEMBLY
AND THE RADIOCOMMUNICATION STUDY GROUPS**

(1993)

The ITU Radiocommunication Assembly,

considering

- a) that the duties and functions of the Radiocommunication Assembly are stated in Articles 13 of the Constitution and 8 of the Convention (Geneva, 1992);
- b) that the duties, functions and organization of the Radiocommunication Study Groups are briefly described in Articles 11 and 20 of the Convention (Geneva, 1992),

decides

that the working methods of the Radiocommunication Assembly and the Radiocommunication Study Groups shall be as follows:

PART I**Working methods****1. The Radiocommunication Assembly**

1.1 The Radiocommunication Assembly, in undertaking the duties assigned to it in Article 13 of the Constitution and Article 8 of the Convention (Geneva, 1992), shall conduct the work of each Assembly by setting up special Committees, as may be required, to address Organization, Work Programme, Budget Control, and Editorial Matters.

1.2 There shall also be established a Steering Committee, presided over by the Chairman of the Assembly, and composed of the Vice-Chairmen of the Assembly and the Chairmen and Vice-Chairmen of the Committees.

1.3 Head of Delegations shall:

- consider the proposals regarding the organization of the work and the establishment of relevant Committees;
- draw up the proposals concerning the designation of Chairmen and Vice-Chairmen of the Committees, Study Groups and Conference Preparatory Meeting; (see No. 342 of the Convention (Geneva, 1992)).

1.4 All such special committees shall cease to exist with the closing of the Radiocommunication Assembly except the Editorial Committee. The Editorial Committee shall be responsible for the form of any texts prepared during the meeting and of any amendments made by the Radiocommunication Assembly to texts. This Committee shall also be responsible between Radiocommunication Assemblies for coordinating the work of the Editorial Groups set up by the Study Groups concerning texts prepared for approval before or at the next Radiocommunication Assembly. For this purpose, the Chairman and Vice-Chairmen of the Editorial Committee shall remain in office until the next Radiocommunication Assembly.

1.5 The Radiocommunication Assembly may also establish, by Resolution, Committees to address specific matters. Committees so established may function beyond the closing of that Radiocommunication Assembly if the terms of reference contained in the establishing Resolution so permit.

1.6 The Radiocommunication Assembly shall consider the reports of the Director, Radiocommunication Bureau and the Study Group Chairmen; it shall, in particular, consider and approve, approve with modifications, or refer back draft Recommendations submitted by the Study Groups, as well as Resolutions and Opinions; it shall take note of the Recommendations approved since the last Radiocommunication Assembly, in accordance with the provisions of § 10 of this Resolution.

1.7 The Radiocommunication Assembly shall approve the programme of work arising from the review of existing Questions and new Questions and determine the priority, urgency, estimated financial implications and time-scale for the completion of their study.

1.8 The Radiocommunication Assembly shall decide, in the light of the approved programme of work derived from § 1.7 above, on the need to maintain, terminate or establish Study Groups, and allocate to each of them the Questions to be studied.

1.9 The Radiocommunication Assembly shall also give special attention to problems of particular interest to developing countries by grouping Questions of interest to the developing countries as far as possible, in order to facilitate their participation in the study of those Questions.

1.10 The Radiocommunication Assembly shall delete from consideration any Question for which the results of studies have not been contributed during six years unless a member reports that it is undertaking studies on that Question and will contribute the results of those studies prior to the next Assembly or a revision of the Question is submitted.

1.11 The Radiocommunication Assembly shall establish, and determine suitable terms of reference and working procedures for the Radiocommunication Advisory Group to review priorities, strategies and progress of work, and to give guidance on the work of the Radiocommunication Sector, including Radiocommunication Study Groups and cooperation with other entities (see Resolution ITU-R 3).

1.12 The Radiocommunication Assembly shall report to the associated World Radiocommunication Conference on the progress in matters that may be included in agenda of future Radiocommunication Conferences.

2. Radiocommunication Study Groups

2.1 Each Study Group shall perform an executive role, including the planning, scheduling, supervision, delegation and approval of the work and other related matters.

2.2 The work of each Study Group, within the scope defined in Resolution ITU-R 4, shall be organized by the Study Group itself on the basis of proposals by its Chairman.

2.3 Each Study Group shall maintain a plan for its work that considers a period of at least four years ahead, taking due account of the related schedule of World Radiocommunication Conferences and associated Radiocommunication Assemblies. The plan should be reviewed at each meeting of the Study Group.

2.4 The Study Groups will normally set up Working Parties to study the Questions assigned to the Study Group. Each Working Party will study one or several Questions and will prepare draft Recommendations and other texts for consideration by the Study Group.

2.5 When necessary, Joint Working Parties (JWP) may be established for the study of Questions requiring the participation of experts from more than one Study Group.

2.6 The Study Group may establish one or more Task Groups to which it may assign the studies of those urgent Questions and the preparation of those urgent Recommendations that cannot reasonably be carried out by a Working Party; appropriate liaison between the work of a Task Group and the Working Parties may be required.

2.7 Establishment of a Task Group shall be an action by a Study Group during its meeting and shall be the subject of a Decision. For each, the Study Group shall prepare a text listing:

- statement of the specific matters to be studied within the Question assigned and the subject of the draft Recommendation to be prepared;
- the reporting date;
- the name and address of the Chairman and any Vice-Chairmen.

In addition, for the case of an urgent Question (see § 3.4) arising between Study Group meetings, such that it cannot reasonably be considered at a scheduled Study Group meeting, the Chairman, in consultation with the Vice-Chairmen and the Director, Radiocommunication Bureau (hereinafter, the Director) may take action to establish a Task Group, in a Decision.

2.8 When Working Parties or Task Groups are assigned preparatory studies on matters to be considered by World or Regional Radiocommunication Conferences, the final reports of the Working Parties or Task Groups may be submitted directly to the Conference Preparatory Meeting (CPM), via the Chairman of the relevant Study Group.

2.9 Study Groups, Working Parties and Task Groups shall conduct their work as far as possible by correspondence, using modern means of communication.

2.10 The Director will maintain a list of administrations and other organizations participating in each Working Party or Task Group.

2.11 In some cases, when urgent or specific issues arise that require analysis, it might be suitable to appoint a Rapporteur, who, being an expert, can carry out preliminary studies or conduct a survey among administrations and other participants in the work of the Radiocommunication Study Groups mainly by correspondence. A Rapporteur must have clearly defined Terms of Reference and may be appointed by a Working Party or a Task Group.

2.12 Each Study Group shall set up a small Editorial Group to ensure that the technical vocabulary used is correct. In addition, it shall also ensure that the texts to be approved have the same meaning in the different working languages of the ITU and are easily comprehensible to all users. Participation in the Editorial Group should be arranged beforehand and participants should plan to extend their work beyond the close of the Study Group meeting for such periods as may be required and agreed.

2.13 The Chairman of the Study Group may establish a steering group to assist in the organization of the work.

2.14 The Radiocommunication Assembly shall issue directives concerning the Study Group meetings it considers necessary. In general, Study Group meetings should be scheduled according to need, typically once in the interval between Radiocommunication Assemblies.

2.15 In addition, should a Chairman, after the Radiocommunication Assembly has adjourned, consider that additional meetings of his Study Group are required, for which no provision was made by the Radiocommunication Assembly, he may propose that his Study Group meet in accordance with the Convention. Before such additional meetings are held, the Chairman shall consult with the Director to ensure that the provisions of § 2.17 and 2.18 below are appropriately considered especially as they apply to available resources.

2.16 Study Groups shall consider at their meetings, the draft Recommendations, progress reports and other texts prepared by Task Groups and Working Parties. To facilitate participation, a draft agenda shall be published, at latest, six weeks in advance of each meeting, indicating specific days for consideration of different topics.

2.17 For meetings held outside Geneva, the provisions of Resolution No. 4 of the Plenipotentiary Conference (Nice, 1989) and Annex 1 to the ITU Financial Regulations apply; invitations to hold meetings of the Study Groups or its Task Groups and Working Parties away from Geneva should be accompanied by a statement indicating the host's acceptance of *resolves* 2 of Resolution No. 4 (Nice, 1989).

2.18 To ensure the efficient use of the resources of the Radiocommunication Sector and of the participants in its work and to reduce the amount of travel involved, the Director, in consultation with the Chairmen, shall establish and publish a programme of meetings in a timely manner. This programme should take into account relevant factors, including the common participation in certain Study Groups, Working Parties or Task Groups, the desirability of contiguous meetings on related topics, the capacity of the ITU common services, the requirements for documents to be used in meetings and the need for coordination with the other activities of the ITU and other organizations.

2.19 With prior notice of a requirement and to the extent necessary and possible within available resources, the use of the working languages should be allowed during Task Group and Working Party meetings.

2.20 Each Study Group may adopt draft Recommendations. The draft Recommendations shall be approved either by the Radiocommunication Assembly or according to the provisions of § 10. Recommendations adopted in either manner shall have equal status.

2.21 Each Study Group may also adopt:

- draft Resolutions;
- draft Opinions;
- draft Questions (see also § 3);

for approval by the Radiocommunication Assembly.

2.22 Each Study Group may approve:

- Decisions;
- Reports;
- Handbooks.

The Study Group may establish other procedures for the approval of Handbooks, e.g. by the Working Party concerned.

3. Questions to be studied by the Radiocommunication Study Groups

3.1 In accordance with No. 129 of the Convention (Geneva, 1992) new or revised Questions referred to the Radiocommunication Assembly by the Plenipotentiary Conference, any other conference, the Council or the Radio Regulations Board will be assigned for study in accordance with § 3.4.

3.2 Other new or revised Questions may be approved by:

- Radiocommunication Assemblies,
- by correspondence in the interval between Radiocommunication Assemblies, when submitted to the Director by an administration or after adoption by a Study Group, Working Party or Task Group (see § 3.3).

3.3 The Director shall collect all Questions submitted for approval by correspondence under § 3.2 and circulate them to the Members in groups of related topics at appropriate intervals. Such Questions shall be approved, and have the same status as Questions approved at a Radiocommunication Assembly if:

- a simple majority of all the Member respondents are in agreement;
- and at least 10 replies are received within four months after circulation;

and shall be assigned for study in accordance with § 3.4.

3.4 Concerning Questions submitted or approved in accordance with § 3.1 and 3.2, the Director shall, as soon as possible, consult with the Study Group Chairmen and Vice-Chairmen and shall determine the appropriate Study Group to which the Question shall be assigned, and the urgency for the studies. Each Question adopted at the Radiocommunication Assembly or by correspondence shall be assigned to only one Study Group.

3.5 When a Question has been assigned according to § 3.4, the Study Group Chairman, in consultation with the Vice-Chairmen and the Director shall assign the Question to an existing Working Party or Task Group or, dependent upon the urgency, shall propose the establishment of a new Task Group, together with the name of its Chairman, or shall decide to refer the Question to the next Study Group meeting.

3.6 A circular-letter shall be sent by the Director to all participants in the Radiocommunication Study Groups, announcing the new Question, the method for study proposed by the Study Group Chairman, and inviting participation.

4. Preparations for World (and Regional) Radiocommunication Conferences

4.1 World Radiocommunication Conferences (WRCs) are foreseen to occur every two years. Exceptionally, Regional Radiocommunication Conferences (RRCs) may also be scheduled. The procedures outlined in Resolution ITU-R 2 apply to the preparation for WRCs. As appropriate, they may be adapted by a Radiocommunication Assembly to apply to the case of an RRC.

4.2 Preparations for WRCs will be carried out by the Conference Preparatory Meeting (CPM) (see Resolution ITU-R 2).

5. Coordination among Study Groups, Sectors and with other International Organizations

5.1 Meetings of Study Group Chairmen

Shortly after the close of each Radiocommunication Assembly and once in the interval between Radiocommunication Assemblies, the Director shall call a meeting of the Chairmen and Vice-Chairmen. The purpose of the meeting shall be to ensure the most effective coordination of the work of the Study Groups. The Director shall serve as Chairman of this meeting. The meeting shall also consider the status of work in the Study Groups regarding agendas for the next two WRCs and make recommendations regarding the WRC work programmes to the first meeting of the CPM.

In addition, the Director may, after consultation with the Chairmen and Vice-Chairmen of the Study Groups, call meetings of Chairmen and Vice-Chairmen at other times to discuss subjects which require urgent consideration.

5.2 *Liaison Rapporteurs*

Coordination between Study Groups may be ensured by the appointment of Study Group Liaison Rapporteurs to participate in the work of the other Study Groups or with Telecommunication Standardization Study Groups.

5.3 *Intersector Coordination Group*

In specific instances, complementary work on certain topics may be conducted by Study Groups in both the Radiocommunication Sector and the Telecommunication Standardization Sector. In such circumstances, it may be agreed between the two Sectors to establish an Intersector Coordination Group (ICG). For details on this process see Resolution ITU-R 6.

5.4 *Other international organizations*

When cooperation and coordination with other international organizations is necessary, the interface shall be provided by the Director. Liaison on specific technical matters, following consultation with the Director, may be carried out by Working Parties or Task Groups, or by a representative appointed by a Study Group.

PART II

Documentation

6. Radiocommunication Assembly and Radiocommunication Study Group texts

6.1 *Definitions*

The Radiocommunication Assembly and Radiocommunication Study Group texts are defined as follows:

6.1.1 *Question*

A statement of a technical, operational or procedural problem, generally seeking a Recommendation (see Resolution ITU-R 5).

6.1.2 *ITU-R Recommendation*

An answer to a Question which, within the scope of existing knowledge and studies, gives specifications, data or guidance; the preferred way of undertaking a specified task; or a preferred provision procedure for a specified application and which is considered to be sufficient to serve as a basis for international cooperation.

6.1.3 *Resolution*

A text giving instructions on the organization, methods or programmes of Radiocommunication Assembly or Radiocommunication Study Group work.

6.1.4 *Opinion*

A text containing a proposal or a request destined for another organization (such as Sectors of the ITU, international organizations, etc.) and not necessarily relating to a technical subject.

6.1.5 *Decision*

A text giving instructions on the organization of the work of a Study Group.

6.1.6 *Report*

A technical, operational or procedural statement, prepared by a Study Group on a given subject related to a current Question or by a CPM.

6.1.7 *Handbook*

A document which provides a statement of the current knowledge, the present position of studies, or of good operating or technical practice, in certain aspects of radiocommunications, which should be addressed to a radio engineer, system planner or operating official who plans, designs or uses radio services or systems, paying particular

attention to the requirements of developing countries. It should be self-contained, require no familiarity with other ITU Radiocommunication texts or procedures, but should not duplicate the scope and content of publications readily available outside the ITU.

6.2 *Presentation*

6.2.1 The text should be as brief as possible and should relate directly to the Question being studied.

6.2.2 Each text should include a reference to related texts and, where appropriate, to pertinent items of the Radio Regulations.

6.2.3 Radiocommunication Assembly texts shall be presented showing their number, their title and an indication of the year of their approval, and where appropriate, of any revisions.

6.3 *Numbering (see Note 1)*

Radiocommunication Assembly texts shall be numbered as follows:

6.3.1 Recommendations approved prior to 1 March 1993 shall retain their previous number but be called Recommendations ITU-R and given:

- a prefix before the number indicating the Series,
- a note indicating that it was previously a CCIR Recommendation.

The indication of Series will be according to a list prepared by the Director. When revised, a Recommendation ITU-R shall retain its number with the addition of a hyphen and digit indicating the number of successive revisions.

Examples: Recommendation ITU-R SM.182*
 Recommendation ITU-R SM.182-1*
 Recommendation ITU-R SM.182-2*

* either:

- "previously CCIR Recommendation 182 (or 182-1)" (If unchanged)

or

- "new version of CCIR Recommendation 182" if revision made after 1 March 1993.

6.3.2 New Recommendations approved after 1 March 1993 will be numbered in a new series starting from 1001 and be treated as above except that no note is required.

Examples: Recommendation ITU-R SF.1001
 Recommendation ITU-R SF.1001-1
 Recommendation ITU-R SF.1001-2

6.3.3 Reports shall be numbered in the same way as Recommendations, but starting at 2001.

6.3.4 Questions shall be numbered in a separate series for each Study Group. Maintained Questions shall retain their existing number which will be prefixed by "ITU-R" and be given a note indicating that it was previously a CCIR Question.

6.3.5 New Questions approved after 1 March 1993 will be numbered in a new series for each Study Group starting from 201 which will have the prefix "ITU-R".

Examples: Question ITU-R 23-1/4* (Maintained)
 Question ITU-R 201/4 (New)

* "Previously CCIR Question 23/4".

6.3.6 Opinions, Resolutions and Decisions shall be numbered in a separate series. When revised, they shall retain their number, with the addition of a hyphen and a digit indicating the number of successive revisions as in the case of a Recommendation.

Note 1 - The Radiocommunication Advisory Group is invited to give further attention to this matter.

6.4 Publications

6.4.1 The conclusions of the Radiocommunication Assembly and all the texts approved by the Radiocommunication Assembly shall be published, if possible, within six months, and in any case within one year from the close of the Radiocommunication Assembly; at every four years, all Recommendations in force after the Assembly shall be published.

6.4.2 Publications of the Radiocommunication Assembly and Study Groups published every four years shall include:

- a plan of the volumes containing the texts of the Radiocommunication Assembly,
- the distribution of the texts within the volumes of the Radiocommunication Assembly,
- a detailed table of contents and an index,
- terms of reference and introduction by the Chairman of Study Groups concerned, if appropriate,
- the texts of approved Questions, Recommendations, Resolutions, Opinions, Decisions and Reports.

6.4.3 Recommendations and other texts approved at Assemblies and between Assemblies shall be published as soon as possible (see also § 6.4.1).

6.4.4 A separate volume of texts should be published in economical format, if possible, within three months, and in any case within six months from the close of each Radiocommunication Assembly, which should include:

- the Resolutions and Opinions: these texts should appear at the beginning of the volume,
- the List of Study Groups, Advisory Groups and any other Groups set up or maintained by the Assembly with their titles and terms of reference,
- an overview of the activities of each Study Group including a work plan for the next period, names of Chairmen and Vice-Chairmen,
- a list, with titles of all Radiocommunication Study Group texts, in force at the close of the Assembly.

6.4.5 Handbooks should in general be published in bound format and up-dated by the issue of supplements. If necessary, they can include diskettes containing software or data for programs described in the text (see also Resolution ITU-R 13).

They should also include:

- a foreword or introduction,
- table of contents,
- general index of technical terms,
- list of abbreviations.

6.4.6 Publication of the texts of the Radiocommunication Assembly should involve the use of both printed and electronic formats.

The texts of approved Questions, Recommendations, Resolutions and Opinions should be included in the ITU data bases and be available for access by outside terminals.

Handbooks and specialized graphical texts would normally be published only in printed format.

7. Preparatory documentation

7.1 Radiocommunication Assemblies

Preparatory documentation shall include:

- draft texts, prepared by Study Groups, for approval;
- a report from the Chairman of each Study Group and CPM, reviewing the activities of the Group since the preceding Radiocommunication Assembly, including from each Study Group Chairman a list of Questions for which no input documentation has been received for the period mentioned in § 1.10. Should a Chairman believe that a certain Question should continue an explanation must be given;
- a report by the Director which should include proposals for the future work programme;

- a list of Recommendations adopted since the previous Radiocommunication Assembly;
- contributions submitted from administrations and other participants addressed to the Radiocommunication Assembly.

7.2 *Radiocommunication Study Groups*

Preparatory documentation shall include:

- any directives issued by the Radiocommunication Assembly with respect to the Study Group, including this Resolution;
- draft Recommendations and other texts prepared by Task Groups or Working Parties;
- proposals for approval of draft Recommendations between Radiocommunication Assemblies (see § 10);
- progress reports from each Task Group, Working Party and Rapporteur;
- the contributions to be considered at the meeting, which may include documentation prepared by the Bureau on the basis of current literature, with a view to updating existing texts;
- the Chairman's report, summarizing the conclusions of any work carried out by correspondence and preparing the work to be accomplished at the meeting;
- the conclusions of the preceding meeting, in so far as they have not been included in the official texts referred to above;
- an outline agenda indicating: draft Recommendations to be considered, Questions to be considered, reports from Task Groups and Working Parties to be received, and Reports to be approved (see § 2.16).

8. *Contributions to Radiocommunication Study Group studies*

8.1 The Director, following consultation with the Study Group Chairmen shall issue guidelines concerning the length and form of preparation for contributions, and dealing with numbering, figures, formulae, etc.

8.2 The Director shall also issue guidelines encouraging contributions provided on diskette or electronically.

8.3 The Director may return a document which does not comply with the guidelines, for it to be brought into line.

8.4 Each contribution should clearly indicate the Question, the Task Group, Working Party or, when of a general nature, the Study Group.

8.5 Contributions should be sent to the Chairman and Vice-Chairmen of the Study Group concerned, the Chairman of the Task Group or Working Party and any relevant Rapporteur and at the same time, in five copies, to the Director for numbering, translation, reproduction and distribution.

8.6 Contributions submitted by participants at least four months before the opening of the meeting at which they will be considered shall be distributed by the Director not later than one month before the opening of the meeting at which they are to be examined.

8.7 Contributions for consideration by correspondence submitted well before the date of the meeting should be distributed promptly by the Director.

8.8 Reports from the Chairmen of Study Groups, Working Parties and Task Groups may be submitted up to two months before the opening date of the meeting and shall be distributed by the Director.

8.9 Exceptionally, participants may submit in one or more of the working languages, contributions which they consider essential, and which cannot be submitted by the above-mentioned time-limit up to seven days before the opening date of the meeting at which they are to be examined. Recognizing that the Director cannot make a firm commitment regarding translation, those which can be published in at least the original working language(s) provided by administrations and distributed by the Radiocommunication Bureau before the meeting will be placed on the agenda of the first session of the meeting, but will be considered only if the meeting concerned so decides.

8.10 Contributions which are not available to participants at the opening of the meeting shall not be considered.

8.11 The Director shall maintain records and copies of all contributions received, in numbered series.

8.12 Contributions and other documents shall be distributed to those participants in the work of Radiocommunication Study Groups who have indicated a wish to participate in the Study Group, CPM, Working Party, JWP or Task Group concerned.

8.13 When articles are referred to in documents submitted to the Radiocommunication Bureau, such references or bibliography should be to published works which are readily available through library services.

8.14 The Director shall prepare a Study Group document which lists the contributions which were taken into account in the preparation of each Recommendation, Report and Handbook.

9. Information Bulletin

9.1 The Director shall issue, at regular intervals, an information bulletin which will include:

- a schedule of meetings for at least the next six months;
- an outline agenda of forthcoming meetings;
- brief reports of recent meetings;
- other information which will assist participants.

PART III

10. Approval of Recommendations

10.1 General provisions

10.1.1 Due to rapid and continuing changes in telecommunication technologies and consequent changes in radiocommunication services and their operational and technical functions, it is desirable to employ procedures for expeditious approval of radiocommunication Recommendations. To this end, approval of new or revised Recommendations may be sought by consultation of the Members as soon as the relevant Study Group has adopted the text. Procedures for such approval and consultation are given in the following sections. Approval may also be sought at a Radiocommunication Assembly.

10.1.2 As soon as draft new and revised Recommendations have been developed to a mature state, Study Groups should decide to seek their approval using the process described below. Although not explicitly mentioned below, this procedure may also be used for the deletion of existing Recommendations.

10.2 Prerequisites

10.2.1 Upon request of the Study Group Chairman, the Director shall explicitly indicate the intention to seek approval of new or revised Recommendations under this procedure when announcing the convening of the relevant Study Group meeting. The announcement shall include the specific intent of the proposal in summarized form. Reference shall be provided to the report or other documents where the text of the draft of the new or revised Recommendation may be found.

This information shall also be distributed to all Members.

The invitation to the meeting as well as the advice on the intended use of this approval procedure should be sent by the Director so that it shall be received, so far as practicable, at least three months before the meeting.

10.2.2 Approval may only be sought for a draft new Recommendation within the Study Group's mandate as defined by the Questions allocated to it in accordance with Nos. 129 and 149 of the Convention (Geneva, 1992). Alternatively, or additionally, approval may be sought for amendment of an existing Recommendation within the Study Group's mandate, unless the text of that Recommendation specifically excludes application of this procedure.

10.2.3 Where a draft Recommendation (or revision) falls, exceptionally, within the mandate of more than one Study Group, the Chairman of the Study Group proposing the approval should consult and take into account the views of any other Study Group Chairmen concerned before proceeding with the application of this approval procedure.

10.2.4 In the interests of stability, revision of a Recommendation should not normally be put for this procedure again within two years, unless the proposed revision complements rather than changes the agreement reached in the previous version.

10.2.5 Any Members considering themselves to be adversely affected by a Recommendation approved in the course of a study period may refer their case to the Director of the Radiocommunication Bureau (BR), who shall submit it to the relevant Study Group for prompt attention.

10.2.6 The Director of the BR shall inform the next Assembly of all cases notified in conformity with § 10.2.5 above.

10.3 Requirements at the Study Group Meeting

10.3.1 After debate at the Study Group's meeting the decision of the delegations to apply this approval procedure must be unopposed (however, see § 10.3.3).

10.3.2 This decision must be reached during the meeting on the basis of a text available in its final form to all participants at the meeting. Exceptionally, but only during the meeting, delegations may request more time to consider their positions. Unless the Director is advised of formal opposition from any of these delegations within a period of one month after the last day of the meeting, he shall proceed in accordance with § 10.4.1.

10.3.3 A delegation may advise at the meeting that it is abstaining from the decision to apply the procedure. This delegation's presence shall then be ignored for the purposes of § 10.3.1 above. Such an abstention may subsequently be revoked, but only during the course of the meeting.

10.3.4 Based on the specific intent of proposal in summarized form as referred in § 10.2.1, the Study Group should approve a document stating the summaries of the proposed new Recommendations and the summaries of modifications for the proposed revised Recommendations. This document should be included in the request for consultation dispatched by the Director in accordance with § 10.4.1.

10.4 Consultation

10.4.1 Within one month of a Study Group's final decision to seek approval, the Director shall request Members to indicate within three months whether they approve or do not approve the proposal. This request shall be accompanied by reference to the complete final text, in the working languages, of the proposed new or revised Recommendation.

10.4.2 The Director shall also advise other organizations participating in the work of the relevant Study Group under the provisions of Article 19 of the Convention (Geneva, 1992), that Members are being asked to respond to a consultation on a proposed new or revised Recommendation, but only Members are entitled to respond.

10.4.3 If 70% or more of the replies from Members indicate approval, the proposal shall be accepted. If the proposal is not accepted, it shall be referred back to the Study Group. Subject to further consideration in the Study Group, the proposal may be submitted again for approval, either using procedures set out in this Part (including the prerequisites in § 10.2 above) or through the Radiocommunication Assembly.

10.4.4 Those Members who indicate that they do not accept approval are encouraged to advise their reasons and to indicate possible changes in order to facilitate further consideration by the Study Group.

10.5 Notification

10.5.1 The Director shall promptly notify the results of the consultation by circular-letter. The Director shall arrange that this information is also included in the next available ITU Notification.

10.5.2 Should minor, purely editorial amendments or correction of evident oversights or inconsistencies in the text as presented for approval be necessary, the Director may correct these with the approval of the Chairman of the relevant Study Group.

10.5.3 Any comments received along with responses to the consultation shall be collected by the Director and submitted to the Study Group for consideration.

10.5.4 The ITU shall publish the approved new or revised Recommendations in the working languages as soon as practicable, indicating as necessary, a date of entry into effect.

RESOLUTION ITU-R 2

CONFERENCE PREPARATORY MEETING

(1993)

The ITU Radiocommunication Assembly,

considering

- a) that the duties and functions of the Radiocommunication Assembly, in preparing for World Radiocommunication Conferences, are stated in Articles 13 of the Constitution and 11 of the Convention (Geneva, 1992);
- b) that special arrangements are necessary for such preparations,

resolves

1. that a Conference Preparatory Meeting (CPM) shall be set up on the basis of the following principles:
 - that the CPM should be permanent;
 - that it should address topics on the agenda of the immediately forthcoming conference and make provisional preparations for the subsequent conference;
 - that invitations to participate should be sent to all members of the Radiocommunication Sector;
 - that documents should be distributed to all Members of the ITU and to members wishing to participate in the CPM;
 - that the terms of reference of the CPM should include the updating and rationalization of material from Study Groups, together with consideration of new material submitted to it;
 - that matters relating to regulatory/procedural issues shall be addressed in a Working Party of the CPM;
2. that the scope of the CPM shall be:
 - on the basis of contributions from administrations, the Radiocommunication Study Groups (see also Provision No. 156 of the ITU Convention (Geneva 1992)), and other sources (see Article 19 of the ITU Convention (Geneva 1992)) concerning the regulatory, technical, operational and procedural matters to be considered by world and regional radiocommunication conferences, the CPM shall prepare a consolidated report to be used in support of the work of such conferences. In the preparation of these reports, differences in approach as contained in the source material shall be reconciled to the extent possible;
3. that the working methods shall be as presented in Annex 1;
4. that, after gaining experience with this arrangement in the course of preparations for WRC-95, the arrangement be re-examined at the Radiocommunication Assembly, in 1995.

ANNEX 1

Working methods for the Conference Preparatory Meeting

1. Preparatory studies associated with regulatory/procedural matters, such as work related to the development of regulatory procedures for the notification and coordination of frequency assignments, shall be conducted by a Working Party of the CPM. The Working Party shall be chaired by a designated CPM Vice-Chairman who will organize and coordinate the procedural studies. This organizational arrangement for the conduct of regulatory/procedural studies will be subject to future review. Regulatory studies of technical and operational matters will be undertaken by the appropriate Study Groups.

2. The CPM will normally hold two meetings during the interval between WRCs.

2.1 The first meeting will be for the purpose of coordinating the work programmes of the relevant Study Groups based on the agenda for the next two WRCs, and for taking into account any directives which may have come from the previous WRC. This meeting will be of short duration and will normally occur within three months after the conclusion of the previous WRC.

2.2 The second meeting will be for the purpose of preparing the report for the next WRC. This meeting shall also review progress on preparatory studies for agenda items to be considered at the WRC following the next scheduled WRC. The meeting will be of adequate duration to accomplish the necessary work (two to three weeks) and will normally occur six months before the next WRC.

3. The work of the CPM will be directed by a Chairman and two Vice-Chairmen. The Chairman will be responsible for preparing the report to the next WRC. One Vice-Chairman will be responsible for coordinating the preliminary work of the Study Groups for the WRC following the next WRC. The other Vice-Chairman will be responsible for the coordination of study of regulatory/procedural matters. When the next WRC has completed its work, the first Vice-Chairman mentioned above will assume the title and responsibilities of the Chairman. A new Vice-Chairman, appointed by the just-completed Radiocommunication Assembly associated with the just-completed WRC, will begin the coordination process for the WRC to follow the next scheduled WRC.

4. In relation to working arrangements, the CPM and the Working Party shall be considered as ITU meetings in accordance with No. 172 of the Constitution (Geneva, 1992).

5. The other working arrangements shall be in accordance with the relevant provisions of Resolution ITU-R 1.

RESOLUTION ITU-R 3

ESTABLISHMENT OF THE RADIOCOMMUNICATION ADVISORY GROUP

(1993)

The ITU Radiocommunication Assembly,

considering

- a) Resolution No. 3 of the Additional Plenipotentiary Conference (APP-92) (Geneva, 1992) concerning the establishment of Advisory Groups for the Radiocommunication and Telecommunication Standardization Sectors;
- b) Resolution 106 of the XVIIth CCIR Plenary Assembly (Düsseldorf, 1990) concerning the establishment of the CCIR ad hoc Advisory Group on Strategic Review and Planning, which has held several meetings since its establishment;
- c) the need for continuing measures to review priorities and strategies in the radiocommunication activities and to advise the Director of the Radiocommunication Bureau;
- d) the desirability of broad-based participation of administrations, entities and representatives of Study Groups to assure the responsiveness of radiocommunication activities to the needs of the membership,

resolves

1. that, in compliance with Resolution No. 3 of the Additional Plenipotentiary Conference, a radiocommunication Advisory Group (RAG) to advise the Director of the Radiocommunication Bureau be established with the following principal duties:
 - to review priorities and progress in the implementation of work programmes relating to the Radiocommunication Assembly, Study Groups, CPM and the related functions of the Bureau ;
 - to provide guidelines and advice for the work and structure of the Radiocommunication Study Groups;
 - to recommend measures to improve cooperation and coordination within the Radiocommunication Sector without impacting on the Radio Regulations Board (RRB);
 - to recommend measures that may be taken, *inter alia*, to foster cooperation and coordination with other relevant international and regional organizations and standardization bodies, with the Telecommunication Development Sector, with the Telecommunication Standardization Sector, and with the Strategic Planning Unit in the General Secretariat;
 - to make recommendations for the establishment of intersector coordination groups as appropriate, and monitor their activities;
 - to meet jointly with the Telecommunications Standardization Advisory Group, *inter alia*, to continue the review of new and existing work and its distribution between both Sectors;
 - to provide advice on strategic planning for the Radiocommunication Sector;
2. that the Radiocommunication Advisory Group shall be open to representatives of administrations, entities and organizations authorized to participate in the Radiocommunication Sector in accordance with the provisions of Article 19 of the Convention (Geneva, 1992) , and representatives of Study Groups;
3. that the work already in progress under the ad hoc groups established under CCIR Resolutions 106 and 107 be incorporated in the work of the Radiocommunication Advisory Group;
4. that the Radiocommunication Advisory Group shall adopt suitable working procedures for its work without imposing any restrictions on working languages, and prepare reports for the Director of the Radiocommunication Bureau,

instructs the Director of the Radiocommunication Bureau

1. to organize the Radiocommunication Advisory Group, and
 2. to report each year to the members of the Sector and to the Council on the results of the work carried out by the Radiocommunication Advisory Group.
-

RESOLUTION ITU-R 4

STRUCTURE OF RADIOCOMMUNICATION STUDY GROUPS

(1993)

The ITU Radiocommunication Assembly,

considering

- a) provision No. 133 and Article 11 of the ITU Convention (Geneva, 1992);
- b) that the work of the Radiocommunication Study Groups is involved with developing the technical, operational and procedural bases for efficient use of the radio spectrum and the geostationary-satellite orbit;
- c) that cooperation between the Radiocommunication Sector and international and regional organizations with regard to the development of standards for radiocommunication systems and operations would provide considerable benefits,

resolves

- 1. that nine Radiocommunication Study Groups shall be set up as shown in Annex 1;
- 2. that the principles applicable to the work of Study Group 1 are described in Annex 2;
- 3. that the principles applicable to the work of Study Group 2 are described in Annex 3;
- 4. that, in liaison with the Telecommunication Standardization Sector, the ITU General Secretariat and with other interested organizations, the Radiocommunication Bureau organizes the work of a Coordination Committee for Vocabulary, the scope of which is given in Annex 4.

ANNEX 1

The Radiocommunication Study Groups

STUDY GROUP 1

(SPECTRUM MANAGEMENT)

(Spectrum planning, utilization, engineering, sharing and monitoring)

Scope:

Development of principles and techniques for effective spectrum management, sharing criteria and methods, techniques for spectrum monitoring and long-term strategies for spectrum utilization (see Annex 2).

<i>Chairman:</i>	M.J. HUNT	(Canada)
<i>Vice-Chairmen:</i>	R.N. AGARWAL	(India)
	T. BOE	(Norway)
	R. MAYHER	(United States)
	K.J.B. YAO	(Côte d'Ivoire)

STUDY GROUP 2**(INTER-SERVICE SHARING AND COMPATIBILITY)***Scope:*

Development of Recommendations or prepare a report to the Conference Preparatory Meeting in answer to a limited number of urgent Questions on inter-service sharing and compatibility requiring special attention, as referred by the Radiocommunication Assembly, or if the Question arises during the interval between Radiocommunication Assemblies, by the Director after consultation with interested Chairmen and administrations, to work in association with Study Group 1 (see Annex 3).

<i>Chairman:</i>	J. KARJALAINEN	(Finland)
<i>Vice-Chairmen:</i>	A. PAVLIOUK	(Russian Federation)
	H. WEISS	(United States)

STUDY GROUP 3**(RADIO WAVE PROPAGATION)***Scope:*

Propagation of radio waves in ionized and non-ionized media and the characteristics of radio noise, for the purpose of improving radiocommunication systems.

<i>Chairman:</i>	L.W. BARCLAY	(United Kingdom)
<i>Vice-Chairmen:</i>	F. FEDI	(Italy)
	D. G. COLE	(Australia)

STUDY GROUP 4**(FIXED-SATELLITE SERVICE)***Scope:*

Systems and networks for the fixed-satellite service and inter-satellite links in the fixed-satellite service, including associated tracking, telemetry and telecommand functions.

<i>Chairman:</i>	E. HAUCK	(Switzerland)
<i>Vice-Chairmen:</i>	J.M.P. FORTES	(Brazil)
	Y. ITOH	(Japan)

STUDY GROUP 7

(SCIENCE SERVICES)

Scope:

1. Systems for space operation, space research, earth exploration and meteorology, including the related use of links in the inter-satellite service.
2. Radio astronomy and radar astronomy.
3. Dissemination, reception and coordination of standard-frequency and time-signal services, including the application of satellite techniques, on a worldwide basis.

<i>Chairman:</i>	H.G. KIMBALL	(United States)
<i>Vice-Chairmen:</i>	H. DeJONG	(Netherlands)
	J. SAINT ETIENNE	(France)
	J. WHITEOAK	(Australia)

STUDY GROUP 8

(MOBILE, RADIODETERMINATION, AMATEUR AND RELATED SATELLITE SERVICES)

Scope:

Systems and networks for the mobile, radiodetermination and amateur services, including related satellite services.

<i>Chairman:</i>	E. GEORGE	(Germany (Federal Republic of))
<i>Vice-Chairmen:</i>	A.A. AL DARRAB	(Saudi Arabia (Kingdom of))
	Y. HIRATA	(Japan)
	O. VILLANYI	(Hungary (Republic of))

STUDY GROUP 9

(FIXED SERVICE)

Scope:

Systems and networks of the fixed service operating via terrestrial stations.

<i>Chairman:</i>	M. MUROTANI	(Japan)
<i>Vice-Chairmen:</i>	R.D. COLES	(Canada)
	G.F. HURT	(United States)
	V.M. MINKIN	(Russian Federation)

STUDY GROUP 10**(BROADCASTING SERVICE – SOUND)***Scope:*

International exchange of programmes and systems of the broadcasting and broadcasting-satellite services, including audio frequency and recording equipment, as well as the overall performance of the means of delivering signals to the general public, where they are used for sound, data and ancillary services accompanying sound.

<i>Chairman:</i>	C. TERZANI	(Italy)
<i>Vice-Chairmen:</i>	A. KELLER	(France)
	H. KUSSMANN	(Germany (Federal Republic of))
	H.M. JOSHI	(India)

STUDY GROUP 11**(BROADCASTING SERVICE – TELEVISION)***Scope:*

International exchange of programmes and systems of the broadcasting and broadcasting-satellite services, including video frequency and recording equipment, as well as the overall performance of the means of delivering signals to the general public, when they are used for television, data and associated ancillary services.

<i>Chairman:</i>	M. KRIVOCHEEV	(Russian Federation)
<i>Vice-Chairmen:</i>	T. NISHIZAWA	(Japan)
	KANG SONGSHI	(China (People's Republic of))
	R. ZEITOUN	(Canada)

ANNEX 2**Principles applicable to the work of Study Group 1**

1. To provide a worldwide forum for managers of the radio-frequency spectrum to exchange information and to discuss common interests in relation to the relevant issues of radio-frequency spectrum management.
2. To develop ITU-R texts (Resolution ITU-R 1, § 6) on long-term strategies for frequency spectrum utilization.
3. To develop ITU-R texts (Resolution ITU-R 1, § 6) concerning:
 - principles and techniques for the effective use and management of the radio-frequency spectrum including the technical basis for frequency assignment and coordination, computer-aided analysis, electromagnetic compatibility (EMC), analysis equipment parameters which affect the efficient use of the radio spectrum, and methods of measurement;
 - in cooperation with the Study Groups concerned, appropriate spectrum sharing criteria and methods to enable the efficient use of the spectrum;
 - techniques for spectrum monitoring and related issues.
4. To provide assistance in matters within its competence to developing countries in cooperation with the Telecommunication Development Sector.

ANNEX 3

Principles applicable to the work of Study Group 2

1. A special inter-service study group, Study Group 2 shall work in association with Study Group 1. It shall be autonomous and shall have the authority to review draft Recommendations submitted by the Task Groups.
2. Study Group 2 will share administrative support with Study Group 1 and will run its meetings in association with Study Group 1 to provide an opportunity for common participation.
3. Study Group 2 will accept a limited number of specific Questions on inter-service sharing referred to it by the Radiocommunication Assembly, or if the Question arises during the interval between the Assemblies, by the Director after consultation with interested Chairmen and Administrations.
4. Study Group 2 shall not establish its own work programme, but shall only study Questions assigned to it as indicated in § 3 above.
5. All other Questions on inter-service sharing, no matter how important, shall be considered within the other study group structure with a view to designating a single Study Group to take responsibility for draft Recommendations.
6. The Questions referred to Study Group 2 will be limited to those Questions which are urgent and require special attention. The Radiocommunication Assembly or the Director, as the case may be, shall establish a time schedule for the completion of the work.
7. Upon referral of a Question to Study Group 2, the Chairman shall, in consultation with the Director, establish a Task Group to consider the Question, inviting all interested administrations and agencies to participate.
8. The Task Group upon successful completion of its work shall prepare a draft new or modified Recommendation. The Chairman of Study Group 2 shall convene a meeting of the Study Group to consider the draft Recommendation and shall determine after consultation with the Task Group whether to seek to apply the accelerated procedure for approval of the Recommendation or to submit the draft Recommendation to the Radiocommunication Assembly.

ANNEX 4

CCV

(COORDINATION COMMITTEE FOR VOCABULARY)

Scope:

Coordination within the Radiocommunication Study Groups, and liaison with the Telecommunication Standardization Study Groups, the ITU General Secretariat and other interested organizations (mainly the IEC) concerning:

- vocabulary, including abbreviations and initials;
- related subjects (quantities and units, graphical and letter symbols).

<i>Chairman:</i>	M. THUÉ	(France)
<i>Vice-Chairmen:</i>	A.N. HEIGHTMAN	(United Kingdom)
	V. MIRALLES MORA	(Spain)

RESOLUTION ITU-R 5

**WORK PROGRAMME OF RADIOCOMMUNICATION
STUDY GROUPS FOR 1993-1995**

This Resolution is published separately in Book 4.

RESOLUTION ITU-R 6*

LIAISON AND COLLABORATION WITH THE ITU
TELECOMMUNICATION STANDARDIZATION SECTOR

(1993)

The ITU Radiocommunication Assembly,

considering

a) that the Additional Plenipotentiary Conference (APP-92) held in Geneva, December 1992, decided with respect to the assignment of responsibilities to the newly-created Radiocommunication Sector and the Telecommunication Standardization Sector:

- that the Radiocommunication Sector Study Groups are charged to focus on the following in the study of Questions assigned to them:
 - "a) use of the radio-frequency spectrum in terrestrial and space radiocommunications (and of the geostationary-satellite orbit);
 - b) characteristics and performance of radio systems;
 - c) operation of radio stations;
 - d) radiocommunication aspects of distress and safety matters;" (Article 11 of the ITU Convention, Nos. 151 to 154);
- that the Telecommunication Standardization Sector Study Groups are charged to:
 - "... study technical, operating and tariff questions and prepare recommendations on them with a view to standardizing telecommunications on a worldwide basis, including recommendations on interconnection of radio systems in public telecommunication networks and on the performance required for these interconnections;" (Article 14 of the Convention, No. 193);

b) that the two Sectors were given the responsibility of jointly agreeing on the assignment of studies and to keep the division of studies constantly under review (Nos. 158 and 195 of the Convention);

c) that the Directors of the Standardization and Radiocommunication Bureaux were instructed "to work together to develop proposals for an initial allocation of work between the Sectors, ensuring that:

- there is minimum disruption to the continuing work of the Sectors;
- the grouping of work ensures that there is maximum opportunity for efficient participation by experts from all countries;
- there is minimum overlap between respective Study Groups of the Sectors;

and to report to the first World Telecommunications Standardization Conference and the first Radiocommunication Assembly on the proposed initial allocation" (APP-92, Resolution 2);

d) that the respective Conference and Assembly shall confirm the detailed allocation of work and that joint meetings of the Advisory Groups of the Radiocommunication and Standardization Sectors shall review the distribution of new and existing work between the Sectors, subject to confirmation by the Members. The objective is to:

- minimize the duplication of activities of the Sectors;
- group the standardization activities in order to foster cooperation and coordination of the work of the Telecommunication Standardization Sector with regional standardization bodies (APP-92, Resolution 2),

noting

e) that the CCIR Ad Hoc Group on Strategic Review and Planning (Resolution 106) and the CCITT Ad Hoc Group on CCITT working methods and structure (Resolution 18) have carried out an initial review of their respective work programmes and have identified matters of interest for each Sector;

* Essentially the same Resolution No. 18 was approved by the first World Telecommunication Standardization Conference (Helsinki, 1993).

- f) that a joint meeting of these Groups endorsed the conclusions of the Groups as indicated in § e) above and made recommendations on the allocation of work to the Telecommunication Standardization Sector and the Radiocommunication Sector, subject to confirmation by the Members;
- g) that a joint meeting of the Telecommunication Standardization Advisory Group and the CCIR Resolution 106 Ad Hoc Group submitted a report before October 1993 to the Directors of the two Bureaux,

resolves

1. that the Telecommunication Standardization and the Radiocommunication Advisory Groups, meeting jointly as necessary shall continue the review of new and existing work and its distribution between the two Sectors, for approval by Members in accordance with the procedures laid down for the approval of new or revised Questions;
2. that the principles for the allocation of work to the Radiocommunication Sector and Telecommunication Standardization Sector (see Annex 1) shall be used to give further guidance in the allocation of work to the Sectors, taking account of the objectives for continuing review as outlined in § d);
3. that, if considerable responsibilities in both Sectors in a particular subject are identified, either:
 - a) the procedure as given in Annex 2 should be applied, or
 - b) a joint meeting may be arranged by the Directors, or
 - c) the matter should be studied by relevant Study Groups of both Sectors with appropriate coordination (see Annex 3),

requests

that a joint meeting of the Advisory Groups submit a report by the end of April 1994 to the Directors of the two Bureaux to assist them in the preparation of a joint report to the Plenipotentiary Conference (Kyoto, 1994).

ANNEX 1

Principles for the initial allocation of work to the Radiocommunication and Telecommunication Standardization Sectors

1. General

Principle 1

The approach to work in a Sector needs to be task-oriented, with an appropriate Study Group (or designated group) responsible for coordination. Further assignment of detailed tasks within a given work item or subject area would then occur, with special arrangements for handling work which crosses Sector boundaries.

Work planning may start with a service or system concept, and would include development of overall network or service architectures and identification of interfaces through to more detailed specification and linking of tasks.

Activity related to ongoing review of existing Recommendations needs to be accommodated as a general area of work.

2. Roles of the Sectors

Within a task-oriented approach, experts of both Sectors should be able to work as part of a well-managed team.

Principle 2

Standardization Sector work includes interworking arrangements required for either radio-based equipment within a public telecommunication network or radio systems requiring interconnection for the carriage of public correspondence.

Note 1 - Public correspondence: any telecommunication which offices and stations must, by reason of their being at the disposal of the public, accept for transmission.

In addition, the Recommendations developed by the Telecommunication Standardization Sector need to provide for the capabilities required to support the particular characteristics of radio systems. Similarly, the work of the Radiocommunication Sector should complement the work of the Standardization Sector, especially where it relates to the use of radio-based technology in telecommunication networks. The two Sectors will therefore both need to consider interface questions.

The term "public correspondence" should not be interpreted too restrictively in principle 2 (and elsewhere). The word "includes" is intended to imply that the carriage of related classes of traffic (e.g. government, service) or user applications are not excluded.

Principle 3

Radiocommunication Sector work related to network standards includes studies addressing the characteristics, performance, operation and spectrum aspects of radio-based equipment or radio systems as necessary to support the interconnection and interworking arrangements identified by the Telecommunication Standardization Sector.

The characteristics of radio-based equipment refer to those characteristics dealing with the equipment and the physical environment in which the equipment must work. Examples include performance, modulation, coding, error correction, maintenance and other aspects that may affect the interface signals and protocols that are able to be supported.

Principle 4

Before specific tasks are allocated, services, network architectures, and interfaces should be identified as clearly as possible.

For example, the Telecommunication Standardization Sector and the Radiocommunication Sector would jointly identify interfaces to be supported by the system under study. The Radiocommunication Sector will also need to identify the scope and capabilities of radio systems needed to meet the interface requirements and achieve optimum spectrum/orbit utilization.

Principle 5

Work unique to the Radiocommunication Sector covers matters related to spectrum and orbit utilization and efficiency and, *inter alia*, all aspects of services not used for public correspondence, for example radiodetermination, independent mobile radio services, broadcasting, safety and distress operation, remote sensing, amateur radio, and radioastronomy.

Principle 6

The studies in one Sector must complement those of the other Sector where a task crosses Sector boundaries noting that in some cases, joint studies may be required as the most practical option. To guide actual work allocations, the coordinating Sector (as user) could produce statements on "desirable/required characteristics". The potential provider Sector (or Study Group) could on its own initiative, or in response, develop statements of technology capability in the form of "achievable/typical characteristics".

Mutual dependency will require continued cooperation where both Sectors have an interest in the work. In establishing tasks toward standards for a service based on technology of both Sectors, the coordinating Sector must make best use of established sources of skill and knowledge. Joint ad hoc Groups could be established as needed to ensure the best possible progress and information exchange, where necessary.

3. Transition to new arrangements

It is important that suitable transition arrangements be put in place and be virtually complete within a reasonable period, e.g. by the 1994 Kyoto Plenipotentiary Conference. A key element of such arrangements is the maintenance of a satisfactory pace, quality of output and avoidance of delays in progressing current work.

In order to keep the work reasonably integrated, the work derived from CCIR Questions (or parts of Questions), should be allocated to the Telecommunication Standardization Sector in blocks to the extent practicable. Radiocommunication experts will wish to be able to concentrate in particular areas rather than to be distributed over many Study Groups and Working Parties.

Principle 7

Existing standardization work may continue in both Sectors while suitable arrangements are developed and put in place to maintain the current pace and quality of output.

The finalization of transfer required as part of the establishment of the Sectors should be monitored and reviewed by the proposed Advisory Groups (at a Sector level and in collaboration) for the purpose of ensuring a timely and progressive transfer.

Some study Questions include components which fall into both Sectors. In line with the project approach and efficient management practice, such Questions should be rewritten/revised so that the tasks for each Sector can be clearly identified, or joint arrangements established, if necessary.

Principle 8

In allocating existing study Questions to Sectors, those Questions which would require shared responsibility or study should be revised if necessary so that work required of each Sector is clearly identified in separate Questions.

The Telecommunication Standardization Sector would provide the lead role on the standardizing of telecommunications on a worldwide basis, including Recommendations on interconnection of radio systems in public telecommunication networks and on the performance required for these interconnections.

The Radiocommunication Sector would provide the lead on all other radiocommunication matters.

Questions which relate to complementary work in another Study Group or Sector should always refer to that related or complementary work.

Principle 9

Study Groups should continue as efficient and effective sources of special skills in the task-oriented environment.

Task orientation should not lead to numerous, independent project groups which potentially duplicate or diverge from established work. Where it is appropriate to establish a special group (e.g. to address interface or interworking issues), it should draw skills from the relevant Study Groups, appropriately limiting the scope of the project group. In this way, compatibility and consistency across multiple applications is maintained. Recommendations from such special groups, in any case, have to be approved by the appropriate Study Group prior to submission to the ITU Members for approval.

ANNEX 2

Procedural method of cooperation

With respect to *resolves* 3a), the following procedure should be applied:

- a) the joint meeting, as indicated in *resolves* 1 nominates the Sector which will be leading in the work and will finally approve the deliverable;
- b) the leading Sector will request the other Sector to indicate those requirements which it considers essential for integration in the deliverable;
- c) the leading Sector will base its work on these essential requirements and integrate them in its draft deliverable;

- d) during the process of development of the required deliverable the leading Sector shall consult with the other Sector in case it meets difficulties with these essential requirements. In case of agreement on revised essential requirements the revised requirements shall be the basis for further work;
- e) when the deliverable concerned comes to maturity, the leading Sector shall seek once more the views of the other Sector.

ANNEX 3

Coordination of the radiocommunication and standardization activities through Intersector Coordination Groups

With respect to *resolves* 3c) the following procedure shall be applied:

- a) the joint meeting of the advisory groups as indicated in *resolves* 1, may, in exceptional cases, establish an Intersector Coordination Group (ICG) to coordinate the work of both Sectors and to assist the advisory groups in coordinating the related activity of their respective Study Groups;
 - b) the joint meeting shall, at the same time, nominate the Sector which will be leading in the work;
 - c) the mandate of each ICG shall be clearly defined by the joint meeting, based on the particular circumstances and issues at the time the group is established; the joint meeting shall also establish a target date for termination of the ICG;
 - d) the ICG shall designate a Chairman and a Vice-Chairman, one representing each Sector;
 - e) the ICG shall be open to members of both Sectors in accordance with Nos. 86 to 88 and 110 to 112 of the Constitution;
 - f) the ICG shall not develop Recommendations;
 - g) the ICG shall prepare reports on its coordinating activities to be presented to each Sector's Advisory Group; these reports shall be submitted by the Directors to the two Sectors;
 - h) an ICG may also be established by the World Telecommunication Standardization Conference or by the Radiocommunication Assembly following a recommendation by the advisory group of the other Sector;
 - j) the cost of an ICG shall be supported by the two Sectors on an equal basis and each Director shall include in the budget of his Sector, budgetary provisions for such meetings.
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RESOLUTION ITU-R 7

**TELECOMMUNICATION DEVELOPMENT INCLUDING LIAISON AND
COLLABORATION WITH THE ITU DEVELOPMENT SECTOR**

(1993)

The ITU Radiocommunication Assembly,

considering

- a) that one of the purposes of the Union is to "foster international cooperation in the delivery of technical assistance to the developing countries and the creation, development and improvement of telecommunication equipment and networks in developing countries by every means at its disposal, ..." (No. 14 of the Constitution of the International Telecommunication Union (Geneva, 1992));
- b) that a further purpose of the Union is also to "undertake studies, make regulations, adopt resolutions, formulate Recommendations and Opinions and collect and publish information concerning telecommunication matters" (No. 18 of the Constitution, (Geneva, 1992));
- c) that the Constitution and the Convention (Geneva, 1992) consolidated the activities of the ITU relating to radiocommunications in the Radiocommunication Sector and the activities relating to the technical cooperation with, and assistance to, developing countries in the Telecommunication Development Sector;
- d) that Nos. 159 and 160 of the ITU Convention (Geneva, 1992) require that the Radiocommunication Study Groups "... pay due attention to the study of Questions and to the formulation of Recommendations directly connected with the establishment, development and improvement of telecommunications in developing countries at both the regional and international levels." and that, for the purpose of facilitating the review of activities in the Radiocommunication Sector, "... measures should be taken to foster cooperation and coordination with ... the Telecommunication Development Sector";
- e) that Resolution 7 of the Additional Plenipotentiary Conference (APP-92) (Geneva, 1992) instructs the Director of the Telecommunication Development Bureau (BDT) to search, with the assistance of the Directors of the Bureaux of the other two Sectors, for appropriate mechanisms to facilitate the involvement of developing countries in the activities of these Sectors;
- f) that in accordance with No. 134 of the Convention (Geneva, 1992), the Radiocommunication Assembly shall "group Questions of interest to developing countries, as far as possible, in order to facilitate their participation in the study of those Questions",

noting

- a) the very limited material and financial resources available to the developing countries, preventing them from participating regularly in the work of the Radiocommunication Study Groups;
- b) the adverse effects which the absence of the developing countries from Study Group activities has on the universal nature of Study Group decisions and, possibly, on their effective application;
- c) that the procedure for adopting Recommendations by correspondence necessitates adequate exchange of information to obtain the broadest possible support;
- d) that, since the Radiocommunication Study Group work now involves Radiocommunication Conference preparation including procedures and other matters related to the Radio Regulations, all countries, irrespective of their level of development, need to be fully informed of developments in the studies,

further considering

- a) the important function of the Group of Engineers in the BDT in the provision of efficient consultancy to developing countries and the need to benefit in this respect of the expertise existing in the Secretariat of the Radiocommunication Bureau;
- b) that the complementary activities of engineers in the two Sectors, when appropriately coordinated, would benefit greatly the developing countries,

recognizing

1. that the developing countries themselves should, to the extent possible:
 - 1.1 participate in an active manner in the work of the Radiocommunication Study Groups, and provide any relevant technical information they possess concerning the conditions in their respective countries;
 - 1.2 exchange technical information on Study Group matters among themselves in areas of common interest;
 - 1.3 take advantage of the participation of countries of the same region in the meetings of the Study Groups;
 - 1.4 when they face difficulties which may be of interest to other administrations during the course of operating radio services, they should be encouraged to submit contributions to the Radiocommunication Bureau describing these difficulties. The Director of the Bureau will communicate these contributions to the appropriate Study Group(s),

resolves

1. that the Radiocommunication Advisory Group and the Director of the Bureau shall cooperate actively with the BDT in identifying and implementing means facilitating developing countries to participate in the Study Group's activities;
2. that, in order to facilitate this participation, Questions which are of interest to developing countries shall be grouped as far as possible in a limited number of Study Groups as stipulated in No. 134 of the Convention;
3. that the participation of developing countries may be facilitated through extensive use of modern communication means and the BDT should be urged to consider possibilities for providing developing countries with such means;
4. that, pursuant to No. 224 of the Convention, Chairmen and Vice-Chairmen of ITU-R Study Groups and the Director of the Radiocommunication Bureau shall assist the BDT in organizing worldwide and/or regional information meetings that will provide developing countries with the required information on ITU-R Recommendations;
5. that, pursuant to No. 166 of the Convention, the Director of the Radiocommunication Bureau shall provide assistance to the developing countries in their preparations for radiocommunication conferences;
6. that, as the GAS activities have been transferred to the BDT pursuant to Resolution 7 (APP-92), Radiocommunication Study Group Chairmen and Vice-Chairmen and the Director of the Radiocommunication Bureau shall provide the BDT with the necessary assistance in the development and updating of handbooks;
7. that, in accordance with No. 129 of the Convention, the Director of the Radiocommunication Bureau and Chairmen and Vice-Chairmen of Radiocommunication Study Groups shall contribute to and participate in the work of Study Groups that may be set up by the ITU-D, when considering relevant studies to which they may give valuable inputs;
8. that the Director of the Radiocommunication Bureau shall cooperate with Directors of the other two Bureaux relating to the activities in the development of, and updating of, handbooks with the view to avoiding duplication of effort;
9. that, in the process of cooperating actively with the BDT, all radiocommunication activities of the Union in the field of telecommunication development should be closely coordinated in the interest of achieving efficiency, effectiveness and avoiding duplication of effort,

instructs the Chairmen of the Study Groups, the Chairman of the Radiocommunication Advisory Group and the Director of the Radiocommunication Bureau

to take all appropriate actions for the implementation of this Resolution, among others, by motivating participants in the Radiocommunication Sector to provide assistance to the BDT,

urges administrations and members of the Radiocommunication Sector

to actively participate in the implementation of this Resolution, among others, by providing experts to assist developing countries, by contributing to the information meetings and seminars, by providing the necessary expertise in matters under consideration by the Study Groups to be set up by the ITU-D including support to the activities of the GAS Groups and by hosting trainees from developing countries.

RESOLUTION ITU-R 8

**RADIOWAVE PROPAGATION STUDIES AND MEASUREMENT
CAMPAIGNS IN DEVELOPING COUNTRIES**

(1993)

The ITU Radiocommunication Assembly,

considering

- a) the importance of radiowave propagation measurement campaigns for acquiring data for the planning and coordination of various radiocommunication services, particularly at regional and subregional levels in developing countries;
- b) that various recommendations of World Administrative Radio Conferences have requested the Radiocommunication Study Groups to encourage and assist in initiating the study of radiowave propagation and radio noise in those areas where few or no measurements have been made;
- c) that Resolution No. 5 of the WARC-79 invites the Secretary-General to offer the assistance of the Union to developing countries in the tropical areas which endeavour to carry out national propagation studies and to arrange funds and resources for this purpose, and urges administrations to submit the results of these propagation measurements to the Study Groups,

recognizing

that there continue to be many regions of the world, particularly in the tropics, for which propagation data are not available,

noting with satisfaction

the contributions made by some Member countries, their scientific and industrial organizations and other entities, to the radio propagation measurements in Africa and Papua New Guinea,

resolves

1. that Radiocommunication Study Group 3 should identify within [its] work programme and in consultation with the concerned countries, radiowave propagation studies relating to tropical and subtropical regions of the world for which there is a lack of data. The programme of work of Radiocommunication Study Group 3 should clearly define study programmes in which engineers and scientists from the developing countries also contribute collecting data and developing analytical methods;
2. that scientists and engineers from developing countries should be encouraged to participate actively in these study programmes and carry out studies at first hand on topics identified by Radiocommunication Study Group 3:
 - by means of research in their home countries;
 - by participation in meetings held in connection with Radiocommunication Study Group or Working Party meetings, in the regions concerned whenever possible;
 - by means of working visits for appropriate study periods to radiowave propagation laboratories of administrations, recognized operating agencies, and other organizations participating in the work of the Radiocommunication Study Groups;
3. that the Radiocommunication Bureau, with appropriate support from Radiocommunication Study Group 3, should collaborate closely with the BDT in identifying suitable propagation measurement campaigns in the regions of interest and should offer all necessary technical guidance to the BDT in the establishment of any such measurements;
4. that the Director of the Radiocommunication Bureau, in close cooperation with the Director of the BDT and the administrations concerned, be requested to determine the objectives, scope, technical means and staff required for carrying out identified propagation measurement campaigns and to seek through the Secretary-General funding and other arrangements from appropriate sources to implement the above decisions with respect to propagation measurement activities;

5. that Member countries, their recognized operating agencies, scientific or industrial organizations and other entities, be urged to make contributions (in cash and/or in kind) to support the radio propagation measurement campaigns in the developing countries;
 6. that the administrations interested in the measurement campaigns be requested to designate suitably qualified personnel to participate actively in these campaigns.
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RESOLUTION ITU-R 9

LIAISON AND COLLABORATION WITH OTHER INTERNATIONAL
AND REGIONAL ORGANIZATIONS

(1993)

The ITU Radiocommunication Assembly,

bearing in mind

Article 50 of the ITU Constitution (Geneva, 1992), and

considering

- a) that a number of organizations dealing with radiocommunications (including broadcasting) exist;
- b) that such organizations have the potential for identifying, defining and proposing solutions of particular problems of interest to the Radiocommunication Study Groups;
- c) that one objective of the Radiocommunication Study Groups is to harmonize the work in radiocommunications with that of regional bodies and other international bodies;
- d) that such organizations may offer a means of improving the dissemination and effectiveness of ITU-R Recommendations,

resolves

1. that administrations should encourage organizations dealing with radiocommunications (including broadcasting) to take into account the global activities of the Radiocommunication Study Groups;
 2. that the Director of the Radiocommunication Bureau should request the collaboration of the Secretary-General and should take all the necessary steps, within the framework of the ITU's regional activities, to encourage increased involvement by these organizations in the Radiocommunication Study Group activities.
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RESOLUTION ITU-R 10

ELECTRONIC SPECTRUM MANAGEMENT INFORMATION EXCHANGE

(1993)

The ITU Radiocommunication Assembly,

considering

- a) that many administrations have created national spectrum management units to coordinate, within their country and across national borders, technical and operational characteristics of radio stations under their authority, such as frequency assignments and orbital position assignments, in order to avoid harmful interference;
- b) that administrations and regional telecommunication organizations have developed or are developing automated analysis programs, database management systems (DBMS), and networks necessary for coordination and spectrum management purposes;
- c) that access to these automated analysis programs and DBMS is necessary for rational use of spectrum resources and is vital to governmental agencies and non-government entities such as government contractors, international organizations and consortia, service providers, equipment manufacturers and consultants;
- d) that the transfer of computer programs and spectrum management data would support and facilitate national spectrum management and coordination among administrations;
- e) that Recommendation ITU-R SM.668 recommends methods of exchanging computer programs and data for spectrum management;
- f) that spectrum management data can be transferred between computer systems of administrations and regional telecommunication organizations using, *inter alia*, the public telecommunication network and existing ITU telecommunications facilities, such as TIES and ITUDOC,

further considering

- g) the decreasing price of computers and proliferation of computer networks;
- h) that a common electronic information system for spectrum management could integrate existing resources into a computer network, could serve as a framework for exchange of spectrum management data in national, regional and interregional areas and could facilitate:
 - exchange of general information about spectrum management activities and technical and operational characteristics of radio stations and their environment for planning purposes;
 - the rational and economic use of the radio-frequency spectrum resource; and,
- j) that Radiocommunication Study Groups have already agreed on many elements, such as propagation models, conductivity maps, data structures, that could be used in such a system,

recognizes

that other efforts are underway by the ITU in development of methods for electronic document handling,

recommends

1. that administrations and regional telecommunication organizations expand the use of electronic data information exchanged nationally between spectrum management units and interested parties;
2. that administrations be encouraged to use existing networks for this electronic exchange of spectrum management information,

resolves

1. that, on a priority basis, a Task Group be established under Study Group 1 to exchange experiences and to develop guidance for an informal exchange of information through electronic means to share spectrum management information.
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RESOLUTION ITU-R 11

DEVELOPMENT OF AUTOMATED SPECTRUM MANAGEMENT SYSTEMS

(1993)

The ITU Radiocommunication Assembly,

considering

- a) that the development of a system to manage spectrum data would support and facilitate national spectrum management and monitoring, coordination among administrations and notification to the Radiocommunication Bureau (BR);
- b) that data elements used in national spectrum management have been reflected in the Preface to the IFL and Recommendation ITU-R SM.667;
- c) that administrations should maintain spectrum management data with an automated database management system;
- d) that many administrations have been successful in implementing an automated database management systems (DBMS) in the development and maintenance of their national spectrum management data;
- e) that computer programs which accomplish engineering analysis are described in the ITU Catalogue of Software for Radio Spectrum Management;
- f) that design guidelines for a basic automated spectrum management system (BASMS) have already been developed by Radiocommunication Study Group 1 (draft new Recommendation ITU-R SM.[Doc. 1/45]) in close cooperation with the BR and the BDT;
- g) that BASMS is designed to effectively manage the frequency assignment and other spectrum management data for developing countries,

resolves

- 1. that Radiocommunication Study Group 1 and the BR should be encouraged to cooperate with the BDT in rapidly developing BASMS software based on guidelines developed by Radiocommunication Study Group 1 (see § f));
 - 2. that existing automated spectrum management systems should be urgently examined with the ultimate objective of using them or portions thereof to accelerate the development of a BASMS in the shortest possible time;
 - 3. that the BR should be encouraged to assist the BDT in implementing BASMS in different countries, for example by participation in relevant training projects;
 - 4. that Radiocommunication Study Group 1 in cooperation with the BR, the BDT and other study groups, if required, should initiate the necessary studies for developing design specifications for a future advanced automated spectrum management system, based on the design guidelines for BASMS.
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RESOLUTION ITU-R 12

HANDBOOKS AND SPECIAL PUBLICATIONS FOR DEVELOPMENT
OF RADIOCOMMUNICATION SERVICES

(1993)

The ITU Radiocommunication Assembly,

considering

- a) that close cooperation shall be carried out among the Radiocommunication, Telecommunication Standardization and Telecommunication Development Sectors (No. 79 of the Constitution (Geneva, 1992));
- b) Resolution 3 (APP-92) which instructs the organization Advisory Groups within the Radiocommunication and Telecommunication Standardization Sectors which should recommend measures, *inter alia*, to foster cooperation and coordination with other standards bodies, with the Development Sector, within and between the two Sectors, and with the Strategic Planning Unit in the General Secretariat;
- c) that Radiocommunication handbooks and special publications constitute an authoritative source of technical material relating to radiocommunications that may be of direct benefit to developing countries,

bearing in mind

that there is a need to disseminate information contained within handbooks and special publications as widely as possible throughout the ITU membership in a form which is readily understandable and that can be applied practically, especially in the training of technicians and engineers for use in developing countries,

resolves

that in establishing priorities for the preparation and publishing of handbooks and special publications, special consideration should be given to the needs of developing countries,

invites

the Telecommunication Development Sector to indicate what special subjects would be most useful to developing countries so that planning for handbooks and special publications may be undertaken.

RESOLUTION ITU-R 13

GUIDANCE ON PREPARATION OF HANDBOOKS AND SPECIAL PUBLICATIONS

(1993)

The ITU Radiocommunication Assembly,

considering

- a) the obvious requirement for radiocommunication handbooks and special publications to meet various needs, particularly the needs of developing countries;
- b) that within the last several years the number of handbooks and special publications has greatly increased within Study Groups, taxing the resources available to the Radiocommunication Sector;
- c) the priority associated with handbooks and special publications intended to benefit developing countries which must be balanced with the available resources to produce such texts;
- d) statistical information provided to the CCIR Ad Hoc Advisory Group on Strategic Review and Planning which indicates that at this time there are almost three dozen new handbooks in different stages of production and intended to be published within the next two years, each with its own relative priority,

recognizing

the need to establish reasonable guidelines and criteria for the preparation and publishing of handbooks and special publications so as not to unduly tax or exhaust available resources,

resolves

that handbooks and special publications:

- 1. may be considered for publication if it is expected that sufficient copies will be sold so as to be cost-effective within the first two years based on page count and other relevant factors, or if wide interest is shown among developing countries;
 - 2. may be supplemented by addenda as needed if rapid change is seen in the available technology, so that a handbook or special publication is not normally required to be reprinted on a regular basis nor intended for reprint sooner than four years;
 - 3. be printed in bound form in as much as experience has shown that publication in a loose-leaf format is more costly and causes difficulties in ensuring that readers' copies are complete;
 - 4. be combined when possible with PC diskettes containing the software for the methods or procedures described in the related texts to facilitate and expedite their use;
 - 5. be written in a style which will assist readers who may not be specialists in a particular topic - they should provide a good guide to current practice and knowledge and to relevant ITU Radiocommunication Recommendations, and they should not give much space to history or to development of the text;
 - 6. should not unnecessarily duplicate the scope and content of publications readily available on the market or in technical libraries;
 - 7. should represent a special contribution of the ITU.
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RESOLUTION ITU-R 14

CLARIFICATION OF APPROVAL PROCESS FOR
DRAFT RECOMMENDATIONS

(1993)

The ITU Radiocommunication Assembly,

considering

- a) the substantial revision of the Radiocommunication Sector schedule of activities approved at the Additional Plenipotentiary Conference (APP-92) (Geneva, 1992);
- b) the need for effective use of the procedures for approval by correspondence of draft Recommendations (see Resolution ITU-R 1, § 10),

noting

- a) that the proposed schedule of meetings calls for Study Group meetings in October in the year without a Radiocommunication Assembly, and in May/June of the year with a Radiocommunication Assembly;
- b) that draft Recommendations which are proposed for approval by correspondence at Study Group meetings held in May/June of the year with a Radiocommunication Assembly would require a minimum of four months to complete the consultation process with Members;
- c) that the Radiocommunication Assembly is scheduled to be held in November, approximately four months after the Study Group meetings,

resolves

1. that Study Groups meeting in a year without a Radiocommunication Assembly are encouraged to utilize the procedures for approval by correspondence (see Resolution ITU-R 1, § 10). Working Parties and Task Groups who have completed their work on draft Recommendations for such Study Group meetings are encouraged to recommend use of such procedures;
 2. that Study Groups completing their work on draft Recommendations, three months or more prior to the Radiocommunication Assembly meeting in that year, are encouraged to propose consideration of the draft Recommendations at the Assembly meeting;
 3. that Study Groups completing their work on draft Recommendations in the year with a Radiocommunication Assembly, but doing so less than three months prior to the Assembly meeting, are encouraged to utilize the procedures for approval by correspondence.
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RESOLUTION ITU-R 15

**MAXIMUM TERM OF OFFICE FOR THE RADIOCOMMUNICATION
STUDY GROUP CHAIRMEN**

(1993)

The ITU Radiocommunication Assembly,

considering

- a) that No. 133 and No. 148 of the Convention (Geneva, 1992) provide for the establishment of Radiocommunication Study Groups;
- b) that No. 149 of the Convention (Geneva, 1992) and other related provisions indicate the nature of the work of the study groups;
- c) that No. 242 of the Convention (Geneva, 1992) requires the Radiocommunication Assembly to appoint Chairmen and Vice-Chairmen of study groups, taking account of competence and equitable geographical distribution;
- d) that a specific time limit on the term of office would permit the introduction of new ideas on a periodic basis, while at the same time give an opportunity for radiocommunication study group Chairmen to be appointed from different Member countries;
- e) that the Additional Plenipotentiary Conference provided for re-election once only i.e. a maximum of 8 years for the posts of the Secretary-General, Deputy Secretary-General and the Directors of the Bureaux;
- f) that the setting of a maximum time in office for the radiocommunication study group Chairmen conforms to the directions given to the Radiocommunication Assembly in No. 242 of the Convention (Geneva, 1992),

taking into account

- g) that a maximum time in office of eight years for study group Chairmen provides for a reasonable amount of stability while providing the opportunity for different individuals to serve as radiocommunication study group Chairmen,

resolves

that the radiocommunication study group Chairmen can serve for consecutive periods not to exceed eight (8) years, beginning from the closing of the 1993 Radiocommunication Assembly,

and invites

the Radiocommunication Advisory Group to further study procedures which provide for more transparency in the selection of study group officials, according to Nos. 242 and 243 of the Convention (Geneva, 1992).

RESOLUTION ITU-R 16

**CONTRIBUTION FROM THE RADIOCOMMUNICATION ASSEMBLY
TO THE FIRST WORLD TELECOMMUNICATION
DEVELOPMENT CONFERENCE**

(1993)

The ITU Radiocommunication Assembly,

considering

- a) that No. 119 of the Constitution (Geneva 1992) notes that the activities of the Radiocommunication, Telecommunication Standardization and Telecommunication Development Sectors shall be the subject of close cooperation with regard to matters relating to development, in accordance with the relevant provisions of the Constitution;
- b) that No. 159 of the Convention (Geneva 1992) requires the Radiocommunication Study Groups to pay due attention to the study of Questions and to the formulation of Recommendations directly connected with the establishment, development and improvement of telecommunications in developing countries at both the regional and international levels;
- c) that No. 160 of the Convention states that, for the purpose of facilitating the review of activities in the Radiocommunication Sector, measures should be taken to foster cooperation and coordination with the Telecommunication Development Sector;
- d) that No. 177 of the Convention requires the Director of the Radiocommunication Bureau to carry out studies to furnish advice to Members with a view to the operation of the maximum practicable number of radio channels in those portions of the spectrum where harmful interference may occur, and with a view to the equitable, effective and economical use of the geostationary-satellite orbit, taking into account the needs of Members requiring assistance, the specific needs of developing countries, as well as the special geographical situation of particular countries;
- e) that No. 214 of the Convention specifies that telecommunication development Study Groups shall deal with specific telecommunication Questions of general interest to developing countries;
- f) that No. 215 of the Convention requires that the Radiocommunication, Telecommunication Standardization and Telecommunication Development Sectors keep the matters under study by the telecommunication development Study Groups under continuing review with a view to reaching agreement on the distribution of work, avoiding duplication of effort and improving coordination;
- g) that No. 252 of the Convention indicates that the Directors of the Bureaux may agree to organize joint meetings of Study Groups of two or three Sectors, in order to study and prepare draft Recommendations on Questions of common interest;
- h) that Resolution 6 of the APP Final Acts outlines the priority tasks of the Telecommunication Development Bureau (BDT);
- j) that Resolution 7 of the APP Final Acts addresses activities for immediate action by the BDT, including the instruction to the Director of the BDT to undertake a study with the Directors of the two other Bureaux and the senior Chairman responsible for coordinating the activities of the GAS Groups on the manner in which the GAS activities will be continued within the BDT,

noting

- a) that the Radiocommunication Advisory Group and the Director of the Radiocommunication Bureau shall cooperate actively in identifying and implementing means facilitating developing countries to participate in the Radiocommunication Study Groups' activities;
- b) that, in order to facilitate this participation, Questions which are of interest to developing countries shall be grouped as far as possible in a limited number of Radiocommunication Study Groups as stipulated in No. 134 of the Convention;

- c) that the participation of developing countries may be facilitated through extensive use of modern communication means and the BDT should be urged to consider possibilities for providing developing countries with such means;
- d) that the Chairmen and Vice-Chairmen of the Radiocommunication Study Groups and the Director of the Radiocommunication Bureau shall assist the BDT pursuant to No. 224 of the Convention in organizing world and/or regional information meetings that will provide developing countries with the required information on ITU-R Recommendations;
- e) that, pursuant to No. 166 of the Convention, the Director of the Radiocommunication Bureau shall provide assistance to the developing countries in their preparations for radiocommunication conferences;
- f) that, as the GAS activities have been transferred to the BDT pursuant to Resolution 7 of the APP Final Acts, the Chairmen and Vice-Chairmen of the Radiocommunication Study Groups and the Director of the Radiocommunication Bureau shall provide the BDT with the necessary assistance in the development and updating of handbooks;
- g) that the Director of the Radiocommunication Bureau and the Chairmen and Vice-Chairmen of the Radiocommunication Study Groups shall contribute to, and participate in, the work of Telecommunication Development Study Groups which may be set up by the Development Sector, when considering relevant matters to the study of which they may have valuable inputs;
- h) that the Director of the Radiocommunication Bureau shall cooperate with the Directors of the other Bureaux relating to activities in the development and updating of handbooks with a view to avoiding duplication;
- j) that, in the process of cooperating actively with the Telecommunication Development Sector, all radiocommunication activities of the Union in the field of telecommunication development should be closely coordinated in the interest of achieving efficiency, effectiveness and avoiding duplication of effort;
- k) that the mandate of Radiocommunication Study Group 1 includes the provision of assistance in matters of frequency management to developing countries in cooperation with the Telecommunication Development Sector;
- l) that the Radiocommunication Bureau has offered to prepare a list of ongoing activities within the Bureau and Radiocommunication Study Groups that respond to No. 159 of the Convention;
- m) that the Radiocommunication Bureau has also offered to identify seminars and other activities of interest to the developing countries;
- n) that items of priority interest to developing countries have been identified such as the need to carry out rain attenuation measurements in the tropics, and to determine the implications of the implementation of LEO and FPLMTS networks;
- o) that work has been undertaken in the Radiocommunication Study Groups in the area of distress and safety communications which includes the role of amateur services in the field of emergency disaster relief which is of prime interest to developing countries,

resolves to request

- 1. that consideration be given to the identification of a representative from the Telecommunication Development Sector to attend meetings of the Radiocommunication Advisory Group to facilitate the review of matters of common concern and interest;
- 2. that the matter of assigning responsibility to a representative from the BDT to attend, on an on-going basis, the joint ITU-R/ITU-T Advisory Group meetings be considered for the purpose of encouraging the tripartite review of ongoing work, distribution of work and of issues of a policy and strategic planning nature among the three Sectors;
- 3. that consideration be given to the possibility of having the Telecommunications Development Advisory Board identify specific tasks which are of common and priority interest;
- 4. that the World Telecommunication Development Conference (WTDC) identify or prepare specific Questions or elements of existing Questions of special interest to developing countries for study within the Radiocommunication Study Groups;
- 5. that, pursuant to Article 17 of the Convention pertaining to the establishment of Telecommunication Development Study Groups, matters of mutual concern be identified with a view toward effecting close liaison and cooperation;

6. that the WTDC take note of Resolution ITU-R 17 annexed to this Resolution as a matter of high priority,
instructs the Secretary-General
1. to communicate this Resolution to the first WTDC.

ANNEX 1

RESOLUTION ITU-R 17

**INTEGRATION OF FUTURE PUBLIC LAND MOBILE TELECOMMUNICATION SYSTEMS (FPLMTS)
INTO EXISTING NETWORKS**

(1993)

The ITU Radiocommunication Assembly,

considering

- a) that, with the changing radiocommunication environment, a world harmonization process needs to be developed;
- b) that the introduction of new technologies and services is of great importance for the modernization and expansion of telecommunication networks;
- c) that Future Public Land Mobile Telecommunication Systems (FPLMTS) will be a key medium for the development of those networks;
- d) that FPLMTS concern terrestrial and space service alike;
- e) the studies under way on FPLMTS in connection with Questions ITU-R 39/8 and ITU-R 77/8,

resolves to request the Secretary-General

1. to study, in conjunction with the Directors of the Radiocommunication, Telecommunication Standardization and Telecommunication Development Bureaux, appropriate measures to enable the developing countries to make better plans for the smooth integration of these future systems into their existing public networks.
-

RESOLUTION ITU-R 17

INTEGRATION OF FUTURE PUBLIC LAND MOBILE TELECOMMUNICATION SYSTEMS (FPLMTS) INTO EXISTING NETWORKS

(1993)

The ITU Radiocommunication Assembly,

considering

- a) that, with the changing radiocommunication environment, a world harmonization process needs to be developed;
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- c) that Future Public Land Mobile Telecommunication Systems (FPLMTS) will be a key medium for the development of those networks;
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- e) the studies under way on FPLMTS in connection with Questions ITU-R 39/8 and ITU-R 77/8,

resolves to request the Secretary-General

1. to study, in conjunction with the Directors of the Radiocommunication, Telecommunication Standardization and Telecommunication Development Bureaux, appropriate measures to enable the developing countries to make better plans for the smooth integration of these future systems into their existing public networks.
-

RESOLUTION ITU-R 18

**LIST OF PROVISIONS OF RADIO REGULATIONS WHICH
INCLUDE REFERENCES TO RELEVANT
ITU-R RECOMMENDATIONS**

This Resolution is published separately in Book 5.

RESOLUTION ITU-R 19*

DISSEMINATION OF ITU-R TEXTS

(1978-1986-1990-1993)

The ITU Radiocommunication Assembly,

considering

- a) the decisive importance for radiocommunication of the information contained in the ITU-R texts;
- b) that a wider dissemination of the information contained in these texts would promote technical progress and create the possibility of a considerable increase in the number of contributions and Questions for study;
- c) that the ITU electronic Telecom Information Exchange Services (TIES) are being implemented,

decides

1. that the administrations should ensure the dissemination of ITU-R texts within their countries, by the means which they consider to be the most suitable and in the most appropriate fields;
 2. that the Director of the Radiocommunication Bureau should take all the necessary steps, requesting the collaboration of the Secretary-General of the Union, to give emphasis to the importance attached to the wider dissemination and knowledge of ITU-R texts;
 3. that participants in the work of the Radiocommunication Sector should give due consideration to the advantages that could be realized by the dissemination of information through electronic and other modern technological means.
-

* Revision of former CCIR Resolution 105.

RESOLUTION ITU-R 20*

ACCESS TO AND EXCHANGE OF COMPUTER PROGRAMS

(1990-1993)

The ITU Radiocommunication Assembly,

considering

- a) that, with the evolution of the radiocommunications environment, it has become necessary to develop a world-wide harmonization process so as to enable as many administrations and organizations as possible to apply the ITU-R Recommendations to meet their requirements for the development of their various radiocommunication services;
- b) that the number and complexity of ITU-R Recommendations and Reports is increasing, making it necessary at times to consult several Recommendations and Reports in order to deal with a given problem;
- c) that data could be retrieved much more easily through the use of modern telecommunication media and access to data bases;
- d) that, in some cases, administrations may need to use computer programs to obtain coherent results;
- e) that steps should be taken to ensure that programs and data bases to be used by different users are compatible with as many computer systems as possible;
- f) that the ITU-R Reports may be useful, in particular, for countries which do not possess sufficient material resources to conduct advanced technical studies,

having noted with satisfaction

the results already achieved in Study Groups 1 and 3 and the efforts deployed by the Director of the Radiocommunication Bureau and his Secretariat to obtain computer programs and to disseminate them among the telecommunication administrations and organizations,

decides

that the Director of the Radiocommunication Bureau, with the assistance of the ITU Information Services Department, shall, within the available resources, draw up the necessary specifications:

- for computer programs relevant to ITU-R Recommendations and Reports, so that they may be used by a large number of computer systems by way of standardized access;
- that each Radiocommunication Study Group shall endeavour to obtain from the telecommunication administrations and organizations, the computer programs relevant to the Recommendations and Reports for which they are responsible, using the specifications drawn up by the Director of the Radiocommunication Bureau;
- that the Director, with the assistance of the General Secretariat, shall make all ITU-R documents available in machine-readable form and shall participate actively in the direct computer access project under way within the ITU, with a view to providing access to the ITU-R data bases as soon as possible,

requests the Secretary-General

to give the Director of the Radiocommunication Bureau every assistance to ensure that this Resolution is applied as soon as possible,

requests the Director of the Telecommunication Development Bureau

to study the necessary measures to ensure that the developing countries have the requisite means to access and use the data bases,

* Revision of former CCIR Resolution 104.

requests the Director of the Radiocommunication Bureau

to explore with the Council, ways to obtain the financial resources to implement this Resolution in due course.

RESOLUTION ITU-R 21*

COMPUTER PROGRAMS FOR RADIO-FREQUENCY MANAGEMENT

(1986-1990)

The CCIR,

CONSIDERING

- a) that many administrations and organizations create, use and exchange various computer programs for radio-frequency management;
- b) that all administrations and organizations would benefit from the exchange of these programs, particularly if procedures are employed that enable them to be used with computers that are universally available to the maximum possible extent;
- c) that some computer programs have already been offered for such an exchange and are described in the CCIR List of Computer Programs for Radio Frequency Management and made available through the CCIR Secretariat,

NOTING

- a) that the WARC-79, in its Resolution No. 7 relating to the development of national radio-frequency management and No. 37 relating to the introduction and development of computer assistance in radio-frequency management within administrations and in its Recommendation No. 31 relating to a handbook for computer-aided techniques in radio-frequency management, indicated the importance of the radio-frequency management and computer-aided techniques;
- b) that Resolution No. 14 of the WARC-79 and Decision 56 of the CCIR relating to the transfer of technology, indicated needs for cooperation activities,

UNANIMOUSLY DECIDES

- 1. that administrations and other participants in CCIR work should be encouraged to submit their computer programs in accordance with Annex I;
- 2. that the Director, CCIR, should be requested to:
 - 2.1 invite administrations and organizations which have such computer programs to consider the possibility of making them available to other parties through the CCIR Secretariat in a format that is compatible with computers to the maximum possible extent;
 - 2.2 prepare and publish by means of Circular-letters and also in the ITU Telecommunication Journal information about computer programs which have been submitted;
 - 2.3 transfer, as requested, the programs that have been made available, in the form they were received and without review with minimum administrative cost;
 - 2.4 transfer these programs to Interim Working Party 1/2 for review and to examine for their portability, adequacy of documentation, and correctness, and to determine which of them may be recommended for general use;
 - 2.5 make arrangements for the CCIR Secretariat to provide advice to the administrations that have little or no computer personnel or expertise with problems that may arise with their installation and use of these programs on microcomputers.

* Former CCIR Resolution 88-1.

ANNEX 1

INFORMATION FOR THE SUBMISSION OF PROGRAMS

1. The program should be submitted on a data storage medium in current use by the CCIR. Floppy disks (MS-DOS formatted, 5 1/4", 360 kB or 1.2 MB; the 3 1/2", 760 kB or 1.44 MB) or 9-track tape (1600 bits per inch) may be used as the file size dictates.
 2. The program should not be copy protected.
 3. The documentation should preferably include:
 - description of the engineering method used in the program and applicable limitations;
 - the users' manual;
 - samples of typical input data and expected output data to demonstrate operation of the program;
 - the program documentation to permit maintenance of the code;
 - inventory of data elements used in the program;
 - information about the computer hardware and additional software packages used to run the program.
 4. Summary information about the program for publishing in Circular-letters and the ITU Telecommunication Journal should contain:
 - title of the program;
 - sub-title of the program if any;
 - submitter/source address;
 - description of the program, with indication of the documentation's language;
 - programming language, source code;
 - mode of operation;
 - hardware requirement (i.e. monitor, printer, memory, storage capacity, RAM);
 - input requirements, including data file(s);
 - auxiliary data file(s);
 - data output;
 - output medium;
 - date of last revision;
 - references.
-

RESOLUTION ITU-R 22*

**IMPROVEMENT OF NATIONAL RADIO SPECTRUM MANAGEMENT
PRACTICES AND TECHNIQUES**

(Questions 44/1, 45/1 and Decision 27-2)

(1990)

The CCIR,

CONSIDERING

- a)* that WARC-79 in Resolution No. 7 indicated that the administrations of many developing countries need to strengthen the national radio-frequency management organization in order to effectively carry out their responsibilities at both the international and national level;
- b)* that the IFRB and the CCIR have held two meetings in response to Resolution No. 7 of WARC-79 to organize meetings between representatives of developing and developed countries concerning the establishment and operation of national spectrum management organizations;
- c)* that these national frequency management meetings have recommended that administrations of developing countries take into account the guidelines indicated in the IFRB/CCIR Booklet on National Frequency Management, the IFRB Handbook on Radio Regulations, and other relevant ITU documents including the CCIR Handbook on Spectrum Management and Computer-Aided Techniques, and the CCIR Handbook for Monitoring Stations;
- d)* that the national frequency management meetings concluded that the terms of Resolution No. 7 had been fulfilled and recommended that the CCIR Study Group 1 continue the needed efforts on national frequency management particularly with regard to the use of computer-aided spectrum management,

UNANIMOUSLY DECIDES

- 1. that Study Group 1, in accordance with the conclusions of the Second National Frequency Management Meeting should take note of the special requirements of national spectrum management organizations from developing countries and devote particular attention to these matters during the regular meetings of the Study Group and its Interim Working Parties;
- 2. that such meetings shall be aimed at developing practices and techniques to improve spectrum management and include discussions concerning the establishment of computer-aided spectrum management systems;
- 3. that personnel involved in spectrum management from developing and developed countries and representatives from the IFRB are particularly invited to participate in the spectrum management studies of Study Group 1.

* Former CCIR Resolution 110.

RESOLUTION ITU-R 23*

**EXTENSION OF THE INTERNATIONAL MONITORING SYSTEM
TO A WORLDWIDE SCALE**

(Question ITU-R 32/1)

(1963-1970-1993)

The ITU Radiocommunication Assembly,

considering

- a) that Recommendation No. 30 of the World Administrative Radio Conference, Geneva, 1979, stresses the urgent need for improvement in the international monitoring system and invites administrations to make every effort to develop monitoring facilities;
- b) that there are still wide areas of the world where the facilities available to the international monitoring system are inadequate or non-existent;
- c) that the General Secretariat maintains and publishes the List of International Monitoring Stations (List VIII) indicating their capabilities, telephone numbers, telegraphic addresses, telex numbers, and facsimile numbers;
- d) that it is of utmost importance to satisfy the needs of the Radiocommunication Bureau, laid down by the Radio Regulations (RR), that all countries having domestic monitoring facilities make them available for international monitoring to the maximum possible extent,

decides

- 1. that all administrations now participating in the international monitoring system should be urged to continue to do so to the maximum extent possible;
- 2. that administrations, which do not at present participate in the international monitoring system, should be urged to make monitoring facilities available to that system, in accordance with Article 20 of the RR;
- 3. that cooperation between monitoring stations of different administrations should be encouraged and improved with a view to exchanging monitoring information and to settling harmful interference caused by transmitting stations that are difficult to identify or cannot be identified;
- 4. that administrations, located in those areas of the world where monitoring facilities are inadequate, should be urged to promote the establishment of monitoring stations for their own use and make them available for international monitoring, in accordance with Article 20 of the RR;
- 5. that administrations with more advanced monitoring systems be urged to accept officials from other administrations to train them in the techniques of monitoring and direction finding. Initial contact for training may be made to the appropriate centralizing office.

Note 1 - The Administrations of Australia, France, Germany, the United States of America, Italy, Japan, Portugal and the United Kingdom have offered to receive officials from other administrations.

* Revision of former CCIR Resolution 15-1.

RESOLUTION ITU-R 24*

DISSEMINATION OF BASIC INDICES FOR
IONOSPHERIC PROPAGATION

(1963-1966-1974-1986-1990)

The CCIR,

CONSIDERING

- a) that R_{12} , IG_{12} and Φ_{12} have been recommended as indices for use in ionospheric propagation (see Recommendation 371);
- b) that it is desirable to make available to administrations the most recent observed and predicted values of these indices,

UNANIMOUSLY DECIDES

1. that the Director, CCIR, should be requested:
 - 1.1 to make arrangements to obtain the monthly mean value of Φ , and the necessary solar and ionospheric data needed for calculating monthly values of the indices R_{12} and IG_{12} ;
 - 1.2 to have these indices published in the *Telecommunication Journal* together with any predictions of the indices which can be made available by organizations and administrations;
 - 1.3 to consider making these indices available within computer-based bulletins which can be interrogated in real time through international telecommunication networks by administrations and other interested organizations;
2. that organizations which are at present obtaining basic solar and ionospheric data useful for the production of these indices should be urged to continue to make the necessary observations and to forward them to the Director, CCIR.

* Former CCIR Resolution 4-4.

RESOLUTION ITU-R 25*

COMPUTER PROGRAMS FOR THE PREDICTION OF IONOSPHERIC CHARACTERISTICS, SKY-WAVE TRANSMISSION LOSS AND NOISE

(1978-1982-1986-1990-1993)

The ITU Radiocommunication Assembly,

considering

- a) that methods of prediction of the state of the ionosphere and of radio-wave propagation characteristics are given in ITU Radiocommunication (ITU-R) Recommendations and Reports;
- b) that for effective use of such methods computer programs and associated reference numerical data are needed;
- c) that it is uneconomic for individual organizations to develop their own computer programs for these predictions,

decides

1. that the Director of the Radiocommunication Bureau should be requested to:

1.1 invite organizations which at present have their own computer programs, numerical reference data, and related documentation for the prediction methods described in the ITU-R Recommendations and Reports prepared by Radiocommunication Study Group 6, to consider the possibility of making these available to the Radiocommunication Bureau through Radiocommunication Study Group 6;

1.2 prepare computer programs in standardized language (if they do not already exist), together with numerical data and appropriate documentation (referencing specifically the version of the relevant ITU-R Recommendation or Report);

1.3 make these available for distribution/sale to Member Administrations and others;

1.4 prepare and publish lists of available computer programs and numerical reference data in appropriate ITU documents, together with supporting technical descriptions and examples.

ANNEX 1

**List of computer programs available from the Radiocommunication Bureau
based on prediction methods described in the ITU-R Recommendations
and Reports prepared by Radiocommunication Study Group 6**

1. CCIR HF propagation prediction method (Recommendation ITU-R P.533):
 - prediction of MUF, sky-wave field strength, signal/noise ratio, LUF and basic circuit reliability.

The associated program, REC533, based on Recommendation ITU-R P.533, is available (see Note 1).
2. CCIR interim method for estimating sky-wave field strength and transmission loss at frequencies between the approximate limits of 2 and 30 MHz (Report ITU-R P.252):
 - prediction of transmission loss and field strength.

The associated program, HFMLOSS, is available for mainframe application (see Note 2).
3. Second CCIR computer-based interim method for estimating sky-wave field strength and transmission loss at frequencies between 2 and 30 MHz (Supplement to Report ITU-R P.252):
 - a more advanced method for the prediction of transmission loss and field strength.

* Revision of former CCIR Resolution 63-3. This Resolution is brought to the attention of Radiocommunication Study Group 1.

The associated program, SUP252, is available for mainframe application (see Note 2).

4. Characteristics and applications of atmospheric radio noise data and man-made radio noise data (Recommendation ITU-R PI.372):

- prediction of noise power and field strength at any frequency above 10 kHz for any geographic location and time.

The associated program, NOISEDAT, based on Recommendation ITU-R PI.372, is available (see Note 1). (In addition, the program NOISEY, based on the earlier version, Report ITU-R PI.322-2 (Geneva, 1982), is available for mainframe application.)

5. CCIR atlas of ionospheric characteristics (Recommendation ITU-R PI.434):

- prediction for any geographic location at a series of times, and for a series of locations at any time, of:
 - a) median foF2 (Oslo numerical coefficients);
 - b) median foF2 (New Delhi numerical coefficients)
 - c) median M(3000)F2;
 - d) median foE;
 - e) median foF1;
 - f) median, upper decile and lower decile foEs - sunspot maximum and minimum;
 - g) median, upper decile and lower decile fbEs - sunspot minimum;
 - h) median h'F - sunspot maximum and minimum;
 - j) median h'F, F2 - sunspot maximum and minimum;
 - k) percentage occurrence of spread F - sunspot maximum and minimum.

The associated programs, HRMNTH and WOMAP, are available for mainframe application (see Note 2).

- prediction for any propagation path and time of E- and F-layer basic and operational MUF.

The associated program, MUFFY, is available (see Note 1).

6. Simple method for estimating basic MUF and HF field strength:

The associated program, MINIFTZ, is available (see Note 1).

7. Sky-wave field strength prediction method for the broadcasting service in the frequency range 150 to 1 600 kHz (Recommendation ITU-R PI.435):

The associated program, REC435, based on Recommendation ITU-R PI.435, is available (see Note 1).

8. Method for calculating sporadic-E field strength (Recommendation ITU-R PI.534):

The associated program, REC534, based on Recommendation ITU-R PI.534, is available (see Note 1).

Note 1 - Program for microcomputer application available on low or high density 5 ¼ or 3 ½ in disks operating under MS-DOS.

Note 2 - Program available for mainframe application, written in FORTRAN 4 or FORTRAN 77, IBM compatible and having the following characteristics:

- 9 track;
- code: EBCDIC or ASCII/ISO 7;
- density: 800 or 1600 BPI;
- labelled or unlabelled (usually unlabelled);
- record length: fixed (preferably 80 characters) or variable.

Preferred options should be specified when placing a purchase order with the ITU.

ANNEX 2

**Numerical reference data available from the Radiocommunication
Bureau for use in prediction methods listed in Annex 1**

Some of the prediction methods listed in Annex 1 require certain reference data. These data are available on disk for microcomputer application and on magnetic tape for mainframe computer application.

There are two disk sets (A and B). Set A contains the binary data needed with the method of Recommendation ITU-R PL533 whilst set B holds in binary or formatted form, all data currently contained on the three data tapes.

Table 1 lists the data available on each disk set and indicates the source documents to which they relate.

TABLE 1
Contents of data disk sets A and B

	Characteristic	Source document	Disk set	
			A	B
1	foF2 (Oslo coefficients)	Rec. ITU-R PL434, § 3	x	x
2	foF2 (New Delhi coefficients)	Rec. ITU-R PL434, § 3		x
3	foEs median and deciles	Rec. ITU-R PL434, § 6		x
4	M(3000)F2	Rec. ITU-R PL434, § 3	x	x
5	foE	Rec. ITU-R PL434, § 4		x
6	h'F (Set 1)	Rec. ITU-R PL434, § 7		x
7	h'F (Set 2)	Rec. ITU-R PL434, § 7		x
8	h'F, F2	Rec. ITU-R PL434, § 7		x
9	F_u and F_l	Report ITU-R PL252		x
10	Excess system loss median, and decile deviations	(1)	x	x
11	T_u and T_l	Supplement to Report ITU-R PL252		x
12	1 MHz atmospheric noise power (UT representation)	Report ITU-R PL322-2 (Geneva, 1982)		x
13	1 MHz atmospheric noise power (LT representation)	Report ITU-R PL322-2 (Geneva, 1982)		x
14	1 MHz atmospheric noise power (LT representation)	Report ITU-R PL322-3 (Dubrovnik, 1986)	x	x
15	Frequency dependence, decile deviations and prediction uncertainties of atmospheric noise power	Report ITU-R PL322-3 (Dubrovnik, 1986)	x	x
16	Land/sea boundaries	Report ITU-R PL252		x
17	Earth's magnetic field	Rec. ITU-R PL434, § 2		x
18	Corrected geomagnetic coordinates	Supplement to Report ITU-R PL252		x
19	Excess system loss uncertainties	(2)		x
20	MUF regression with K	(2)		x

(1) These data are derived from LUCAS, D.L. and HAYDON, G.W. [1966] Predicting statistical performance indexes for high frequency telecommunications systems. ESSA Tech. Rep. IER 1-ITSA 1. US Dept. of Commerce, Boulder, Colorado 80303, USA.

(2) These data are contained in BARGHAUSEN, A.F., FINNEY, J.W., PROCTOR, L.L. and SCHULTZ, L.D. [1969] Predicting long-term operational parameters of high-frequency sky-wave telecommunication systems. ESSA Tech. Rep. ERL 110-ITS 78. US Govt. Printing Office, Washington, DC, USA.

The disk characteristics are as given in Annex 1. For formatted data the maximum record length is 80 bytes.

A program to convert the formatted data of set B into binary form is also available.

There are three magnetic tapes, referred to as data tapes 1-3. The separate tapes have been prepared for use with particular procedures and programs in mind, but since they each contain a number of different sets of data, they may be used in part for other purposes.

Table 2 lists the data available on each tape and indicates the source documents to which they relate.

TABLE 2
Contents of ionospheric data tapes 1-3

	Data	Source document	Tape number		
			1	2	3
1	foF2 (Oslo coefficients)	Rec. ITU-R PI.434, § 3	x		x
2	foF2 (New Delhi coefficients)	Rec. ITU-R PI.434, § 3		x	
3	M(3000)F2	Rec. ITU-R PI.434, § 3	x	x	x
4	foE	Report ITU-R PI.252	x	x	
5	foEs median and deciles	Rec. ITU-R PI.434, § 6	x	x	x
6	h'F	Rec. ITU-R PI.434, § 7	x	x	
7	h'F, F2	Rec. ITU-R PI.434, § 7			x
8	F_u and F_l	Report ITU-R PI.252	x	x	x
9	MUF regression with K	(1)	x	x	
10	Excess system loss; median, and standard deviations	Report ITU-R PI.252	x	x	
11	Excess system loss; uncertainties	(1)	x	x	
12	T_u and T_l	Supplement to Report ITU-R PI.252			x
13	Land/sea boundaries	Report ITU-R PI.252	x	x	x
14	1 MHz atmospheric noise power (LT representation)	Report ITU-R PI.322-2 (Geneva, 1982)	x		
15	1 MHz atmospheric noise power (UT representation)	Report ITU-R PI.322-2 (Geneva, 1982)		x	x
16	Frequency dependence, decile deviations and prediction uncertainties of atmospheric noise power	Report ITU-R PI.322-2 (Geneva, 1982)	x	x	x
17	Earth's magnetic field	Rec. ITU-R PI.434, § 2			x
18	Corrected geomagnetic coordinates	Supplement to Report ITU-R PI.252			x

(1) See footnote (2) of Table 1.

The magnetic tape characteristics are the same as those given in Annex 1 with the exception of the record length which is fixed at 120 characters. A program to convert the tapes to binary format is also available.

Further details of the contents of the data tapes, disks and associated programs may be obtained from the Radiocommunication Bureau.

ANNEX 3

Data banks of field strength measurements available from the Radiocommunication Bureau

Data banks of measured HF field strength have been developed for further testing of prediction procedures. Those currently available are as follows:

1. Data Bank C

Comprises measured HF field strengths for 180 combinations of circuit and frequency, with frequencies between 4.8 and 26 MHz and path lengths between 175 and 25 000 km. (Available on magnetic tape only.)

2. Data Bank D1

Comprises measured HF field strengths for 181 combinations of circuit and frequency, with frequencies between 2.5 and 26 MHz and path lengths between 175 and 26 000 km. (Available on magnetic tape or on disk (5¼ or 3½ in).)

ANNEX 4

**Available computer implementations of antenna characteristics
(recognizing the importance of correct allowances for
antenna gain in HF propagation assessment)**

1. Recommendation ITU-R BS.705 - HF transmitting antennas characteristic and diagrams

This Recommendation contains a revised set of HF antenna diagrams, together with corresponding computer programs, for evaluating the performance of HF transmitting antennas.

The algorithms provided can be used to calculate the radiation patterns and gain over imperfect ground for the following types of antenna:

- arrays of horizontal dipoles with aperiodic screen reflector or tuned reflector dipole;
- quadrant antennas and horizontal dipoles;
- log-periodic antennas;
- tropical antennas;
- rhombic antennas; and
- vertical monopoles.

2. A program package is available for pattern calculation of arrays of up to four vertical elements for LF and MF (LFMFANT) (see ITU Circulars No. 64, 3 December 1985 and No. 64bis, 26 June 1986).

LFMFANT allows pattern calculation of arrays consisting of up to four vertical elements of arbitrary height. Calculation can be performed either for perfect or imperfect ground.

RESOLUTION ITU-R 26*

DETERMINATION OF SUNSPOT NUMBERS

(1982-1990)

The CCIR,

CONSIDERING

that the Zurich Observatory ceased production of the relative sunspot numbers, R_Z , after 31 December 1980,

UNANIMOUSLY DECIDES

1. that the Director, CCIR, should be requested:
 - 1.1 to recognize that for CCIR purposes the relative sunspot numbers to be prepared by the Sunspot Index Data Center (SIDC) directed by Dr. A. Koeckelenbergh at the Observatoire de Belgique (Uccle) will continue the former relative sunspot numbers, R_Z , from 1 January 1981. The international relative sunspot numbers are designated R_I ;
 - 1.2 to note that the following services which were formerly provided by the Zurich Observatory are being continued by the SIDC:
 - 1.2.1 determination and *prompt* monthly distribution of the *provisional international relative sunspot numbers* to international institutions and services being in need of these data;
 - 1.2.2 determination and distribution of the *predictions of the smoothed monthly international relative sunspot numbers*;
 - 1.2.3 determination and annual distribution of the *definitive international relative sunspot numbers*.

* Former CCIR Resolution 74-1. The Director, CCIR, is requested to bring this Resolution to the attention of ICSU, URSI and IAU.

RESOLUTION ITU-R 27*

HF FIELD-STRENGTH MEASUREMENT CAMPAIGN

(1990-1991-1993)

The ITU Radiocommunication Assembly,

considering

- a) that the Second Session of the World Administrative Radio Conference for the Planning of HF Bands Allocated to the Broadcasting Service (Geneva 1987) (WARC HFBC-87), in its Recommendation No. 514 (HFBC-87) invites the Radiocommunication Bureau to undertake studies of the HF propagation prediction method adopted by the Conference and to recommend both improvements in the method and later, if necessary, an improved method to be used in the future for the HF bands allocated exclusively to the broadcasting service;
- b) that significant improvements in HF propagation prediction methods for general service requirements seem unlikely until a substantial data base of new measurements becomes available;
- c) that Recommendation ITU-R P1.845 proposes a field-strength measurement campaign and identifies a need for coordination, training etc;
- d) that Recommendation No. 514 (HFBC-87) also recommends administrations:
 - to conduct HF field-strength measurement programmes;
 - to contribute data, in a form suitable for study, to the Radiocommunication Bureau;
- e) that administrations should be urged to undertake such measurements in the longer term,

decides

- 1. that administrations should be urged to assist in the campaign by providing transmissions from worldwide locations and by installing and operating, as far as possible, worldwide receiving stations;
 - 2. that the measurement campaign should extend, if possible, through a complete solar cycle but that transmissions on fewer than five frequencies from one location would still provide a valuable facility for measurements;
 - 3. that the Director of the Radiocommunication Bureau should coordinate the overall activity and disseminate the information necessary for running the campaign;
 - 4. further, that the Director of the Radiocommunication Bureau should arrange for the receipt of data on computer diskettes, for the validation and incorporation into a data bank of the measurements;
 - 5. that administrations, the Director of the Radiocommunication Bureau and other organs of the ITU, in so far as resources allow, should ensure that guidance and training in the installation and operation of measurement stations is provided where required.
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* Revision of former CCIR Resolution 111.

RESOLUTION ITU-R 28*

STANDARD-FREQUENCY AND TIME-SIGNAL EMISSIONS

(Question 1/7)

(1963-1966-1970-1974-1986)

The CCIR,

CONSIDERING

the provisions of Article 33 of the Radio Regulations,

UNANIMOUSLY DECIDES

1. that, whenever an assignment to a station operating standard-frequency emission is put into service, the administration concerned shall notify this assignment to the IFRB, in accordance with the provisions of Article 12 of the Radio Regulations; however, no notice should be submitted to the IFRB until experimental investigations and coordination have been completed, in accordance with Article 33, of the Radio Regulations;
2. that, in addition, each administration should send all pertinent information on standard-frequency stations (such as frequency stability, changes in the phase of time pulses, changes in transmission schedule) to the Chairman, Study Group 7, to the Director, CCIR, and, for official publication, to the Director, BIPM;
3. that Study Group 7 should cooperate with the International Astronomical Union (IAU), the International Union of Radio Science (URSI), the International Union of Geodesy and Geophysics (IUGG), the International Union of Pure and Applied Physics (IUPAP) and the Bureau international des poids et mesures (BIPM) and the International Committee of Weights and Measures (CIPM).

* Former CCIR Resolution 14-4.

RESOLUTION ITU-R 29*

**CHARACTERISTICS OF EQUIPMENT AND PRINCIPLES GOVERNING THE
ALLOCATION OF FREQUENCY CHANNELS BETWEEN 25 AND 3000 MHz
IN THE LAND MOBILE SERVICE**

(Question 7/8)

(1959-1963-1966-1970-1974-1978-1990)

The CCIR,

CONSIDERING

- a) that land mobile services of various kinds are developing rapidly;
- b) that, in border areas, difficulties may arise between the services of different administrations;
- c) that it would be advantageous if there were a sufficient measure of agreement, where necessary, between administrations on the characteristics of equipment and on the principles adopted in the planning for land mobile services,

UNANIMOUSLY DECIDES

1. that administrations should consult together as necessary to resolve any difficulties concerning their land mobile services and for the purpose of improving such services;
2. that those administrations which are interested in the provision of common land mobile services should consult together and should advise the CCIR of any technical and operational problems that require international study;
3. that administrations should continue to submit new data regarding the measuring methods used in their respective countries to the Chairman, Study Group 8 and to the Director, CCIR, for circulation. The attention of administrations is drawn to the methods of measurement currently being standardized by the International Electrotechnical Commission (IEC) (see Opinion 42);
4. that administrations should submit information on practices adopted for the allocation of channels between 25 and 3000 MHz for land mobile services to the Chairman, Study Group 8 and the Director, CCIR, for circulation;
5. that administrations should submit details of the blocks of frequencies between 25 and 3000 MHz allocated:
 - 5.1 for transmissions from base stations, and
 - 5.2 for reception at base stations;
6. that administrations which have reached agreement with adjacent countries on the operation of land mobile services in border areas, should submit to the CCIR technical and operational details of the agreement to assist other administrations with similar problems.

* Former CCIR Resolution 20-5.

RESOLUTION ITU-R 30*

**DETERMINATION OF THE NOISE LEVEL FOR SOUND
BROADCASTING IN THE TROPICAL ZONE**

(1978)

The CCIR,

CONSIDERING

that studies on the characteristics of atmospheric radio noise and collection of noise data come within the purview of Study Group 6,

UNANIMOUSLY DECIDES

1. that the results of studies contained in Report 303 (Geneva, 1974), which no longer appear in current CCIR texts, should be brought to the notice of Study Group 6;
 2. that this information should be considered by Study Group 6 whenever revision of worldwide noise grade data, as given in Report 322, is attempted.
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* Former CCIR Resolution 64.

RESOLUTION ITU-R 31*

PRESENTATION OF ANTENNA DIAGRAMS

(1982-1990)

The CCIR,

CONSIDERING

- a) that the WARC HFBC-87 in Resolution No. 516 invites the CCIR to update the CCIR Book of Antenna Diagrams and the IFRB to base its Technical Standards on this publication;
- b) that new types of antennas as used by administrations for HF broadcasting are needed to complement the publication CCIR, Antenna Diagrams, edition 1984;
- c) that a considerable amount of work in this respect was already carried out by Study Group 10 in preparation of the WARC HFBC-84 and WARC HFBC-87;
- d) that Study Group 10 under its Study Programmes 44H/10 and 45F/10 has the task to evaluate the radiation patterns of HF antennas, including consideration of their performance in terms of coverage and interference,

UNANIMOUSLY DECIDES

1. that the results of the studies carried out by Study Group 10 and the related antenna diagrams should be contained in a CCIR Recommendation separately published;
2. that this Recommendation while ensuring a certain continuity with the previous CCIR publications on antenna diagrams, should also contain both sufficient technical background and complementary information to guide in the selection of the antenna appropriate to the desired service together with other possible data relevant to its practical operation;
3. that a suitable set of antenna patterns covering as far as possible the range of the types of antennas used by administrations should appear in this Recommendation;
4. that suitable computer programs for calculating antenna radiation patterns should complement this Recommendation and be made available by the CCIR Secretariat who will also be responsible for the software maintenance;
5. that the participants in the work of the CCIR should be invited to cooperate to maintain and update this new Recommendation submitting relevant contributions to the CCIR.

* Former CCIR Resolution 76-1.

RESOLUTION ITU-R 32*

**COLLABORATION WITH THE INTERNATIONAL ELECTROTECHNICAL
COMMISSION ON GRAPHICAL SYMBOLS AND DOCUMENTATION
USED IN TELECOMMUNICATIONS**

(1963-1978-1982-1990-1993)

The ITU Radiocommunication Assembly,

decides

1. that the Radiocommunication Sector should continue to cooperate in the work of the ITU/IEC Joint Working Group which has been set up to prepare, for international telecommunications:

- an approved list of graphical symbols for diagrams and for use on equipment;
- approved rules for the preparation of documentation and for item designation,

it being understood

1. that within the Joint Working Group, the ITU is represented as well as the IEC;
2. that the Joint Working Group, while being fully representative, is as small as possible to be able to work effectively and quickly;
3. that ITU members of the Joint Working Group are empowered to take decisions in consultation with the Director of the Radiocommunication Bureau on questions relating to symbols and the rules referred to above, so that the publication of an approved list does not have to await formal approval by a following Radiocommunication Assembly.

* Revision of former CCIR Resolution 23-3.

RESOLUTION ITU-R 33*

PRESENTATION OF TEXTS ON TERMINOLOGY

(1982-1990-1993)

The ITU Radiocommunication Assembly,

considering

- a) that it is essential that the terminology work done within the ITU should be widely disseminated, as regards both terms and definitions;
- b) that users generally have ITU publications at their disposal in one language only but are often required to read or write technical texts in one of the other working languages;
- c) that texts on vocabulary and glossaries, such as the collection of terms and definitions in the former CCITT Blue Book, are not as a rule directly available to users interested in a particular volume;
- d) that an alphabetical presentation of terms in a vocabulary results in a different order of terms for each language and that it is not very practical for users wanting to compare definitions in different languages;
- e) that the user of vocabulary texts often wants each term to be grouped with other terms on the same subject, these terms being presented in a logical order,

decides

- 1. that the texts on vocabulary and the parts of texts dealing specifically with definitions of terms, published by the Radiocommunication Sector, shall include the equivalents of all the terms defined in the other working languages of the ITU;
- 2. that the practical means of providing the equivalents of terms in addition to the full text of terms and definitions in one of the languages is left to the discretion of the BR (see examples given in Recommendations ITU-R V.573 and ITU-R V.662);
- 3. that in the texts on vocabulary and the parts of texts dealing specifically with definitions of terms, published by the Radiocommunication Sector, the terms are presented in a logical order by subjects which should be the same in all languages, and that the vocabulary should be completed if necessary by an alphabetical index giving the reference number of each term.

Note 1 - When an abbreviation (or initials) exists to represent a term, it should be given immediately after the term, in the different working languages.

* Revision of former CCIR Resolution 78-1.

RESOLUTION ITU-R 34*

GUIDELINES FOR THE SELECTION OF TERMS AND PREPARATION OF DEFINITIONS

(1986-1990-1993)

The ITU Radiocommunication Assembly,

considering

- a) that the individual Radiocommunication Study Groups have a responsibility for the selection of terms and preparation of definitions;
- b) that there is sometimes a wide diversity of approach in the implementation of these procedures;
- c) that there is a need for conformity in their implementation,

decides

that when selecting terms and preparing definitions, the Radiocommunication Study Groups should use the guidelines given in Annex 1.

ANNEX 1

Guidelines for the selection of terms and preparation of definitions**1. Introduction**

Given below are guidelines for:

- selection of terms;
- preparation of definitions.

2. Terms**2.1 What is meant by a term?**

A term is a word or a group of words used to express a definite concept.

2.2 Conciseness of terms

The term should be selected to be as concise as possible, without impairing the understanding of the text containing the term.

When a term is used in more than one field in a general vocabulary, the field of application should be added between brackets, for example:

- coverage area (of a space station);
- coverage area (of a terrestrial transmitting station).

2.3 Ambiguous terms

The occurrence of terms with more than one meaning is occasionally inevitable. When one term has several meanings, confusion can arise in the following cases:

- the meanings are very similar;

* Revision of former CCIR Resolution 89-1.

- the terms appearing in the same text with different meanings (for instance when they are in the same field).

In such cases different terms should be found to express the different meanings of such ambiguous terms.

2.4 Complex terms

A complex term should reflect the combination of concepts included in the definition. However, it need not include every constituent of the combination of concepts shown in the definition.

Care should be taken to avoid the unnecessary proliferation of terms and definitions where an already-defined qualifying term, used in conjunction with a simpler term, would suffice.

3. Definitions

3.1 What is meant by definition?

To define, is to state clearly, accurately and precisely what is a concept. This should preferably be done in one sentence, expressing exactly the meaning of the term used to designate the concept.

A definition should describe the concept fully for the engineering experts and contain sufficient data for the concept to be perfectly understood and its limits properly identified. The definition must be simple, clear and relatively brief. If necessary, additional information should be in the form of notes.

3.2 Use of terms in definitions

The following general principles may be adopted for the terms used in a definition:

- all the technical terms which appear in a definition must either be well known or defined elsewhere in the text,
- the term or terms representing a concept to be defined should not appear in the definition,
- the meaning of a term must not be expressed using another term which is itself defined by means of the first term.

3.3 Accuracy of definitions

The degree of accuracy of definitions may depend on their intended use. Attempts to achieve greater accuracy may lengthen the text unnecessarily. This may involve the use of more specific and hence less familiar technical terms, thereby making the definition harder rather than easier to understand.

3.4 Changes to, or limitation of, generally accepted terms

No attempt should be made to modify or limit the established usage of a term, unless the use of the existing terms causes confusion or ambiguity. In this case the use of the term may be deprecated.

When certain general terms are used in a restricted sense in the telecommunications fields, the definition should include an indication of this constraint.

3.5 Formulation of definitions

The wording of the definition should clearly indicate whether the term is a substantive noun, a verb or an adjective.

3.6 Incomplete definitions

Care should be taken not to omit the specific characteristics of a term in its definition. Such definitions are incomplete. The term and its definition should be interchangeable.

3.7 Definitions with more than one term

It sometimes occurs that more than one term may apply to the same concept. In such cases the alternative term should also be shown (separated by a semicolon).

3.8 Definitions of limited application

In general, the definitions which appear in ITU publications are of limited application, i.e. are valid only in the particular publication or field concerned.

The International Telecommunication Constitution (Geneva, 1992) stipulates that the terms used in the Constitution and defined in its Annex shall have the meanings assigned to them in that Annex. The same applies to the terms used in the Geneva Convention and defined in the Annex thereto, those used in the Radio Regulations (1990) and defined in Article 1 thereof, and those used in the International Telecommunication Regulations (1988) and defined in Article 2 thereof. It is also stated that these terms and definitions do not necessarily apply for other purposes. The same considerations hold good for the terms defined by the experts of a Radiocommunication Study Group for the specific requirements of their Study Group.

However, when the experts of a Radiocommunication Study Group develop, for an existing term, a specific new definition which differs from an existing definition in a text that has already been approved, they should ensure that the new definition does not contradict the one which already exists for the same term.

In the case of definitions which are applicable in other Radiocommunication Study Groups, the relevant experts are requested to prepare their definitions to allow them to be used in the widest possible field.

3.9 Illustrations

Illustrations can often be used to clarify or explain a definition. The type of illustration used will depend on each specific case; an example of a graphical depiction of terms used in the transmission loss concept can be seen in Recommendation ITU-R PN.341 (see also Recommendation ITU-R V.573, subsection A4).

3.10 Further use of terms and definitions

It should be borne in mind that it may be useful later to include a definition in a dictionary and, in this case, it would be valuable if the definition were fully comprehensible even when taken out of context. It could then be included in the dictionary without amendment.

4. Presentation of terms and definitions

4.1 For the presentation of terms and definitions, reference should be made to Resolution ITU-R 78 which states that the terms, definitions and where necessary the abbreviations, should be published in the different working languages and presented in a logical order by subject which is the same in each language.

4.2 Index of terms

Should there be a need for an index, complex terms may be shown under one or other of the key words.

4.3 Printing of terms

Initial letters of terms should be printed in upper-case or lower-case letters as they would appear within a sentence according to the usage in each language.

5. Further references

For further and more specific guidance on the drafting of terms and definitions, reference may be made to the following publications:

- ISO Recommendation 704 "Principles and methods for terminology" (1987).
 - "IEC Guide for work relative to terminology (TC 1), documentation (TC 3) and letter symbols (TC 25)" (1986).
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RESOLUTION ITU-R 35*

THE ORGANIZATION OF VOCABULARY WORK

(1990-1993)

The ITU Radiocommunication Assembly,

considering

- a) that it is important for the work of the ITU and in particular of the Sectors and for liaison with other interested organizations that terms and their definitions be standardized as far as possible;
- b) the importance of avoiding misunderstanding within the Radiocommunication Sector and between the Radiocommunication Sector and the Telecommunication Standardization Sector and the IEC, respectively, in the use of terms and definitions;
- c) the need to establish lists of terms and definitions for information within the Radiocommunication Sector and for the information of the Telecommunication Standardization Sector and the IEC, and to update such lists rapidly and regularly,

decides

1. that the Radiocommunication Study Groups, within their terms of reference, should continue their work on technical and operational terms and their definitions which may be required for regulatory or administrative purposes and also on specialized terms which may be required by them in the course of their work, these terms and definitions being published rapidly and regularly by the ITU;
2. that each Radiocommunication Study Group should assume responsibility for terminology in its particular field of interest with the assistance of the Coordination Committee for Vocabulary (CCV) if necessary;
3. that each Radiocommunication Study Group shall appoint a permanent Rapporteur for Vocabulary to coordinate its efforts regarding terms and definitions and related subjects and to act as a contact person for the Study Group in this domain. The Rapporteur may be assisted by experts in different languages and different technical subjects;
4. that the responsibilities of the Rapporteur for Vocabulary should be as given in Annex 1;
5. that each Radiocommunication Study Group should consider terms included within its texts and should define them if necessary, or at least explain new concepts or clarify the text used to express existing concepts. Dependent upon the generality of usage terms and definitions should be published in:
 - a separate text of the Radiocommunication Study Group;
 - a specifically labelled section of each text;
 - within the text associated with the first usage of the term;
6. that where more than one Radiocommunication Study Group is defining the same concept, efforts should be made to select a single term and a single definition which is acceptable to all of the Radiocommunication Study Groups concerned;
7. that, when selecting terms and preparing definitions, the Radiocommunication Study Group, and those entities responsible to the Study Group, shall take into account the established use of terms and existing definitions in ITU Sectors as well as those found in the International Electrotechnical Vocabulary (IEV);
8. that the Secretariat should collect all new terms and definitions proposed by the Radiocommunication Study Group, and provide them to CCV which shall act as an interface with the Telecommunication Standardization Sector and the IEC;

* Revision of former CCIR Resolution 113.

9. that the CCV shall communicate with individual Rapporteurs for Vocabulary and, if necessary, promote meetings of experts where inconsistencies are found between terms and definitions in the Radiocommunication Sector, the Telecommunication Standardization Sector and the IEC. These mediation efforts should seek agreement to the extent that such agreement is feasible, with remaining inconsistencies duly noted;
10. that the CCV should review the texts previously drawn up by the former CMV; revised texts, and proposed new texts on general subjects, should be submitted to the Radiocommunication Assembly;
11. that Radiocommunication Study Groups, administrations and other participants in the work of the Radiocommunication Sector, may submit contributions concerning vocabulary and related subjects to the CCV;
12. that Rapporteurs for Vocabulary should take into account any available Telecommunication Standardization Sector lists of emerging terms and draft IEV chapters, to seek consistency of Radiocommunication Sector terms wherever practicable.

ANNEX 1

Responsibilities of Rapporteurs for Vocabulary

1. The Rapporteurs shall study vocabulary and related subjects referred to them by:
 - Working Parties or Task Groups of the same Radiocommunication Study Group;
 - the Radiocommunication Study Group as a whole;
 - the Chairman of the Radiocommunication Study Group;
 - the Rapporteur for Vocabulary of another Radiocommunication Study Group, or by
 - the CCV.
 2. The Radiocommunication Rapporteurs shall be responsible for coordination of vocabulary and related subjects within their own Radiocommunication Study Groups and with other Radiocommunication Groups in conjunction with the CCV; the objective being to achieve the agreement of the Study Groups concerned.
 3. The Rapporteurs shall be responsible for liaison between their Radiocommunication Study Group and the CCV with regard to the activities of the ITU-IEC Joint Coordination Group for Vocabulary and the ITU-IEC Joint Working Group on Graphical Symbols and Documentation.
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RESOLUTION ITU-R 36*

THE COORDINATION OF VOCABULARY AND RELATED SUBJECTS

(1990-1993)

The ITU Radiocommunication Assembly,

considering

- a) that it is desirable to seek the most efficient method of organizing vocabulary work within the Radiocommunication Sector;
- b) that it is important for the work of the ITU, and in particular of the Sectors and for liaison with other interested organizations, that terms and their definitions, graphical symbols for documentation, letter symbols and other means of expression, units of measurement, etc., be standardized as far as possible;
- c) the difficulty of achieving agreement on definitions when more than one Radiocommunication Study Group is involved;
- d) that the Sectors are collaborating with the International Electrotechnical Commission (IEC) (Technical Committee No. 1) in order to provide an internationally agreed vocabulary of telecommunications and that for this purpose a Joint Coordination Group (JCG) has been established;
- e) that the Sectors are collaborating with the IEC (Technical Committee No. 3) in order to provide internationally agreed graphical symbols for diagrams and for use on equipment, approved rules for the preparation of documentation and for item designation and that for this purpose a Joint Working Group (JWG) has been established;
- f) that the Sectors are collaborating with the IEC (Technical Committee No. 25) in order to provide internationally agreed letter symbols and units;
- g) that the former CCIR has published certain terms with their definitions in the Plenary Assembly Publications and that there is a continuing need for the publication of terms and definitions appropriate to the work of particular Radiocommunication Study Groups;
- h) that unnecessary or duplicated work can be avoided by effective coordination of all work on vocabulary and related subjects carried out by the Radiocommunication Study Groups;
- j) that the long-term objective of the terminology work must be the preparation of a comprehensive vocabulary of telecommunications in the working languages of the ITU,

decides

- 1. that the coordination of work on vocabulary within the Radiocommunication Sector should be ensured by a Coordination Committee for Vocabulary (CCV) comprised of experts in the various working languages and members designated by interested administrations and other participants in the work of the Radiocommunication Sector, as well as the Rapporteurs for Vocabulary of the Radiocommunication Study Groups;
- 2. that the terms of reference of the CCV should be as given in Annex 1;
- 3. that the CCV should work mainly by correspondence according to Resolution ITU-R 1;
- 4. that the CCV should review and, where necessary, revise the texts drawn up by the former CMV;
- 5. that administrations and other participants in the work of the Radiocommunication Sector may submit, to the CCV and to the Radiocommunication Study Groups, contributions concerning vocabulary and related subjects;
- 6. that the Chairman of the CCV should be chosen by the Radiocommunication Assembly.

* Revision of former CCIR Resolution 114.

ANNEX 1

Terms of reference for the Coordination Committee for Vocabulary**1. Vocabulary**

1.1 To coordinate vocabulary work, including abbreviations and initials, within the Radiocommunication Sector and to seek agreement among all concerned Radiocommunication Study Groups to ensure acceptability of definitions.

1.2 To liaise with the Telecommunication Standardization Sector Terminology Coordination Committee to ensure, so far as is practicable, that definitions of technical terms of common interest are mutually acceptable.

1.3 To liaise with the Language Division of the ITU General Secretariat, and with other organizations dealing with vocabulary work in the telecommunications field, for example with the IEC and the International Organization for Standardization (ISO) by means of the ITU-IEC Joint Coordination Group for Vocabulary (JCG) and the IEC-ISO Joint Technical Committee for Information Technology (JTC 1).

2. Related subjects

2.1 To ensure coordination between the Radiocommunication Study Groups concerning graphical symbols to be used in documentation or on equipment, the objective being to achieve the agreement of all Study Groups, and to ensure liaison with the ITU-IEC Joint Working Group for Graphical Symbols and Documentation (JWG).

2.2 To ensure coordination between the Radiocommunication Study Groups concerning letter symbols and other means of expression, systematic classification, units of measurement, etc., the objective being to achieve the agreement of all Radiocommunication Study Groups, and to cooperate with the relevant IEC Technical Committee (Technical Committee No. 25) and with the ISO.

OPINION ITU-R 2-2

**COOPERATION WITH THE INTERNATIONAL SPECIAL COMMITTEE
ON RADIO INTERFERENCE**

(Questions 4/1, 10/1, 35/1, 46/1, 57/1 and 81/1)

(1963-1978-1990)

The CCIR,

CONSIDERING

- (a) that cooperation between the International Special Committee on Radio Interference (CISPR), and the CCIR is desirable;
- (b) that cooperation between the CISPR and the CCIR has been of value;
- (c) that it is desirable to interchange information concerning the protection of radiocommunication services, in particular, safety services;
- (d) that to facilitate the exchange of such information it is desirable to reach agreement on the methods of measurement and radiation limits adopted,

IS UNANIMOUSLY OF THE OPINION

that the CISPR should be invited

1. to advise the CCIR of any proposals they have under consideration for the methods of measurements and radiation limits;
2. to take into account all the studies done by the CCIR relevant for the work of CISPR;
3. to continue cooperation with the CCIR on the following subjects:
 - 3.1 study of methods for the measurement of radio interference and, having due regard to the frequency bands used by safety services, of procedures (in some cases issued by the International Electrotechnical Commission), for limiting undesirable radiations produced by:
 - electrical apparatus and installations (Question 4/1, Study Programme 4A/1);
 - all types of receivers (Recommendation 239; Question 10/1; Publication 106 of the International Electrotechnical Commission);
 - 3.2 determination of the maximum interference level tolerable in complete systems (Question 4/1);
 - 3.3 identification of sources of interference with radio reception (Question 35/1);
 - 3.4 study of the usable sensitivity of receivers in the presence of quasi-impulsive interference (Question 57/1);
 - 3.5 study the relationships between various parameters of man-made noise, in particular between the quasi-peak voltage, the mean noise power, and the amplitude and time distributions of the received noise (Questions 46/1, 29/6 and Study Programmes 46A/1, 29C/6).

Note - The Director of the CCIR is invited to transmit this Opinion to the CISPR with Report 1104.

OPINION ITU-R 14-7

**PREFERRED RADIO-FREQUENCY CHANNEL ARRANGEMENTS FOR
RADIO-RELAY LINKS FOR INTERNATIONAL CONNECTIONS**

(1959-1963-1970-1974-1978-1982-1986-1990-1993)

The ITU Radiocommunication Assembly,

considering

- a) that line-of-sight and near line-of-sight radio-relay links have already been established by many countries for international connections and that such networks are expanding;
- b) that some countries may be considering the use of trans-horizon links for international connections;
- c) that the ITU-R has recommended preferred radio-frequency channel arrangements for analogue and digital radio-relay links (see Recommendation ITU-R F.746);
- d) that, for radio-frequency interconnection of links in international networks, agreement is necessary on specific radio frequencies as well as on the arrangement of radio channels within a band;
- e) that specific radio frequencies can readily be defined in terms of the centre frequency of the radio-frequency interconnection arrangement;
- f) that, for technical reasons, only certain preferred values of the centre frequency are acceptable in a given frequency band;
- g) that there are various aspects of radio-wave propagation and equipment design that lead to the choice of particular frequency bands for certain capacities and types of radio-relay systems;
- h) that radio-relay links used for international connections must meet high standards of performance similar to those recommended by the ITU-T for line transmission systems;
- j) that it is essential to avoid interference to radio-relay links used for international connections, either from other radio-relay links or from other radio services (including unwanted emissions), operating in the same or other countries,

is of the opinion

that the attention of world and regional radiocommunication conferences should be drawn to:

1. the technical advantages of international agreement on preferred frequency bands, within which international line-of-sight and trans-horizon radio-relay links may be established, using the radio-frequency channel arrangements recommended by the ITU-R;
 2. the technical advantages of preferred values for the centre frequency of channels as defined by the basic pattern, or derived by means of subdivision, of the radio frequency channel arrangements for line-of-sight and trans-horizon systems being established by international agreement;
 3. the risk of interference between line-of-sight and trans-horizon links if these operate in the same frequency band and in the same geographical zone;
 4. the need to avoid interference to radio-relay links used for international connections, from other radio services or unwanted emissions caused by them.
-

OPINION ITU-R 15-3

BROADCASTING IN THE 26 MHz BAND

(1953-1966-1970-1974)

The CCIR,

CONSIDERING

- (a) that it is important that long-distance broadcasting should use all frequency bands available to it;
- (b) that when the smoothed relative sunspot number reaches 70, long-distance broadcast transmissions can be carried out efficiently during daylight hours, over many routes, at frequencies within the 26 MHz broadcasting band;
- (c) that these frequencies are seldom used;
- (d) that such transmissions on these frequencies, whenever they are possible, are particularly advantageous, because of the very low atmospheric-noise intensity and the low absorption,

IS UNANIMOUSLY OF THE OPINION

1. that administrations should bring to the notice of broadcasting organizations the advantages of the 26 MHz band for long-distance terrestrial broadcasting when ionospheric conditions are favourable;
 2. that receiver manufacturers be informed of these possibilities and encouraged to extend the tuning range of their products to permit reception in the 26 MHz band.
-

OPINION ITU-R 16-3*

**ORGANIZATIONS QUALIFIED TO SET STANDARDS ON SOUND
AND TELEVISION RECORDING**

(1956-1970-1978-1986)

The CCIR,

CONSIDERING

- (a) that standards for the international exchange of recorded programmes among broadcasting organizations are the concern of the CCIR;
- (b) that the world-wide definition of standards for the recording of sound and television on discs and on magnetic tape is among the institutional tasks of the IEC;
- (c) that the world-wide definition of standards for the recording of motion pictures and sound on cinematographic film is among the institutional tasks of the ISO;
- (d) that unnecessary duplication of work and a multiplicity of standards should be avoided,

IS UNANIMOUSLY OF THE OPINION

1. that the CCIR should determine the technical and operational criteria which may be necessary to facilitate the international exchange of recorded programmes;
2. that the CCIR should determine the acceptability of existing international standards such as those issued by the IEC and the ISO, and should collaborate with the IEC, ISO and other international organizations in formulating new standards when the existing ones are unsuitable for the international exchange of programmes;
3. that CCIR texts should make reference to existing standards that are judged to be acceptable; references should refer directly to the relevant information without involving successive cross-references; these texts may also include brief descriptive excerpts from these standards when this may help the reader to grasp quickly the full technical content of a specification;
4. that the Director, CCIR, should keep in close touch with the IEC and the ISO, with a view to avoiding unnecessary duplication of work;
5. that to inform the IEC and the ISO of CCIR studies and decisions, the Director, CCIR, should transmit all relevant documents to these organizations inviting them to take CCIR views into account.

* This Opinion also concerns Study Group 11.

OPINION ITU-R 22-5

ROUTINE IONOSPHERIC SOUNDING

(Study Programme KA/6)

(1966-1970-1974-1978-1986-1990)

The CCIR,

CONSIDERING

- (a) that the routine observations from the existing ground-based ionosonde network together with satellite and oblique sounding programmes provide the bases for continuing improvements in both long- and short-term ionospheric predictions;
- (b) that the increasing importance of space research and Earth-space communications will require continued collection of such information, derived as a matter of routine, together with possible increases and changes in the quantity and nature of the information;
- (c) that URSI Commission G has formed an Ionosonde Network Advisory Group (INAG) which is responsible for advising ionospheric sounding stations on scientific questions and for advising URSI on questions concerning the network as a whole,

IS UNANIMOUSLY OF THE OPINION that administrations should make every effort:

1. to continue the operation of the ionosonde network and the interchange, preferably in digital form, of basic data, for which there is much demand, through the World Data Centres;
2. to establish new ionosondes at, or transfer existing ionosondes to, places recommended by the CCIR in fulfilment of Study Programme KA/6 or to support the organizations responsible for new and relocated ionosondes;
3. to consult URSI (INAG) on all questions relating to the establishment or closure of stations in the ionosonde network and proposed changes in the programme of operation or analysis of the ionograms;
4. to support the work under Study Programme KA/6 concerning the use of ionospheric data from satellite programmes and to explore the use of such data as are now available at the World Data Centres, for ionospheric predictions.

Note - The Director, CCIR, is requested to transmit the text of this Opinion to the International Union for Radio Science (URSI), the International Union for Geodesy and Geophysics (IUGG), the Special Committee for Solar-Terrestrial Physics (SCOSTEP), the Scientific Committee for Antarctic Research (SCAR) and the Committee for Space Research (COSPAR) for comments.

OPINION ITU-R 23-4*

OBSERVATIONS NEEDED TO PROVIDE BASIC INDICES
FOR IONOSPHERIC PROPAGATION

(Study Programme 26A/6)

(1966-1970-1974-1982-1986)

The CCIR,

CONSIDERING

- (a) that IG_{12} is recommended as the index to be used for predicting monthly median values of foF2 for dates, certainly up to 6 months, and perhaps up to 12 months ahead of the date of the last observed value of IG;
- (b) that Φ is recommended as the index to be used for predicting monthly median values of foE, foF1 and foF2, for dates, certainly up to 6 months, and perhaps up to 12 months ahead of the date of the last observed value of Φ ;
- (c) that the 12 month running mean sunspot number R_{12} is recommended as the index to be used for all ionospheric predictions for dates more than 12 months ahead of the date of the last observed value,

IS UNANIMOUSLY OF THE OPINION

1. that the following thirteen long-established ionospheric observing stations (or suitable replacements) be encouraged to continue in operation for the production of the index IG_{12} :

Canberra	College	Johannesburg	Port Stanley
Christchurch	Delhi	Moscow	Slough
Churchill	Huancayo	Mundaring	Tokyo
			Wallops Island

2. that the National Research Council (NRC), Ottawa (Canada) should be encouraged to continue the 10.7 cm solar radio-noise flux measurements necessary for determination of the index Φ ;

3. that the Sunspot Index Data Centre (SIDC) directed by Dr. A. Koeckelenbergh, sponsored by the Observatoire Royal de Belgique and the Institut d'Astronomie of the Université libre de Bruxelles, be encouraged to continue determination and distribution of the international relative sunspot numbers.

* The Director, CCIR, is requested to bring this Opinion to the attention of SIDC, NRC and URSI.

OPINION ITU-R 26-2

STUDIES AND EXPERIMENTS CONCERNED WITH TIME-SIGNAL EMISSIONS

(Question 1/7)

(1966-1970-1974)

The CCIR,

CONSIDERING

- (a) that the standard-frequency and time-signal emissions are used in many fields of pure and applied science;
- (b) that Study Group 7 frequently needs the advice of the scientific unions and organizations,

IS UNANIMOUSLY OF THE OPINION

1. that the General Conference of Weights and Measures (CGPM), the Bureau international des poids et mesures (BIPM), the International Union of Radio Science (URSI), the International Astronomical Union (IAU), the International Union of Geodesy and Geophysics (IUGG), and the International Union of Pure and Applied Physics (IUPAP) should be asked to cooperate with CCIR Study Group 7;
 2. that the Chairman, Study Group 7, should communicate with the Director, BIPM, and with the Chairmen of the appropriate Commissions of URSI, the IAU, the IUGG, the CGPM and the IUPAP, and that the Director, CCIR, should be informed.
-

OPINION ITU-R 27

**STANDARD-FREQUENCY AND TIME-SIGNAL EMISSIONS
IN ADDITIONAL FREQUENCY BANDS**

(Question 2/7)

(1966)

The CCIR,

CONSIDERING

- (a) that in certain areas, particularly in industrial centres, it is not always possible to obtain an adequate signal-to-noise ratio with the existing standard-frequency and time-signal service;
- (b) that a better service is needed in certain areas and this service may be given by use of frequencies in band 8 and higher,

IS UNANIMOUSLY OF THE OPINION

that each administration should, as far as possible, provide for the distribution of standard frequencies and time signals, on a local basis, two bands 100 kHz wide in bands 8 and 9 respectively, the centre frequencies of which should be whole multiples of 5 MHz.

**EXCHANGE OF MONOCHROME AND COLOUR TELEVISION
PROGRAMMES VIA SATELLITES**

(1970)

The CCIR,

CONSIDERING

- (a) the importance of facilitating the exchange of television programmes via satellites;
- (b) that, if this exchange is to be made between countries using the same standard or the same system, any conversion or any transcoding at intermediate points could lower the quality of the signal,

IS UNANIMOUSLY OF THE OPINION

that the attention of administrations and organizations responsible for the transmission of international television programmes should be drawn to the desirability of conserving, in the transmission over their networks, the original standard and system, to provide a better quality of service.

* This Opinion has been brought to the attention of Study Groups 4, 9 and the CMTT.

OPINION ITU-R 40

**SUBJECTIVE ASSESSMENT OF THE QUALITY
OF TELEVISION PICTURES**

(1970)

The CCIR,

CONSIDERING

- (a) that it has already done considerable work on the subjective assessment of the quality of television pictures (see Report 405);
- (b) that the International Electrotechnical Commission (IEC) is also making a similar study with special reference to receivers;
- (c) that it is important to develop analogous assessment procedures to obtain consistent results,

IS UNANIMOUSLY OF THE OPINION

that the Director, CCIR, should remain in close contact with the IEC to keep it informed of the wishes of the CCIR and to obtain the results of the work of the IEC with a view to arriving at one or more common methods of assessing picture quality and preventing duplication of work.

OPINION ITU-R 42-2

**METHODS OF MEASUREMENT OF TECHNICAL CHARACTERISTICS
OF EQUIPMENT FOR THE LAND MOBILE SERVICE
BETWEEN 25 AND 3000 MHz**

(1970-1974-1990)

The CCIR,

CONSIDERING

- (a) that it is desirable to interchange information of the requirements of administrations concerning the technical characteristics of equipment used in land mobile services between 25 and 3000 MHz;
- (b) that to facilitate the exchange of such information it is desirable to reach agreement on the methods to be adopted for the measurement of the technical characteristics;
- (c) that it is understood that the International Electrotechnical Commission (IEC) is studying methods of measurement,

IS UNANIMOUSLY OF THE OPINION

1. that the IEC should be invited to advise the CCIR of any proposals they have made (or have under consideration) for the methods of measurement of the technical characteristics of transmitters and receivers which could be applied to radio equipment used in land mobile services;
2. that the Director, CCIR, should be invited to transmit this Opinion to the IEC.

Note - Recommendation 478 indicates the technical characteristics considered of international importance.

OPINION ITU-R 49-1

METHOD OF MEASUREMENT OF MAN-MADE NOISE
IN THE VARIOUS MOBILE SERVICES

(1974-1978)

The CCIR,

CONSIDERING

- (a) that the CCIR has under study the signal-to-noise ratios and the minimum usable field strengths required for satisfactory reception of the different classes of emission in the various mobile services;
- (b) that the minimum usable field strengths required are influenced by levels of ambient man-made noise;
- (c) that information on ambient man-made noise levels is necessary to further the present studies;
- (d) that the levels of man-made noise will vary with the distance from the source of that noise;
- (e) that the units in which man-made noise is measured should be the same as the units used in the determination of the degradation of performance of mobile radio receiving equipment;
- (f) that the degradation of performance of mobile radio receiving equipment appears to be dependent not only on the amplitude of such noise but also on the pulse repetition rate;
- (g) that the IEC have under consideration methods of measurement of degradation of performance of mobile radio receiving equipment due to man-made noise; and
- (h) that a uniform method of measurement and presentation of results is desirable to permit comparison of measurements made independently,

IS UNANIMOUSLY OF THE OPINION

1. that the International Electrotechnical Commission (IEC) and the International Special Committee on Radio Interference (CISPR) should be invited to advise the CCIR of suitable methods of measuring the parameters of man-made noise;
2. that the methods proposed should include the definition of a reference antenna and a reference distance from noise sources;
3. that the IEC and the CISPR should advise the CCIR on the preferred units to be used in the measurement of noise parameters and degradation of performance by man-made noise.

Note 1 - The Director, CCIR, is invited to draw the attention of the IEC and the CISPR to this Opinion.

Note 2 - The Director, CCIR, is also invited to draw the attention of the Interim Working Party 6/2 to this Opinion.

OPINION ITU-R 50

**COORDINATION OF THE WORK OF THE CCIR AND THE IEC*
ON MEASUREMENTS FOR THE ADJUSTMENT AND MAINTENANCE
OF RADIO-RELAY SYSTEMS**

(1974)

The CCIR,

CONSIDERING

- (a) that it is essential to define and unify the measuring methods and the general characteristics of the measuring instruments to be used by administrations for the adjustment and maintenance of radio-relay systems;
- (b) that the IEC has been working in this field;
- (c) that any duplication of, or inconsistency between, the work of the CCIR and the IEC is to be avoided,

IS UNANIMOUSLY OF THE OPINION

1. that the CCIR should collaborate with the IEC in defining the measurements for the adjustment and maintenance of radio-relay systems and in determining the characteristics of the appropriate measuring instruments;
2. that the Director, CCIR, should keep in close touch with the IEC to prevent unnecessary duplication of work;
3. that the Director, CCIR, should provide the IEC with all relevant CCIR documents and invite the IEC to take account of the views expressed by the CCIR;
4. that, if necessary, the Director, CCIR, should propose a joint meeting of the CCIR and the IEC to settle any problems that cannot be settled by correspondence.

* IEC: International Electrotechnical Commission.

OPINION ITU-R 51*

STUDY OF DIGITAL TECHNIQUES BY CCIR STUDY GROUPS
AND THE CMTT

(1974)

The CCIR,

CONSIDERING

- (a) that the study of digital techniques will be an important part of the future work of CCIR Study Groups 4, 9, 10, 11 and the CMTT;
- (b) that CCITT Study Group XVIII has been assigned all questions relating to pulse-code modulation under study by CCITT;
- (c) that CCITT Study Group XVIII will establish performance requirements for transmission systems and, for this work, will need to know the likely digit rates for the various services to be carried by digital networks and performance capabilities of various transmission media, including terrestrial radio and satellite systems,

IS UNANIMOUSLY OF THE OPINION

1. that the work of CCIR Study Groups 4 and 9 on digital transmission systems should be closely coordinated with the work of CCITT Study Group XVIII. The Director, CCIR, should transmit the relevant documents of Study Groups 4 and 9 directly to CCITT Study Group XVIII;
2. that Study Groups 10 and 11 should study the methods of digital encoding and error protection appropriate to the broadcasting, recording and studio processing of sound programme and television signals respectively, and to study methods for the reduction of redundancy in these signals;
3. that the CMTT should study the methods of digital encoding, transcoding and error protection appropriate to the long distance transmission of sound programme and television signals. The CMTT should also provide the necessary coordination to ensure that the work of Study Groups 10, 11 and the CMTT is transmitted to CCITT Study Group XVIII in a unified manner through the Director, CCIR;
4. that the results of the work of CCITT Study Group XVIII should be transmitted to the CCIR Study Groups concerned through the Director, CCIR.

* The Director, CCIR, is requested to bring this Opinion to the attention of the IEC and the CCITT.

OPINION ITU-R 56-1*

**LOCATION OF INTERFACE BETWEEN
CCIR STUDY GROUP 4 AND CCITT RESPONSIBILITIES
FOR DIGITAL NETWORK RECOMMENDATIONS**

(1978-1986)

The CCIR,

CONSIDERING

- (a) that the fixed-satellite service HRDP forms part of an overall HRX;
- (b) that the CCITT has responsibilities for developing Recommendations for both the overall HRX and some of the constituent HRDPs;
- (c) that CCIR Study Group 4 has responsibility for developing Recommendations relating to the satellite HRDP,

IS UNANIMOUSLY OF THE OPINION

that the interface point between the responsibilities of CCIR Study Group 4 and the CCITT should be the digital distribution frame at which the satellite HRDP interfaces with the terrestrial network (see Recommendation 521).

* This Opinion should be brought to the attention of the CCITT.

OPINION ITU-R 66*

FREQUENCY SHARING BETWEEN SERVICES BELOW 30 MHz

(Question 32/3)

(1982)

The CCIR,

CONSIDERING

- (a) Recommendations Nos. 301 and 504 of the WARC-79;
- (b) that preliminary theoretical studies have indicated that satisfactory sharing would be predictable with high confidence under certain circumstances;
- (c) that practical experience has shown the difficulties of achieving frequency sharing in a way satisfactory to both parties due to there being a wide disparity in required field strengths, protection ratios and operating procedures,

IS UNANIMOUSLY OF THE OPINION

1. that, for the time being, sharing between services below 30 MHz requires consideration on a case by case basis;
2. that quantification of the constraints which need to be applied to ensure a satisfactory outcome requires further studies embracing all the many and diverse factors involved.

* The Director, CCIR, is requested to bring this Opinion to the attention of the IFRB and Study Groups 1, 8 and 10.

OPINION ITU-R 67

**GEOPHYSICAL AND SOLAR OBSERVATIONS NEEDED FOR SHORT-TERM
FORECASTING OF IONOSPHERIC PROPAGATION**

(Study Programme 27A/6)

(1982)

The CCIR,

CONSIDERING

that the efficient utilization of radio frequencies depends upon the availability of the most reliable world-wide solar-geophysical data obtained by both ground-based and satellite-based observations,

IS UNANIMOUSLY OF THE OPINION that administrations should make every effort:

1. to make routine observations (such as those discussed in Reports 727 and 888) as a part of world-wide networks, to provide the basis for short-term forecasts;
2. to establish new facilities for making observations in those areas where an adequate network of observation stations does not exist.

Note - The Director, CCIR, is requested to transmit this text together with Reports 727 and 888 to the International Union for Radio Science (URSI), the International Union for Geodesy and Geophysics (IUGG), the International Astronomical Union (IAU), the Scientific Committee for Solar-Terrestrial Physics (SCOSTEP) and the Committee for Space Research (COSPAR) for comment.

OPINION ITU-R 68-1

DATA BANK OF HF SKY-WAVE SIGNAL INTENSITY MEASUREMENTS

(Question 42/6)

(1982-1990)

The CCIR,

CONSIDERING

- (a) that observations of HF sky-wave signal intensity collected under standardized conditions are needed for a wide range of path and operating conditions in order to test the accuracy of methods of signal intensity estimation and to enable the development of new methods;
- (b) that Report 253 gives details of how observations may be carried out and reported in order to produce standardized data of the greatest value;
- (c) that Report 1149 gives specifications for a field-strength measurement campaign intended for future improvements in prediction methods;
- (d) that the CCIR has established through its Interim Working Party 6/1 a data bank of measurements but that the amount of data therein is insufficient for the purposes in hand,

IS UNANIMOUSLY OF THE OPINION

- 1. that administrations and organizations should make every effort to provide such measured data as exist to the Director, CCIR, for inclusion in the data bank;
- 2. that administrations and organizations should collect and provide new data in accordance with the details given in Report 253;
- 3. that, although data in accordance with Report 253 are preferable, administrations and organizations having other data are encouraged to provide them. The nature and method of processing the data should be adequately explained.

Note - See also Opinion 45.

OPINION ITU-R 69

**FIELD-STRENGTH MEASUREMENTS FOR FREQUENCIES
BELOW ABOUT 1.7 MHz**

(Study Programme 31D/6)

(1982)

The CCIR,

CONSIDERING

that there is a need for improved propagation data at frequencies below about 1.7 MHz,

IS UNANIMOUSLY OF THE OPINION

1. that administrations and organizations which can make field strength and phase measurements, or which can provide suitable transmissions, should be encouraged to participate in measurement campaigns, especially in those parts of the world where few measurements have been made;
 2. that administrations and organizations should communicate their results to the Director of the CCIR. The standardized form described in Opinion 46 should be used where possible.
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OPINION ITU-R 71-2*

DOCUMENTATION OF TIME TRANSMISSIONS

(1993)

The ITU Radiocommunication Assembly,

considering

- a) that transmitted time signals are kept within various accuracy limits by the introduction of steps or changes in the rate;
- b) that each Administration furnishes current information concerning adjustments to frequency and time signals in accordance with Article 33, No. 2771 of the Radio Regulations and Resolution ITU-R 28;
- c) that there have been different values of the steps and changes of the rates in the different countries before the introduction of coordinated universal time (UTC), and that the relevant details are not readily available;
- d) that these data could be necessary for future analysis,

is of the opinion

1. that all administrations operating a standard-frequency time-signal service should document the details of significant adjustments to frequencies and time-scales and specifically should publish the amount and date of time steps and rate changes in their emissions and also communicate the data to the Bureau international des poids et mesures (BIPM).

* This Opinion should be brought to the attention of the authorities responsible for standard-frequency and time-signal services listed in Recommendation ITU-R TF.768.

OPINION ITU-R 72*

TIME DISSEMINATION USING METEOROLOGICAL SATELLITES

(Question 2/7)

(1982)

The CCIR,

CONSIDERING

- (a) that needs are growing in many application areas, such as geodesy, geophysics, international time coordination, and many other types of coordinated scientific observations for reference time signals that are available world-wide on a highly reliable basis;
- (b) that an accurate time code referenced to UTC has been successfully disseminated from two United States GOES meteorological satellites since 1975 and is finding increasing acceptance and use within the western hemisphere;
- (c) that the European Meteosat satellites and the Japanese GMS satellites are part of the same world-wide meteorological satellite system as the United States GOES satellites and have similar data formats, including appropriate code bits reserved for possible time code use;
- (d) that inexpensive receivers could be used in common with the GOES, Meteosat, and GMS satellites with little or no modification;
- (e) that time and frequency organizations in Europe and Japan have expressed interest in implementing time codes on the Meteosat and GMS satellites,

IS UNANIMOUSLY OF THE OPINION

1. that the addition of a time code compatible with the GOES satellites to Meteosat and GMS satellites would provide a valuable world-wide time and frequency dissemination service useful in many applications and requiring no significant modifications to the satellite signal formats, space hardware, or ground equipment;
2. that the World Meteorological Organization should be asked to distribute this Opinion to its national organizations in appropriate countries;
3. that the European Space Agency should be asked to distribute this Opinion to appropriate organizations within Europe that are interested in the METEOSAT program.

* The Director, CCIR, is requested to bring this Opinion to the attention of the International Union of Geodesy and Geophysics (IUGG) and CCIR Study Group 2.

OPINION ITU-R 73

**INTERFERENCE DUE TO MAN-MADE NOISE IN THE
VARIOUS MOBILE SERVICES**

(1982)

The CCIR,

CONSIDERING

- (a) that the CCIR has under study the signal-to-noise ratios and the minimum usable field strengths required for satisfactory reception of the different classes of emission in the various mobile services;
- (b) that the minimum usable field strengths required are influenced by levels of ambient man-made noise;
- (c) that information on ambient man-made noise levels is necessary to further the present studies;
- (d) that the International Electrotechnical Commission (IEC) has elaborated methods of measurement of degradation of performance of mobile radio receiving equipment due to man-made noise;
- (e) that the IEC has elaborated methods of measurement of man-made noise which are expressed in the same units as used in Considering (d);
- (f) that the International Special Committee on Radio Interference (CISPR) limits provides for measurements of ignition systems of motor vehicles in the frequency range 40-250 MHz,

IS UNANIMOUSLY OF THE OPINION

1. that the IEC and the CISPR should be invited to advise the CCIR as to the man-made radiation levels of motor vehicles complying with the CISPR limits when received by a base or mobile station antenna:
 - 1.1 mounted on a vehicle radiating the noise,
 - 1.2 mounted on a vehicle operated in traffic of from 100 to 10 000 vehicles per hour,
 - 1.3 mounted at a base station in an area of traffic density of 10, 100, 1000 vehicles per km²,
 - 1.4 mounted on an aircraft operating at altitudes of 1 km, 4 km and 10 km for traffic densities of 100 and 1000 vehicles per km² in an area below the aircraft;
 2. that the IEC and the CISPR should be invited to advise the CCIR as to the degree of degradation to both analogue and digital communication systems caused by these noise levels.
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**SYSTEMS FOR SIGNAL INTERFACE CONNECTION BETWEEN SOUND-BROADCASTING
RECEIVERS AND ASSOCIATED EQUIPMENT**

(1982-1990)

The CCIR,

CONSIDERING

- (a) the importance of facilitating the enhancement and greater efficiency of broadcast systems;
- (b) that the introduction of such improvements has heretofore often been delayed by the need to wait until equipment in the hands of the public has become obsolete;
- (c) that such delays could be shortened if appropriate means were provided for the connection of associated equipment;
- (d) the CCIR studies decided in Study Programmes 46G/10 and 46H/10,

IS UNANIMOUSLY OF THE OPINION

that the IEC should be invited to study and set standards for signal interface connection between sound broadcasting receivers, audio recorders and players, decoders for sound broadcasting supplementary services, and other associated equipment intended for use by the public, taking into appropriate account the studies that will be carried out by the CCIR on this subject.

* The Director, CCIR, is requested to bring this Opinion to the attention of the CCITT and the IEC. This Opinion has also been brought to the attention of Study Group 11.

OPINION ITU-R 75-1

**SYSTEMS FOR SIGNAL INTERFACE CONNECTION BETWEEN
TELEVISION RECEIVERS AND ASSOCIATED EQUIPMENT**

(1982-1990)

The CCIR,

CONSIDERING

- (a) the importance of facilitating the enhancement and greater efficiency of broadcast systems;
- (b) that the introduction of such improvements has heretofore often been delayed by the need to wait until equipment in the hands of the public has become obsolete;
- (c) that such delays could be shortened if appropriate means were provided for the connection of associated equipment;
- (d) the CCIR studies decided in Study Programme 18U/11,

IS UNANIMOUSLY OF THE OPINION

that the IEC should be invited to study and set standards for signal interface connection between receiving equipment, recorders, teletext decoders and other associated equipment intended for use by the public for conventional television, enhanced television and high-definition television, taking into appropriate account the studies that will be covered by the CCIR on this subject.

Note - The Director, CCIR, is requested to bring this Opinion to the attention of the CCITT and IEC. This Opinion has also been brought to the attention of Study Group 10.

OPINION ITU-R 82

USE OF AN IONOSPHERICALLY DERIVED SOLAR ACTIVITY
INDEX (IG) FOR THE PREDICTION OF foF2

(1986)

The CCIR,

CONSIDERING

- (a) that Report 340 contains comprehensive charts and numerical data which afford the most widely available means of predicting foF2, in terms of sunspot numbers;
 - (b) that the resulting predictions suffer from undesirably large errors in some geographical areas and at some times (see Report 430), and that a prediction system giving improved accuracy would be beneficial to efficient communications;
 - (c) that the index IG [Liu *et al.*, 1983] which is an ionospheric-based index, derived independently of sunspot number, has been proposed for use with the existing data of Report 340;
- Note.* - In the above-referenced paper the new index, which is called IG in the present document, is denoted by GESSN.
- (d) that evidence has been produced that a useful improvement in accuracy is obtainable in the prediction of foF2 by the use of IG_{12} instead of R_{12} ;
 - (e) that monthly values of IG for the past 40 years are available, and that predictions of future values of IG_{12} are being made by the same method as that used for the prediction of R_{12} (see Recommendation 371);
 - (f) that predicted values of IG_{12} over a sunspot cycle are available from the CCIR Secretariat,

IS UNANIMOUSLY OF THE OPINION

that the Science and Engineering Research Council of the United Kingdom should be encouraged to continue the prediction of IG_{12} for the estimation of foF2, and to send the predictions to the Director, CCIR, for the use of administrations and organizations requiring them.

REFERENCES

LIU, R. Y., SMITH, P. A. and KING, J. W. [1983] A new solar index which leads to improved foF2 predictions using the CCIR Atlas. *Telecomm. J.*, Vol. 50, VIII, 408-414.

OPINION ITU-R 83-1

DATA BROADCASTING SERVICES

(1986-1990)

The CCIR,

CONSIDERING

- (a) that some data broadcasting services have already been introduced and information is given in Recommendation 653;
- (b) that studies within the CCIR on data broadcasting generally are in progress and information is given in Reports 802, 956, 1207 and 1208;
- (c) that several administrations are providing a wide range of data services via the public telecommunication networks;
- (d) that the use of these complementary delivery facilities can increase the appeal of some of these data services;
- (e) that it is desirable to optimize the compatibility of receiving terminals for the two methods of delivery,

IS UNANIMOUSLY OF THE OPINION

that the Director, CCIR, should draw the attention of the Director, CCITT, to the CCIR documentation on data broadcasting services and invite the CCITT to take into account in its studies of data services based on the public telecommunication networks, the desirability for compatibility of the terminal equipment with data broadcasting services. Similarly, the CCIR in its studies of data broadcasting services, should take into account relevant CCITT documentation.

OPINION ITU-R 85-1

MEASUREMENTS OF THE CHARACTERISTICS OF ATMOSPHERIC RADIO NOISE

(1986-1993)

The ITU Radiocommunication Assembly,

considering

- a) that the intensity of atmospheric radio noise sets a limit to the performance of radio circuits operating at frequencies below about 30 MHz;
- b) that information contained in the several versions of Report ITU-R PL.322, and subsequently Recommendation ITU-R PL.372, has been used for many years as an element in the planning of radio services;
- c) that new information on the characteristics of atmospheric radio noise differs considerably from that given in Recommendation ITU-R PL.372 for some parts of the world;
- d) that further studies are necessary as detailed in Question ITU-R 29/6,

is of the opinion

that administrations and recognized operating agencies should make every effort:

1. to make measurements of the intensity and other characteristics of atmospheric radio noise, bearing in mind the need to distinguish natural noise from that due to man-made sources;
 2. to analyse the results of measurements of atmospheric radio noise in terms of the parameters used in Recommendation ITU-R PL.372 so as to facilitate comparison;
 3. to evaluate the practical effects of applying the information of Recommendation ITU-R PL.372 to the planning of radio systems.
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OPINION ITU-R 90*

**EQUIPMENT INTERCONNECTION IN PROFESSIONAL
PROGRAMME PRODUCTION INSTALLATIONS**

(1990)

The CCIR,

CONSIDERING

(a) the importance of facilitating the easy interconnection of equipment in programme production installations for sound broadcasting and television; this covers:

- interconnections to carry programme signals from equipment to equipment,
- interconnections to coordinate operation of equipment, e.g. control and tally functions;

(b) that developing countries would particularly benefit from easy interconnectability of equipment in their installations;

(c) that the CCIR possesses the expertise required to define and recommend essential elements of specifications for equipment interconnection in professional broadcast installations, that optimally meet the system engineering requirements of broadcasters and programme producers (several such Recommendations have been successfully set by the CCIR in the past);

(d) that IEC Technical Committee 84 is engaged in work on audio and audiovisual equipment interconnection with special attention to audiovisual equipment for domestic use;

(e) the content of Opinion 16,

IS UNANIMOUSLY OF THE OPINION

that the IEC should be invited to take into appropriate consideration the results of relevant CCIR studies, and the relevant CCIR Recommendations, in its own work on equipment interconnection for domestic and professional audio and audiovisual equipment.

* The Director, CCIR, is requested to bring this Opinion to the attention of the IEC.

OPINION ITU-R 91

WORLD ATLAS OF GROUND CONDUCTIVITIES

(1993)

The ITU Radiocommunication Assembly,

considering

- a) the need for ground conductivity data when planning radiocommunication services, including those concerning navigation, in the VLF, LF and MF bands;
- b) that the World Atlas of Ground Conductivities (formerly published separately in Report ITU-R PN.717) is published as Recommendation ITU-R PN.832;
- c) the desirability for the World Atlas to contain ground conductivity data for all countries of the world,

is of the opinion

- 1. that Administrations should check and, if necessary, revise the information given in the World Atlas;
 - 2. that for those countries for which no conductivity data are contained in the World Atlas, the Administrations concerned should collect and provide data in accordance with the information given in Recommendation ITU-R PN.832.
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OPINION ITU-R 92*

HARMONIZATION OF ACTIVITIES FOR FUTURE MOBILE COMMUNICATIONS

(1993)

The ITU Radiocommunication Assembly,

considering

- a) that the Radiocommunication Sector has a program on Future Public Land Mobile Telecommunication Systems (FPLMTS) which would enable worldwide compatibility;
- b) that major programs for future mobile communications within each Region are at early stages;
- c) that resources of budget, manpower, and planning expertise are available to these programs which substantially exceed those readily available to the Radiocommunication Sector;
- d) that, without international coordination, these regional programs would tend to diverge;
- e) that international standards for future mobile communications (i.e. FPLMTS) will not be effective unless these regional programs are harmonized;
- f) that the production of ITU-R Recommendations on FPLMTS will be an important step in achieving this harmonization,

is of the opinion

1. that the ITU, as a matter of policy, should make every effort to persuade regional bodies, national authorities and other appropriate entities to support the Radiocommunication Sector in an explicit manner in its development of Recommendations on FPLMTS and strongly encourage regional organizations to work together towards a single worldwide standard.

* This Opinion should be brought to the attention of the Telecommunication Standardization Sector.

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