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Documents of the World Administrative Radio Conference for the planning of the HF bands allocated to the broadcasting service (2nd session) (WARC HFBC-87 (2))
(Geneva, 1987)

To reduce download time, the ITU Library and Archives Service has divided the conference documents into sections.

- This PDF includes Document No. 101-200
- The complete set of conference documents includes Document No. 1-279, DL No. 1-33, DT No. 1-73

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, **February-March 1987**

Document 101-E
20 February 1987
Original: English

COMMITTEE 6

SUMMARY RECORD

OF THE

SECOND MEETING OF COMMITTEE 6

(REGULATORY)

Friday, 13 February 1987, at 1430 hrs

Chairman: Mr. R. BLOIS (Brazil)

Subjects discussed:		Documents
1.	Note from the Chairman of Committee 4	91
2.	Report of Working Group 6 ad hoc 1	97
3.	Approval of the summary record of the first meeting	83

ARCHIVES U.I.T. GENÈVE

For reasons of economy, this document is printed in a limited number of copies. Participants are therefore kindly asked to bring their copies to the meeting since no others can be made available.

1. Note from the Chairman of Committee 4 (Document 91)

1.1 The Chairman, after introducing the document, invited the Committee to consider the first request made to Committee 6, namely to give advice on the most appropriate way for the technical parameters to be included in the Final Acts of the Conference. The second request had already been discussed in Working Group 6 ad hoc 1 and would be discussed further, later in the meeting, in connection with the report of that Working Group contained in Document 97.

1.2 The Chairman of Committee 4, enlarging on the problem, said that it had been pointed out in recent discussions of the Committee that the division of the technical parameters into two categories might cause difficulties in their placement in the Final Acts. Committee 4 considered that there was some advantage in having all the technical parameters in one document. They may be annexed to a recommendation to the Board that such parameters be used for planning purposes and as a basis for the development of standards. On the other hand, if the technical parameters are included in an appendix to the Radio Regulations, they could only be changed by a subsequent competent conference. Committee 6 was asked to take the final decision.

1.3 The Chairman asked whether, if all technical parameters were included in an annex to a Recommendation, Committee 4 was able to indicate which parameters were subject to modification in the future.

1.4 The Chairman of Committee 4 replied that such an indication could be given if Committee 6 thought it necessary. Replying to a question raised by the delegate of Italy as to the status of those parameters if they were so annexed, he said that they would be used as a basis for planning procedures and technical standards in accordance with No. 1001 of the Radio Regulations.

1.5 The delegate of India said that parameters subject to future modification may be indicated by a footnote in a Recommendation or a Resolution stating that they were subject to improvement in accordance with CCIR Recommendations. Appendix 29, for example, provided such flexibility. It would be of some advantage to divide the technical parameters into two categories as suggested by Committee 4, keeping those likely to change in a separate category and to adopt appropriate procedures for amending variable parameters with proper cross-referencing. The delegates of Brazil and Saudi Arabia supported those views.

1.6 The delegate of the United States of America said there was not necessarily a conflict between the two approaches suggested by Committee 4, and in fact Document 91 offered effective guidance on its own. His Delegation believed that there were advantages on both sides but considered the subject would best be explored in Committee 4.

1.7 The delegate of Canada said that his Delegation was in favour of having the information divided into two categories as suggested by Committee 4 in Document 91. The final paragraph of the report of Working Group 6 ad hoc 1 (Document 97) identified ways in which that could be done.

1.8 The delegate of the USSR said that his Delegation considered it inappropriate for parameters subject to change to be included in the Radio Regulations. Furthermore, any attempt to divide the technical parameters into two categories would create difficulties. To facilitate the work of Committee 4, therefore, Committee 6 should adopt the idea that all technical

parameters should be reflected in the Final Acts of the Conference, and make Recommendations to the Plenary, which would take the final decision, as to what should be done with the list of parameters. A number of possibilities appeared in Document 97. Any remaining regulatory questions would then be the responsibility of Committee 6.

1.9 The delegate of Australia observed that Document 91 was not totally independent of Document 97 in that decisions concerning Document 91 might affect what needed to be done when handling Document 97. There was obviously some genuine concern about the way the changes are effected. It was not unusual to have special paragraphs in appendices, such as in Appendix 29. The important thing was to bear in mind that the Board needed some flexibility and that administrations needed some degree of assurance that they would not be disadvantaged by the discretionary powers of the Board imposed because the latter needed the flexibility. However thorough the Conference endeavoured to be, some matters would arise requiring some sort of discretionary power. While, therefore, his Delegation would not oppose the inclusion of all parameters in one place, with suitable referencing, it felt that the entire package should be treated in such a way that was satisfactory for the administrations concerned.

1.10 The delegate of China suggested that Committee 4 might be asked to divide the parameters into two categories on an experimental basis to see if it worked. If it did not, efforts could be made to evolve a better formula. The experience of previous administrative conferences should therefore perhaps be applied, given the special characteristics of technical standards. In any event Committee 6 should not be in a hurry to take a decision. The delegates of Mexico and Papua New Guinea supported that view.

1.11 The delegate of Algeria supported the idea of making a distinction between the two types of parameters. Once Committee 4 had made the classification, the matter could be dealt with by Committee 6. In addition, to help administrations, a Recommendation or Resolution might be passed that the Board or Secretariat, if necessary, should produce a guide, independent of the Radio Regulations, to help administrations in their work in the field of HF broadcasting.

1.12 The Chairman, summing up, said that from the suggestions made, all speakers had felt that some flexibility was necessary in cases where future modifications could be foreseen. As the large majority had been in favour of two different approaches as outlined in Document 91, Committee 4 might be asked to work on the approach suggested in Document 91, and to make cross-references where necessary to help administrations.

1.13 The delegate of the Federal Republic of Germany supported that suggestion.

1.14 The Chairman of Committee 4 suggested that to facilitate matters for administrations, Committee 4 should make a list of all parameters, with a note in the appendix where they were to be included, drawing attention to the appropriate annex alongside those subject to change to make it clear where the various parameters could be located. The values of the permanent parameters would appear in the appendices of the Radio Regulations, but where they appeared in Recommendations, corresponding cross-references would be given.

1.15 The representative of the IFRB (Mr. Berrada) said that if he had properly understood the Chairman's summary and the additional suggestion made by the Chairman of Committee 4, some parameters would be included in the Radio Regulations and a reference made to an annex to a Recommendation where the other parameters would appear. If that were the case, the Committee should bear in mind that where a provision of the Radio Regulations made reference to a Recommendation, the Board considered that Recommendation to be an integral part of the Radio Regulations, the existence of the reference giving the Recommendation the same power as the provision itself.

1.16 The Chairman asked whether, in that case, an annex to a Recommendation was subject to future change or not.

1.17 The representative of the IFRB (Mr. Berrada) replied that if a provision of the Radio Regulations referred to a Recommendation, that Recommendation could only be modified by a conference.

1.18 The delegate of Brazil asked whether difficulties would arise if references were included in the Recommendation rather than in the appendix.

1.19 The representative of the IFRB (Mr. Berrada) said that if references to provisions of the Radio Regulations were included in Recommendations, they would not present any restrictions.

1.20 The delegate of Sweden said that standards based on technical parameters subject to change would impose a restriction which he felt the Committee would not really wish to introduce.

1.21 The representative of the IFRB (Mr. Berrada) said that Resolutions or Recommendations adopted by a conference could only be modified by another conference empowered to do so. As he understood Document 91, technical criteria subject to modification would be contained in an annex to a Recommendation to the Board, with a view to their being included in the Board's technical standards. The Board would eventually modify the technical standards as necessary, although the Recommendation would remain unchanged until modified by a future conference.

1.22 The Chairman of Committee 4 said that that explanation answered the third question contained in Document 91, and Committee 4 would consequently try to word the Recommendation in such a way that no further difficulties would arise.

1.23 The delegate of Switzerland said that in spite of the explanation given by the representative of the IFRB, his Delegation continued to share the same concerns as Sweden.

1.24 The Chairman, in a final summing-up, suggested that, to enable Committee 4 to continue its work, Committee 6 should ask Committee 4 to work on the basis of two separate lists, the first containing parameters not subject to change in the near future and the second containing those parameters likely to change. The manner in which that information would appear in the Final Acts would be a matter for subsequent consideration by Committee 6.

It was so agreed.

2. Report of Working Group 6 ad hoc 1 (Document 97)

2.1 The Chairman of Working Group 6 ad hoc 1 introduced the Report contained in Document 97. The Chairman congratulated the Chairman of the Working Group on completing the Group's work in a single meeting and thanked him for an excellent report.

2.2 The delegate of Mexico said that the Committee should make it clear that it had not considered making any change in Radio Regulations Nos. 2665, 3603 and 4103 or in Recommendations Nos. 5 and 9, the Conference having no mandate to do so. The Chairman said that he would take that point into consideration when presenting the Committee's report to the Plenary.

2.3 The delegate of Papua New Guinea, referring to Resolution No. 641, proposed that the "resolves" paragraph should be left in the form adopted by WARC-79 and should be followed by a new paragraph reading: "urges administrations responsible for broadcasting stations operating on frequencies in this band to take action so that such operation ceases immediately". The delegates of the USSR, Norway, Poland, Australia, Ghana and Japan, as well as the delegate of Kenya speaking as the Chairman of Working Group 6 ad hoc 1, supported that proposal.

2.4 The delegate of Sweden remarked that the words "the World Administrative Radio Conference, Geneva, 1979" should be replaced by the name of the Conference now taking place.

It was so agreed.

2.5 The delegate of Paraguay, supported by the delegate of Mexico, drew attention to the need to bring the Spanish text of Resolution No. 641, as amended, into line with the English text.

2.6 The delegate of Pakistan wished to put on record that his Administration continued to maintain its reservation on the subject of Resolution No. 641, as detailed in the Protocol to the Final Acts of WARC-1979.

2.7 The delegate of Botswana reserved the right to revert to Resolution No. 641 at a later stage.

The modified text of Resolution No. 641, as amended, was approved.

2.8 The Chairman suggested that another ad hoc Working Group should be set up to draft a Resolution along the lines referred to in the penultimate paragraph of the report of Working Group 6 ad hoc 1.

2.9 The Chairman of Committee 4 remarked that in carrying out its work the proposed ad hoc Group might be guided by the explanations given by the representative of the IFRB in connection with agenda item 1. Replying to a point raised by the delegate of the Federal Republic of Germany, he said that Committee 4 was not proposing to prepare a Resolution but only to draw up lists of those technical criteria which were and were not likely to be changed.

2.10 After a discussion in which the delegates of Italy, Algeria, Brazil, Australia, the United States of America, the Federal Republic of Germany and the USSR took part, the Chairman suggested that the new ad hoc Working Group should be set up with the following mandate:

> "To draft a Resolution to deal with modifications to those technical parameters included in the Final Acts of the Conference which are likely to be changed in the future".

He further suggested that Working Group 6 ad hoc 2 should be chaired by a member of the Canadian Delegation.

2.11 The delegate of Canada said that the Group would be chaired by Mr. DuCharme.

It was so agreed.

3. Approval of the summary record of the first meeting of Committee 6 (Document 83)

The summary record of the first meeting of Committee 6 was approved as amended. (See Corrigendum 1 to Document 83.)

The meeting rose at 1730 hours.

The Secretary: The Chairman:

M. AHMAD R. BLOIS

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS
ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 102-E
13 February 1987
Original : English
French
Spanish

Origin : Documents 87, 93

COMMITTEE 7

FIRST SERIES OF TEXTS FROM COMMITTEE 4 TO THE EDITORIAL COMMITTEE

The texts mentioned in Documents 87 and 93 are submitted to the Editorial Committee.

J. RUTKOWSKI
Chairman of Committee 4

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HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS
ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 103-E
13 February 1987
Original: French

COMMITTEE 2

SECOND REPORT OF THE WORKING GROUP OF COMMITTEE 2 (CREDENTIALS)

1. The Working Group of Committee 2 held a second meeting on 13 February 1987. It examined the credentials of the following delegations :

(In French alphabetical order)

Afghanistan (Democratic Republic of)
Angola (People's Republic of)
Australia
Belgium
Cameroon (Republic of)
Colombia (Republic of)
Egypt (Arab Republic of)
Spain
United States of America
Gambia (Republic of the)
Ghana
Honduras (Republic of)
India (Republic of)
Iran (Islamic Republic of)
Liberia (Republic of)
Morocco (Kingdom of)
Mauritania (Islamic Republic of)
Mexico
Niger (Republic of the)
Oman (Sultanate of)
Poland (People's Republic of)
Portugal

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German Democratic Republic
Democratic People's Republic of Korea
Romania (Socialist Republic of)
Thailand
Togolese Republic
Yemen (People's Democratic Republic of)
Yugoslavia (Socialist Federal Republic of)

a total of 29 delegations

These credentials are all in order.

2. The working Group noted that some delegations present at the Conference have not yet deposited their credentials. These delegations will be contacted by the committee Secretariat.

S.K. CHEMAI
Chairman of Working Group C2-A

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS
ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 104-E
13 February 1987
Original: English

COMMITTEE 4

FOURTH REPORT OF WORKING GROUP 4-B

The Working Group proposes the following modified text of Note 21 to the table of transmitter frequency tolerances, Appendix 7 to the Radio Regulations:

"21) It is suggested that administrations avoid carrier frequency differences of a few hertz, which cause degradations similar to periodic fading. This could be avoided if the frequency tolerance were 0.1 Hz."

E. GEORGE
Chairman of Working Group 4-B

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HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 105-E
13 February 1987
Original: English

COMMITTEE 4

FIFTH REPORT OF WORKING GROUP 4-B

The annex contains a draft Resolution relating to the transition from double-sideband emissions to single-sideband emissions in the HF bands allocated to the broadcasting service for consideration by Committee 4. The final date for the cessation of double-sideband emissions could not, due to unsurmountable divergence of opinions, be definitely decided. The date appearing in square brackets may serve as a guidance. Apart from this the draft Resolution has been approved unanimously.

Square brackets around pieces of text referring to Appendix [COM4/A] and Resolution [COM4/1] shall indicate that a final decision where the SSB System specification should be placed has not yet been taken.

E. GEORGE
Chairman of Working Group 4-B

Annex: 1

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ANNEX

Draft text for inclusion in the Final Acts

Source: DT/38

DRAFT

RESOLUTION [COM4/2]

Transition from Double-Sideband Emissions to Single-Sideband Emissions in the HF Bands Allocated to the Broadcasting Service

The World Administrative Radio Conference for the Planning of the HF Bands Allocated to the Broadcasting Service, Geneva, 1987,

considering

a) that the HF bands allocated to the broadcasting service are severely congested;

b) that the level of congestion within these HF bands is increasing;

c) that the use of single-sideband techniques will provide a much more efficient utilization of the frequency spectrum than double-sideband techniques;

d) that single-sideband has the capability of improving the quality of reception;

e) that the lifetime of a transmitter is of the order of twenty years;

f) that the lifetime of a receiver is of the order of ten years;

g) that it is economically unattractive to convert existing conventional DSB transmitters to SSB operation using current technology;

[h) Appendix [COM4/A] (Document 84(Rev.1)) to the Radio Regulations concerning the single-sideband system specification for the HF bands allocated to the broadcasting service;]

i) that the First Session of the World Administrative Radio Conference for the Planning of the HF Bands Allocated to the Broadcasting Service, Geneva, 1984, in the Report to the Second Session addressed the progressive introduction of SSB emissions;

j) Recommendation No. 501 of the World Administrative Radio Conference, 1979 relating to studies for the introduction of SSB techniques;

k) that stimulus for the acceleration of the design and manufacture of single-sideband transmitters and receivers is to be found in Recommendation [COM4/B] (Document 93),

resolves

1. that the transitional procedure in the annex to this Resolution shall be used for the purpose of ensuring an orderly implementation of the changeover from double-sideband to single-sideband emissions in the HF bands allocated to the broadcasting service;

2. that the final date for the cessation of double-sideband emissions specified in the annex to this Resolution shall be subject to periodic review by future competent world administrative radio conferences in the light of the latest available complete statistics on the world-wide distribution of SSB transmitter and synchronous demodulator receiver availability and that at least one such review shall be undertaken prior to the year 2000,

requests the Administrative Council of the ITU

to place, as an extraordinary item, on the agendae of future world administrative radio conferences the matter referred to in and in conformity with resolves 2 above,

requests the CCIR

to compile and maintain the statistics referred to in resolves 2 above, to make these statistics available to interested administrations and to provide summaries of these statistics to the Administrative Council of the ITU for submission to the appropriate future world administrative radio conferences,

invites administrations

to assist the CCIR in its task mentioned above by providing the relevant statistical data.

ANNEX TO RESOLUTION [COM4/2]

Transitional Procedure for the Changeover from Double-Sideband to Single-Sideband Emissions in the HF Bands Allocated to the Broadcasting Service

1. The immediate introduction of single-sideband emissions is encouraged, i.e. the transition period starts with immediate effect.

2. All double-sideband emissions shall cease by [31 December 2015, 2359 UTC] (see also resolves 2 in the main body of the Resolution).

3. Single-sideband emissions shall be in conformity with the characteristics specified in [Appendix [COM4/A] (Document 84(Rev.1)) to the Radio Regulations].

4. Until [31 December 2015, 2359 UTC] single-sideband emissions intended for reception by double-sideband receivers with envelope demodulation as well as by single-sideband receivers with synchronous demodulation shall use a carrier reduction of 6 dB relative to peak envelope power.

5. After [31 December 2015, 2359 UTC] only single-sideband emissions with a carrier reduction of 12 dB relative to peak envelope power shall be used.

6. Until [31 December 2015, 2359 UTC] whenever an administration uses a single-sideband emission to replace its double-sideband emission, it shall ensure that the level of interference is not greater than that caused by its original double-sideband emission (see also [Appendix [COM4/A] (Document 84(Rev.1)) to the Radio Regulations and Resolution [COM4/1] (Document 99)]).

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 106(Rev.1)-E
18 February 1987
Original: English

Source: Document DT/25(Rev.1) COMMITTEE 4

DRAFT TEXT FOR INCLUSION IN THE FINAL ACTS

DRAFT RESOLUTION [COM4/3]

Antennas to be Used for the Planning of the HF Bands Allocated to the Broadcasting Service

The World Administrative Radio Conference for the Planning of the HF Bands Allocated to the Broadcasting Service (Geneva, 1987),

considering

a) No. 1001 of the Radio Regulations and its footnote concerning the development of the Technical Standards of the IFRB;

b) that the IFRB Technical Standards shall be developed according to [No. 1454] of the Radio Regulations;

c) that the CCIR has published the Book of Antenna Diagrams (ed. 1984) and made available computer programs for HF antenna calculations;

d) that administrations are developing improved antennas to be used for HF broadcasting;

e) that administrations may wish to use antenna types not included in the above-mentioned CCIR Publication,

resolves

1. that the most appropriate type of antenna for the required service should be used;

2. that the use of antennas having a large number and size of side-lobes, e.g. rhombic antennas, should be avoided,

invites administrations

[1. to take into account resolves 1 and 2 above;]

[2.] wishing to use antenna types different from those included in the IFRB Technical Standards and in the CCIR Book of HF Antenna Diagrams to provide the relevant data to the IFRB and to the CCIR,

invites the CCIR

to continue to update the Book of HF Antenna Diagrams,

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requests the IFRB

1. to base its Technical Standards for reference antenna types on the CCIR Book of Antenna Diagrams and information supplied by administrations;

2. to publish and maintain in its Technical Standards the set of antenna characteristics to be used for HFBC.

J. RUTKOWSKI
Chairman of Committee 4

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 106-E
13 February 1987
Original: English

Source: Document DT/25(Rev.1)

COMMITTEE 4

DRAFT TEXT FOR INCLUSION IN THE FINAL ACTS

DRAFT RESOLUTION [COM4/3]

Antennas to be Used for the Planning of the HF Bands Allocated to the Broadcasting Service

The World Administrative Radio Conference for the Planning of the HF Bands Allocated to the Broadcasting Service, Geneva, 1987,

considering

a) No. 1001 of the Radio Regulations and its footnote concerning the development of the Technical Standards of the IFRB;

b) that the IFRB Technical Standards shall be developed according to [No. 1454] of the Radio Regulations;

c) that the CCIR has published the Book of Antenna Diagrams (ed. 1984) and made available computer programs for HF antenna calculations;

d) that administrations are developing improved antennas to be used for HF broadcasting;

e) that administrations may wish to use antenna types not included in the above-mentioned CCIR Publication,

resolves

1. that administrations should use the most appropriate type of antenna for the required service;

2. that administrations should avoid the use of antennas having a large number and size of side-lobes, e.g. rhombic antennas,

invites administrations

wishing to use antenna types different from those included in the IFRB Technical Standards and in the CCIR Book of HF Antenna Diagrams to provide the relevant data to the IFRB and to the CCIR,

invites the CCIR

to continue to update the Book of HF Antenna Diagrams,

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requests the IFRB

1. to base its Technical Standards for reference antenna types on the CCIR Book of Antenna Diagrams and information supplied by administrations;

2. to publish and maintain in its Technical Standards the set of antenna characteristics to be used for HFBC.

L.W. BARCLAY
Chairman of Working Group 4-A

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS
ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, January-March 1987

Document 107-E
13 February 1987
Original: English

Source: Document DT/35

COMMITTEE 4

DRAFT TEXT FOR INCLUSION IN THE FINAL ACTS

DRAFT RECOMMENDATION [COM4/D]

Use of Synchronized Transmitters in the HF Bands Allocated to the Broadcasting Service

The World Administrative Radio Conference for the Planning of the HF Bands Allocated to the Broadcasting Service, Geneva, 1987,

considering

a) that the use of synchronized transmitters, where appropriate, is an efficient means of economizing frequency spectrum;

b) Recommendation No. 503;

c) that, where the path location is unfavourable, a Doppler frequency difference greater than 0.1 Hz may occur at certain hours of the day;

d) CCIR Recommendation 205-2,

recognizing

that further studies are needed on the use of synchronized transmitters for broadcasting in the HF bands,

invites the CCIR

to accelerate the studies defined in the CCIR Study Programme 44L/10 with the view that comprehensive CCIR Recommendations on this subject could be made.

L.W. BARCLAY
Chairman of Working Group 4-A

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HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, **February-March 1987**

Document 108-E
16 February 1987
Original: English

COMMITTEE 4

NOTE FROM THE CHAIRMAN OF COMMITTEE 6

TO THE CHAIRMAN OF COMMITTEE 4

1. Committee 6 examined, at its second meeting, the request from Committee 4 contained in Document 91.

2. As regards the inclusion of technical parameters in the Final Acts of the Conference, it was decided that Committee 4 communicate to Committee 6 these parameters arranged in the form of two lists:

- List I containing the parameters which are not subject to change; and
- List II containing parameters which may be changed and improved upon.

Committee 6 will include the technical parameters, received from Committee 4, in the appropriate places in the Final Acts of the Conference.

3. The establishment of a procedure for introducing changes in the criteria of List II is being studied by Committee 6.

R. BLOIS
Chairman of Committee 6

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BLUE PAGES

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, **February-March 1987**

Corrigendum 1 to
Document 109-E
21 February 1987

B.1(Corr.1) PLENARY MEETING

FIRST SERIES OF TEXTS SUBMITTED BY THE EDITORIAL COMMITTEE TO THE PLENARY MEETING

The following texts are submitted to the Plenary Meeting for first reading:

Source	Documents	Title
COM.4	87 (102)	Recommendation COM4/A

Note by the Editorial Committee

Following the re-examination of Recommendation COM4/A by Committee 4, page B.1/1 should be replaced by page B.1/1(Corr.1) attached.

D. SAUVET-GOICHON
Chairman of Committee 7

Annex: 1 page

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RECOMMENDATION COM4/A (HFBC-87)

Improvements to the Propagation Prediction Method to be Used for the HF Bands Allocated Exclusively to the Broadcasting Service

The World Administrative Radio Conference for the Planning of the HF Bands Allocated to the Broadcasting Service (Geneva, 1987),

considering

a) that the First Session of the Conference (Geneva, 1984) adopted a method for the prediction of HF field strength which was based upon studies by the CCIR;

b) that during the intersessional period the CCIR undertook further studies in accordance with the request of the First Session of the Conference;

c) that recent additional studies by administrations have indicated that further improvements in the method are required;

d) that the possibility of further improvement will depend, in part, on the collection and analysis of additional data of field strength measurements,

invites the CCIR

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,

invites administrations

1. to conduct HF field strength measurement programmes;

2. to contribute data, in a form suitable for study, to the CCIR.

BLUE PAGES

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS
ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 109-E
16 February 1987

B.1

PLENARY MEETING

FIRST SERIES OF TEXTS SUBMITTED BY THE EDITORIAL COMMITTEE TO THE PLENARY MEETING

The following texts are submitted to the Plenary Meeting for first reading:

Source	Documents	Title
COM.4	87 } (102)	Recommendation COM4/A
	93 }	Recommendation COM4/B

D. SAUVET-GOICHON
Chairman of Committee 7

Annex: 3 pages

For reasons of economy, this document is printed in a limited number of copies. Participants are therefore kindly asked to bring their copies to the meeting since no others can be made available.

RECOMMENDATION COM4/A (HFBC-87)

Further Improvements to the Propagation Prediction Method to the be Used for the Planning of the HF Bands Allocated to the Broadcasting Service

The World Administrative Radio Conference for the Planning of the HF Bands Allocated to the Broadcasting Service (Geneva, 1987),

considering

a) that the First Session of the Conference (Geneva, 1984) adopted a method for the prediction of HF field strength which was based upon studies by the CCIR;

b) that during the intersessional period the CCIR undertook further studies in accordance with Recommendation COM5/1 of the First Session of the Conference;

c) that recent additional studies by administrations have indicated that further improvements in the method are required;

d) that the possibility of further improvement will depend, in part, on the collection and analysis of additional data of field strength measurements,

requests the CCIR

to undertake further studies of the method of prediction of HF field strength [adopted by this Conference] and to recommend an improved method appropriate for the planning of HF broadcasting to be used in the future,

invites administrations

1. to conduct HF field strength measurement programmes;

2. to contribute data, in a form suitable for study, to the CCIR.

BLUE PAGES

RECOMMENDATION COM4/B (HFBC-87)

Introduction of Transmitters and Receivers Capable of Both DSB and SSB Modes of Operation

The World Administrative Radio Conference for the Planning of the HF Bands Allocated to the Broadcasting Service (Geneva, 1987),

considering

a) Resolution [COM4/2] [relating to the introduction of SSB techniques];

b) Recommendation No. 501 of the World Administrative Radio Conference (Geneva, 1979) relating to studies for the introduction of SSB techniques;

c) that the First Session of the present Conference (Geneva, 1984), in its Report to the Second Session, dealt with the progressive introduction of SSB emissions;

d) that incentives clearly need to be provided to industry to manufacture receivers with synchronous demodulation, and appropriate transmitters;

e) Appendix [(Document 84(Rev.1))] to the Radio Regulations relating to the SSB system specification for the HF bands allocated to the broadcasting service,

considering further

f) that the introduction of the SSB system should not be delayed by the absence of the appropriate transmitting equipment;

g) that time is necessary for manufacturers to produce equipment capable of working either in both modes (SSB* and DSB) or in the SSB* mode alone,

recommends to administrations

that transmitters installed after 31 December 1990 should, as far as possible, be capable of working either in both modes (SSB* and DSB) or in the SSB* mode only,

invites the CCIR

to complete its studies into receivers for SSB,

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* With the possibility of both a 6 dB and a 12 dB carrier reduction relative to peak envelope power.

invites administrations

to bring to the notice of the receiver manufacturers the most recent results of relevant CCIR studies as well as the information referred to in considering e) and to encourage them to produce minimum-cost receivers having synchronous demodulators capable of receiving both DSB and SSB* broadcasting emissions by 31 December 1990,

instructs the Secretary-General

to transmit this Recommendation to the International Electrotechnical Commission (IEC).

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* With the possibility of both a 6 dB and a 12 dB carrier reduction relative to peak envelope power.

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, **February-March 1987**

Document 110-E
16 February 1987
Original: English

COMMITTEE 5

Libya

PROPOSAL FOR THE WORK OF THE CONFERENCE

PLANNING PRINCIPLES

The Libyan Administration would like to contribute to the work of the Conference with this document which explains our proposal with respect to the planning principles. This proposal is the result of our evaluation of the planning exercise carried out in accordance with the planning principles stated in the Report of the First Session.

Introduction

By evaluating the results of the planning exercise we remind the Conference of a principle that has great value to all of us which is the principle of "Equal Rights" for all countries large or small, especially in making use of a natural resource which we consider the high frequency bands for broadcasting to be.

Libya believes that the principle of Equal Rights among countries has not been precisely defined in the First Session Report, because the understanding of the First Session Report gave countries - from the practical point of view - equitable access to the HF bands, and freedom to submit their requirements in accordance with their actual needs. This understanding, in our opinion, is a partial definition to the Equal Rights principle.

Objectives

While we are revising and evaluating, we have to give Equal Rights among countries their due, by stating a complete precise definition in such a way so as to include, in practice, the equal utilization of the HF band by all countries with respect to their national needs. This can only be achieved by assigning to each administration a certain number of requirement hours achieving the desired quality level. This number of requirement hours should be the right of each administration.

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We request the Second Session to discuss this issue in a manner befitting the importance of the "Equal Rights" principle. We believe that this objective can be achieved by the following proposal:

Proposal:

LBY/110/1 To group the adjacent CIRAF zones, giving roman numerals to each group of zones.

Example:

- zones (27 + 28 + 18) forming group of zones I
- zones (37 + 38 + 46 + 48) forming group of zones II.

LBY/110/2 Each administration has the right to request one requirement from (0-24 hours) to each group of zones, i.e. if the agreed number of group of zones is (x), then each administration shall have requirement hours of (24x) as a guaranteed right to be assigned to the administration upon request.

These requirements for each administration shall be regulated as follows:

a) they should be free from interference caused by the transmissions of other administrations;

b) each requirement can be assigned only when it is requested by the administration;

c) only the IFRB shall select the suitable frequency for each requirement;

d) the administration can use these requirements for the related group of zones or in any sector inside this group of zones (e.g. adjacent zones, zone, quadrant(s) of zone(s)). This sector to be clearly stated in order to select the suitable frequency.

Example:

If the group of zones under consideration is No. II consisting of zones (37 + 38 + 46 + 47 + 48), the administration shall have one requirement for this group of zones or any sector of this group, e.g.:

37 + 38, or 38, or 48 SE;

e) the frequencies are to be selected in accordance with the technical criteria approved by the Conference.

LBY/110/3 The frequencies distributed among the countries, in accordance with the group of zones and which are considered as a guaranteed right to each administration, form part of the available number of channels. The remaining number of available channels shall be dealt with in accordance with the planning principles adopted by the Conference.

LBY/110/4 As a result, the Plan shall be divided into two parts:

- Plan A,
- Plan B.

We define Plan A as the Plan which contains the requirements assigned to the administration and which are requested and which we consider to be a guaranteed right of requirement hours.

While Plan B is defined as that Plan which contains the requirements of administrations which are not contained in Plan A.

Conclusion:

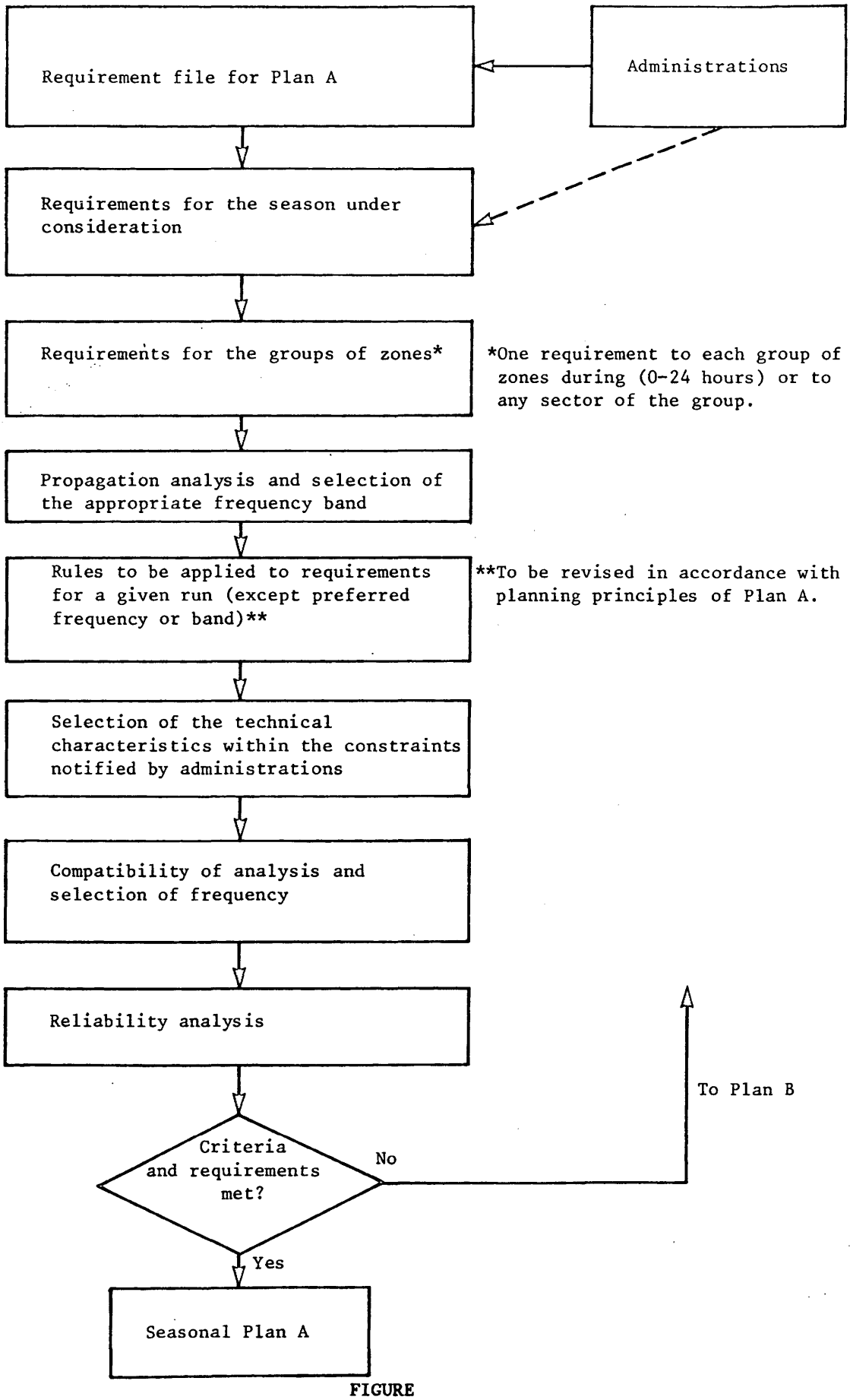
This proposal shall achieve the following results:

1) the principle of Equal Rights is achieved in practice and will include:
   - equal utilization of the HF bands among countries (Plan A);
   - equitable access to all bands;
   - freedom to enter requirements in the Plan (Plan B);

2) if each administration gets one requirement during (0-24 hours) in each group of zones, the total number of requirement hours may form the average minimum requirement hours of the actual national needs for all countries. For some countries this constitutes an important part of their national needs.

   Is is essential, in this case, that the related frequencies of these requirements shall be free from interference;

3) setting up (Plan A) as proposed will help achieve cooperation among countries despite the differences in their economical, social and political conditions.



FIGURE

Flow chart of the automated process for Plan A

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS
ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

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26 February 1987
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COMMITTEE 5

SUMMARY RECORD

OF THE

FIFTH MEETING OF COMMITTEE 5

(PLANNING METHOD AND ASSOCIATED PROCEDURES)

Tuesday, 17 February 1987, at 0900 and 1500 hrs
and Wednesday, 18 February 1987, at 1730 hrs

Chairman: Mr. C.T. NDIONGUE (Senegal)

Subjects discussed:		Documents
1.	Note by the Chairman of Committee 5	DT/41
2.	Terms of reference of Working Group 5-B	DL/9
3.	Terms of reference of Working Group 5-C	DL/9
4.	Terms of reference of Working Group 5-D	DL/9
5.	Mandate of the Working Groups	-

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1. Note by the Chairman of Committee 5 (Document DT/41)

1.1 The Chairman, said that Document DT/41 which was to be considered an information document representing the Chairman's views only, contained a compromise package of proposals for the further work of the Committee, embodying four main elements. The document had been prepared on the basis of his consultations with delegates representing the widest possible range of views, and taking into account the terms of reference of the Second Session of the Conference (and hence of Committee 5) arising out of the principles adopted by the First Session. On the basis of the four main elements of the suggested compromise package, he proposed that the Committee should consider its future course of work under the following headings:

1. Frequency bands in which the improved HFBC Planning System should be applied; number of requirements to be planned: discussion and possible establishment of a Working Group;

2. Guidelines for improving Article 17 of the Radio Regulations: discussion and possible establishment of a Working Group;

3. Possibilities of extending the frequency bands allocated to HF broadcasting: discussion and establishment of a Drafting Group.

1.2 The delegate of Chile said that the question of extending the frequency bands allocated to HF broadcasting was not included in the agenda of the Conference, which, under the provisions of Article 51 of the Convention, was thus not competent to deal with the issue. He therefore proposed the deletion of item 3 of the proposed plan of work.

1.3 Those views were shared and that proposal endorsed by the delegates of Mexico, Tanzania, Uruguay and Colombia.

1.4 The delegate of Tanzania added further that extending the frequency bands would not help to solve the congestion problem, since frequency requirements would increase correspondingly.

1.5 The delegate of Colombia added further that congestion of the existing bands was not solely due to their limited capacity but also to the practice of considering requirements on a global basis rather than considering whether national or international services were involved. Unless that problem was tackled, extension of the bands would not solve congestion.

1.6 The delegate of the USSR proposed that for clarity the first part of item 1 of the proposed plan of work, reading "frequency bands in which the improved HFBC Planning System should be applied", should be amended to read "Use of the improved HFBC Planning System".

1.7 The delegate of Libya said that the purpose of the Conference was to establish a Plan; its efforts should therefore focus on that goal. Highlighting Article 17, whose well-known and tested guidelines were already contained in the Radio Regulations, would mean that a disproportionate amount of time would be devoted to the subject of improving that Article. He therefore suggested that it should not be discussed as a separate item and proposed that item 2 of the proposed work plan should consequently be deleted.

1.8 The delegate of the Federal Republic of Germany said that the Chairman's proposal represented a compromise on procedures to be followed; it in no way dictated the substance of decisions to be taken. The Chairman had drawn up a list of the points on which discussion was needed in order to reach a solution and which should be taken into account when drawing up the terms of reference of Working Groups. He considered, furthermore, that although SSB operation was not a subject within the terms of reference of Committee 5 the possibilities offered by such operation in reducing band congestion should not be forgotten.

1.9 The delegate of the United States of America said that to make progress the terms of reference given to the two Working Groups proposed in the plan of work would need to be very precise. He recalled the IFRB's statement at the start of the Conference that a plan based on the Planning System produced by the computer would not satisfy the basic requirements of administrations, and noted that the whole of the ensuing two weeks had been spent in exploring various possibilities for improving the Plan. Although his Administration was committed to improving the Plan if it was possible to do so, the Conference might eventually have to consider whether any better solution than what now existed was feasible at the present time. Consideration also had to be given to the fact that no plan could succeed unless it had been tested first, that if one country departed from the Plan its purposes would be frustrated and that some attention would have to be given to intentional harmful interference, despite the fact that that topic was outside the terms of reference of Committee 5, since it might adversely affect any plan. The two Working Groups proposed would be deciding the fundamental issues of the Conference. Consequently, their terms of reference, in order to be realistic, should not make use of words such as "to apply a plan" but rather "to consider whether a plan can be applied and under what conditions".

1.10 The delegate of Oman said that there could be no objection to section 3 of the proposed work plan when it was read in the light of section B (2) of Document DT/41, which made clear that the subject for discussion was merely the possibility of asking another WARC to extend the bands in question.

1.11 The delegate of Saudi Arabia said that extending the HF frequency bands would not end congestion and considered that other ways of solving the problem should be sought.

1.12 The delegate of Bulgaria was in favour of retaining item 3 of the proposed work plan.

1.13 The delegate of Canada said that Document DT/41 and the proposed work plan offered a way forward to the Conference, which had so far been making slow progress. Hence, although there were some changes his Administration among others would like to see in the work plan, he felt it would be preferable to accept it as it stood at present and continue the detailed discussion of the substance of the issues involved in the Working Groups themselves.

1.14 The delegate of the United Kingdom said he was unsure as to the status of Document DT/41. Furthermore, he felt there was an element of prejudgement of their acceptability in the Chairman's proposals. Nevertheless, if those elements of prejudgement were removed, his Delegation was prepared, without prior commitment, to discuss any points put forward as possible elements of a package solution.

1.15 The delegate of Kenya noted that the points in the Chairman's proposal had been raised by various delegates over the past two weeks. They thus required attention and in his view could well pave the way to a package solution. The Conference, and in particular Committee 5, had an obligation to find the best way to apply the HFBC Planning System; item 3 of the proposed work plan should therefore be discussed in a Working Group to determine whether the Planning System could be applied to the whole HF band or to sections of it only. Item 2 would only require discussion if it were decided to subject the whole HF spectrum to the Planning System, a procedure his Administration favoured. Item 3, as was made clear by paragraph B 2) of Document DT/41, was intended to prepare the way for the Conference if it considered it necessary to draft a Resolution requesting a competent WARC to extend the bands; he believed the Conference was fully competent to take such action. He supported adoption of the suggested work plan and the establishment of the Working Groups proposed.

1.16 The delegate of Italy said that Document DT/41 set out the thinking behind the proposed work plan, which his Delegation was prepared to discuss. With regard to item 3, he too considered the Conference competent to discuss the possibilities of extending the HF bands, although it could not extend the bands itself but only recommend such action to another conference.

1.17 The delegate of France said it was very important that all aspects of planning should be discussed. That was provided for in the proposed plan of work and he therefore supported it.

1.18 The delegate of Tunisia, recalling his statement at an earlier meeting that the planning principles decided by the First Session of the Conference and the agenda of the Second Session should not be tampered with, expressed his support for those delegates calling for the deletion of item 3 of the proposed work plan.

1.19 The Chairman of the Conference said that Document DT/41 provided a very relevant evaluation of the situation. At the present late stage of the Conference it was important to make progress and he appealed to delegates to remain open-minded in the search for a solution to what was a complex problem. Compromise was necessary and discussion needed on all the elements of the proposed work plan, although the wording of some items could perhaps be improved. He endorsed the view that item 3 of the proposed work plan was to be read in the light of proposal B 2) of Document DT/41; in his opinion, the present Conference was perfectly competent to make such a request.

1.20 The delegate of Pakistan said that Document DT/41 and the proposed work plan reflected the spirit of compromise that was the essence of all ITU conferences. The Conference was entitled under agenda item 2.1.2 to consider possible extension of the HF bands since congestion made implementation of seasonal plans problematical unless extension was considered. The Conference, while not competent to decide to extend the bands, could recommend such action to another WARC. He considered the objection to the word "applied" in item 1 of the proposed work plan to be invalid since implementation of the Planning System was feasible in certain parts of the HF bands. Item 1 should therefore be discussed as worded. His Delegation was also prepared to discuss the other two items as they stood.

1.21 The delegate of Israel said that Document DT/41 offered a constructive way out of endless and unproductive discussion. He endorsed the approaches it put forward and supported the proposed work plan.

1.22 The delegate of Yugoslavia said he fully supported the proposals in Document DT/41 and the proposed work plan in its entirety.

1.23 The delegate of Japan said his Delegation was prepared to discuss the Chairman's package proposal in the suggested Working Groups.

1.24 The delegate of Portugal expressed his support for the proposals in Document DT/41 and for the proposed work plan.

1.25 The delegate of the Islamic Republic of Iran said he supported those delegates calling for deletion of item 2 of the proposed work plan, since in his view it militated against the concept of an automatic impartial Planning System, which had been the basic principle for convening the Conference. His Delegation was however prepared, without any precommitment, to discuss the other items of the proposed work plan.

1.26 The Secretary-General, in view of the tenor of the discussion, asked the Committee to bear in mind that while in-depth discussion of a rethinking of the approach to be followed would have been appropriate in the first week, the Conference was now in its third week and time was pressing. The four elements contained in the proposed plan of work, although perhaps set out in too much precision, had in fact been raised one week previously.

The question of the competence of the Conference had been raised. WARCs were sovereign to themselves within the scope of their agendas. It should be understood that the existence of the broadcasting service and indeed the life of the Union depend upon consideration of specific matters within an administrative conference which should be able to discuss the difficulties associated with matters on their agendas in order to be able to take the necessary decisions including recommendations for action on the subject to the Administrative Council and, where necessary, the Plenipotentiary Conference. The Conference thus had the flexibility to discuss issues and constraints arising out of its agenda items. For example, it was clear that it was relevant to consider the possibility of extending the HF frequency bands since that might provide a way out of the difficulties facing the Conference. That possibility could therefore be made the subject of a Recommendation to the Administrative Council, Member States or a Plenipotentiary Conference.

In reply to the questions raised in discussion of Article 17, he noted that some consideration of that Article was relevant to the search for a practical solution to the problems and constraints that had been introduced into the planning method. The consequences would inevitably appear in the period following the Conference and in the development of the HFBC System. Some interim measures would be necessary in modification of the existing Article 17 provisions.

The proposed work plan should be read in conjunction with Document DT/41. Although some delegations had difficulties with points of wording he urged the Committee to accept the suggested plan of work in the spirit in which it had been proposed, thus making it possible for the Conference to get to grips with the real problems before it, the solution of which were essential to its success.

1.27 The delegate of Botswana noted that the Chairman's proposals reflected the points that had been raised earlier in Committee 5 or its Working Groups and considered that their discussion would help the Conference to reach a successful outcome. He saw no objection to discussion of item 3 of the proposed work plan in the light of paragraph B 2) of Document DT/41.

1.28 The delegate of Singapore considered Document DT/41 to be very relevant and saw no difficulty in discussing all items of the proposed work plan. He shared the views expressed by the delegate of Pakistan.

1.29 The delegate of Senegal said that the Chairman, in Document DT/41 and the proposed plan of work, had paved the way towards consensus. His Delegation was therefore prepared to discuss the plan of work; such discussion did not imply any prior acceptance of the points put forward.

1.30 The delegate of the Netherlands shared the view of the delegate of Senegal and supported adoption of the proposed plan of work as it stood.

1.31 The delegate of Cameroon said that in view of the pressure of time, Document DT/41 and the proposed plan of work provided the most realistic approach to solving the problem and his Delegation supported it.

1.32 The delegate of China said that in view of the short time remaining to the Conference, every effort should be made to find a compromise solution. He therefore supported the Chairman's proposal for a global compromise package and accepted the proposed plan of work. He considered, in particular, that Article 17 as at present worded could not give full satisfaction with regard to implementation of the Planning System; it was therefore necessary to discuss its improvement.

1.33 The delegate of Spain said he accepted the proposed plan of work as it stood. He did not believe it would prejudge any decisions the Committee might make.

1.34 The delegate of Qatar considered that item 2 of the proposed plan of work would constitute an obstacle to the success of the Conference and supported those delegations which called for its deletion.

1.35 The Chairman noted that the majority of speakers supported the proposed plan of work. A number had, however, proposed deletion or amendment of some items. The proposed USSR amendment of item 1 would make the terms of reference of the suggested Working Group too general at the present stage; that was why a specific starting point for discussion had been considered necessary. With regard to the request for the deletion of item 2, he called attention to the fact that some procedures had to be foreseen for the transition phase leading up to full implementation of the Planning System; that would require review of Article 17. With regard to the call for deletion of item 3, he confirmed that the intent of that item was merely to discuss whether a Recommendation should be made for a competent WARC to consider extending the HF bands. In the light of those explanations, he appealed to delegates to accept the proposed work plan as it stood in a spirit of compromise and dialogue in order to enable discussion on the substance of the problem on the understanding that that implied no pre-engagement as to the final outcome.

1.36 The delegate of Chile said that he still had some difficulties with item 3. Although he accepted the Secretary-General's advice that it was permissible for the Conference to discuss the issue of frequency band extension, he was concerned that the item appeared to take the establishment of a Drafting Group for granted. The word "possible" should be inserted before "establishment" as had been done for the other two items.

1.37 The Secretary-General emphasized that as far as the competence was concerned, the Conference would have to consider very carefully the matter of extension of spectrum availability. This should be in general terms but he reminded the Committee that the 1978 Aeronautical Mobile WARC had in fact gone further than the action now being proposed in the present Conference.

1.38 The delegate of Saudi Arabia said his only objection to item 3 was that the present wording left it open to misinterpretation. It should therefore be redrafted.

1.39 The delegate of Mexico said his difficulties with item 3 arose from the fact that extension of the frequency bands was not the only way to tackle congestion. Other methods of coping with the problem such as SSB operation should also be taken into consideration.

1.40 The Chairman said that Committee 5 was not competent to discuss the issue of SSB operation, which came under the terms of reference of Committee 4. The topic could therefore not be mentioned in item 3. However, the other concerns expressed with regard to item 3 could perhaps be met by replacing the words "extending the" on the first line by "recommending the extension of".

With that amendment, the proposed plan of work was approved.

2. Terms of reference of Working Group 5-B (Document DL/9)

2.1 The delegate of Algeria, supported by the delegate of Libya, said that the terms of reference of the Working Group to be established should enable it to take account of all the HF bands, from 6 - 26 MHz.

2.2 The delegate of Iraq said that the Working Group should also be authorized to look at the proposals submitted by many administrations concerning their respective minimum requirements.

2.3 The Chairman, replying to an observation by the delegate of Argentina, said the the wording of his proposals in part B of Document DT/41 was not meant to be exhaustive but to serve as a starting point; it would not preclude discussion of any relevant matters which administrations wished to raise.

2.4 The delegate of the USSR supported the proposal made by the delegate of Algeria; he proposed, in addition, that the terms of reference should be so worded as to embrace all matters relating to the application of the improved HFBC Planning System, of which the frequency bands would form a part; it might be inferred from the wording already proposed that only the frequency bands themselves could be discussed.

2.5 The delegate of Senegal agreed that the Working Group should be established and empowered to discuss questions relating to all frequency bands, especially the range 7 - 26 MHz; in addition, the need to seek voluntary reductions in the number of requirements should be considered.

2.6 The delegate of the United Kingdom said that his Delegation wished to take part in the substance of discussions on the proposals made by the Chairman, but felt that those discussions should begin in the Committee itself in order to provide some guidelines for the Working Groups to be established.

2.7 The delegate of Botswana also wished to know when the substantive discussions would take place. The Working Group's terms of reference should include consideration of the bands 5 - 26 MHz and all relevant documents submitted about planning proposals; perhaps they should also include discussion of the effects of splitting requirements into national and international categories.

2.8 The delegate of Colombia agreed that the Working Group should also be authorized to discuss the question of national and international requirements, pursuant to 4.1.2.3 of the Report of the First Session.

2.9 The delegate of Spain suggested that the Working Group's terms of reference should reflect those of the Committee itself in order to ensure coordination and coherence.

2.10 The Chairman proposed that the Working Group's terms of reference should be:

> "in considering the improved HFBC Planning System, to determine the frequency bands in which they should be applied and to examine the question of the number of requirements to be planned at that time".

Following proposed drafting amendments, it was agreed to delete the words "at that time".

2.11 The delegate of Zambia agreed with the delegate of the United Kingdom that the whole question should perhaps be discussed thoroughly in the Committee before being passed to a Working Group. His Delegation had some difficulty with the word "improved" in the proposed text since it seemed that the improved system was not yet to hand.

2.12 The delegate of France proposed that, in view of the point just made, the terms of reference proposed by the Chairman should be amended to read:

> "to determine the frequency bands in which the HFBC Planning System, once improved, is applied".

Perhaps the Working Group's terms of reference should also include examination of the conditions of application of the decision referred to in the fourth proposal in part B of Document DT/41, since it was doubtful whether the work on improvement of the system could be completed before the end of the Conference.

2.13 The Chairman said that a number of questions, such as the procedure of future work, were still outstanding and were to appear on the agenda for subsequent meetings of Committee 5. The proposals he had made were simply to enable a Group to begin work.

2.14 The delegate of the United Kingdom said that although his Delegation was willing to enter into discussion, without prior commitment, on all four proposals, the terms of reference proposed by the Chairman implied that the system would inevitably be applied. His Delegation proposed that the terms of reference should be amended to read:

> "to determine the frequency bands in which the HFBC Planning System, once improved, might be applied".

2.15 The Chairman, in response to a question by the delegate of the Islamic Republic of Iran said that the word "system" (which the delegate of Libya had suggested should be replaced) encompassed principles and methods but the principles had been established at the First Session and could not be influenced in any way during the Second Session.

2.16 The delegate of Tanzania said that he too was unsure what significance the word "improved" implied for the status of the HFBC system.

2.17 The delegate of China said that he could support the amendment proposed by France but not that proposed by the delegate of the United Kingdom.

2.18 The delegate of Kenya said he too had difficulty with the amendment proposed by the United Kingdom, although he could support the one proposed by the delegate of France. He thought that the terms of reference should also include consideration of the manner in which the Plan could be progressively implemented through the broadcasting bands.

2.19 The delegate of Algeria supported the terms of reference originally proposed by the Chairman since the more the wording was expanded, the more obstacles might arise.

2.20 The Chairman said that the question of frequency bands was separate from that of strategy and programme; the Committee would certainly have an opportunity to discuss the latter question at a later meeting. Replying to a query by the delegate of Tunisia, he said that no bands would be excluded from the Working Group's deliberations.

2.21 The delegate of the USSR proposed that the final part of the terms of reference should be amended to read:

> "to examine the number of requests which can be planned by the system".

Following a brief discussion on a point of order, in which the delegates of Algeria, Brazil and France, the Chairman and the Secretary-General took part, it was agreed to suspend the meeting pending the distribution of a text of the draft terms of reference of the Working Groups.

The meeting was suspended at 1205 hours and resumed at 1500 hours.

2.22 The Chairman drew the Committee's attention to Document DL/9, containing draft terms of reference for Working Groups 5-B, 5-C and 5-D, and invited it to consider the first sentence of the terms of reference of Working Group 5-B.

2.23 The delegate of Papua-New Guinea said that he preferred the wording suggested earlier by the United Kingdom. The delegate of the United Kingdom said that that text might now read "... the HFBC Planning System, once it has been improved, could be applied".

2.24 The delegate of the Islamic Republic of Iran said he would prefer a more emphatic term, such as "shall be applied". Moreover, the reference to improvement of the system was vague, since it did not specify by whom the improvements should be made and at what time.

2.25 The delegates of the Federal Republic of Germany and Mexico agreed that the term "could be applied" should be used. The delegate of Botswana considered that the term should be "will be applied". The delegate of the United States of America said that, in view of the many stages which would have to be gone through before the improvements were implemented, it was only logical to use the term "could be applied".

2.26 The delegate of Algeria proposed that the last phrases should read "... the HFBC Planning System, once it has been improved by this Session, will be applied". The delegates of Saudi Arabia, Libya, China, the Yemen Arab Republic, Zaire, Pakistan, Syria, Mali and Yugoslavia supported that proposal. The delegate of Tanzania said that he too supported the proposal, but preferred the term "might be applied". The delegate of Tunisia also supported the gist of the proposal, but suggested that the phrase should read "... the HFBC Planning System, as it will be adopted by this Session, will be applied".

2.27 The delegate of France said he could not agree to the insertion of the words "by this Session", since it would be quite unrealistic to assume that the Conference could perform in two or three weeks a task which it had taken the IFRB three years to carry out with the aid of powerful computer facilities - and it was generally recognized that the results were not satisfactory. The delegate of Canada endorsed those remarks. The delegates of India, Senegal and Kenya supported the Algerian proposal, pointing out that the Conference would not have to produce a new system, but would merely eliminate the shortcomings of the system presented by the IFRB, whose action had been restricted by the mandate given it at the First Session. Moreover, it was the duty of the current Session to produce a generally acceptable Plan, for which the system submitted by the IFRB could serve as a sound basis. The delegate of France said that incorporation of the Algerian proposal would jeopardize the adoption of any Plan, since it would limit the improvements to those that could be made by the end of the Conference.

2.28 The Chairman suggested, as a compromise, that the words "would be applied" should be used.

It was so agreed.

2.29 The delegate of Senegal proposed that the phrase should read "... would be applied once it has been improved and approved by this Conference". The delegates of Canada and Italy proposed that the wording should be "... would be applied once it has been improved in accordance with the decisions of this Conference". The delegate of Pakistan supported that proposal.

2.30 The delegate of Algeria said that he could not accept the Canadian and Italian proposal, which in effect shifted the Conference's sovereign competence and responsibilities to some other unspecified instance. On the other hand, he could accept the Senegalese compromise proposal. The delegate of Syria endorsed those remarks. The delegate of Senegal observed that the Decisions referred to in the Canadian and Italian proposal had not yet been taken and therefore could not serve as guidance for the Working Group.

2.31 The delegate of the United Kingdom said that he had no objection to the Senegalese proposal, but considered it most important to refer also to the Decisions of the Conference. The delegate of Italy added that there was no question of delegating responsibility to any other body, but that since the Conference clearly could not make the actual improvements during the current Session, it would have to take decisions on the guidance it would give the IFRB to that end.

2.32 The Chairman of the Conference reminded the Committee that it was discussing the terms of reference of a Working Group, not a provision to be inserted in the Final Acts. The essential part of the sentence was the first phrase "To determine the frequency bands" and the wording of the second phrase was not really so important in the context of the terms of reference. He therefore urged the Committee to approve a text and to proceed with its work.

2.33 The Chairman suggested that the sentence should read "To determine the frequency bands in which the HFBC Planning System would be applied once it has been improved and approved in accordance with the Decisions of this Conference".

That text was approved.

2.34 The delegate of Algeria said that, in the interests of speeding up the work, he had not pressed his objection to the inclusion of a reference to the Decisions of the Conference. Nevertheless, he was sure that his proposal would have been adopted if a vote had been taken. The Chairman said that he had deliberately refrained from putting any proposal to the vote, in order to avoid a rigid crystallization of opposing views.

2.35 The Chairman invited the Committee to consider the second and third indents of the terms of reference of Working Group 5-B as set out in Document DL/9. The third indent, which appeared in square brackets, corresponded to the proposal made by the Soviet Delegation earlier in the meeting.

2.36 The delegates of Iraq, India, Tunisia and Colombia stressed the difficulty of forming an opinion on the point at issue before the question of the frequency bands in which the Planning System would be applied was settled. The Vice-Chairman agreed, adding that he envisaged that part of the terms of reference as relating to the second stage of the activities of Working Group 5-B.

2.37 The delegate of Oman said that the word "problem" in the second indent was unclear. Did it mean the problem faced by the IFRB in dealing with the number of requirements to be planned? The delegate of the Federal Republic of Germany wondered whether it might not be better to refer to "the problem of requirements to be planned" rather than "the problem of the number of requirements to be planned".

2.38 The delegates of Syria and Iraq said that they preferred the wording of the second indent to that of the third. The delegate of the United Kingdom said that he had originally regarded the Soviet proposal as a laudable attempt to remind the Committee of practical realities. So long as it was understood that those realities would be taken into account in the work of Working Group 5-B, he had no objection to adopting the second indent.

2.39 The delegate of the USSR said that in order to facilitate the work of the Committee he would not insist on the amendment contained in the third indent.

2.40 The delegate of Libya said that he was still unconvinced that the terms of reference of Working Group 5-B adequately covered the full range of points of view which might need to be expressed, and suggested that the text of the first and second indents might be preceded by the words "To improve the Planning System, and especially:". The Chairman remarked that Working Group 5-A was already engaged on the improvement of the Planning System. To set up a second Group for the same purpose would be redundant. He suggested that Working Group 5-B should be established with the terms of reference set out in the first indent, as amended, and the second indent of the relevant part of Document DL/9 and that that Working Group should be chaired by the Vice-Chairman of the Committee, Mr. Terzani (Italy).

It was so agreed.

2.41 Replying to a question by the delegate of Botswana, the Secretary-General said that those requirements which had been submitted after the closing date for the seasonal plans already prepared, as well as requirements which had failed to be submitted altogether, had not been taken into consideration in the preparation of the seasonal plans. That work was now finished. The problem of ensuring that all Members' requirements were taken into account in any seasonal planning carried out in future would be tackled in due course.

3. Terms of reference of Working Group 5-C (Document DL/9)

3.1 The delegate of Libya said that he was prepared to support the terms of reference set out in Document DL/9 on condition that the words "until the date the Plan comes into force" were added after the words "Radio Regulations". The delegates of the Islamic Republic of Iran and Syria supported that proposal.

3.2 The delegates of Italy, Papua New Guinea and France said that the proposed amendment, by assuming complete planning which might or might not eventuate appeared to prejudge the work of Working Group 5-B, and was therefore unacceptable. The delegates of Mexico and Bulgaria also expressed their preference for the text as it appeared in Document DL/9. The Chairman said that Article 17, when improved, could serve in a variety of cases which might arise. In the interests of allowing the greatest possible freedom to Working Group 5-B within the limits of its terms of reference as adopted, he appealed to the mover and seconder of the amendment to withdraw.

3.3 The delegate of Libya said that it was not his amendment but the implication that Article 17 might continue to apply to some parts of the frequency bands even after the Plan came into force that would be prejudicial to the work of the Working Group. The issue was of fundamental importance, and he felt obliged to press the amendment. The delegates of the Islamic Republic of Iran and Syria concurred. The delegate of Algeria also expressed support for the Libyan amendment.

3.4 The delegates of the Netherlands and Brazil agreed with the Chairman that the improvement of Article 17 was necessary in order to prepare for all possible eventualities. They opposed the amendment and supported the terms of reference set out in Document DL/9.

3.5 The delegate of Qatar suggested a compromise text reading as follows:

> "To prepare for consideration by Committee 6 guidelines for the revision of Article 17 of the Radio Regulations with a view to progressively applying the HFBC Planning System".

3.6 The delegate of France said that he could not accept either the Libyan or the Qatar proposals.

3.7 The delegate of Tunisia said that, in the light of the discussion, he was beginning to suspect that the intention was to keep some bands or parts of bands to which the Planning System would not be applied. He was strongly opposed to such a development and accordingly supported the Libyan amendment.

3.8 The delegate of Libya said that he was unable to accept the compromise suggestion put forward by Qatar. The delegate of Syria said that he could accept the suggestion provided the word "progressively" was deleted.

3.9 The delegate of the Yemen supported the Qatar amendment.

3.10 The delegate of Oman also supported the Qatar amendment in principle but reserved the right to refer to the matter at a later stage.

The meeting was suspended at 1750 hours and resumed on 18 February 1987 at 1730 hours.

3.11 The Chairman invited delegations to come forward with compromise proposals as a token of the spirit of cooperation widely pledged at the Plenary Meeting which had just ended.

3.12 The delegate of Iraq proposed, as a compromise, that the terms of reference of Working Group 5-C should be as set out in Document DL/9 with the addition of the words "to be applied according to the Decisions of the Conference". The delegates of Libya and Syria accepted that proposal.

3.13 The delegate of France, supported by the delegates of the United Kingdom and the Federal Republic of Germany, questioned the usefulness of the proposed amendment and expressed preference for the text as it stood.

3.14 The delegate of Saudi Arabia said that he was prepared to support the amendment if it could lead the Committee out of its present impasse. The delegates of Kenya, Botswana and Zaire associated themselves with that point of view.

3.15 In response to a point raised by the delegate of Oman, the delegate of Iraq said that he would be willing to replace the words "if required" in his amendment by the words "as required".

3.16 The delegate of the United States, while agreeing with the delegates of France, the United Kingdom and the Federal Republic of Germany that the proposed addition was largely redundant, said that he would be prepared to accept it in a spirit of cooperation on condition that it was amended to read:

> "... to be applied pursuant to the Decisions of the Conference".

The delegate of Japan seconded that proposal.

3.17 The delegate of the USSR wondered whether the problem of the Working Group's terms of reference might not be solved by amending the opening words to read: "To prepare for consideration by Committees 5 and 6 ...". The Working Group as such was not empowered to transmit any document to Committee 6. The result of its work would have to come before Committee 5, and the matters of concern to various delegations could be discussed on that occasion.

3.18 The Secretary-General said that from a procedural point of view that suggestion was correct: the sequence of events would be as described by the USSR delegate.

3.19 After further discussion in which the delegates of Yugoslavia, Cameroon, Mauritania and Canada took part, the delegate of Iraq accepted the United States amendment to his proposal. The delegate of the USSR withdrew the suggestion he had made.

3.20 The Chairman noted that a consensus had been reached on terms of reference of Working Group 5-C reading as follows:

> "To prepare for consideration by Committee 6 guidelines for the improvement of Article 17 of the Radio Regulations to be applied pursuant to the Decisions of the Conference."

He suggested that the Working Group should be chaired by Mr. Broere (Netherlands).

It was so agreed.

4. Terms of reference of Working Group 5-D (Document DL/9)

4.1 The delegate of Brazil, referring to the previous discussion of the draft terms of reference shown in Document DL/9, proposed that, as a possible compromise which would in no way prejudge the possibility of extending the frequency bands concerned, the text could be amended to read:

> "To prepare if it is considered necessary a draft Recommendation for the Administrative Council in such a way that a future competent world administrative radio conference may consider the possibility of extending the frequency bands allocated to HF broadcasting".

4.2 The delegate of Paraguay supported the proposed amendment.

4.3 The Chairman of the Conference reiterated the plea that he had made in the Plenary for all delegations to act in a spirit of cooperation for the sake of progress. The Working Groups themselves could determine the details of their tasks, therefore, he appealed to the Committee to be flexible and not try to solve problems at the stage of deliberating terms of reference.

4.4 The delegate of Algeria said that he could have supported the amendment proposed by Brazil, possibly modified by a suggestion of his own. In view of the appeal made by the Chairman of the Conference, however, he proposed that the Committee should agree to the draft terms set forth in Document DL/9.

4.5 The delegate of Brazil said that Working Group 5-D's terms of reference surely warranted a discussion commensurate with those held on the other Working Groups, which had been quite lengthy. His proposal simply aimed at clarifications. In response to a proposal by the Chairman, he could agree to the text shown in Document DL/9, amended at the beginning so as to read: "To prepare if necessary ...". His chief concern was to ensure that a future competent WARC, and not the Administrative Council, would be responsible for any extension of the bands; the Spanish text of Document DL/9 was ambiguous in that regard.

4.6 The Secretary-General said that the Administrative Council could do no more than consider a draft Recommendation of the sort in question; he confirmed that only a world administrative radio conference would be competent to authorize an extension. The Spanish text required alignment to the French and English language versions.

4.7 The delegate of Mexico said that his Delegation had been among those opposed to including in the agenda for the meeting the item concerning possibilities of extending the frequency bands allocated to HF broadcasting. However, since the ambiguity in the Spanish text of Document DL/9 had been noted and the Secretary-General had made it clear that only a future competent WARC could rule on an extension, he could accept the terms of reference drafted in Document DL/9, as orally amended by the Chairman.

4.8 The delegate of Italy said he had difficulty with the proposed additional words "if necessary". He preferred the text as it stood in Document DL/9. In view of the appeal made by the Chairman, he was prepared to accept the latter's oral amendment; he took it that the Working Group itself would discuss whether a Recommendation was necessary.

4.9 The delegate of France said that the words "if necessary" implied that the Working Group's mandate was, in the first place, to consider whether a draft was necessary at all - a matter which could lead to endless debate. It would be better to retain the text of Document DL/9 as it stood, leaving the decision to Committee 5 and the Plenary. In view of the appeal and explanation by the Chairman, however, he could accept the oral amendment in a spirit of compromise.

The terms of reference of Working Group 5-D, as set out in Document DL/9 and amended to include the words "if necessary" after "To prepare", were approved.

4.10 The Chairman said that, as a result of consultations, he proposed Mr. DuCharme (Canada) as Chairman of Working Group 5-D.

It was so agreed.

4.11 The delegate of Canada expressed his Delegation's appreciation of the appointment just made.

4.12 The delegate of Argentina said that discussion about the establishment and terms of reference of the Working Groups had been based on Document DT/41, in which the Chairman, having outlined his compromise proposals, had said that the basis for their discussion would be set forth in the agenda for Committee 5's fifth meeting. That agenda, however, had referred also to Document DT/13, which had not yet been mentioned.

4.13 The Chairman said that Document DT/13 was simply intended to provide information requested at the Committee's second meeting and had not concerned the substance of the debate about the establishment of the Working Groups or their terms of reference. In response to an appeal by the delegate of Papua New Guinea, he said that the utmost effort would be made to ensure that the various Working Groups did not meet simultaneously.

5. Mandate of the Working Groups

5.1 The delegate of Colombia pointed out that the terms of reference agreed upon for the Working Groups did not appear to include the question of how to deal with national and international requirements, referred to in the third item of the Chairman's proposals in part B of Document DT/41. Her Delegation was also anxious for an assurance that the Working Groups' terms of reference precluded any possible revision of the planning principles established at the First Session.

5.2 The Chairman said that the question of how to deal with national and international requirements would be taken up by Committee 5 at its next meeting. As for the principles established at the First Session, they would be upheld in all deliberations throughout the Conference.

5.3 The representative of the IFRB (Mr. Berrada) said it was constantly clear from all Working Groups' deliberations that the principles established were not subject to any change. Perhaps the Colombian Delegation had been wondering whether, at some stage, the application of the principles might have to be considered; it might be as well to await the Working Groups' Recommendations before going into that matter.

The meeting rose at 1900 hours.

The Secretary: The Chairman:

M. GIROUX C.T. NDIONGUE

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS
ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 112-E
16 February 1987
Original: English

COMMITTEE 6

REPORT BY THE CHAIRMAN OF WORKING GROUP 6 AD HOC 2

According to the terms of reference of Working Group 6 ad hoc 2 (Document 40), a meeting was held to consider and revise as necessary a draft Resolution [COM 6/1] contained in Document DT/33. Attached is the revised draft Resolution.

The following matters arose during the discussions of the Working Group and they are listed here for further consideration by Committee 6:

a) the Working Group was unable to decide if one or the other or both of the terms, technical parameters and technical criteria should be used in the Resolution;

b) the Working Group was aware that there were significant procedural and financial consequences to resolves 4, and also that participation in such meetings would be a difficult burden for developing countries;

c) there was insufficient time for the Working Group to consider resolves 6 in detail; however, there was some concern that this provision may be contrary to the duties and responsibilities of the IFRB such as those listed in Nos. 1001 and 1454 of the Radio Regulations;

d) the text, "to the extent practicable" which was contained in the original of resolves 3, was considered to be covered by the text in the attached resolves 3 and so it was deleted.

E.D. DuCHARME
Chairman of Working Group 6 ad hoc 2

Annex: 1

ARCHIVES U.I.T. GENÈVE

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ANNEX

Source: DT/33

Draft text for inclusion in the Final Acts

ANNEX TO THE REPORT OF WORKING GROUP 6 AD HOC 2

DRAFT RESOLUTION [COM 6/1] (HFBC-87)

Procedure to be Applied by the IFRB in the Revision of Relevant Parts of its Technical Standards Used for HF Broadcasting

The World Administrative Radio Conference for the Planning of the HF Bands Allocated to the Broadcasting Service (Geneva, 1987),

considering

a) that it has considered in detail the technical [criteria] [parameters] relating to the planning of HF Broadcasting;

b) that the planning exercises carried out by the IFRB in the period between the two sessions of the Conference indicated that an improvement of some of the technical [parameters] [criteria] such as the field strength prediction method and others may need to be implemented with some flexibility depending on the continuing actual implementation of seasonal plans and the results of technical studies by the CCIR;

c) that in accordance with No. 1001 of the Radio Regulations, among the functions of the Board is the development of its Technical Standards;

d) that in accordance with the provisions of No. 1454 of the Radio Regulations, the Technical Standards of the Board shall be based on the relevant provisions of the Radio Regulations and the Appendices thereto, the decisions of administrative conferences of the Union, as appropriate, the Recommendations of the CCIR, the state of the radio art and the development of new transmission techniques, account being taken of exceptional propagation conditions which may prevail in certain regions (for example, particularly pronounced ducting);

e) that in accordance with [No. 1770 of the Radio Regulations], the IFRB Technical Standards shall be based on the above as well as on the experience gained by the Board in applying the periodic planning process;

f) that, with respect to the Technical Standards, the CCIR could provide the best source of competent advice;

g) the importance of active involvement of administrations in the process of changes in the technical [criteria] [parameters],

resolves

1. that following each CCIR Plenary Assembly the IFRB shall review its Technical Standards relating to the technical [parameters] [criteria] of HF broadcasting in the light of the new CCIR Recommendations or modifications to existing CCIR Recommendations and shall circulate to all administrations the results of its review indicating the reasons for its proposed actions;

2. that whenever the IFRB considers it appropriate to change the technical [parameters and/or criteria] without departing from the decisions of this Conference, it shall circulate to all administrations the proposed changes and the reasons for them;

3. that before implementing any changes, the IFRB shall request administrations to give their comments on subjects referred to in resolves 1 and 2, within [4 months] [6 months] and the Board shall take them into account;

4. that the IFRB should circulate a summary of comments received and where the Board finds it necessary or if a reasonable number of administrations so request, the Board shall organize an [information meeting/consultative meeting of experts] on the subject referred to in resolves 1 and 2 above to which all administrations shall be invited;

5. that on the subject referred to in resolves 1, and ensuing action under resolves 3 and 4, if the IFRB Technical Standards are not modified, the IFRB shall prepare a contribution to the CCIR indicating the parts of the CCIR Recommendation that were not included in the IFRB Technical Standards together with any information necessary for the reconsideration of the matter;

[6. that after a second reconsideration of these parts by a CCIR Plenary, if its conclusions are adopted, they shall be included in the IFRB Technical Standards.]

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS
ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 113-E
17 February 1987
Original: English/
French/
Spanish

COMMITTEE 7

FIRST SERIES OF TEXTS FROM COMMITTEE 6 TO THE EDITORIAL COMMITTEE

The text mentioned in Document 114 is hereby submitted to the Editorial Committee.

R. BLOIS
Chairman of Committee 6

Annex: 1

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ANNEX

MOD RESOLUTION No. 641 (Rev. HFBC-87)

Use of the Frequency Band
7 000 - 7 100 kHz

The World Administrative Radio Conference for the Planning of the HF Bands Allocated to the Broadcasting Service (Geneva, 1987),

considering

a) that the sharing of frequency bands by amateur and broadcasting services is undesirable and should be avoided;

b) that it is desirable to have world-wide exclusive allocations for these services in Band 7;

c) that the band 7 000 - 7 100 kHz is allocated on a world-wide basis exclusively to the amateur service,

resolves

that the broadcasting service shall be prohibited from the band 7 000 - 7 100 kHz and that the broadcasting stations operating on frequencies in this band shall cease such operation,

urges

the administrations responsible for the broadcasting stations operating on frequencies in the band 7 000 - 7 100 kHz to take action so that such operation ceases immediately,

requests the Secretary-General

to bring this Resolution to the attention of administrations.

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS
ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 114-E
17 February 1987
Original: English

PLENARY MEETING

FIRST REPORT OF CHAIRMAN OF COMMITTEE 6

Committee 6 has completed the review of the following provisions of the Radio Regulations and Resolutions and Recommendations of WARC-79:

RR 530, 2665, 3603 and 4103;

WARC-79 Resolution No. 641;

WARC-79 Recommendations Nos. 5 and 9.

As a result of this review the text of Resolution No. 641 has been revised. The texts of RR 530, 2665, 3603 and 4103 and of Recommendations Nos. 5 and 9 are maintained without change.

Committee 6 considered that while RR 2665, 3603 and 4103 may require some editorial improvement, this cannot be done by this Conference due to the fact that the improvements in these provisions concern other services.

The delegate of Pakistan, recalling his Administration's position on Resolution No. 641 stated in WARC-79, reserved his position on the revised text of the Resolution.

The delegate of Botswana also reserved his position on Resolution No. 641 as revised.

The revised text of Resolution No. 641 has been submitted to the Editorial Committee for subsequent submission to the Plenary Meeting (see Document 113).

R. BLOIS
Chairman of Committee 6

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INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS
ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 115-E
16 February 1987
Original: English

COMMITTEE 4

SIXTH REPORT OF WORKING GROUP 4-B

Working Group 4-B has considered all Recommendations of WARC-79 within its terms of reference and has come to the conclusions given below. There are no Resolutions of WARC-79 within its terms of reference.

1. Recommendations Nos. 5, 69, 70, 71 and 503 - No change.

Recommendation No. 500 - To be deleted.

These conclusions are in line or do not conflict with those contained in the letter from the Chairman of Committee 4 to Committee 6 (see Document 98), so no further action is required.

2. Recommendation No. 501 - To be deleted.

This Recommendation is not contained in the above-mentioned document.

E. GEORGE
Chairman of Working Group 4-B

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HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, **February-March 1987**

Document 116-E
16 February 1987
Original: English

COMMITTEE 4

THE PROVISION OF ADDITIONAL FREQUENCIES

Some amendments are proposed to the section of the Report to the Second Session dealing with the provision of additional frequencies. The revised section 3.8 is given here:

3.8 Maximum number of frequencies required for broadcasting the same programme to the same zone

3.8.1 Introduction

Wherever possible, only one frequency should be used to broadcast a particular programme to a given reception area. In certain special circumstances, it may be found necessary to use more than one frequency per programme, i.e.:

- over certain paths, e.g. very long paths, those passing through the auroral zone, or paths over which the MUF is changing rapidly;
- areas where the depth of the area extending outwards from the transmitter is too great to be served by a single frequency;
- when highly directional antennas are used to maintain satisfactory signal-to-noise ratios, thereby limiting the geographical area covered by the station concerned.

The decision to use more than one frequency per programme should be made on the merits of the particular case concerned.

Use of synchronized transmitters should be encouraged whenever possible with a view to minimizing the need for additional frequencies.

3.8.2 Use of additional frequencies

The number of frequencies needed to achieve the specified level of basic broadcast reliability shall be determined by the method given below. If the calculated basic broadcast reliability for a single frequency does not reach the adopted value, it is necessary to consider whether the BBR could be improved by additional frequencies in separate bands and whether the improvement would justify the use of additional frequencies.

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3.8.3 Determination of additional frequency bands

In cases where the BBR[1] for the first band, based on all test points in the required service area, is between 50% and 80%, an additional band shall be tested as follows.

Those test points whose basic circuit reliability BCR is less than or equal to the BBR are identified and only these points are used to determine the second band. For each band, the minimum value of BCR (BCR_{min}) at these points is determined and that band having the highest BCR_{min} value is selected. If more than one band has this value, the highest frequency band is selected. The two-band BBR, taking account of the BRR at all test points in the required service area is then computed and if it exceeds [P]%[2] then the second band may be used. Additionally, if this BBR is less than [R]%[2] then a third band shall be tested as follows.

Those test points whose basic reception reliability (BRR) for the two bands (section 3.2.4.3) is less than or equal to the two-band BBR are identified and these points are used for the calculation of the BCRs for the remaining bands. For each band, the minimum value of BCR (BCR_{min}) at these points is determined and that band having the highest BCR_{min} value is selected as the third band. If more than one band has this value, the highest frequency band is selected. If the resulting BBR taking account of the BRR at all test points exceeds [Y]%[2], the third band may be used.

---

1 For calculation of the basic broadcast reliability, see paragraph 3.2.4.5.

2 P, R and Y are percentage values used in determining the application of additional frequency bands. In the Report to the Second Session R = 80% (page 59) and P and Y are specified in Figure 3-14.

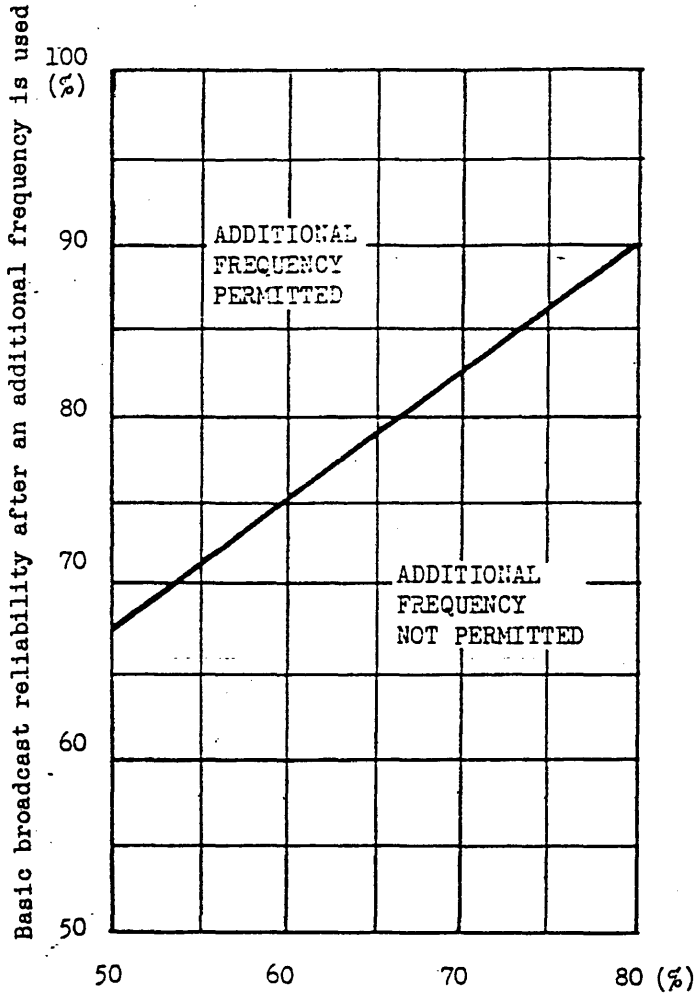


FIGURE 3-14

Limits for use of an additional frequency

L.W. BARCLAY
Chairman of Working Group 4-A

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, **February-March 1987**

Corrigendum 1 to
Document 117-E
18 February 1987
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COMMITTEE 4

Replace pages 2 and 6 of Document 117 by the attached revised pages.

L.W. BARCLAY
Chairman of Working Group 4-A

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TABLE 3-8

Parameters used to compute basic circuit reliability

STEP	PARAMETER	DESCRIPTION	SOURCE
(1)	$E_W(50)$ dB (μV/m)	Median field strength of wanted signal[1]	Prediction method (1.5, DT/34(Rev.1))
(2)	$D_U(S)$ dB	Upper decile of slow fading signal (day-to-day)	(Table III CCIR Report 266-6)[2]
(3)	$D_L(S)$ dB	Lower decile of slow fading signal (day-to-day)	(Table III CCIR Report 266-6)[2]
(4)	$D_U(F)$ dB	Upper decile of fast fading signal (within the hour)	5 dB (1.6.1, DT/34(Rev.1))
(5)	$D_L(F)$ dB	Lower decile of fast fading signal (within the hour)	-8 dB (1.6.1, DT/34(Rev.1))
(6)	$D_U(E_W)$ dB	Upper decile of wanted signal	$\sqrt{D_U(S)^2 + D_U(F)^2}$
(7)	$D_L(E_W)$ dB	Lower decile of wanted signal	$\sqrt{D_L(S)^2 + D_L(F)^2}$
(8)	$E_W(10)$ dB (μV/m)	Wanted signal exceeded 10% of the time	$E_W + D_U(E_W)$
(9)	$E_W(90)$ dB (μV/m)	Wanted signal exceeded 90% of the time	$E_W - D_L(E_W)$
(10)	E_{min} dB (μV/m)	Minimum usable field strength	1.3 (DT/34(Rev.1))
(11)	BCR	Basic circuit reliability	/Figure 3-4/

Note 1 - In the calculation of BCR at the test points within the required service areas of synchronized transmitters, the field strength value to be used is calculated by the method of root sum square of the contributing field strengths in volts/metre.

Note 2 - For synchronized transmissions, the fading allowance associated with the predominant signal is to be used. For those conditions where the contributing wanted field strengths and Note 1 of Table III of CCIR Report 266-6 applies to at least one of the paths, the values for geomagnetic latitudes $\geq 60^{o}$ are used.

TABLE 3-9

Parameters used to compute overall circuit reliability

STEP	PARAMETER	DESCRIPTION	SOURCE
1	E_W dB(μV/m)	Median field strength of wanted signal	Prediction method (section 3.2.1)
2	E_i dB(μV/m)	Median field strength of interfering signals $E_1, E_2, \ldots E_n$	Prediction method (section 3.2.1)
3	I dB (μV/m)	Resultant field strength of interference	$I=20 \log_{10}\sqrt{\sum_{i=1}^{n} 10^{\left(\frac{E_i+\alpha}{10}\right)}}$ 1)
4	SIR(50)dB	Median signal to interference ratio	$E_W - I$
5	D_U(SIR)dB	10% fading allowance	10 dB(<60°), 14 dB(≥60°) 2)
6	D_L(SIR)dB	90% fading allowance	10 dB(<60°), 14 dB(≥60°) 2)
7	SIR(10)dB	Subjective signal-to-interference ratio exceeded 10% of the time	SIR(50) + D_U(SIR)
8	SIR(90)dB	Subjective signal-to-interference ratio exceeded 90% of the time	SIR(50) - D_L(SIR)
9	RSI dB	Required RF protection ratio	/‾ ... dB ‾/ 3)
10	ICR	Circuit reliability in presence of interference only (without noise)	See figure 3-5
11	BCR	Basic circuit reliability	See figure 3-4
12	OCR	Overall circuit reliability	Min(ICR, BCR)

Note 1 - α is the appropriate relative protection ratio corresponding to the carrier frequency separation between the wanted and each unwanted signal. For separations ≤ 20 kHz, α is given by [Document DT/34, section 1.2.2] or [Table, Document 99].

Note 2 -
i) If any point on that part of the great circle which passes through the transmitter and the receiver and which lies between control points located 1,000 km from each end of the path reaches a corrected geomagnetic latitude of 60° or more, the values for ≥ 60° have to be used.

ii) The value of 14 dB applies for overall circuit reliabilities not exceeding 80%. In other cases the value of 10 dB applies.

iii) These values relate to the path of the wanted signal only.

iv) For synchronized transmissions, the fading allowance associated with the predominant wanted signal is to be used. For those conditions where the contributing wanted field strengths are equal and Note 1 applies to at least one of the paths, the value of 14 dB is to be used for D_U(SIR) and D_L(SIR).

Note 3 - In these calculations a single value of the co-channel protection ratio must be used.

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

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16 February 1987
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COMMITTEE 4

RELIABILITY

Some amendments are proposed to the section of the Report to the Second Session dealing with reliability. For clarity, and as requested in the Working Group, the whole of the revised section 3.2.4 is given here:

3.2.4 Reliability[1]

3.2.4.1 Calculation of basic circuit reliability (BCR)

The process for calculating basic circuit reliability is indicated in Table 3-8. The median value of field strength for the wanted signal at step (1) is determined by the field strength prediction method. The upper and lower decile values (2) through (5) are also determined, taking account of long-term (day-to-day) and short-term (within the hour) fading. The combined upper and lower deciles of the wanted signal are then calculated in steps (6) and (7) in order to derive the signal levels exceeded for 10% and 90% of the time at steps (8) and (9).

The wanted signal probability distribution, assumed to be log-normal, is illustrated in Figure 3-4, which indicates the signal level (in decibels) versus the probability that the value of signal level is exceeded (plotted on a normal probability scale). This distribution is used to obtain the basic circuit reliability (11), which is the value of probability corresponding to the minimum usable field strength (10).

[1] Abbreviations of the English terms are used in the formulas throughout the three languages in order to facilitate the practical implementation of the methods described in this section.

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TABLE 3-8

Parameters used to compute basic circuit reliability

STEP	PARAMETER	DESCRIPTION	SOURCE
(1)	$E_W(50)$ dB (μV/m)	Median field strength of wanted signal[1]	Prediction method (section 3.2.1)
(2)	$D_U(S)$ dB	Upper decile of slow fading signal (day-to-day)	(section 3.2.3.2, Table 3-6)
(3)	$D_L(S)$ dB	Lower decile of slow fading signal (day-to-day)	(section 3.2.3.2, Table 3-6)
(4)	$D_U(F)$ dB	Upper decile of fast fading signal (within the hour)	5 dB (section 3.2.3.1)
(5)	$D_L(F)$ dB	Lower decile of fast fading signal (within the hour)	-8 dB (section 3.2.3.1)
(6)	$D_U(E_W)$ dB	Upper decile of wanted signal	$\sqrt{D_U(S)^2 + D_U(F)^2}$
(7)	$D_L(E_W)$ dB	Lower decile of wanted signal	$\sqrt{D_L(S)^2 + D_L(F)^2}$
(8)	$E_W(10)$ dB (μV/m)	Wanted signal exceeded 10% of the time	$E_W + D_U(E_W)$
(9)	$E_W(90)$ dB (μV/m)	Wanted signal exceeded 90% of the time	$E_W - D_L(E_W)$
(10)	E_{min} dB (μV/m)	Minimum usable field strength	section 3.4
(11)	BCR	Basic circuit reliability	Figure 3-4

Note 1 - In the calculation of BCR at the test points within the required service areas of synchronized transmitters, the field strength value to be used is calculated by the method of root sum square of the contributing field strengths in volts/metre.

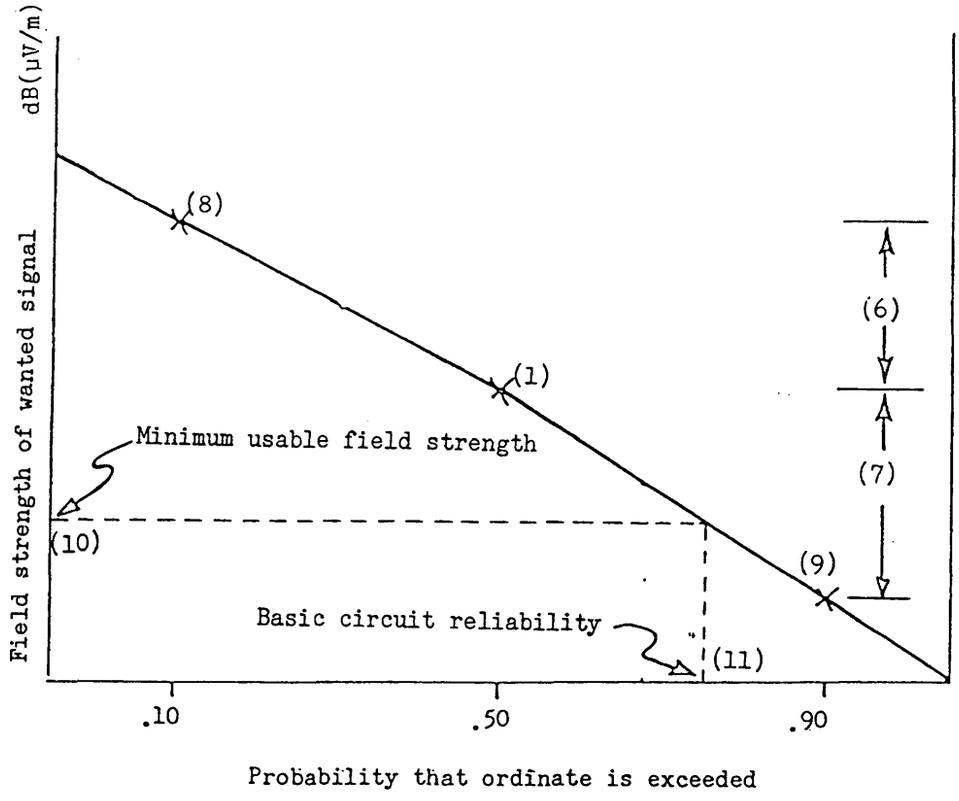


FIGURE 3-4

Parameters used to compute basic circuit reliability

(Figures appearing in brackets refer to step numbers as shown in Table 3-8)

The basic circuit reliability is given by the expression:

$$BCR = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{Y} \exp(-\tau^2/2)\, d\tau$$

when $E_W \geq E_{min}$

$$Y = \frac{E_W - E_{min}}{\sigma_L}$$

$$\sigma_L = D_L(E_W)/1.282$$

when $E_W < E_{min}$

$$Y = \frac{E_W - E_{min}}{\sigma_U}$$

$$\sigma_U = D_U(E_W)/1.282$$

3.2.4.2 Calculation of overall circuit reliability (OCR)

The method is outlined in Table 3-9. In step (1), the median wanted signal level is computed by the signal strength prediction method.

In step (2), the median field strength levels (E_i) of each interfering source are obtained from the prediction method. In step (3), for a single source of interference the predicted median field strength is used; for multiple sources of interference the median field strength is calculated as follows : the field strengths of the interfering signals E_i are listed in decreasing order. Successive r.s.s. additions of the field strengths E_i are computed, stopping when the difference between the resultant field strength and the next field strength is greater than 6 dB. In step (3), the resultant field strength I is taken as the last computed value.

The values of the wanted signal and interference determined in steps (1) and (3) are combined in step (4) to derive the median signal-to-interference ratio. The 10% and 90% fading allowances are included in steps (5) and (6) in order to derive the signal-to-interference ratio exceeded for 10% and 90% of the time in steps (7) and (8).

The probability distribution for the signal-to-interference ratio may now be determined as shown in Figure 3-5. The ratios are presented in decibels on a linear scale versus the probability that the value of the signal-to-interference ratio is exceeded on a normal probability scale. In Figure 3-5, the value of probability corresponding to the required signal-to-interference ratio (9) is the circuit reliability in the presence of interference only (ICR). The overall circuit reliability (OCR, step (12)) is the minimum value of either ICR (step (10)) or BCR (step (11)), whichever produces the lower value.

The mathematical treatment of the calculation of ICR can be given in terms of the probability density distribution of the protection ratio. These functions are taken to be log normal, as is the resulting distribution of the signal-to-interference ratio.

The parameter ICR is given by the following expression :

$$ICR = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{\gamma} \exp(-\tau^2/2)\, d\tau$$

when for $E_W - I \geq RSI$

$$\gamma = \frac{E_W - I - RSI}{\sigma_L}$$

$$\sigma_L = D_L(SIR)/1.282$$

and for $E_W - I < RSI$

$$\gamma = \frac{E_W - I - RSI}{\sigma_U}$$

$$\sigma_U = D_U(SIR)/1.282$$

Values of the various parameters in the above expressions are found in the steps indicated below of Table 3-9.

E_W	step 1
I	step 3
$D_U(SIR)$	step 5
$D_L(SIR)$	step 6
RSI	step 9

TABLE 3-9

Parameters used to compute overall circuit reliability

STEP	PARAMETER	DESCRIPTION	SOURCE
1	E_W dB (μV/m)	Median field strength of wanted signal	Prediction method (section 3.2.1)
2	E_i dB (μV/m)	Median field strength of interfering signals E_1, E_2,...E_n	Prediction method (section 3.2.1)
3	I dB (μV/m)	Resultant field strength of interference	$I=20 \log_{10}\sqrt{\sum_{i=1}^{n}\left(10^{\frac{E_i+\alpha}{20}}\right)^2}$ 1)
4	SIR(50)dB	Median signal to interference ratio	$E_W - I$
5	D_U(SIR)dB	10% fading allowance	10 dB(<60°), 14 dB(≥60°) 2)
6	D_L(SIR)dB	90% fading allowance	10 dB(<60°), 14 dB(≥60°) 2)
7	SIR(10)dB	Subjective signal-to-interference ratio exceeded 10% of the time	SIR(50) + D_U(SIR)
8	SIR(90)dB	Subjective signal-to-interference ratio exceeded 90% of the time	SIR(50) - D_L(SIR)
9	RSI dB	Required RF protection ratio	(section 3.3.1)
10	ICR	Circuit reliability in presence of interference only (without noise)	See figure 3-5
11	BCR	Basic circuit reliability	See figure 3-4
12	OCR	Overall circuit reliability	Min(ICR, BCR)

Note 1 - α is the relative protection ratio taken from [section 1.2.2 of Document DT/34].

Note 2 - i) If any point on that part of the great circle which passes through the transmitter and the receiver and which lies between control points located 1,000 km from each end of the path reaches a corrected geomagnetic latitude of 60° or more, the values for ≥ 60° have to be used. The relationship of corrected geomagnetic latitude to the geographical coordinates is shown in Figures 3-2 and 3-3 of paragraph 3.2.3.2.

ii) These values apply for overall circuit reliabilities not exceeding 80%.

iii) These values relate to the path of the wanted signal only.

iv) For synchronized transmissions, the fading allowance associated with the predominant wanted signal is to be used. For those conditions where the contributing wanted field strengths are equal and Note 1 applies to at least one of the paths, the value of 14 dB is to be used for D_U(SIR) and D_L(SIR).

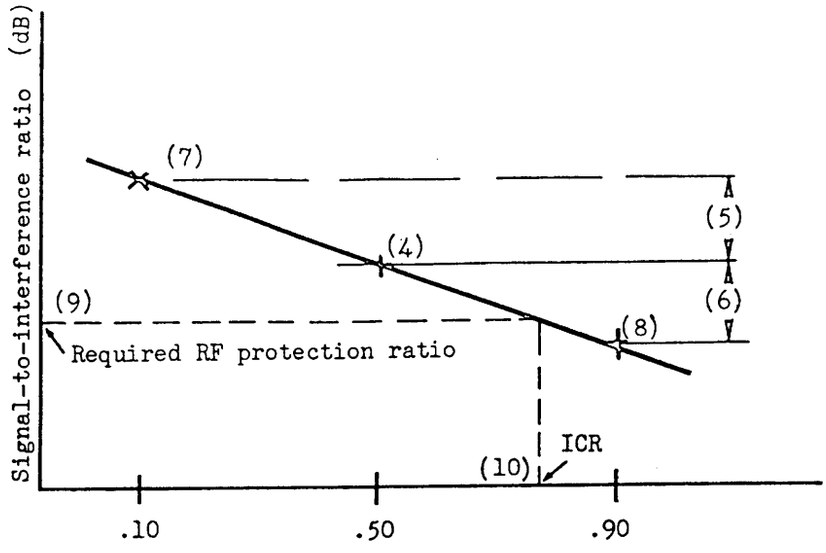


FIGURE 3-5

Parameters used to compute overall circuit reliability

(Figures appearing in brackets refer to step numbers as shown in Table 3-9)

3.2.4.3 Basic reception reliability (BRR)

The method for computing basic reception reliability is outlined in Table 3-10. With a single frequency, basic reception reliability (BRR) is the same as the basic circuit reliability (BCR) defined in the section 3.2.4.1. With multiple frequencies, the interdependence between propagation conditions at different frequencies leads to the computation method given in Table 3-10. In steps (4) and (6), BCR (n) is the basic circuit reliability for frequency n, where n = F_1, F_2, etc. The basic reception reliability is obtained in step (2) for a single frequency, in step (4) for a set of two frequencies and in step (6) for a set of three frequencies.

3.2.4.4 Overall reception reliability (ORR)

The method for computing overall reception reliability is outlined in Table 3-11. With a single frequency, overall reception reliability (ORR) is the same as the overall circuit reliability (OCR) defined in section 3.2.4.2. With multiple frequencies, the interdependence between propagation conditions at different frequencies leads to the computation method given in Table 3-11. In steps (4) and (6), OCR (n) is the overall circuit reliability for frequency n, where n = F_1, F_2, etc. The overall reception reliability is obtained in step (2) for a single frequency, in step (4) for a set of two frequencies and in step (6) for a set of three frequencies.

TABLE 3-10

Basic reception reliability

The following parameters are involved :

Single-frequency operation

Step	Parameter	Description	Source
(1)	BCR (F_1) %	Basic circuit reliability for frequency F_1	step 11, Table 3-8
(2)	BRR (F_1) %	Basic reception reliability	BCR (F_1)

Two-frequency operation [1]

(3)	BCR (F_2) %	Basic circuit reliability for frequency F_2	step 11, Table 3-8
(4)	BRR (F_1) (F_2) %	Basic reception reliability	$1-\prod_{n=F_1}^{F_2}(1-BCR(n))$

[1] The two frequencies F_1 and F_2 shall be situated in different frequency bands allocated to the HF broadcasting service.

TABLE 3-10 (continued)

Basic reception reliability

Three-frequency operation [1]

Step	Parameter	Description	Source
(5)	BCR (F_3) %	Basic circuit reliability for frequency F_3	Step 11, Table 3-8
(6)	BRR (F_1)(F_2)(F_3) %	Basic reception reliability	$1-\prod_{n=F_1}^{F_3}(1-BCR(n))$

[1] The three frequencies F_1, F_2 and F_3 shall be situated in different frequency bands allocated to the HF broadcasting service.

TABLE 3-11

Overall reception reliability

The following parameters are involved :

Single-frequency operation

Step	Parameter	Description	Source
(1)	OCR (F_1) %	Overall circuit reliability for frequency F_1	Step 12, Table 3-9
(2)	ORR (F_1) %	Overall reception reliability	OCR (F_1)

Two-frequency operation [1]

(3)	OCR (F_2) %	Overall circuit reliability for frequency F_2	Step 12, Table 3-9
(4)	ORR (F_1) (F_2) %	Overall reception reliability	$1-\prod_{n=F_1}^{F_2}(1-OCR(n))$

[1] The two frequencies F_1 and F_2 shall be situated in different frequency bands allocated to the HF broadcasting service.

TABLE 3-11 (continued)

Overall reception reliability

Three-frequency operation [1]

Step	Parameter	Description	Source
(5)	OCR (F_3) %	Overall circuit reliability for frequency F_3	Step 12, Table 3-9
(6)	ORR (F_1) (F_2) (F_3) %	Overall reception reliability	$1-\prod_{n=F_1}^{F_3}(1-OCR(n))$

[1] The three frequencies F_1, F_2 and F_3 shall be situated in different frequency bands allocated to the HF broadcasting service.

3.2.4.5 Basic and overall broadcast reliability

The determination of basic broadcast reliability involves the use of test points within the required service area. The basic broadcast reliability is an extension of the basic reception reliability concept to an area instead of a single reception point. The method for computing basic broadcast reliability is outlined in Table 3-12. In step (1), the basic reception reliabilities BRR (L_1), BRR (L_2), --- BRR (L_N) are computed as described in Table 3-10 at each test point L_1, L_2 ---L_N. These values are ranked in step (2) and the basic broadcast reliability is the value associated with a percentile X specified in paragraph 4.2.4 (page 78).

In a similar way, the overall broadcast reliability is computed as described in Table 3-13 and it is the value associated with a percentile X specified in 4.2.4.

Note that the test points used in determining broadcast reliability must be specified, e.g. see section 3.8 for the use of BBR in choosing additional frequency bands and section [Document DT/43] for the use of BBR [and OBR] in assessing the quality of an assignment.

Broadcast reliability is associated with the expected performance of a broadcast service at a given hour. For periods longer than an hour, computation at one-hour intervals is required.

TABLE 3-12

Basic broadcast reliability

The following parameters are involved :

Step	Parameter	Description	Source
(1)	BRR (L_1), BRR (L_2) --- BRR (L_N) %	Basic reception reliability at all test points considered in the required service area	Step (2), (4) or (6), as appropriate, from Table 3-10
(2)	BBR (X) %	Basic broadcast reliability associated with percentile X[1]	Any percentile chosen from the values ranked from (1) of this Table

TABLE 3-13

Overall broadcast reliability

The following parameters are involved :

Step	Parameter	Description	Source
(1)	ORR (L_1), ORR (L_2) --- ORR (L_N) %	Overall reception reliability at all test points considered in the required service area	Step (2), (4) or (6), as appropriate, from Table 3-11
(2)	OBR (X) %	Overall broadcast reliability associated with percentile X[1]	Any percentile chosen from the values ranked from (1) of this Table

[1] See section 4.2.4 (page 78).

L.W. BARCLAY
Chairman of Working Group 4-A

HFBC (2) INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, **February-March 1987**

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COMMITTEE 4

THIRD REPORT OF WORKING GROUP 4-A TO COMMITTEE 4

1. Antenna characteristics

1.1 The draft Resolution [COM4/3] (Document 106) is proposed.

1.2 It is suggested that the following information indicated should be transmitted to Committees 5 and 6 for further consideration and appropriate action.

"It is appropriate that the following information concerning antenna characteristics should be provided by administrations when submitting requirements.

For all types of antennas:

1. Type

(When appropriate, reference should be made to the corresponding antenna type appearing in the set of antenna patterns in the IFRB Technical Standards.) (See Resolution COM4/3.)

2. Azimuth of maximum radiation

In degrees from true North in clockwise direction.

3. Maximum gain (isotropic, G_i*, dB)

(If different from that associated with the relevant pattern in the reference antenna set.)

4. Covered frequency band(s), in MHz (lowest and highest frequency bands for multi-band antennas, or the band for single antennas)

In addition to the above parameters, for horizontal dipole arrays:

5. Type of radiator (end-fed or centre-fed dipole elements)

6. Type of reflector (tuned dipoles or aperiodic screen)

In addition to the above parameters, for multi-band horizontal dipole arrays:

---

* $G_i = G_d + 2.2$ dB.

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7. Design frequency, in MHz

(If not indicated, the design frequency will be assumed as the arithmetic mean of the centre frequencies of the lowest and highest frequency bands covered by the antenna.)

In addition to the above parameters, for slewed horizontal dipole arrays:

8. Azimuth of the normal to the plane of the radiating elements

In degrees from true North in clockwise direction.

II. Modification of the set of reference antenna patterns in the IFRB Technical Standards

According to the draft Resolution [COM4/3], when an administration wishes to use a type of antenna not included in the reference set, a suitable procedure for submitting the relevant information to the IFRB and CCIR should be developed. It is suggested that any new type of antenna pattern should be submitted by the administration wishing to use it under the form of tabulated values describing the full pattern. These relative gain values should be given at 5 degrees azimuth intervals (from 0 to 355 degrees) and at 3 degrees elevation intervals (value at 8 degrees included) (from 0 to 90 degrees). A suitable entry for the maximum gain should also be provided.

According to the draft Resolution [COM4/3], modifications and additions to the reference antenna set in the IFRB Technical Standards will also be implemented by the Board according to the updates of the Book of HF Antenna Diagrams as provided by CCIR."

1.3 Consequently, it is proposed to delete Appendix 2, section III of the Radio Regulations (reproduced in pages 1 and 2 of Document DT/6).

2. Synchronized transmissions

The draft Recommendation [COM4/D] (Document 107) is proposed.

3. Reliability

The text of the Report to the Second Session on reliability has been reviewed and revised. Committee 4 is asked to note and approve the substance of the revised material given in Document 117.

4. The provision of additional frequencies

The text of the Report to the Second Session on the provision and use of additional frequencies has been reviewed and revised. Committee 4 is asked to note and approve the substance of the revised material given in Document 116.

L.W. BARCLAY
Chairman of Working Group 4-A

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

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16 February 1987
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COMMITTEE 6

PROPOSED MODIFICATION TO THE RADIO REGULATIONS RELATED TO THE WORK OF COMMITTEE 4

The map of CIRAF zones to be used in planning the HF bands allocated to the broadcasting service shall be that as annexed. This map shall be used [instead of that given in the annex to Appendix 1 of the Radio Regulations]*. This information should be passed to Committee 5 for information.

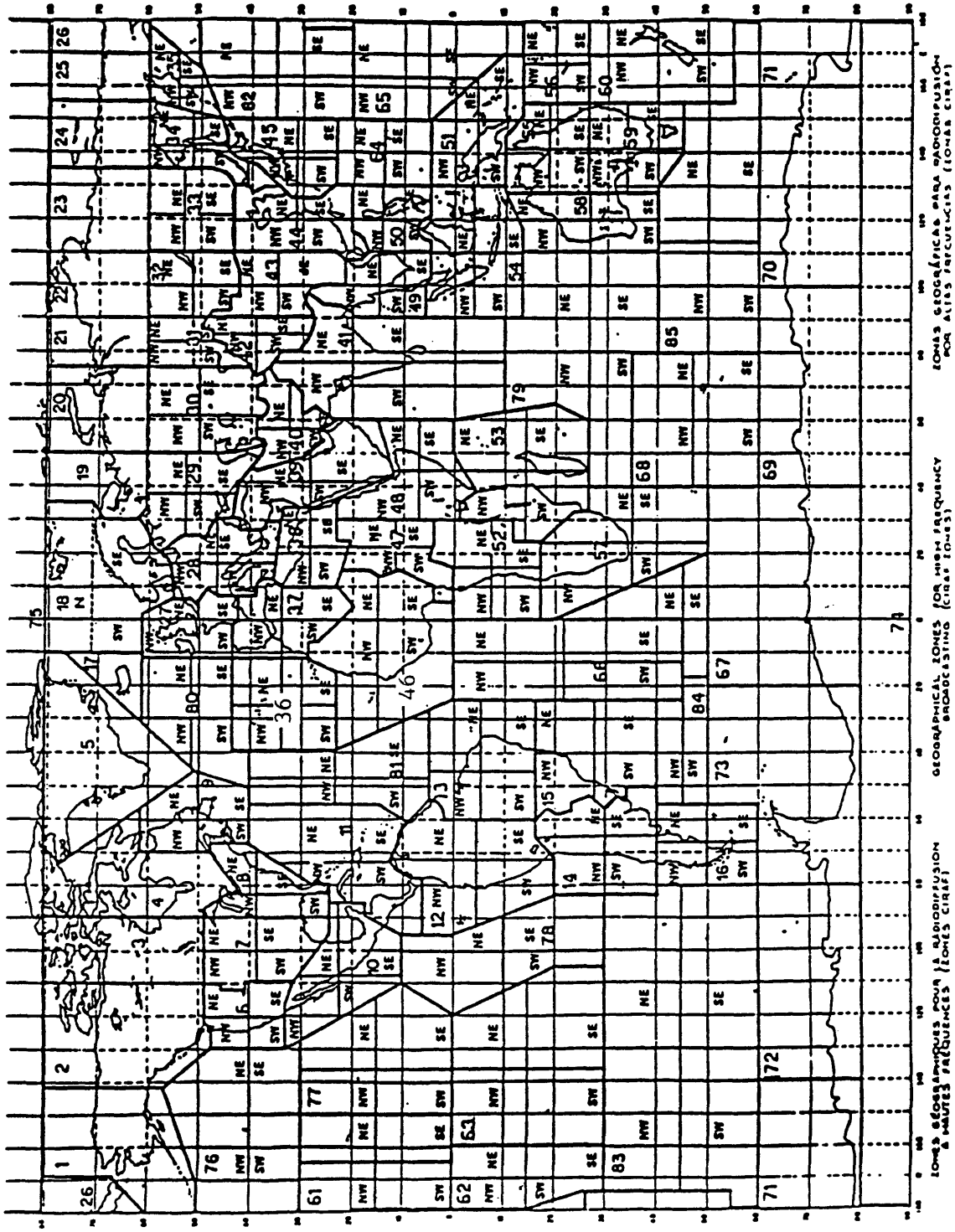
J. RUTKOWSKI
Chairman of Committee 4

Annex: 1

* Note - [or in a separate appendix to the Radio Regulations].

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ANNEX


GEOGRAPHICAL ZONES FOR HIGH FREQUENCY BROADCASTING (ZONES ZONES)
ZONES GEOGRAPHIQUES POUR LA RADIODIFFUSION A ONDES FRECUENCES (ZONES ZONES)
ZONAS GEOGRÁFICAS PARA RADIODIFUSIÓN POR ALTAS FRECUENCIAS (ZONAS ZONAS)

HFBC (2) INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS
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COMMITTEE 5

United States of America

SUMMARY OF RESULTS OF THE IFRB PLANNING TESTS

1. Introduction

Prior to the start of HFBC(2), the IFRB made available to administrations the results of its tests of the HFBC Planning System in the form of microfiche. This information was conveyed to administrations in Circular-letter No. 665, its addenda Nos. 1 and 2 and a corrigendum published respectively on 31 July 1986, 26 September 1986, 30 October 1986 and 14 November 1986. At the time that the microfiche were made available, the results were also made available in the form of magnetic tape. The Administration of the United States of America requested and received magnetic tapes from the IFRB containing the results for seasonal test Plans D85, J86, M88, J88 and D85 (SSN=120).

The results of the seasonal test plans were analyzed in detail in order to determine the degree to which the broadcasting requirements of administrations were accommodated in the Plans.

2. Conclusions

The following points emerge clearly from the analyses of the results of the IFRB planning tests:

1) Not all requirements have been accommodated in the Plans, even though they meet the technical criteria adopted by the First Session of the Conference. (Between 25 and 35 per cent of all requirement hours submitted by administrations have been suspended, depending upon season.)

2) Of the requirement hours that have been submitted, only about 40 per cent have been afforded a level of protection of 17 dB or greater. Even fewer receive such a protection level and a basic broadcast reliability equal to or greater than 80 per cent.

In addition, a separate analysis of the continuity of frequency for requirements reveals major deficiencies. These have been addressed on numerous occasions during this Conference.

These conclusions drawn from the analysis of the trial plans have caused the Administration of the United States of America to voice its grave concern at this Conference about the adequacy and utility of the HFBC Planning system in its current state of development.

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3. Summary of results

A summary of the results of the IFRB planning tests is given in the table in Appendix 1. The table is arranged according to administration and season. In the table, the columns refer to the following:

Column 1: ITU Administration code and country name
Column2: Season for which plan was tested
Column 3: Number of requirements submitted by administrations
Column 4: Number of requirement hours requested
Column 5: Percentage of requirement hours failing to meet E min (Type D)
Column 6: Percentage of requirement hours suspended
Column 7: Percentage of requirement hours satisfied with a protection ratio of 17 dB or greater and a basic broadcasting reliability of 80 per cent or greater
Column 8: Percentage of requirement hours satisfied with a protection ratio of 17 dB or greater and a basic broadcast reliability less than 80 per cent
Column 9: Percentage of requirement hours satisfied with a protection ratio less than 17 dB

(The sum of columns 7, 8 and 9 indicates the percentage of requirement hours satisfied irrespective of protection ratio. The sum of columns 7 and 8 indicates the percentage requirement hours satisfied with a protection ratio of 17 dB or greater.)

It should be noted that the results given for M88 in the table do not contain the information given in the corrigendum to Circular-letter No. 665 published on 14 November 1986. This corrigendum does not lead to results that differ in magnitude or substance from those given in the original M88 analysis. Thus, the results shown in the table provide a meaningful indication of the accommodation of requirements in the HFBC Planning System.

In Appendix 2 to this document, we provide a summary of the analysis that was undertaken in the form of pie-charts for each administration whose requirements were used in the tests - the administration code and name is indicated on each chart. A separate chart is shown for each of the five seasonal plans and the number of requirement hours requested for each season is indicated. The same percentages given in columns 5 through 9 in the table in Appendix 1 are shown with differing shading in the pie-charts.

Appendices: 2

APPENDIX 1

IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

COUNTRY	SEASON	NUMBER	HOURS REQUESTED	TYPE D	SUSPENDED	PERCENT SATISFIED S/I>=17dB BBR>=80%	S/I>=17dB BBR<80%	S/I<17dB
AFS - SOUTH AFRICA	D85 ssn5	42	128.25 hrs	0.0%	3.9%	40.7%	34.7%	20.7%
	J86 ssn5	42	125.25 hrs	0.0%	8.4%	32.3%	38.3%	21.0%
	M88 ssn60	42	125.25 hrs	0.0%	6.0%	55.5%	20.0%	18.6%
	J88 ssn60	42	125.25 hrs	0.0%	4.8%	42.9%	36.3%	16.0%
	D85 ssn120	42	128.25 hrs	0.0%	1.2%	59.5%	23.4%	16.0%
AGL - ANGOLA	D85 ssn5	0	0.00 hrs	0.0%	0.0%	0.0%	0.0%	0.0%
	J86 ssn5	9	138.00 hrs	10.9%	20.3%	.7%	47.5%	20.7%
	M88 ssn60	9	138.00 hrs	0.0%	27.5%	3.6%	50.4%	18.5%
	J88 ssn60	9	138.00 hrs	4.3%	20.7%	2.2%	47.6%	25.2%
	D85 ssn120	0	0.00 hrs	0.0%	0.0%	0.0%	0.0%	0.0%
ALB - ALBANIA	D85 ssn5	42	26.50 hrs	5.7%	5.7%	22.6%	22.6%	43.4%
	J86 ssn5	96	57.50 hrs	.9%	7.0%	31.7%	15.7%	44.8%
	M88 ssn60	248	227.50 hrs	2.9%	33.8%	18.4%	10.9%	34.1%
	J88 ssn60	248	227.50 hrs	4.8%	20.2%	24.0%	11.9%	39.1%
	D85 ssn120	42	26.50 hrs	0.0%	11.3%	31.1%	32.1%	25.5%
ALG - ALGERIA	D85 ssn5	80	293.00 hrs	8.5%	19.6%	5.5%	34.0%	32.4%
	J86 ssn5	80	293.00 hrs	5.8%	22.4%	2.5%	42.4%	27.0%
	M88 ssn60	80	293.00 hrs	2.0%	25.3%	4.9%	44.9%	22.9%
	J88 ssn60	80	293.00 hrs	2.4%	20.6%	8.4%	48.3%	20.2%
	D85 ssn120	80	293.00 hrs	5.1%	18.1%	10.2%	41.3%	25.3%
ARG - ARGENTINA	D85 ssn5	29	236.00 hrs	5.5%	15.7%	5.0%	23.1%	50.7%
	J86 ssn5	44	225.00 hrs	18.7%	13.1%	.9%	16.0%	51.3%
	M88 ssn60	42	244.00 hrs	6.6%	15.6%	11.5%	17.6%	48.8%
	J88 ssn60	44	225.00 hrs	11.1%	7.8%	5.3%	22.2%	53.6%
	D85 ssn120	29	236.00 hrs	9.7%	5.7%	22.1%	16.5%	45.9%
ARS - SAUDI ARABIA	D85 ssn5	56	181.00 hrs	3.3%	29.3%	16.9%	27.3%	23.2%
	J86 ssn5	56	181.00 hrs	0.0%	33.7%	8.0%	30.2%	28.0%
	M88 ssn60	77	271.00 hrs	0.0%	31.7%	22.0%	20.8%	25.4%
	J88 ssn60	77	271.00 hrs	.4%	29.9%	17.4%	26.5%	25.8%
	D85 ssn120	56	181.00 hrs	0.0%	30.7%	19.6%	28.0%	21.7%
ATG - ANTIGUA	D85 ssn5	24	39.50 hrs	0.0%	7.6%	54.4%	25.3%	12.7%
	J86 ssn5	24	39.50 hrs	0.0%	7.6%	32.9%	47.5%	12.0%
	M88 ssn60	24	39.50 hrs	0.0%	6.3%	79.7%	6.3%	7.6%
	J88 ssn60	24	39.50 hrs	0.0%	7.6%	55.7%	32.9%	3.8%
	D85 ssn120	24	39.50 hrs	0.0%	3.8%	57.0%	36.7%	2.5%
AUS - AUSTRALIA	D85 ssn5	85	353.00 hrs	2.8%	5.5%	18.1%	64.8%	8.8%
	J86 ssn5	85	353.00 hrs	5.9%	4.2%	13.2%	65.9%	10.8%
	M88 ssn60	86	375.50 hrs	.2%	7.3%	31.1%	44.1%	17.4%
	J88 ssn60	85	353.00 hrs	2.5%	5.5%	18.8%	53.9%	19.3%
	D85 ssn120	85	353.00 hrs	2.3%	3.0%	26.8%	59.5%	8.5%
AUT - AUSTRIA	D85 ssn5	30	75.00 hrs	0.0%	26.7%	33.7%	9.0%	30.7%
	J86 ssn5	30	75.00 hrs	0.0%	30.0%	31.7%	12.0%	26.3%
	M88 ssn60	30	75.00 hrs	0.0%	28.7%	50.3%	7.3%	13.7%
	J88 ssn60	30	75.00 hrs	0.0%	27.3%	48.0%	10.0%	14.7%
	D85 ssn120	30	75.00 hrs	0.0%	22.0%	51.3%	4.3%	22.3%
B - BRAZIL	D85 ssn5	83	1070.50 hrs	1.3%	35.2%	14.3%	29.3%	19.9%
	J86 ssn5	87	1077.50 hrs	9.5%	27.0%	10.8%	25.1%	27.6%
	M88 ssn60	88	1092.50 hrs	0.0%	46.8%	18.5%	20.9%	13.7%
	J88 ssn60	87	1064.50 hrs	.5%	31.2%	19.3%	25.3%	23.7%
	D85 ssn120	83	1070.50 hrs	0.0%	29.2%	14.8%	38.3%	17.7%
BDI - BURUNDI	D85 ssn5	3	18.00 hrs	0.0%	5.6%	0.0%	72.2%	22.2%
	J86 ssn5	3	18.00 hrs	0.0%	16.7%	0.0%	59.7%	23.6%
	M88 ssn60	3	18.00 hrs	0.0%	11.1%	0.0%	86.1%	2.8%
	J88 ssn60	3	18.00 hrs	0.0%	11.1%	0.0%	79.2%	9.7%
	D85 ssn120	3	18.00 hrs	0.0%	2.8%	0.0%	80.6%	16.7%
BEL - BELGIUM	D85 ssn5	73	176.00 hrs	0.0%	15.6%	46.7%	21.3%	16.3%
	J86 ssn5	73	176.00 hrs	0.0%	18.8%	31.5%	29.4%	20.3%
	M88 ssn60	73	176.00 hrs	0.0%	12.8%	44.6%	22.7%	19.9%
	J88 ssn60	73	176.00 hrs	0.0%	14.8%	36.6%	28.8%	19.7%
	D85 ssn120	73	176.00 hrs	0.0%	10.8%	52.0%	21.6%	15.6%

IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

COUNTRY	SEASON	NUMBER	HOURS REQUESTED	TYPE D	SUSPENDED	PERCENT SATISFIED S/I>=17dB BBR>=80%	S/I>=17dB BBR<80%	S/I<17dB
BEN - BENIN	D85 ssn5	14	140.00 hrs	3.6%	10.7%	40.0%	37.9%	7.9%
	J86 ssn5	14	140.00 hrs	5.0%	13.2%	39.3%	37.9%	4.6%
	H88 ssn60	14	140.00 hrs	1.4%	21.4%	31.6%	26.8%	18.8%
	J88 ssn60	14	140.00 hrs	1.4%	21.8%	29.6%	38.4%	8.8%
	D85 ssn120	14	140.00 hrs	1.4%	8.9%	32.5%	40.7%	16.4%
BFA - BURKINA FASO	D85 ssn5	3	27.00 hrs	0.0%	3.7%	38.9%	0.0%	57.4%
	J86 ssn5	11	66.00 hrs	0.0%	6.1%	11.7%	15.9%	66.3%
	H88 ssn60	11	66.00 hrs	0.0%	7.6%	46.2%	19.3%	26.9%
	J88 ssn60	11	66.00 hrs	0.0%	12.9%	26.9%	14.8%	45.5%
	D85 ssn120	3	27.00 hrs	0.0%	0.0%	84.3%	6.5%	9.3%
BGD - BANGLADESH	D85 ssn5	56	90.75 hrs	1.1%	32.2%	9.4%	35.8%	21.5%
	J86 ssn5	56	90.75 hrs	6.6%	33.6%	9.9%	31.1%	18.7%
	H88 ssn60	52	82.75 hrs	6.0%	35.3%	10.9%	23.0%	24.8%
	J88 ssn60	53	84.75 hrs	8.3%	33.3%	9.7%	29.2%	19.5%
	D85 ssn120	56	90.75 hrs	5.5%	33.6%	12.4%	23.7%	24.8%
BLR - BYELORUSSIA	D85 ssn5	9	64.50 hrs	0.0%	21.7%	17.1%	27.1%	34.1%
	J86 ssn5	19	150.00 hrs	0.0%	24.3%	13.7%	38.3%	23.7%
	H88 ssn60	10	88.00 hrs	0.0%	30.7%	11.4%	26.7%	31.3%
	J88 ssn60	19	150.00 hrs	0.0%	26.3%	16.2%	35.3%	22.2%
	D85 ssn120	9	64.50 hrs	0.0%	27.1%	28.7%	20.2%	24.0%
BRM - BURMA	D85 ssn5	3	15.00 hrs	0.0%	6.7%	90.0%	0.0%	3.3%
	J86 ssn5	3	15.00 hrs	0.0%	6.7%	83.3%	0.0%	10.0%
	H88 ssn60	9	34.50 hrs	0.0%	19.6%	79.0%	0.0%	1.4%
	J88 ssn60	9	34.50 hrs	0.0%	18.8%	78.3%	0.0%	2.9%
	D85 ssn120	3	15.00 hrs	0.0%	3.3%	93.3%	0.0%	3.3%
BUL - BULGARIA	D85 ssn5	76	369.50 hrs	.3%	31.7%	25.2%	11.3%	31.5%
	J86 ssn5	78	375.50 hrs	0.0%	35.6%	24.2%	11.5%	28.8%
	H88 ssn60	76	373.50 hrs	0.0%	46.5%	22.3%	9.4%	21.8%
	J88 ssn60	78	376.00 hrs	0.0%	40.2%	25.4%	10.7%	23.7%
	D85 ssn120	76	369.50 hrs	0.0%	31.3%	27.3%	11.7%	29.8%
CAN - CANADA	D85 ssn5	90	251.50 hrs	37.5%	6.8%	22.5%	15.5%	17.8%
	J86 ssn5	93	258.00 hrs	53.2%	5.1%	23.8%	9.6%	8.2%
	H88 ssn60	176	350.25 hrs	32.3%	13.4%	23.3%	14.7%	16.3%
	J88 ssn60	93	258.00 hrs	49.8%	6.6%	21.9%	11.5%	10.2%
	D85 ssn120	90	251.50 hrs	21.1%	6.6%	22.1%	22.6%	27.7%
CHL - CHILE	D85 ssn5	38	416.00 hrs	4.1%	33.8%	.7%	33.7%	27.8%
	J86 ssn5	38	416.00 hrs	10.8%	41.7%	1.0%	19.8%	26.7%
	H88 ssn60	68	986.00 hrs	.4%	34.3%	.6%	14.6%	50.1%
	J88 ssn60	68	986.00 hrs	2.7%	21.1%	.3%	14.2%	61.7%
	D85 ssn120	38	416.00 hrs	9.4%	25.6%	.5%	34.3%	30.3%
CHN - CHINA	D85 ssn5	459	1695.00 hrs	7.1%	20.1%	29.6%	12.8%	30.5%
	J86 ssn5	478	1976.50 hrs	1.3%	19.6%	42.4%	13.2%	23.5%
	H88 ssn60	479	1953.50 hrs	1.1%	23.9%	42.4%	11.0%	21.6%
	J88 ssn60	479	1983.50 hrs	1.0%	20.4%	44.5%	13.9%	20.1%
	D85 ssn120	459	1695.00 hrs	5.4%	20.1%	35.5%	13.3%	25.7%
CLN - SRI LANKA	D85 ssn5	59	146.25 hrs	.3%	8.5%	27.0%	37.4%	26.7%
	J86 ssn5	59	146.25 hrs	1.4%	9.6%	27.4%	34.0%	27.7%
	H88 ssn60	115	235.75 hrs	0.0%	27.8%	24.0%	21.6%	26.6%
	J88 ssn60	115	235.75 hrs	0.0%	24.8%	28.8%	24.8%	21.5%
	D85 ssn120	59	146.25 hrs	0.0%	9.9%	28.7%	37.3%	24.1%
COG - CONGO	D85 ssn5	4	40.00 hrs	0.0%	6.3%	29.4%	2.5%	61.9%
	J86 ssn5	4	40.00 hrs	0.0%	12.5%	27.5%	7.5%	52.5%
	H88 ssn60	5	50.00 hrs	0.0%	5.0%	12.0%	10.0%	73.0%
	J88 ssn60	5	50.00 hrs	0.0%	7.0%	13.5%	6.0%	73.5%
	D85 ssn120	4	40.00 hrs	0.0%	3.8%	10.0%	16.9%	69.4%
CTI - IVORY COAST	D85 ssn5	3	26.00 hrs	0.0%	7.7%	0.0%	35.6%	56.7%
	J86 ssn5	3	26.00 hrs	0.0%	11.5%	0.0%	32.7%	55.8%
	H88 ssn60	5	62.00 hrs	0.0%	26.6%	0.0%	31.9%	41.5%
	J88 ssn60	5	62.00 hrs	0.0%	21.0%	0.0%	25.8%	53.2%
	D85 ssn120	3	26.00 hrs	0.0%	19.2%	0.0%	26.9%	53.8%

IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

COUNTRY	SEASON	NUMBER	HOURS REQUESTED	TYPE D	SUSPENDED	PERCENT SATISFIED S/I>=17dB BBR>=80%	S/I>=17dB BBR<80%	S/I<17dB
CUB - CUBA	D85 ssn5	55	247.00 hrs	0.0%	29.6%	25.2%	19.0%	26.2%
	J86 ssn5	57	251.00 hrs	0.0%	23.3%	30.2%	19.7%	26.8%
	M88 ssn60	57	250.00 hrs	0.0%	30.2%	40.5%	8.0%	21.3%
	J88 ssn60	57	251.00 hrs	0.0%	26.5%	34.6%	11.9%	27.1%
	D85 ssn120	55	247.00 hrs	0.0%	20.6%	40.4%	11.8%	27.1%
CVA - VATICAN	D85 ssn5	62	172.00 hrs	.6%	22.4%	42.9%	8.9%	25.3%
	J86 ssn5	62	172.00 hrs	0.0%	25.0%	45.3%	10.0%	19.6%
	M88 ssn60	62	172.00 hrs	0.0%	20.9%	51.0%	6.3%	21.8%
	J88 ssn60	62	172.00 hrs	.9%	20.3%	47.4%	10.3%	21.1%
	D85 ssn120	62	172.00 hrs	0.0%	20.1%	46.9%	11.0%	21.9%
CYP - CYPRUS	D85 ssn5	1	.50 hrs	0.0%	0.0%	50.0%	0.0%	50.0%
	J86 ssn5	1	.50 hrs	0.0%	0.0%	50.0%	0.0%	50.0%
	M88 ssn60	1	.50 hrs	0.0%	0.0%	50.0%	0.0%	50.0%
	J88 ssn60	1	.50 hrs	0.0%	0.0%	0.0%	0.0%	100.0%
	D85 ssn120	1	.50 hrs	0.0%	0.0%	50.0%	0.0%	50.0%
D - FEDERAL REPUBLIC of GERMANY	D85 ssn5	320	578.25 hrs	0.0%	18.2%	22.2%	16.4%	43.2%
	J86 ssn5	309	565.75 hrs	0.0%	24.6%	17.3%	24.0%	34.1%
	M88 ssn60	306	568.75 hrs	0.0%	28.8%	19.2%	20.8%	31.3%
	J88 ssn60	306	565.75 hrs	0.0%	28.3%	18.6%	24.0%	29.2%
	D85 ssn120	320	578.25 hrs	0.0%	16.3%	25.5%	18.8%	39.3%
DDR - GERMAN DEMOCRATIC REPUBLIC	D85 ssn5	82	213.00 hrs	.6%	21.7%	23.7%	21.8%	32.2%
	J86 ssn5	82	213.00 hrs	2.3%	25.6%	16.9%	26.6%	28.5%
	M88 ssn60	84	233.50 hrs	1.2%	24.2%	22.6%	21.7%	30.3%
	J88 ssn60	84	233.50 hrs	4.8%	25.3%	20.9%	23.7%	25.4%
	D85 ssn120	82	213.00 hrs	.2%	23.5%	22.7%	23.8%	29.8%
DNK - DENMARK	D85 ssn5	20	20.50 hrs	14.6%	12.2%	4.9%	41.5%	26.8%
	J86 ssn5	20	20.50 hrs	4.9%	14.6%	19.5%	36.6%	24.4%
	M88 ssn60	20	20.50 hrs	0.0%	14.6%	24.4%	26.8%	34.1%
	J88 ssn60	20	20.50 hrs	4.9%	4.9%	31.7%	48.8%	9.8%
	D85 ssn120	20	20.50 hrs	4.9%	9.8%	22.0%	53.7%	9.8%
E - SPAIN	D85 ssn5	53	255.00 hrs	0.0%	22.5%	38.2%	18.6%	20.6%
	J86 ssn5	44	255.00 hrs	0.0%	24.5%	38.4%	12.5%	24.5%
	M88 ssn60	55	255.00 hrs	0.0%	30.8%	40.0%	8.2%	21.0%
	J88 ssn60	44	255.00 hrs	0.0%	23.9%	42.1%	10.2%	23.8%
	D85 ssn120	53	255.00 hrs	0.0%	27.5%	38.3%	14.2%	20.0%
EGY - EGYPT	D85 ssn5	76	256.00 hrs	.7%	19.5%	19.4%	23.2%	37.1%
	J86 ssn5	75	246.50 hrs	0.0%	26.4%	19.6%	16.5%	37.5%
	M88 ssn60	98	275.25 hrs	0.0%	38.8%	22.6%	5.9%	32.7%
	J88 ssn60	98	275.25 hrs	0.0%	29.7%	24.0%	8.8%	37.5%
	D85 ssn120	76	256.00 hrs	0.0%	26.0%	27.2%	18.0%	28.8%
EQA - ECUADOR	D85 ssn5	23	125.00 hrs	1.6%	8.4%	62.0%	20.2%	7.8%
	J86 ssn5	23	125.00 hrs	1.6%	13.2%	52.8%	20.2%	12.2%
	M88 ssn60	29	141.50 hrs	0.0%	15.9%	45.1%	20.7%	18.4%
	J88 ssn60	29	141.50 hrs	0.0%	15.9%	42.2%	26.7%	15.2%
	D85 ssn120	23	125.00 hrs	0.0%	5.2%	52.4%	29.8%	12.6%
ETH - ETHIOPIA	D85 ssn5	0	0.00 hrs	0.0%	0.0%	0.0%	0.0%	0.0%
	J86 ssn5	7	88.00 hrs	0.0%	27.3%	25.0%	24.7%	23.0%
	M88 ssn60	7	88.00 hrs	0.0%	31.3%	8.5%	43.5%	16.8%
	J88 ssn60	7	88.00 hrs	0.0%	27.3%	17.9%	40.3%	14.5%
	D85 ssn120	0	0.00 hrs	0.0%	0.0%	0.0%	0.0%	0.0%
F - FRANCE	D85 ssn5	161	507.50 hrs	.2%	8.4%	41.8%	19.5%	30.1%
	J86 ssn5	156	507.00 hrs	3.4%	8.5%	38.9%	19.3%	29.9%
	M88 ssn60	173	564.00 hrs	0.0%	14.6%	42.6%	13.2%	29.6%
	J88 ssn60	172	540.00 hrs	.6%	9.6%	37.4%	19.3%	33.2%
	D85 ssn120	161	507.50 hrs	1.0%	6.1%	45.3%	20.9%	26.7%
FNL - FINLAND	D85 ssn5	27	44.50 hrs	3.4%	12.4%	20.2%	34.3%	29.8%
	J86 ssn5	25	51.50 hrs	0.0%	13.6%	13.6%	51.0%	21.8%
	M88 ssn60	30	48.50 hrs	2.1%	20.6%	35.6%	25.8%	16.0%
	J88 ssn60	30	48.50 hrs	2.1%	12.4%	33.5%	33.5%	18.6%
	D85 ssn120	27	44.50 hrs	3.4%	18.0%	37.1%	25.3%	16.3%

IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

COUNTRY	SEASON	NUMBER	HOURS REQUESTED	TYPE D	SUSPENDED	PERCENT SATISFIED S/I>=17dB BBR>=80%	S/I>=17dB BBR<80%	S/I<17dB
G - UNITED KINGDOM	D85 ssn5	489	960.00 hrs	2.3%	35.9%	31.0%	12.7%	18.1%
	J86 ssn5	532	1109.75 hrs	.6%	31.2%	28.8%	22.9%	16.5%
	M88 ssn60	817	1673.00 hrs	.9%	46.0%	21.8%	16.6%	14.8%
	J88 ssn60	532	1109.75 hrs	.8%	29.3%	29.4%	25.5%	14.9%
	D85 ssn120	489	960.00 hrs	1.3%	37.6%	29.1%	14.8%	17.2%
GHA - GHANA	D85 ssn5	11	59.75 hrs	1.7%	17.6%	0.0%	40.6%	40.2%
	J86 ssn5	11	59.75 hrs	1.7%	22.6%	0.0%	46.4%	29.3%
	M88 ssn60	11	59.75 hrs	1.7%	29.3%	0.0%	43.5%	25.5%
	J88 ssn60	11	59.75 hrs	1.7%	25.1%	0.0%	51.0%	22.2%
	D85 ssn120	11	59.75 hrs	1.7%	21.8%	0.0%	42.7%	33.9%
GRC - GREECE	D85 ssn5	140	297.75 hrs	1.5%	41.1%	23.3%	11.1%	23.0%
	J86 ssn5	152	305.50 hrs	.7%	41.9%	18.1%	20.1%	19.2%
	M88 ssn60	321	785.50 hrs	.2%	55.0%	16.5%	10.5%	17.7%
	J88 ssn60	199	486.00 hrs	0.0%	43.4%	19.7%	16.6%	20.3%
	D85 ssn120	140	297.75 hrs	0.0%	40.5%	22.3%	13.8%	23.4%
GUI - GUINEA	D85 ssn5	5	90.00 hrs	0.0%	21.7%	0.0%	45.0%	33.3%
	J86 ssn5	5	90.00 hrs	1.1%	22.2%	0.0%	40.6%	36.1%
	M88 ssn60	5	90.00 hrs	0.0%	25.0%	0.0%	37.8%	37.2%
	J88 ssn60	5	90.00 hrs	0.0%	25.0%	0.0%	42.8%	32.2%
	D85 ssn120	5	90.00 hrs	0.0%	18.9%	0.0%	46.1%	35.0%
GUY - GUYANA	D85 ssn5	10	73.00 hrs	0.0%	4.1%	35.6%	49.3%	11.0%
	J86 ssn5	10	73.00 hrs	4.1%	3.4%	27.4%	56.8%	8.2%
	M88 ssn60	10	73.00 hrs	0.0%	4.1%	24.7%	65.8%	5.5%
	J88 ssn60	10	73.00 hrs	0.0%	2.1%	16.4%	78.1%	3.4%
	D85 ssn120	10	73.00 hrs	0.0%	4.1%	19.2%	67.1%	9.6%
HNG - HUNGARY	D85 ssn5	103	139.50 hrs	0.0%	13.3%	12.5%	5.9%	68.3%
	J86 ssn5	102	139.50 hrs	1.4%	14.3%	13.6%	10.2%	60.4%
	M88 ssn60	101	139.50 hrs	.7%	24.0%	16.7%	7.7%	50.9%
	J88 ssn60	102	139.50 hrs	1.4%	9.0%	21.1%	8.2%	60.2%
	D85 ssn120	103	139.50 hrs	0.0%	10.8%	18.1%	8.2%	62.9%
HOL - NETHERLANDS	D85 ssn5	124	164.50 hrs	.3%	4.9%	41.9%	36.5%	16.4%
	J86 ssn5	124	164.50 hrs	0.0%	7.0%	35.3%	35.7%	22.0%
	M88 ssn60	124	166.50 hrs	0.0%	13.4%	41.7%	22.5%	22.4%
	J88 ssn60	124	164.50 hrs	0.0%	8.8%	43.0%	27.5%	20.7%
	D85 ssn120	124	164.50 hrs	0.0%	6.5%	51.1%	24.0%	18.4%
I - ITALY	D85 ssn5	50	135.50 hrs	0.0%	21.8%	29.3%	14.8%	34.1%
	J86 ssn5	50	135.50 hrs	0.0%	27.3%	18.3%	24.4%	30.1%
	M88 ssn60	60	155.50 hrs	0.0%	29.9%	21.7%	28.8%	19.6%
	J88 ssn60	60	155.50 hrs	0.0%	30.2%	19.6%	30.1%	20.1%
	D85 ssn120	50	135.50 hrs	0.0%	27.3%	28.0%	19.7%	24.9%
IND - INDIA	D85 ssn5	166	492.50 hrs	1.0%	17.9%	49.5%	11.3%	20.3%
	J86 ssn5	171	509.25 hrs	0.0%	16.3%	55.8%	11.9%	16.0%
	M88 ssn60	236	705.00 hrs	0.0%	15.3%	55.1%	12.1%	17.6%
	J88 ssn60	236	705.00 hrs	.0%	12.3%	56.7%	16.9%	14.1%
	D85 ssn120	166	492.50 hrs	.1%	15.3%	61.0%	8.5%	15.1%
INS - INDONESIA	D85 ssn5	4	30.00 hrs	0.0%	10.0%	90.0%	0.0%	0.0%
	J86 ssn5	4	30.00 hrs	0.0%	13.3%	85.0%	1.7%	0.0%
	M88 ssn60	88	677.75 hrs	.1%	11.8%	74.0%	4.7%	9.3%
	J88 ssn60	90	691.25 hrs	.1%	13.6%	73.2%	5.7%	7.3%
	D85 ssn120	4	30.00 hrs	0.0%	1.7%	70.0%	23.3%	5.0%
IRN - IRAN	D85 ssn5	0	0.00 hrs	0.0%	0.0%	0.0%	0.0%	0.0%
	J86 ssn5	1843	1841.50 hrs	9.9%	55.6%	9.8%	13.6%	11.1%
	M88 ssn60	2969	2963.50 hrs	3.2%	57.8%	15.4%	10.2%	13.3%
	J88 ssn60	2971	2969.50 hrs	4.3%	56.7%	13.0%	12.2%	13.8%
	D85 ssn120	0	0.00 hrs	0.0%	0.0%	0.0%	0.0%	0.0%
IRQ - IRAQ	D85 ssn5	70	360.00 hrs	.8%	39.3%	23.1%	12.0%	24.8%
	J86 ssn5	69	329.50 hrs	0.0%	44.6%	27.0%	13.1%	15.3%
	M88 ssn60	69	329.00 hrs	0.0%	48.2%	24.5%	12.7%	14.6%
	J88 ssn60	69	329.50 hrs	0.0%	45.5%	24.7%	15.6%	14.1%
	D85 ssn120	70	360.00 hrs	0.0%	40.4%	27.3%	13.2%	19.1%

IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

COUNTRY	SEASON	NUMBER	HOURS REQUESTED	TYPE D	SUSPENDED	PERCENT SATISFIED S/I>=17dB BBR>=80%	S/I>=17dB BBR<80%	S/I<17dB
ISR - ISRAEL	D85 ssn5	75	130.50 hrs	1.0%	17.2%	14.0%	29.7%	38.1%
	J86 ssn5	75	133.00 hrs	5.1%	23.9%	16.9%	26.9%	27.3%
	M88 ssn60	75	131.25 hrs	7.0%	30.1%	15.8%	18.3%	28.8%
	J88 ssn60	72	124.25 hrs	6.8%	26.6%	9.7%	24.9%	32.0%
	D85 ssn120	75	130.50 hrs	2.7%	25.3%	21.8%	21.1%	29.1%
J - JAPAN	D85 ssn5	52	273.75 hrs	14.8%	15.5%	4.8%	36.4%	28.4%
	J86 ssn5	52	273.75 hrs	10.6%	9.3%	3.2%	58.7%	18.2%
	M88 ssn60	52	273.75 hrs	4.6%	14.9%	11.3%	47.7%	21.6%
	J88 ssn60	52	273.75 hrs	14.4%	7.3%	8.8%	54.1%	15.4%
	D85 ssn120	52	273.75 hrs	4.7%	14.7%	10.3%	46.2%	24.0%
JOR - JORDAN	D85 ssn5	79	398.00 hrs	2.5%	38.9%	6.0%	22.5%	30.1%
	J86 ssn5	76	390.00 hrs	3.6%	46.0%	3.7%	21.2%	25.4%
	M88 ssn60	76	390.00 hrs	1.5%	55.6%	8.5%	13.8%	20.5%
	J88 ssn60	76	390.00 hrs	2.1%	52.6%	6.2%	17.4%	21.8%
	D85 ssn120	79	398.00 hrs	3.0%	41.7%	11.2%	23.7%	20.4%
KEN - KENYA	D85 ssn5	7	130.50 hrs	.6%	10.0%	29.9%	17.6%	42.0%
	J86 ssn5	7	130.50 hrs	.6%	8.4%	46.0%	4.4%	40.6%
	M88 ssn60	7	130.50 hrs	0.0%	20.7%	49.6%	5.6%	24.1%
	J88 ssn60	7	130.50 hrs	0.0%	10.3%	35.1%	8.4%	46.2%
	D85 ssn120	7	130.50 hrs	0.0%	4.6%	57.9%	15.9%	21.6%
KOR - REPUBLIC of KOREA	D85 ssn5	54	190.00 hrs	2.6%	18.9%	41.8%	10.8%	25.8%
	J86 ssn5	46	172.50 hrs	1.7%	18.0%	34.9%	20.3%	25.1%
	M88 ssn60	63	224.00 hrs	0.0%	23.9%	46.4%	6.8%	22.9%
	J88 ssn60	55	200.50 hrs	2.7%	22.9%	40.5%	10.2%	23.6%
	D85 ssn120	54	190.00 hrs	2.1%	13.7%	48.3%	10.5%	25.4%
KRE - DEMOCRATIC PEOPLE'S REPUBLIC of KOREA	D85 ssn5	161	394.00 hrs	20.8%	22.6%	12.2%	29.1%	15.3%
	J86 ssn5	144	413.00 hrs	25.9%	19.2%	11.0%	28.0%	15.9%
	M88 ssn60	148	423.00 hrs	12.3%	24.7%	18.9%	29.8%	14.4%
	J88 ssn60	148	423.00 hrs	21.0%	15.6%	17.1%	31.4%	14.8%
	D85 ssn120	161	394.00 hrs	26.1%	19.5%	12.8%	25.2%	16.3%
KWT - KUWAIT	D85 ssn5	75	360.00 hrs	2.5%	24.4%	29.9%	20.9%	22.2%
	J86 ssn5	75	360.00 hrs	6.4%	24.9%	27.6%	20.3%	20.8%
	M88 ssn60	75	360.00 hrs	3.1%	21.7%	41.0%	20.3%	13.9%
	J88 ssn60	75	360.00 hrs	5.8%	22.9%	33.8%	21.0%	16.5%
	D85 ssn120	75	360.00 hrs	2.8%	17.9%	46.5%	20.8%	11.9%
LBR - LIBERIA	D85 ssn5	56	114.00 hrs	0.0%	13.2%	50.4%	18.0%	18.4%
	J86 ssn5	57	112.50 hrs	.9%	11.6%	38.9%	28.2%	20.4%
	M88 ssn60	60	131.50 hrs	.8%	26.2%	29.5%	22.2%	21.3%
	J88 ssn60	57	112.50 hrs	0.0%	19.6%	36.0%	20.4%	24.0%
	D85 ssn120	56	114.00 hrs	.9%	11.4%	48.2%	21.1%	18.4%
LUX - LUXEMBOURG	D85 ssn5	3	45.00 hrs	40.0%	18.9%	7.8%	20.0%	13.3%
	J86 ssn5	3	45.00 hrs	53.3%	12.2%	2.2%	22.2%	10.0%
	M88 ssn60	21	60.00 hrs	0.0%	28.3%	40.0%	10.0%	21.7%
	J88 ssn60	23	60.00 hrs	0.0%	28.3%	41.7%	16.7%	13.3%
	D85 ssn120	3	45.00 hrs	28.9%	21.1%	0.0%	31.1%	18.9%
MDG - MADAGASCAR	D85 ssn5	22	30.50 hrs	0.0%	3.3%	62.3%	31.1%	3.3%
	J86 ssn5	22	30.50 hrs	0.0%	6.6%	45.9%	31.1%	16.4%
	M88 ssn60	22	30.50 hrs	0.0%	8.2%	47.5%	23.8%	20.5%
	J88 ssn60	22	30.50 hrs	0.0%	6.6%	52.5%	23.0%	18.0%
	D85 ssn120	22	30.50 hrs	0.0%	3.3%	49.2%	39.3%	8.2%
MEX - MEXICO	D85 ssn5	91	869.25 hrs	24.3%	24.7%	1.4%	18.4%	31.2%
	J86 ssn5	91	869.25 hrs	19.6%	22.3%	1.0%	22.2%	34.9%
	M88 ssn60	110	1000.25 hrs	13.3%	28.5%	1.5%	22.7%	34.0%
	J88 ssn60	110	1000.25 hrs	15.1%	24.8%	1.1%	26.8%	32.2%
	D85 ssn120	91	869.25 hrs	18.3%	24.4%	1.8%	20.6%	34.9%
MLI - MALI	D85 ssn5	24	74.00 hrs	4.1%	6.8%	24.3%	46.6%	18.2%
	J86 ssn5	24	74.00 hrs	2.7%	18.2%	17.6%	39.5%	22.0%
	M88 ssn60	24	74.00 hrs	2.7%	16.9%	15.5%	44.6%	20.3%
	J88 ssn60	24	74.00 hrs	2.7%	16.9%	12.8%	52.0%	15.5%
	D85 ssn120	24	74.00 hrs	2.7%	6.8%	25.0%	51.4%	14.2%

IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

COUNTRY	SEASON	NUMBER	HOURS REQUESTED	TYPE D	SUSPENDED	PERCENT SATISFIED S/I>=17dB BBR>=80%	S/I>=17dB BBR<80%	S/I<17dB
MLT - MALTA	D85 ssn5	46	68.50 hrs	0.0%	30.7%	15.7%	16.1%	37.6%
	J86 ssn5	46	68.50 hrs	0.0%	33.6%	17.5%	18.2%	30.7%
	H88 ssn60	46	68.50 hrs	0.0%	34.3%	34.7%	8.0%	23.0%
	J88 ssn60	46	68.50 hrs	0.0%	33.6%	20.4%	12.4%	33.6%
	D85 ssn120	46	68.50 hrs	0.0%	26.3%	43.4%	7.3%	23.0%
MNG - MONGOLIA	D85 ssn5	8	79.00 hrs	7.6%	34.8%	13.3%	15.2%	29.1%
	J86 ssn5	10	82.00 hrs	14.6%	26.2%	11.6%	32.9%	14.6%
	H88 ssn60	12	106.00 hrs	12.3%	31.1%	8.7%	28.3%	19.6%
	J88 ssn60	12	93.00 hrs	18.3%	17.7%	11.3%	45.2%	7.5%
	D85 ssn120	8	79.00 hrs	13.9%	28.5%	10.8%	17.7%	29.1%
MOZ - MOZAMBIQUE	D85 ssn5	71	835.75 hrs	7.8%	31.8%	29.2%	12.8%	18.4%
	J86 ssn5	68	826.75 hrs	27.5%	27.3%	20.8%	10.2%	14.1%
	H88 ssn60	70	832.75 hrs	4.2%	34.4%	34.3%	10.8%	16.4%
	J88 ssn60	68	826.75 hrs	18.1%	27.3%	29.1%	9.2%	16.3%
	D85 ssn120	71	835.75 hrs	.6%	24.1%	30.7%	21.0%	23.6%
MRC - MOROCCO	D85 ssn5	62	173.50 hrs	0.0%	27.1%	34.3%	15.3%	23.3%
	J86 ssn5	59	166.50 hrs	0.0%	29.1%	26.9%	14.7%	29.3%
	H88 ssn60	92	268.25 hrs	0.0%	44.9%	18.8%	9.5%	26.7%
	J88 ssn60	62	199.50 hrs	0.0%	30.7%	25.7%	12.5%	31.1%
	D85 ssn120	62	173.50 hrs	0.0%	25.6%	36.6%	14.3%	23.5%
MTN - MAURITANIA	D85 ssn5	23	166.00 hrs	9.6%	9.3%	37.0%	20.9%	23.0%
	J86 ssn5	25	175.50 hrs	5.7%	16.0%	50.4%	13.4%	14.5%
	H88 ssn60	25	175.50 hrs	6.3%	25.9%	47.3%	9.7%	10.8%
	J88 ssn60	25	175.50 hrs	5.7%	20.8%	51.3%	8.0%	14.2%
	D85 ssn120	23	166.00 hrs	4.8%	10.8%	50.0%	12.7%	21.7%
MWI - MALAWI	D85 ssn5	2	19.25 hrs	0.0%	2.6%	0.0%	66.2%	31.2%
	J86 ssn5	4	31.25 hrs	12.0%	8.0%	6.4%	46.4%	27.2%
	H88 ssn60	1	13.50 hrs	0.0%	0.0%	0.0%	100.0%	0.0%
	J88 ssn60	1	13.50 hrs	1.9%	0.0%	9.3%	81.5%	7.4%
	D85 ssn120	2	19.25 hrs	5.2%	0.0%	6.5%	74.0%	14.3%
NZL - NEW ZEALAND	D85 ssn5	10	25.50 hrs	0.0%	0.0%	0.0%	38.2%	61.8%
	J86 ssn5	7	17.50 hrs	2.9%	5.7%	0.0%	78.6%	12.9%
	H88 ssn60	7	17.50 hrs	0.0%	1.4%	0.0%	24.3%	74.3%
	J88 ssn60	7	17.50 hrs	0.0%	0.0%	0.0%	18.6%	81.4%
	D85 ssn120	10	25.50 hrs	0.0%	0.0%	0.0%	37.3%	62.7%
OMA - OMAN	D85 ssn5	29	110.00 hrs	0.0%	21.4%	40.9%	7.7%	30.0%
	J86 ssn5	23	110.00 hrs	0.0%	22.3%	35.9%	11.4%	30.5%
	H88 ssn60	32	110.00 hrs	0.0%	28.6%	41.8%	2.7%	26.8%
	J88 ssn60	25	110.00 hrs	0.0%	26.8%	33.6%	11.6%	28.0%
	D85 ssn120	29	110.00 hrs	0.0%	19.1%	49.5%	4.3%	27.0%
PAK - PAKISTAN	D85 ssn5	92	216.00 hrs	.3%	24.3%	32.9%	12.3%	30.2%
	J86 ssn5	91	217.25 hrs	0.0%	22.0%	45.9%	11.3%	20.8%
	H88 ssn60	91	212.25 hrs	0.0%	23.3%	34.6%	16.7%	25.3%
	J88 ssn60	92	216.25 hrs	0.0%	22.5%	34.1%	19.8%	23.6%
	D85 ssn120	92	216.00 hrs	0.0%	22.7%	40.3%	14.5%	22.6%
PHL - PHILIPPINES	D85 ssn5	171	342.25 hrs	2.5%	26.6%	24.3%	28.6%	18.0%
	J86 ssn5	173	350.25 hrs	2.3%	28.3%	19.7%	33.3%	16.3%
	H88 ssn60	203	434.50 hrs	1.6%	33.3%	22.4%	22.2%	20.5%
	J88 ssn60	182	363.25 hrs	1.9%	32.1%	18.5%	29.5%	18.0%
	D85 ssn120	171	342.25 hrs	2.8%	26.4%	28.7%	26.2%	15.9%
POL - POLAND	D85 ssn5	123	278.00 hrs	1.3%	24.6%	21.0%	5.3%	47.8%
	J86 ssn5	120	268.00 hrs	0.0%	29.7%	25.2%	4.3%	40.9%
	H88 ssn60	122	276.00 hrs	0.0%	37.5%	22.9%	2.8%	36.8%
	J88 ssn60	120	268.00 hrs	0.0%	26.3%	31.3%	2.2%	40.1%
	D85 ssn120	123	278.00 hrs	0.0%	24.3%	26.0%	3.8%	46.0%
POR - PORTUGAL	D85 ssn5	186	612.75 hrs	0.0%	47.8%	27.9%	10.0%	14.3%
	J86 ssn5	130	614.75 hrs	.2%	38.0%	32.3%	11.0%	18.5%
	H88 ssn60	171	614.75 hrs	.2%	55.1%	18.8%	9.2%	16.8%
	J88 ssn60	130	614.75 hrs	.2%	45.4%	20.5%	10.9%	23.1%
	D85 ssn120	186	612.75 hrs	0.0%	49.0%	20.9%	10.0%	20.2%

IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

COUNTRY	SEASON	NUMBER	HOURS REQUESTED	TYPE D	SUSPENDED	PERCENT SATISFIED S/I>=17dB BBR>=80%	S/I>=17dB BBR<80%	S/I<17dB
PRG - PARAGUAY	D85 ssn5	34	286.00 hrs	10.1%	32.0%	.4%	28.6%	28.8%
	J86 ssn5	34	286.00 hrs	14.0%	36.2%	1.7%	18.2%	29.9%
	M88 ssn60	34	286.00 hrs	4.9%	41.8%	6.2%	18.3%	28.8%
	J88 ssn60	34	286.00 hrs	6.3%	38.8%	5.3%	21.2%	28.3%
	D85 ssn120	34	286.00 hrs	6.6%	22.4%	2.8%	31.3%	36.9%
QAT - QATAR	D85 ssn5	5	48.00 hrs	0.0%	30.2%	35.4%	5.2%	29.2%
	J86 ssn5	5	48.00 hrs	0.0%	33.3%	34.9%	13.5%	18.2%
	M88 ssn60	28	112.00 hrs	0.0%	33.0%	40.8%	6.0%	20.1%
	J88 ssn60	28	112.00 hrs	.9%	31.7%	29.7%	20.8%	17.0%
	D85 ssn120	5	48.00 hrs	0.0%	19.8%	69.8%	0.0%	10.4%
ROU - ROUMANIA	D85 ssn5	105	205.75 hrs	1.0%	27.5%	30.5%	5.7%	35.4%
	J86 ssn5	118	208.75 hrs	1.3%	28.5%	33.1%	8.0%	29.1%
	M88 ssn60	114	205.75 hrs	1.0%	31.8%	36.0%	6.0%	25.3%
	J88 ssn60	117	206.25 hrs	2.2%	25.0%	39.8%	6.8%	26.3%
	D85 ssn120	105	205.75 hrs	2.1%	28.9%	35.6%	5.6%	27.8%
RRW - RWANDA	D85 ssn5	24	76.00 hrs	0.0%	5.9%	39.5%	29.6%	25.0%
	J86 ssn5	24	76.00 hrs	0.0%	11.2%	31.3%	25.3%	32.2%
	M88 ssn60	24	76.00 hrs	0.0%	13.8%	33.6%	25.0%	27.6%
	J88 ssn60	24	76.00 hrs	0.0%	8.6%	34.9%	34.2%	22.4%
	D85 ssn120	24	76.00 hrs	0.0%	4.6%	46.1%	29.9%	19.4%
S - SWEDEN	D85 ssn5	71	64.50 hrs	3.1%	10.9%	9.3%	38.8%	38.0%
	J86 ssn5	73	64.50 hrs	.8%	13.2%	15.5%	44.2%	26.4%
	M88 ssn60	70	64.00 hrs	2.3%	17.2%	21.1%	36.7%	22.7%
	J88 ssn60	72	64.00 hrs	.8%	9.4%	18.0%	47.7%	24.2%
	D85 ssn120	71	64.50 hrs	3.1%	8.5%	15.5%	45.7%	27.1%
SEN - SENEGAL	D85 ssn5	29	506.00 hrs	7.7%	39.6%	0.0%	30.4%	22.2%
	J86 ssn5	29	506.00 hrs	12.1%	42.0%	0.0%	29.0%	17.0%
	M88 ssn60	29	506.00 hrs	0.0%	47.1%	.1%	35.5%	17.3%
	J88 ssn60	29	506.00 hrs	.6%	43.0%	0.0%	35.0%	21.4%
	D85 ssn120	29	506.00 hrs	.6%	44.6%	.7%	35.5%	18.6%
SEY - SEYCHELLES	D85 ssn5	22	24.00 hrs	0.0%	2.1%	70.8%	20.8%	6.3%
	J86 ssn5	24	26.00 hrs	0.0%	1.9%	70.2%	11.5%	16.3%
	M88 ssn60	25	26.50 hrs	0.0%	10.4%	57.5%	11.3%	20.8%
	J88 ssn60	25	26.50 hrs	0.0%	11.3%	69.8%	11.3%	7.5%
	D85 ssn120	22	24.00 hrs	0.0%	2.1%	55.2%	26.0%	16.7%
SNG - SINGAPORE	D85 ssn5	6	108.00 hrs	2.8%	5.6%	16.2%	63.4%	12.0%
	J86 ssn5	6	108.00 hrs	2.8%	3.2%	19.4%	60.0%	14.6%
	M88 ssn60	7	126.00 hrs	.8%	7.5%	26.2%	51.8%	13.7%
	J88 ssn60	7	126.00 hrs	1.6%	10.3%	38.5%	39.3%	10.3%
	D85 ssn120	6	108.00 hrs	0.0%	3.7%	13.0%	69.0%	14.4%
SUI - SWITZERLAND	D85 ssn5	43	119.75 hrs	0.0%	18.2%	9.2%	31.9%	40.7%
	J86 ssn5	43	119.75 hrs	9.6%	17.3%	13.6%	33.8%	25.7%
	M88 ssn60	43	119.75 hrs	1.3%	20.5%	11.7%	32.4%	34.2%
	J88 ssn60	43	119.75 hrs	9.2%	17.7%	13.4%	35.9%	23.8%
	D85 ssn120	43	119.75 hrs	0.0%	17.3%	20.3%	36.7%	25.7%
SUR - SURINAM	D85 ssn5	1	1.00 hrs	0.0%	0.0%	0.0%	100.0%	0.0%
	J86 ssn5	1	1.00 hrs	0.0%	0.0%	0.0%	0.0%	100.0%
	M88 ssn60	1	1.00 hrs	0.0%	0.0%	0.0%	50.0%	50.0%
	J88 ssn60	1	1.00 hrs	0.0%	50.0%	0.0%	0.0%	50.0%
	D85 ssn120	1	1.00 hrs	0.0%	0.0%	0.0%	0.0%	100.0%
SWZ - SWAZILAND	D85 ssn5	16	38.50 hrs	15.6%	5.2%	24.0%	40.3%	14.9%
	J86 ssn5	22	49.75 hrs	20.6%	3.0%	23.6%	26.1%	26.6%
	M88 ssn60	22	49.75 hrs	10.1%	15.6%	41.7%	20.1%	12.6%
	J88 ssn60	22	49.75 hrs	18.1%	4.0%	28.1%	24.1%	25.6%
	D85 ssn120	16	38.50 hrs	0.0%	3.2%	44.2%	46.8%	5.8%
SYR - SYRIA	D85 ssn5	28	87.00 hrs	10.3%	40.8%	2.0%	8.0%	38.8%
	J86 ssn5	28	87.00 hrs	26.4%	25.9%	3.4%	16.7%	27.6%
	M88 ssn60	28	87.00 hrs	24.1%	28.7%	3.4%	20.1%	23.6%
	J88 ssn60	28	87.00 hrs	29.9%	23.6%	6.6%	23.0%	17.0%
	D85 ssn120	28	87.00 hrs	17.2%	33.3%	1.1%	14.9%	33.3%

IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

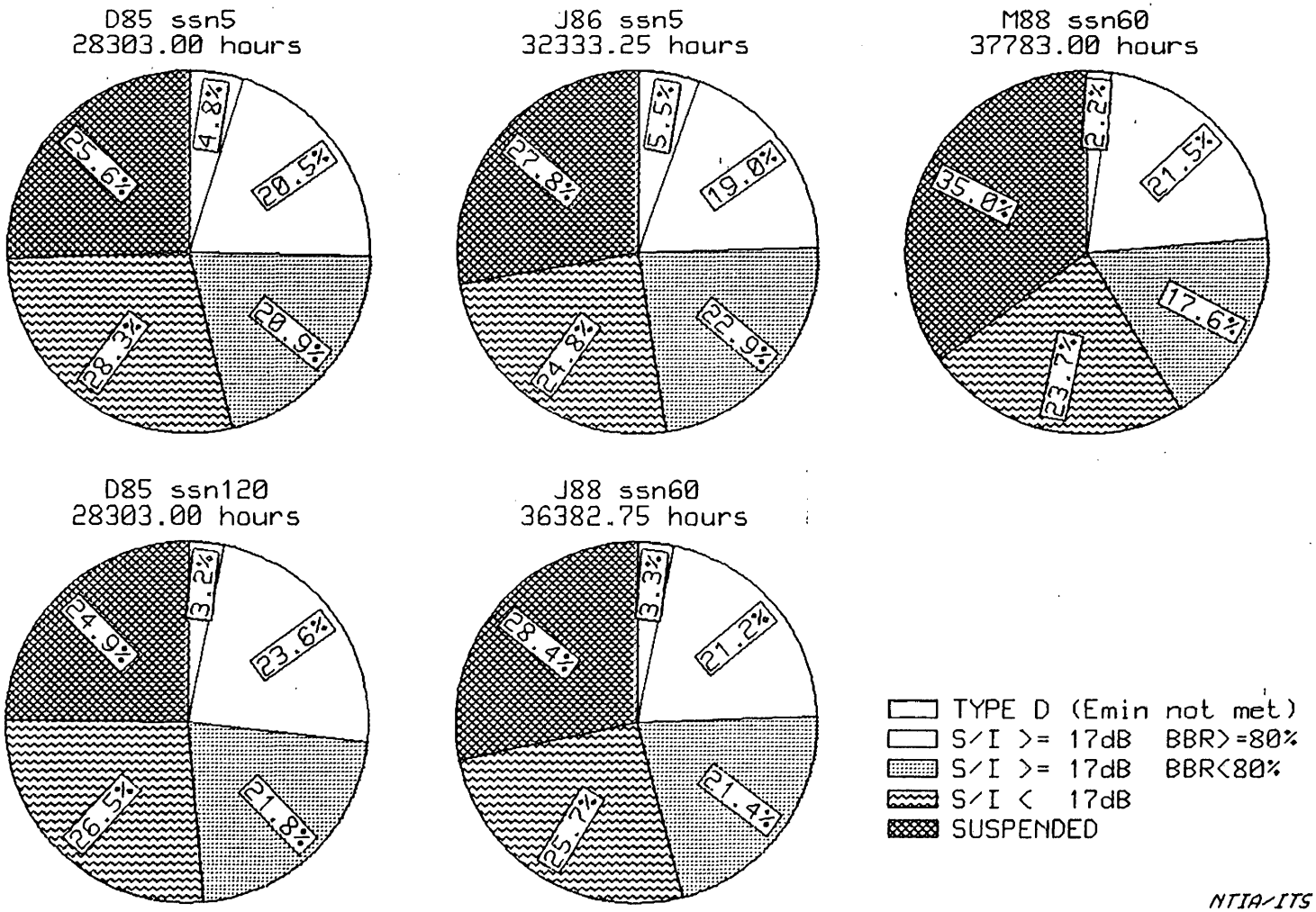
COUNTRY	SEASON	NUMBER	HOURS REQUESTED	TYPE D	SUSPENDED	PERCENT SATISFIED S/I>=17dB BBR>=80%	S/I>=17dB BBR<80%	S/I<17dB
TCH - CZECHOSLOVAKIA	D85 ssn5	50	264.50 hrs	27.2%	20.4%	0.0%	24.0%	28.4%
	J86 ssn5	50	264.50 hrs	12.1%	38.2%	.6%	23.2%	26.0%
	M88 ssn60	50	264.50 hrs	9.5%	48.0%	1.3%	19.0%	22.2%
	J88 ssn60	50	264.50 hrs	11.3%	39.7%	2.6%	23.1%	23.3%
	D85 ssn120	50	264.50 hrs	7.6%	33.1%	1.7%	24.9%	32.8%
TGO - TOGOLESE	D85 ssn5	7	63.00 hrs	7.9%	11.1%	1.6%	60.3%	19.0%
	J86 ssn5	7	63.00 hrs	12.7%	15.9%	0.0%	44.4%	27.0%
	M88 ssn60	7	63.00 hrs	0.0%	16.7%	1.6%	52.4%	29.4%
	J88 ssn60	7	63.00 hrs	9.5%	10.3%	1.6%	54.0%	24.6%
	D85 ssn120	7	63.00 hrs	0.0%	7.9%	4.0%	64.3%	23.8%
THA - THAILAND	D85 ssn5	16	66.75 hrs	12.7%	6.7%	10.1%	33.0%	37.5%
	J86 ssn5	16	66.75 hrs	12.7%	8.2%	1.9%	47.2%	30.0%
	M88 ssn60	69	142.00 hrs	4.2%	25.4%	21.7%	28.3%	20.4%
	J88 ssn60	69	142.00 hrs	6.7%	22.2%	23.6%	24.5%	23.1%
	D85 ssn120	16	66.75 hrs	11.2%	10.5%	6.7%	38.2%	33.3%
TUN - TUNISIA	D85 ssn5	5	60.00 hrs	0.0%	27.5%	21.7%	15.4%	35.4%
	J86 ssn5	4	57.00 hrs	0.0%	37.7%	20.2%	14.0%	28.1%
	M88 ssn60	4	80.00 hrs	0.0%	30.6%	41.3%	8.8%	19.4%
	J88 ssn60	4	80.00 hrs	0.0%	33.1%	28.4%	8.1%	30.3%
	D85 ssn120	5	60.00 hrs	0.0%	28.3%	23.3%	23.3%	25.0%
TUR - TURKEY	D85 ssn5	34	85.50 hrs	4.7%	24.0%	31.6%	6.7%	33.0%
	J86 ssn5	34	85.50 hrs	2.3%	31.0%	39.2%	6.7%	20.8%
	M88 ssn60	38	90.50 hrs	2.2%	30.9%	36.2%	9.9%	20.7%
	J88 ssn60	38	90.50 hrs	3.3%	32.0%	37.3%	10.5%	16.9%
	D85 ssn120	34	85.50 hrs	4.7%	28.7%	37.4%	10.5%	18.7%
TZA - TANZANIA	D85 ssn5	19	140.25 hrs	0.0%	28.9%	2.9%	27.8%	40.5%
	J86 ssn5	19	140.25 hrs	1.2%	28.9%	2.5%	31.4%	36.0%
	M88 ssn60	35	227.00 hrs	0.0%	42.8%	.2%	29.4%	27.5%
	J88 ssn60	33	211.25 hrs	.2%	36.7%	.7%	32.8%	29.6%
	D85 ssn120	19	140.25 hrs	0.0%	25.7%	7.0%	25.0%	42.4%
UAE - UNITED ARAB EMIRATES	D85 ssn5	16	51.00 hrs	0.0%	29.4%	49.5%	5.4%	15.7%
	J86 ssn5	41	195.00 hrs	3.6%	39.2%	20.6%	23.6%	12.9%
	M88 ssn60	40	195.00 hrs	0.0%	46.4%	26.9%	14.6%	12.1%
	J88 ssn60	41	195.00 hrs	0.0%	43.6%	20.9%	22.1%	13.5%
	D85 ssn120	16	51.00 hrs	0.0%	20.6%	63.2%	3.4%	12.7%
UKR - UKRAINIA	D85 ssn5	84	551.50 hrs	.4%	38.3%	15.7%	17.5%	28.2%
	J86 ssn5	115	719.50 hrs	.1%	47.9%	10.8%	20.0%	21.2%
	M88 ssn60	107	642.50 hrs	.2%	52.1%	5.6%	18.3%	23.8%
	J88 ssn60	117	737.50 hrs	.4%	46.7%	9.2%	21.3%	22.4%
	D85 ssn120	84	551.50 hrs	0.0%	38.0%	14.6%	17.2%	30.2%
URG - URUGUAY	D85 ssn5	44	365.00 hrs	5.6%	21.5%	.3%	35.3%	37.3%
	J86 ssn5	44	365.00 hrs	1.9%	36.4%	0.0%	24.8%	36.8%
	M88 ssn60	44	365.00 hrs	3.0%	36.3%	1.1%	24.0%	35.5%
	J88 ssn60	44	365.00 hrs	1.4%	33.0%	1.4%	25.3%	39.0%
	D85 ssn120	44	365.00 hrs	24.9%	15.8%	.3%	26.5%	32.5%
URS - SOVIET UNION	D85 ssn5	692	4311.50 hrs	1.0%	33.6%	14.2%	17.6%	33.6%
	J86 ssn5	692	4589.50 hrs	.5%	35.4%	12.2%	27.5%	24.4%
	M88 ssn60	732	4742.00 hrs	.8%	44.6%	12.9%	18.1%	23.5%
	J88 ssn60	703	4642.00 hrs	.5%	35.3%	12.9%	23.1%	28.3%
	D85 ssn120	692	4311.50 hrs	.5%	37.1%	15.4%	15.0%	32.1%
USA - UNITED STATES	D85 ssn5	528	2310.50 hrs	3.6%	22.6%	28.1%	26.0%	19.7%
	J86 ssn5	498	2360.50 hrs	4.8%	18.7%	25.5%	31.3%	19.8%
	M88 ssn60	669	2839.00 hrs	3.8%	32.4%	24.8%	20.1%	19.0%
	J88 ssn60	548	2601.50 hrs	4.5%	19.9%	25.5%	27.8%	22.4%
	D85 ssn120	528	2310.50 hrs	3.5%	23.5%	33.3%	23.0%	16.6%
VEN - VENEZUELA	D85 ssn5	53	1205.00 hrs	16.0%	17.9%	0.0%	14.6%	51.5%
	J86 ssn5	72	1661.00 hrs	8.4%	18.0%	0.0%	17.4%	56.2%
	M88 ssn60	72	1661.00 hrs	.2%	19.6%	0.0%	19.1%	61.1%
	J88 ssn60	72	1661.00 hrs	.2%	10.8%	0.0%	21.8%	67.2%
	D85 ssn120	53	1205.00 hrs	1.0%	8.6%	.1%	33.8%	56.5%

IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

COUNTRY	SEASON	NUMBER	HOURS REQUESTED	TYPE D	SUSPENDED	PERCENT SATISFIED S/I>=17dB BBR>=80%	S/I>=17dB BBR<80%	S/I<17dB
YEM - YEMEN	D85 ssn5	0	0.00 hrs	0.0%	0.0%	0.0%	0.0%	0.0%
	J86 ssn5	27	280.00 hrs	2.5%	31.6%	28.3%	14.1%	23.5%
	M88 ssn60	27	280.00 hrs	.7%	32.0%	33.3%	14.4%	19.6%
	J88 ssn60	27	280.00 hrs	1.4%	33.2%	29.9%	15.0%	20.4%
	D85 ssn120	0	0.00 hrs	0.0%	0.0%	0.0%	0.0%	0.0%
YUG - YUGOSLAVIA	D85 ssn5	146	198.50 hrs	3.9%	26.6%	21.2%	16.9%	31.5%
	J86 ssn5	151	201.00 hrs	0.0%	30.8%	18.4%	23.9%	26.9%
	M88 ssn60	146	198.50 hrs	0.0%	32.7%	23.6%	13.2%	30.5%
	J88 ssn60	151	201.00 hrs	0.0%	28.6%	23.6%	22.8%	25.0%
	D85 ssn120	146	198.50 hrs	1.4%	32.9%	25.7%	12.0%	28.1%
ZWE - ZIMBABWE	D85 ssn5	3	29.50 hrs	0.0%	0.0%	7.6%	31.4%	61.0%
	J86 ssn5	3	29.50 hrs	0.0%	22.9%	13.6%	31.4%	32.2%
	M88 ssn60	6	42.00 hrs	0.0%	11.9%	14.3%	32.1%	41.7%
	J88 ssn60	7	45.50 hrs	6.6%	11.5%	4.4%	39.0%	38.5%
	D85 ssn120	3	29.50 hrs	0.0%	2.5%	0.0%	33.1%	64.4%
ALL ADMINISTRATIONS	D85 ssn5	7016	28303.00 hrs	4.8%	25.6%	20.5%	20.9%	28.3%
	J86 ssn5	9027	32333.25 hrs	5.5%	27.8%	19.0%	22.9%	24.8%
	M88 ssn60	11631	37783.00 hrs	2.2%	35.0%	21.5%	17.6%	23.7%
	J88 ssn60	10902	36382.75 hrs	3.3%	28.4%	21.2%	21.4%	25.7%
	D85 ssn120	7016	28303.00 hrs	3.2%	24.9%	23.6%	21.8%	26.5%

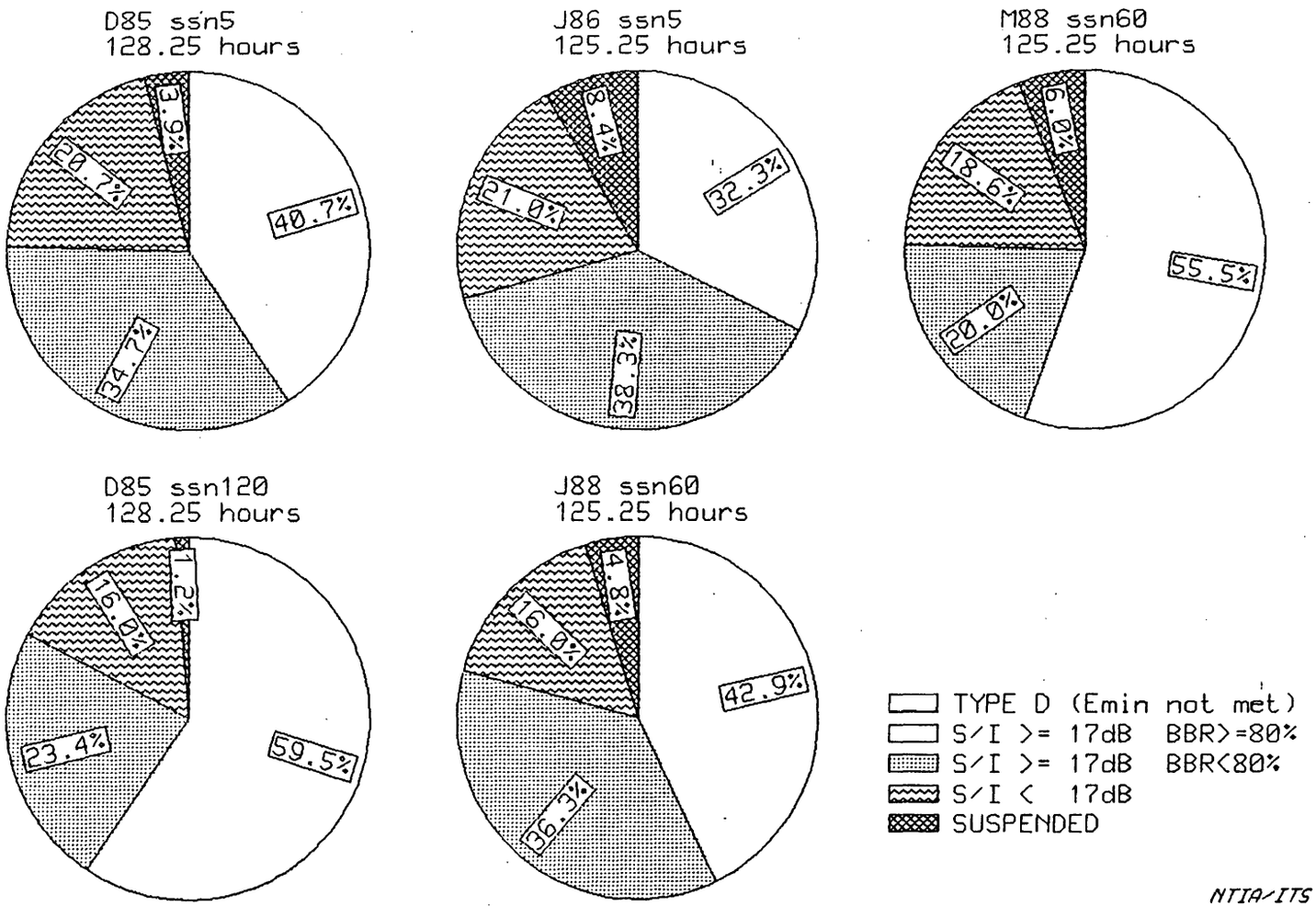
IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

ALL ADMINISTRATIONS



IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

AFS – SOUTH AFRICA

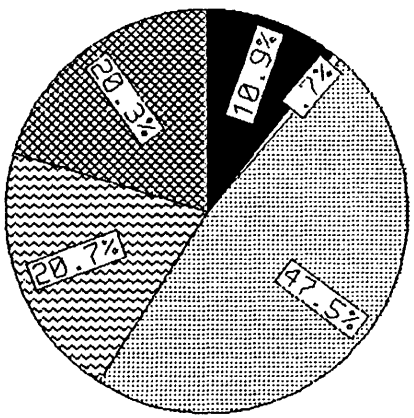


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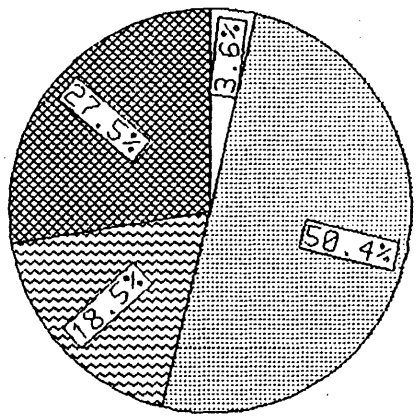
AGL – ANGOLA

D85 ssn5
0.00 hours

J86 ssn5
138.00 hours

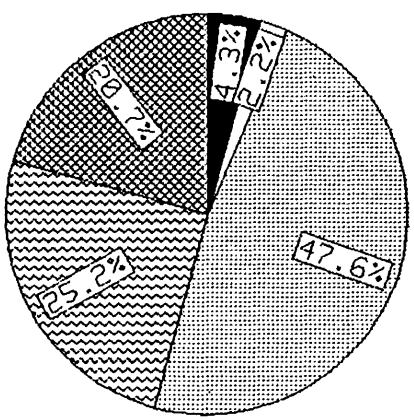


M88 ssn60
138.00 hours



D85 ssn120
0.00 hours

J88 ssn60
138.00 hours

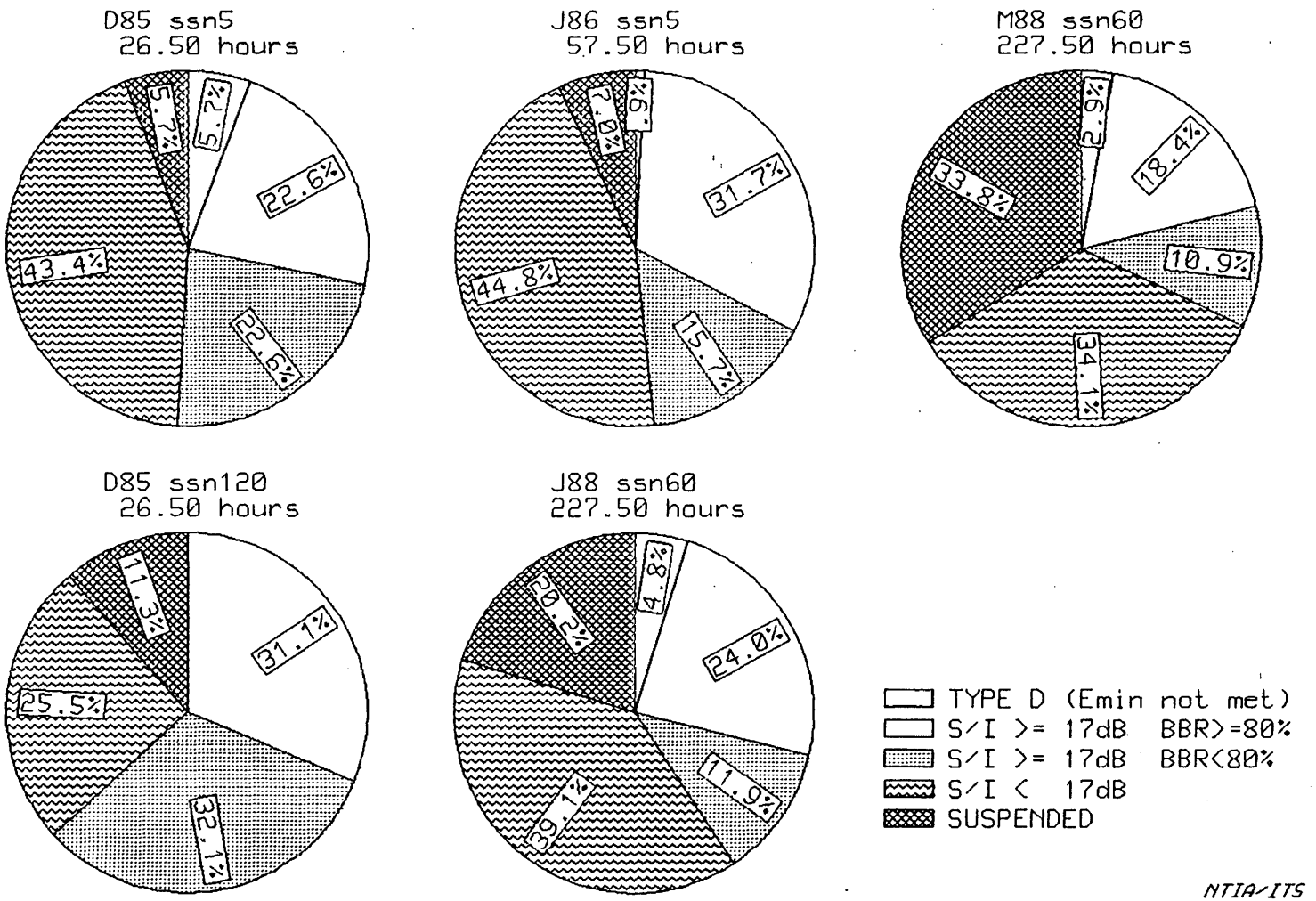


TYPE D (Emin not met)
S/I >= 17dB BBR>=80%
S/I >= 17dB BBR<80%
S/I < 17dB
SUSPENDED

NTIA/ITS

IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

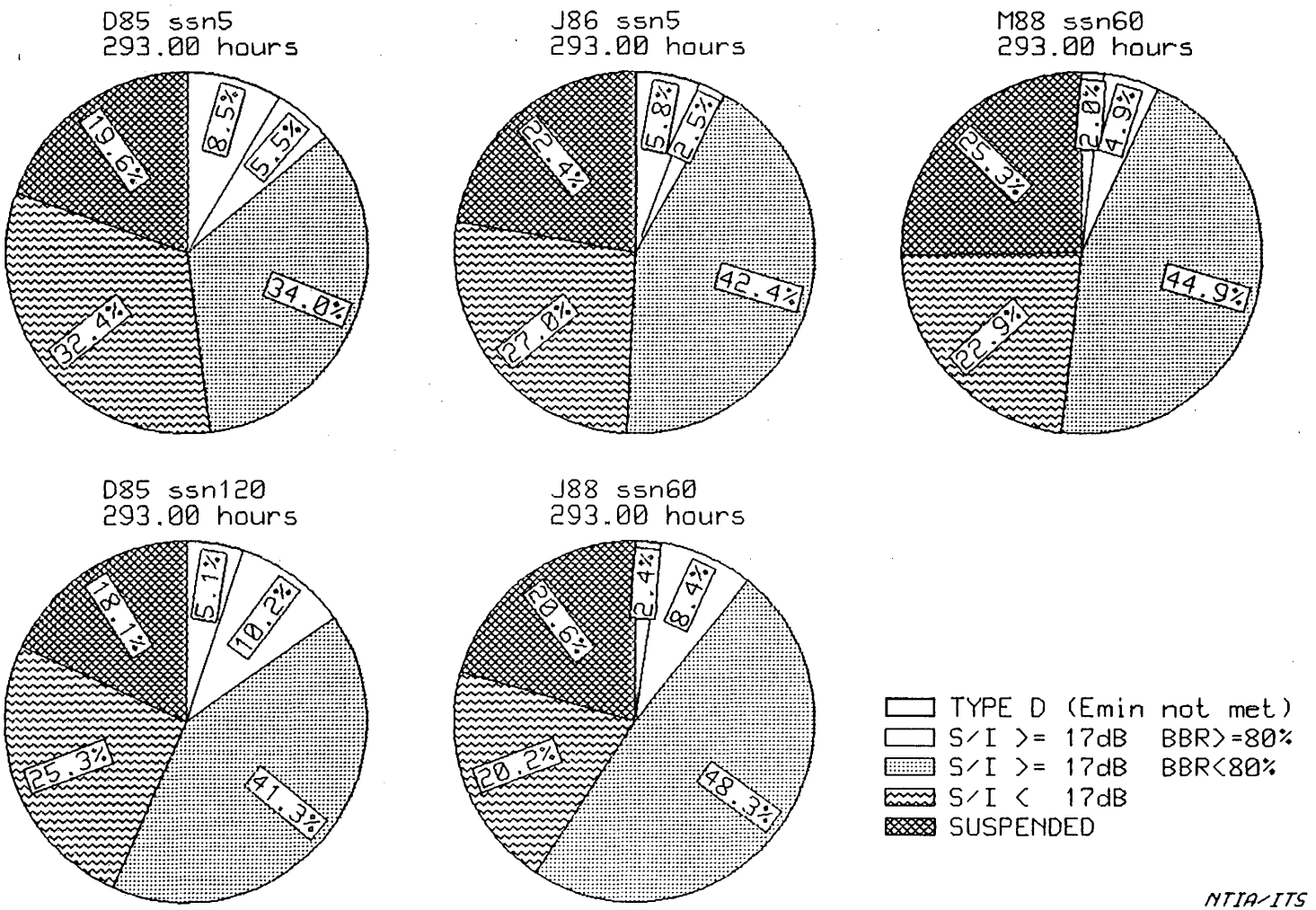
ALB – ALBANIA



NTIA/ITS

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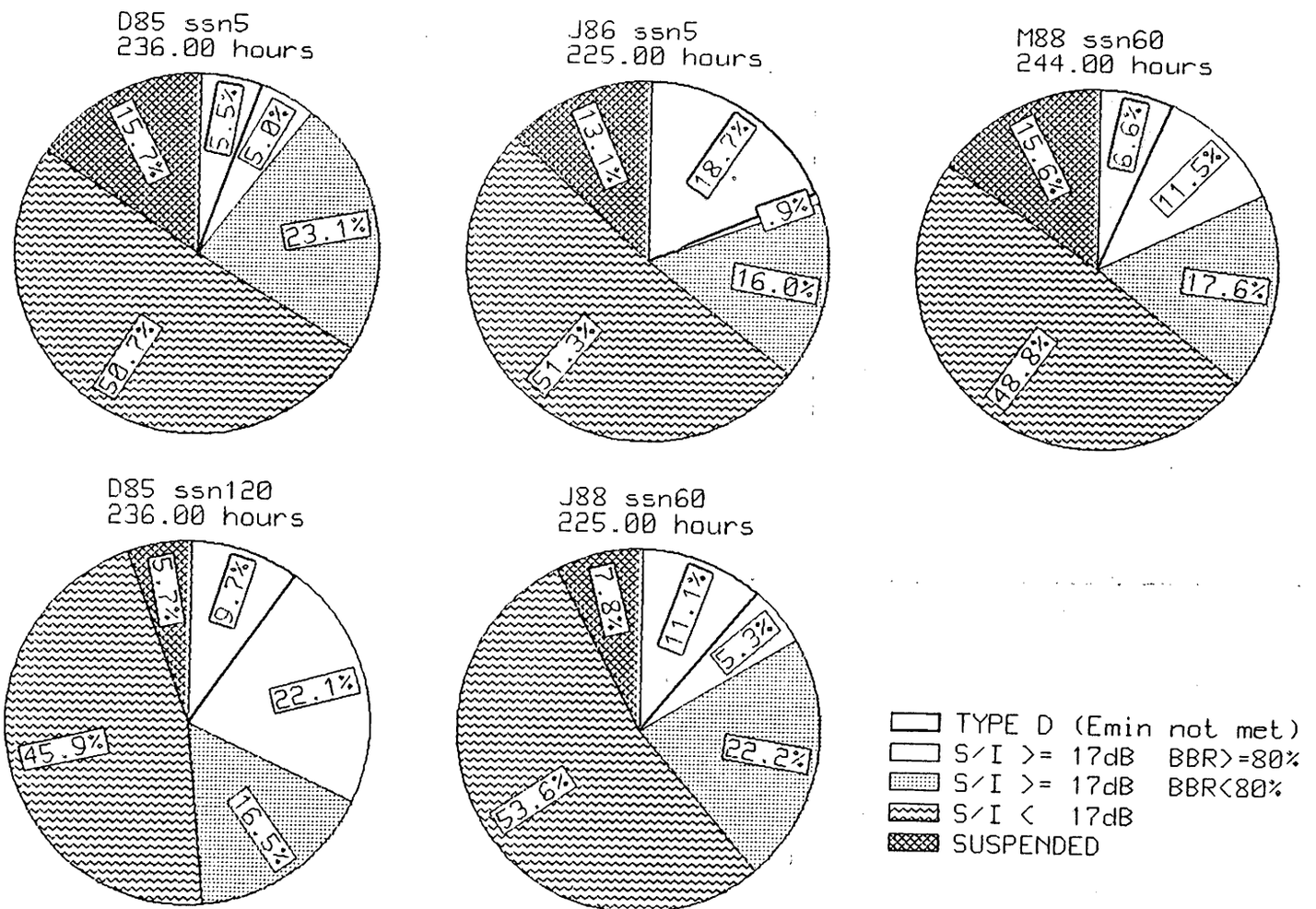
ALG – ALGERIA



NTIA/ITS

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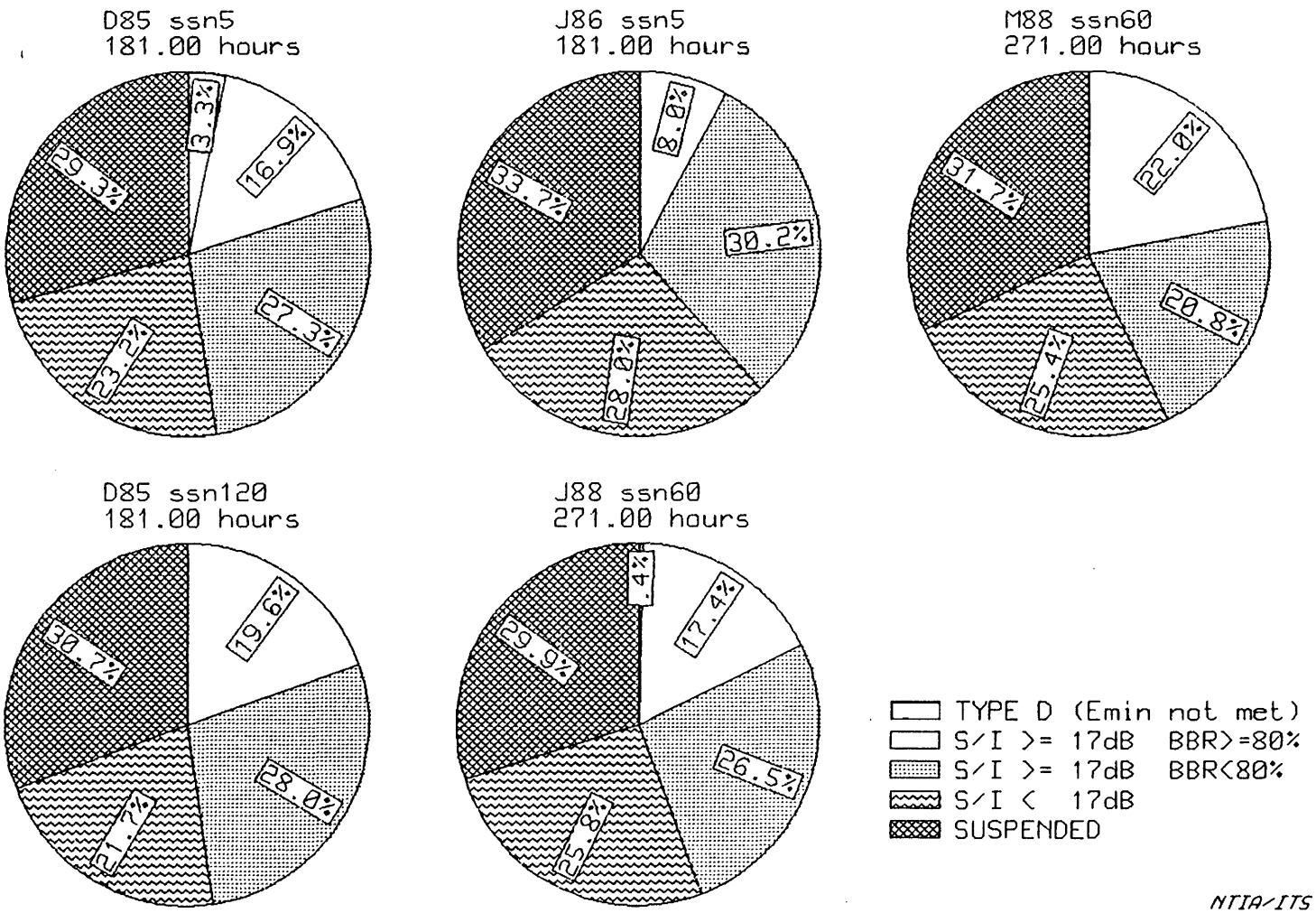
ARG – ARGENTINA



NTIA/ITS

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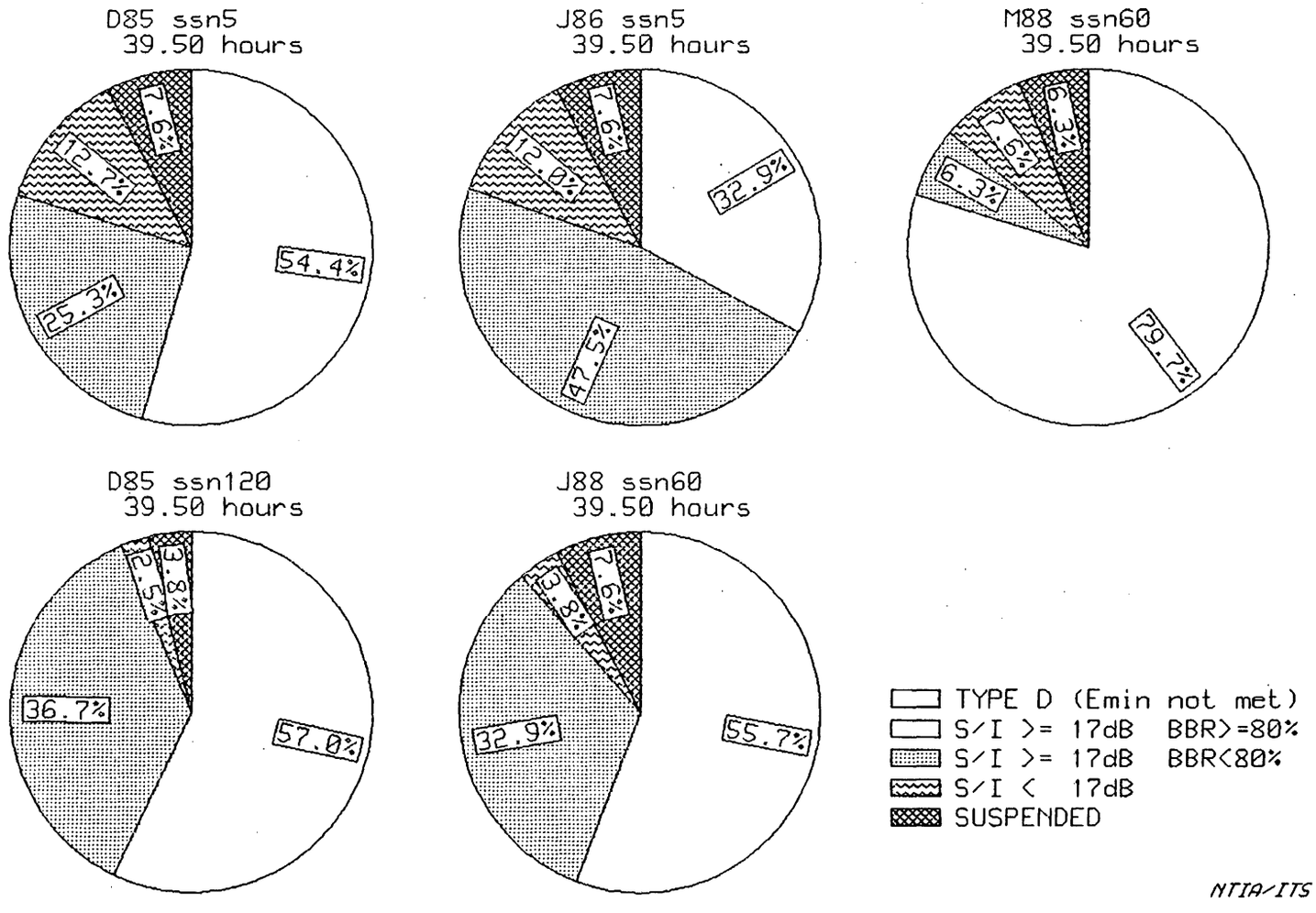
ARS – SAUDI ARABIA



NTIA/ITS

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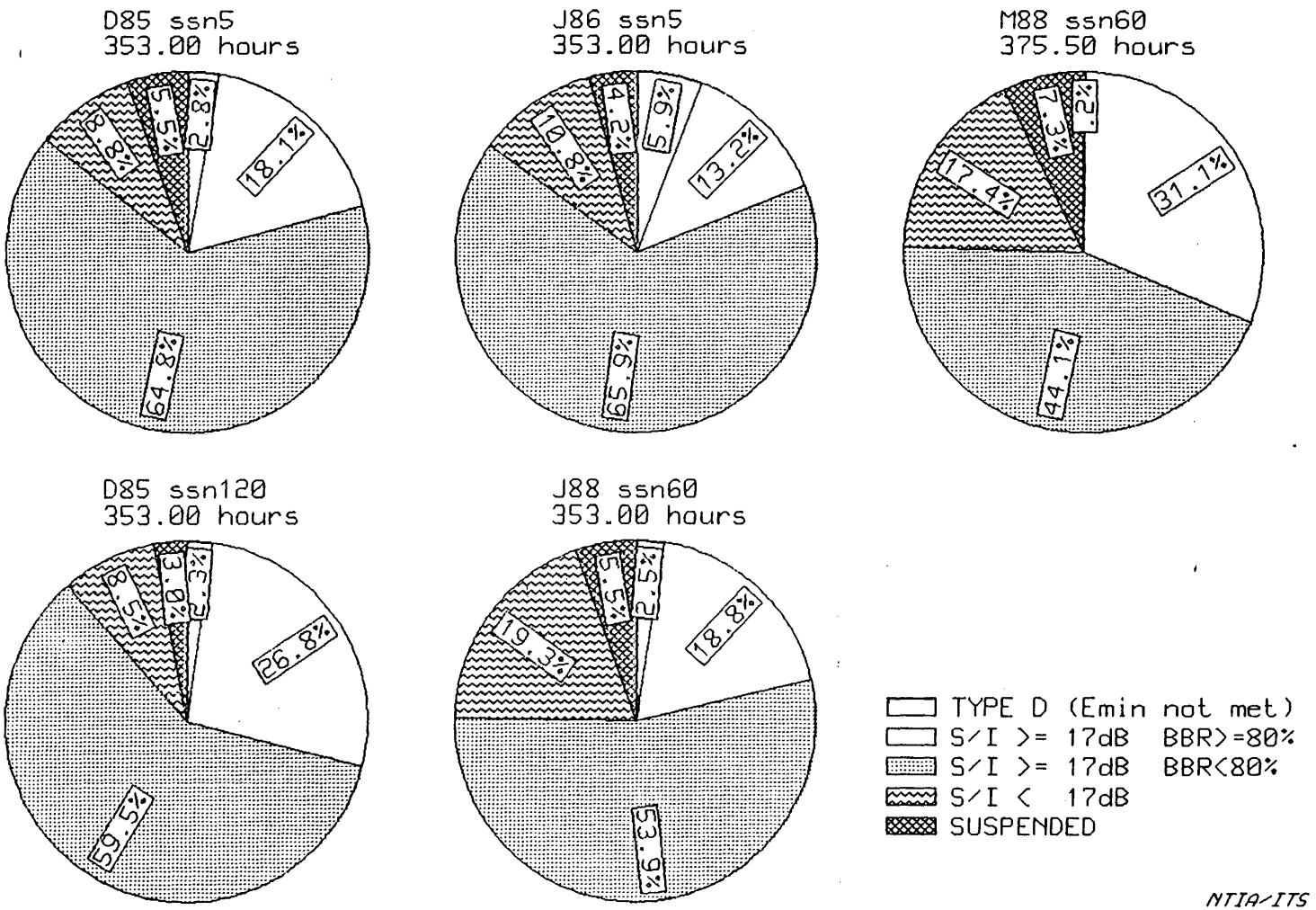
ATG – ANTIGUA



NTIA/ITS

IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

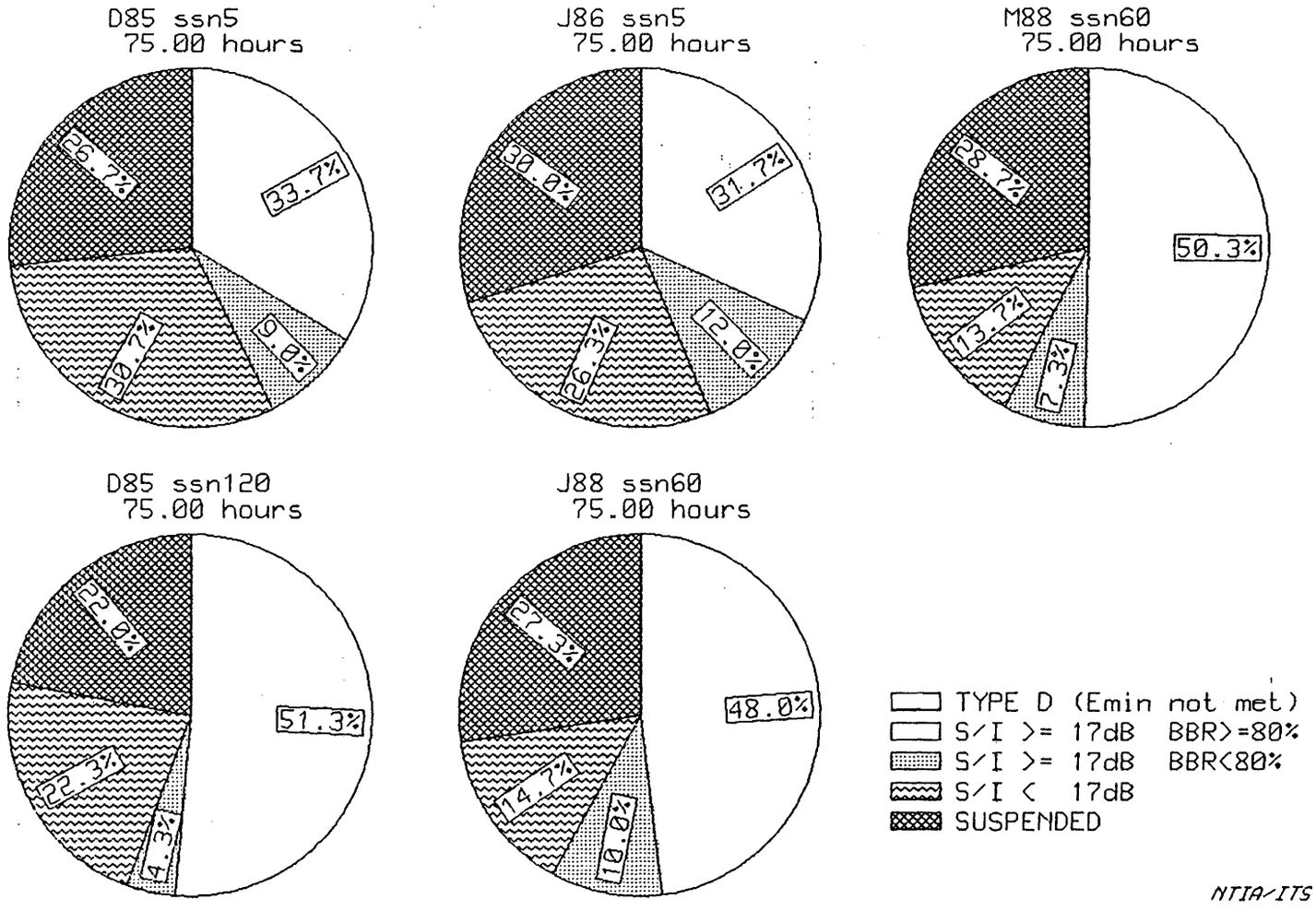
AUS – AUSTRALIA



NTIA/ITS

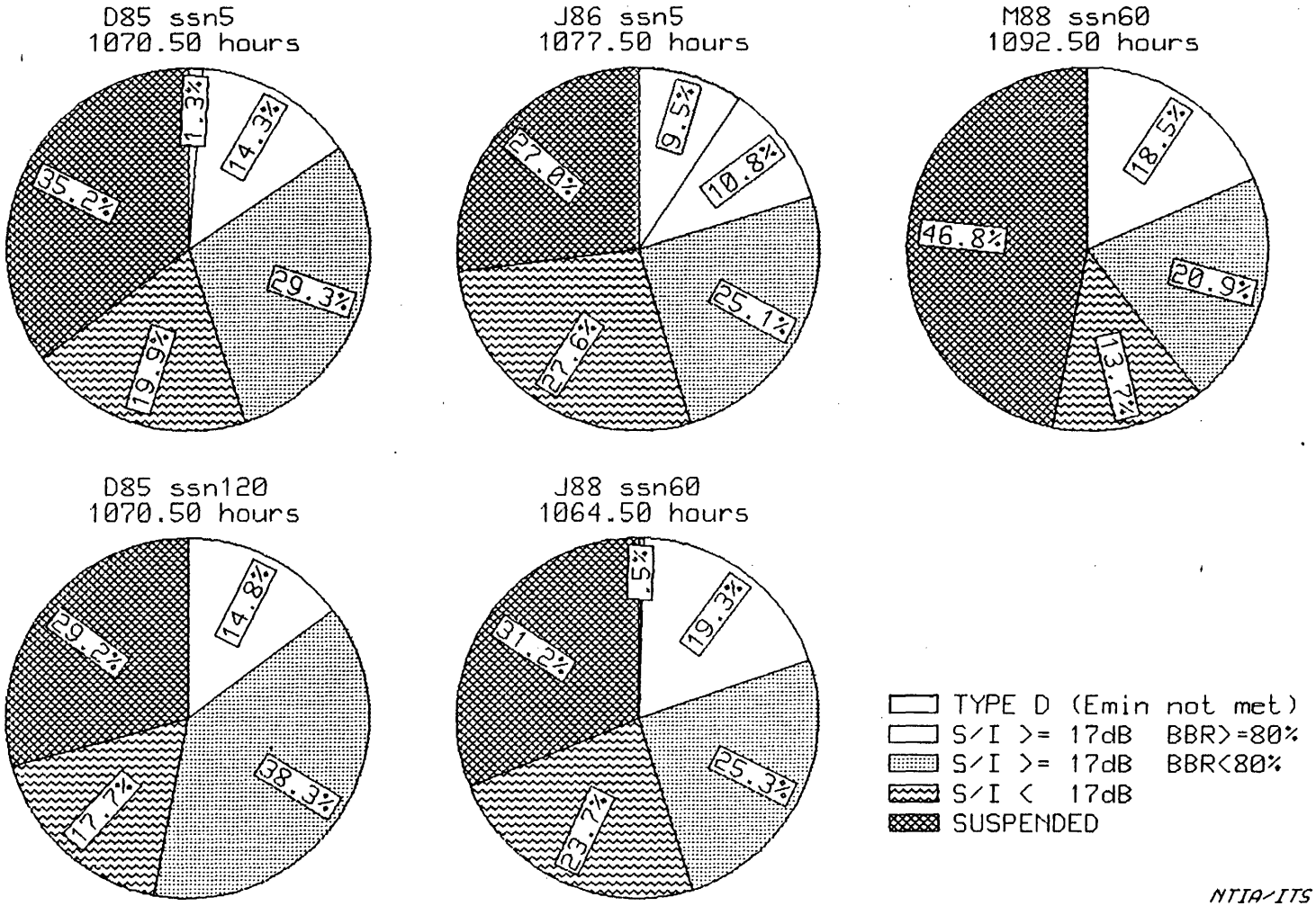
IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

AUT – AUSTRIA



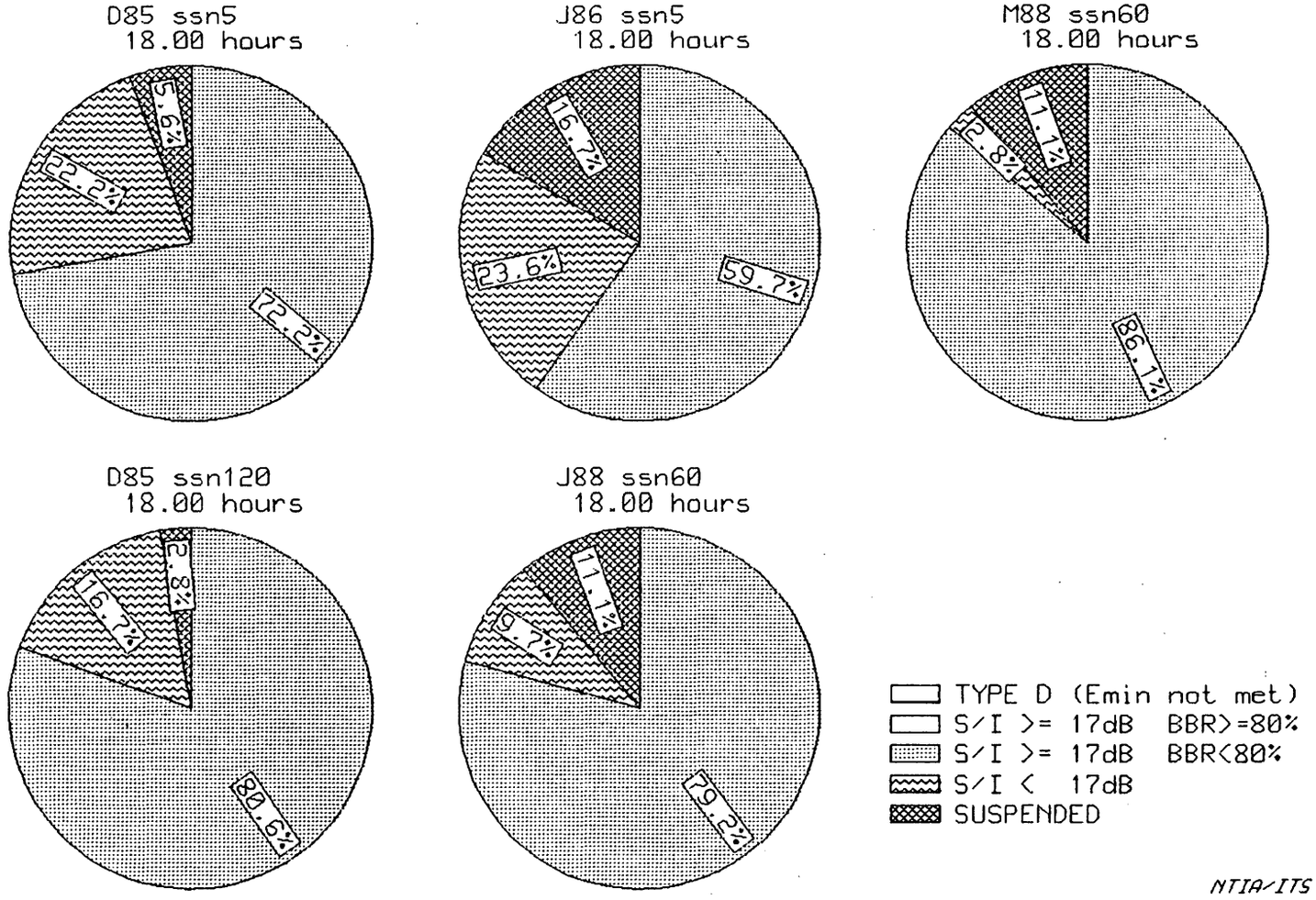
IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

B – BRAZIL



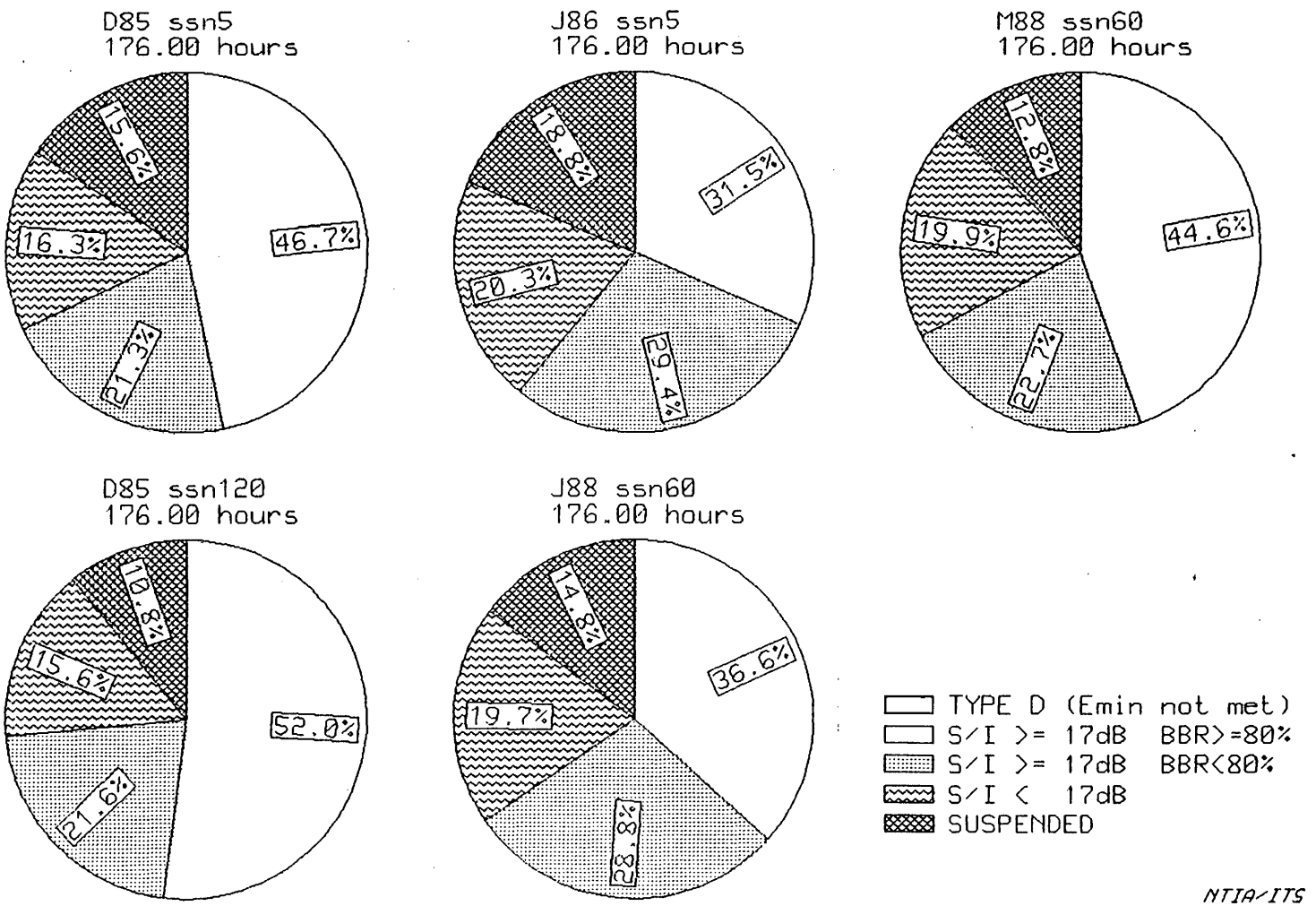
IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

BDI – BURUNDI



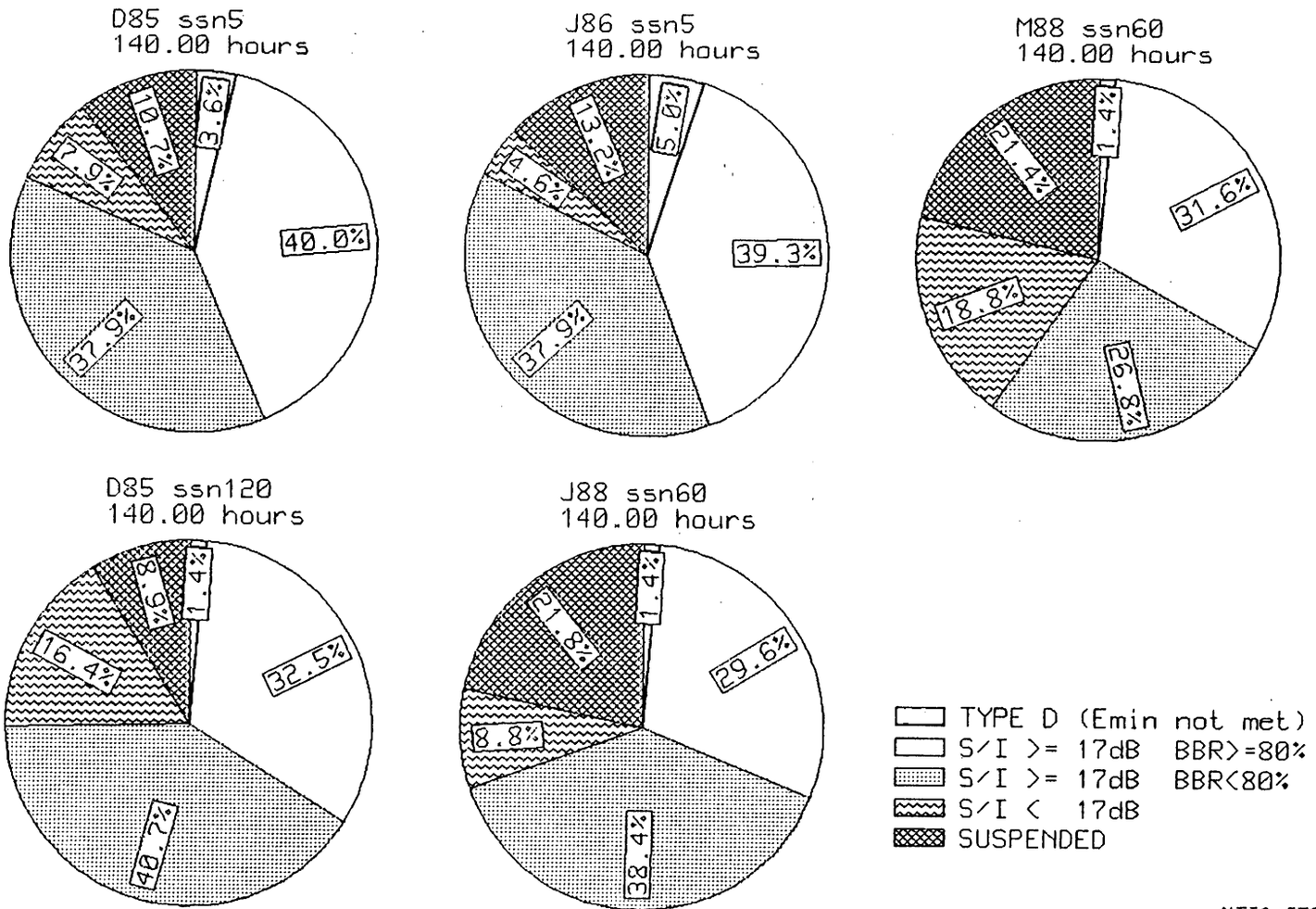
IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

BEL – BELGIUM



IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

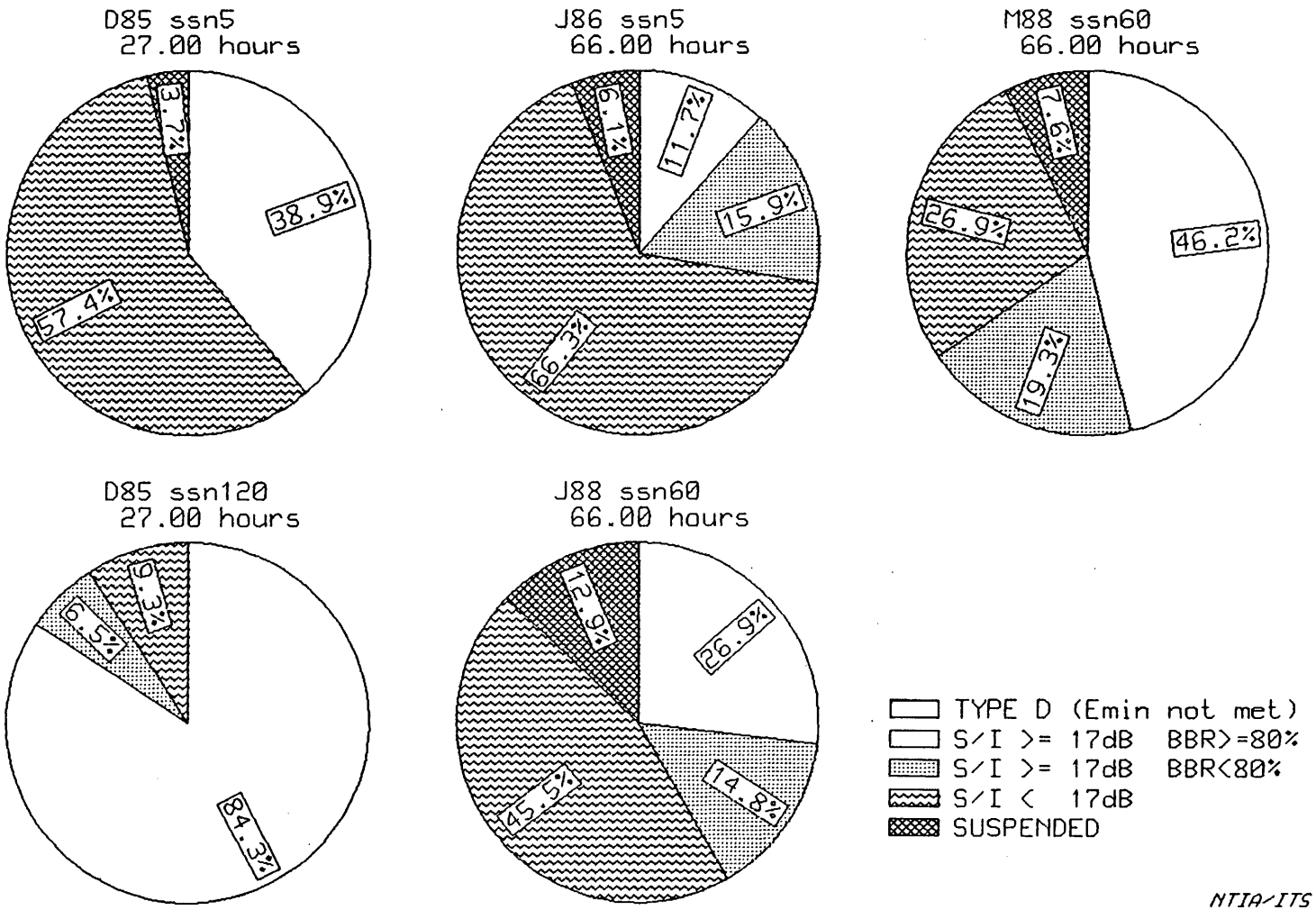
BEN – BENIN



NTIA/ITS

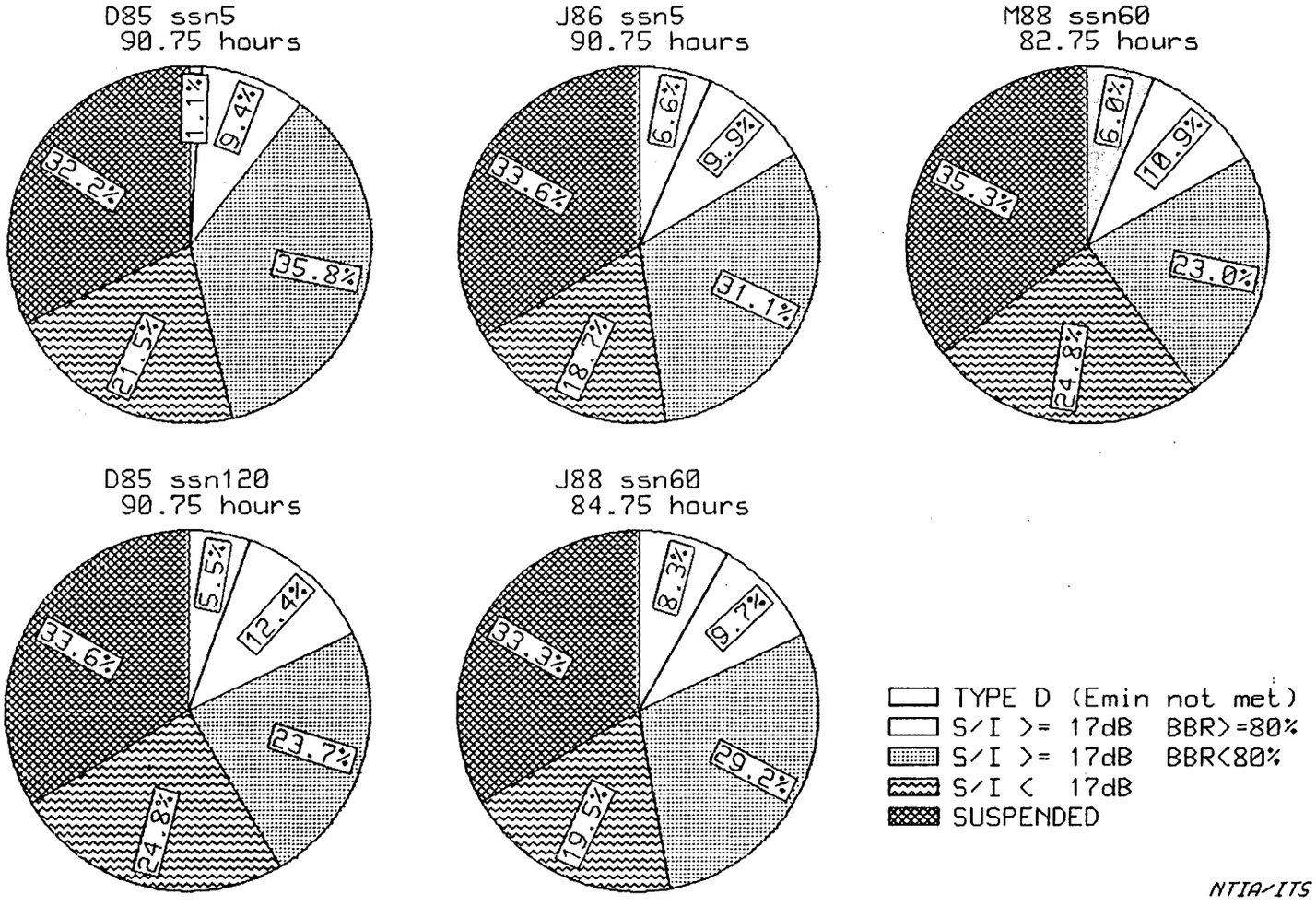
IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

BFA – BURKINA FASO



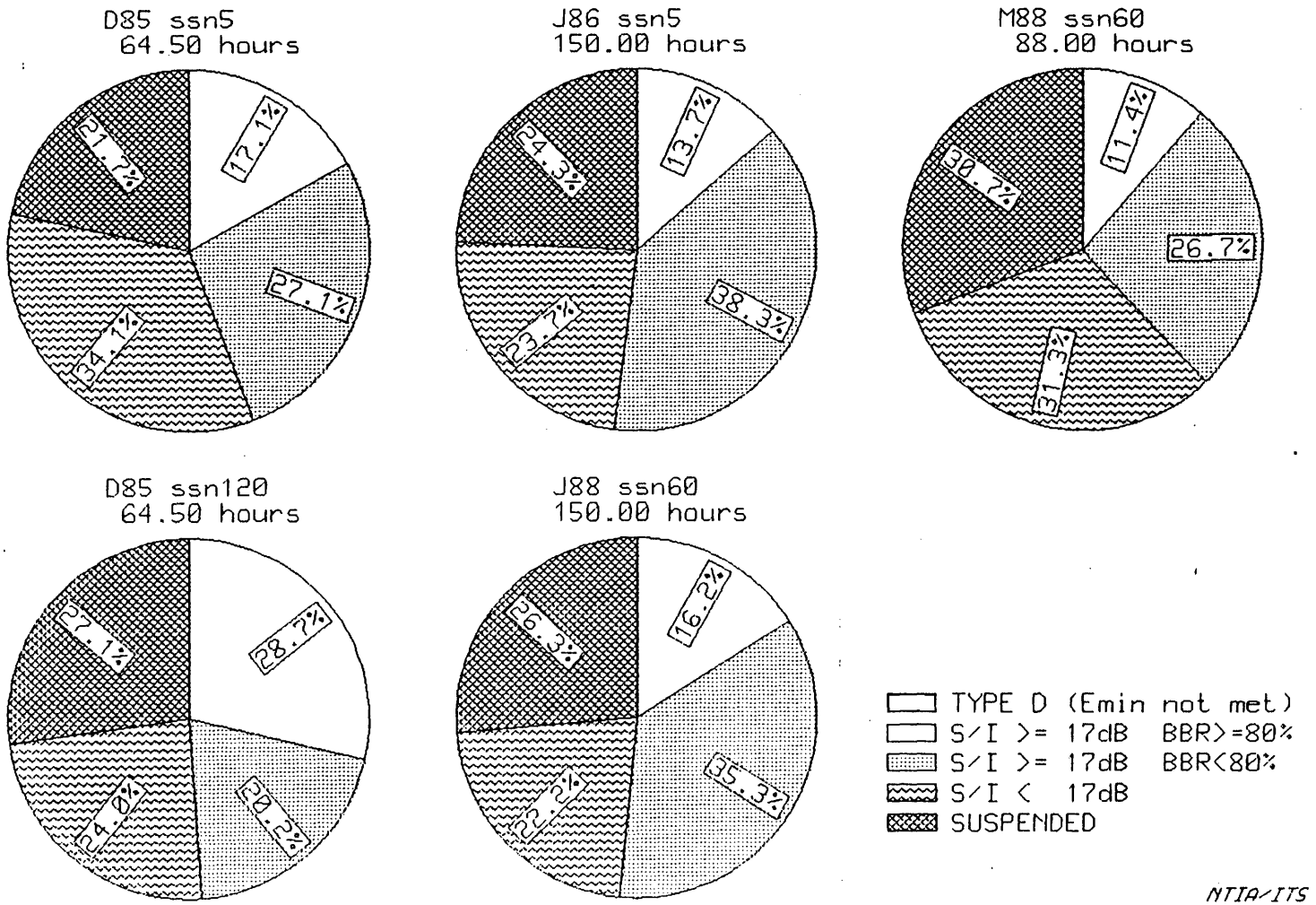
IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

BGD – BANGLADESH



IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

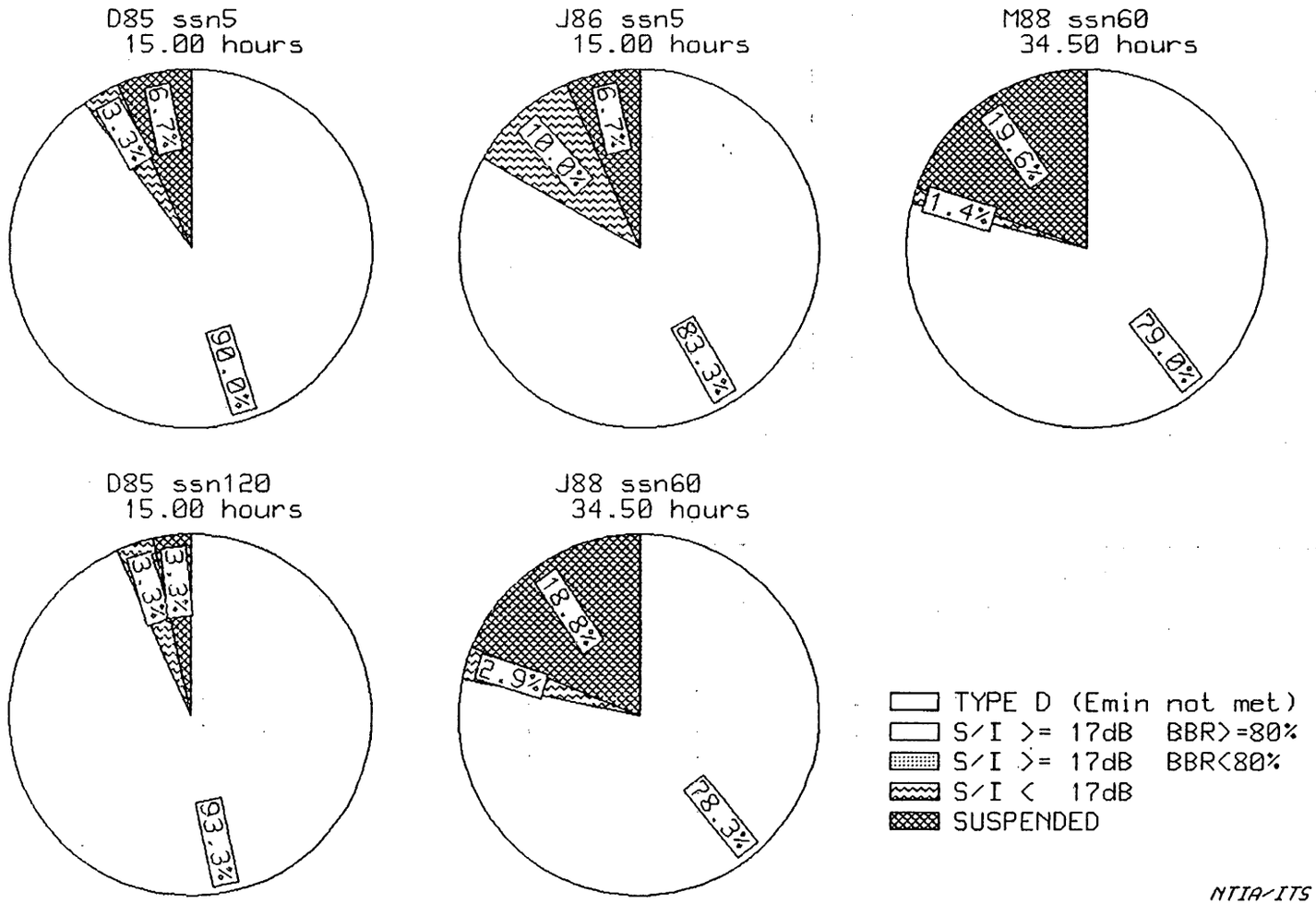
BLR – BYELORUSSIA



NTIA/ITS

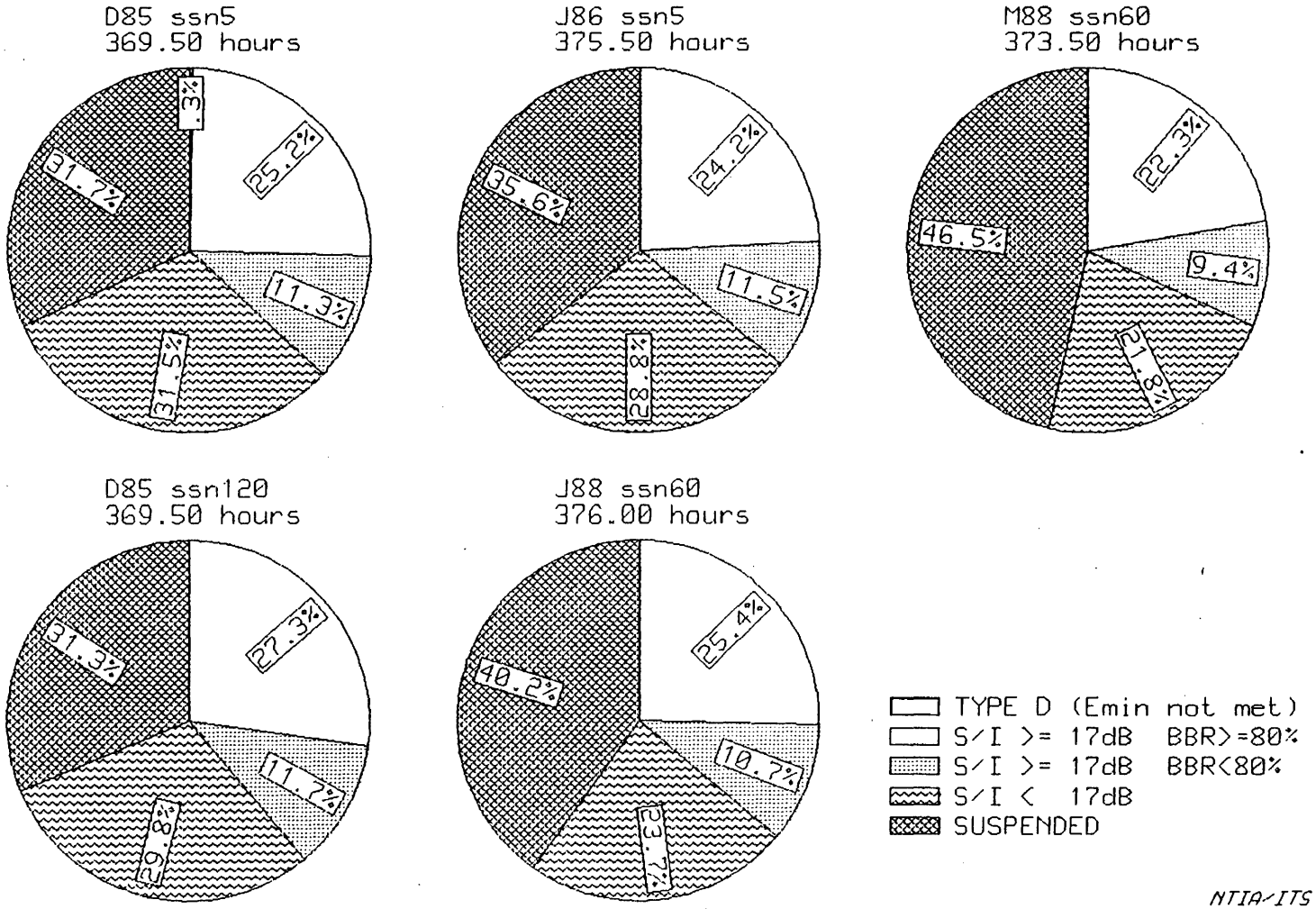
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BRM – BURMA



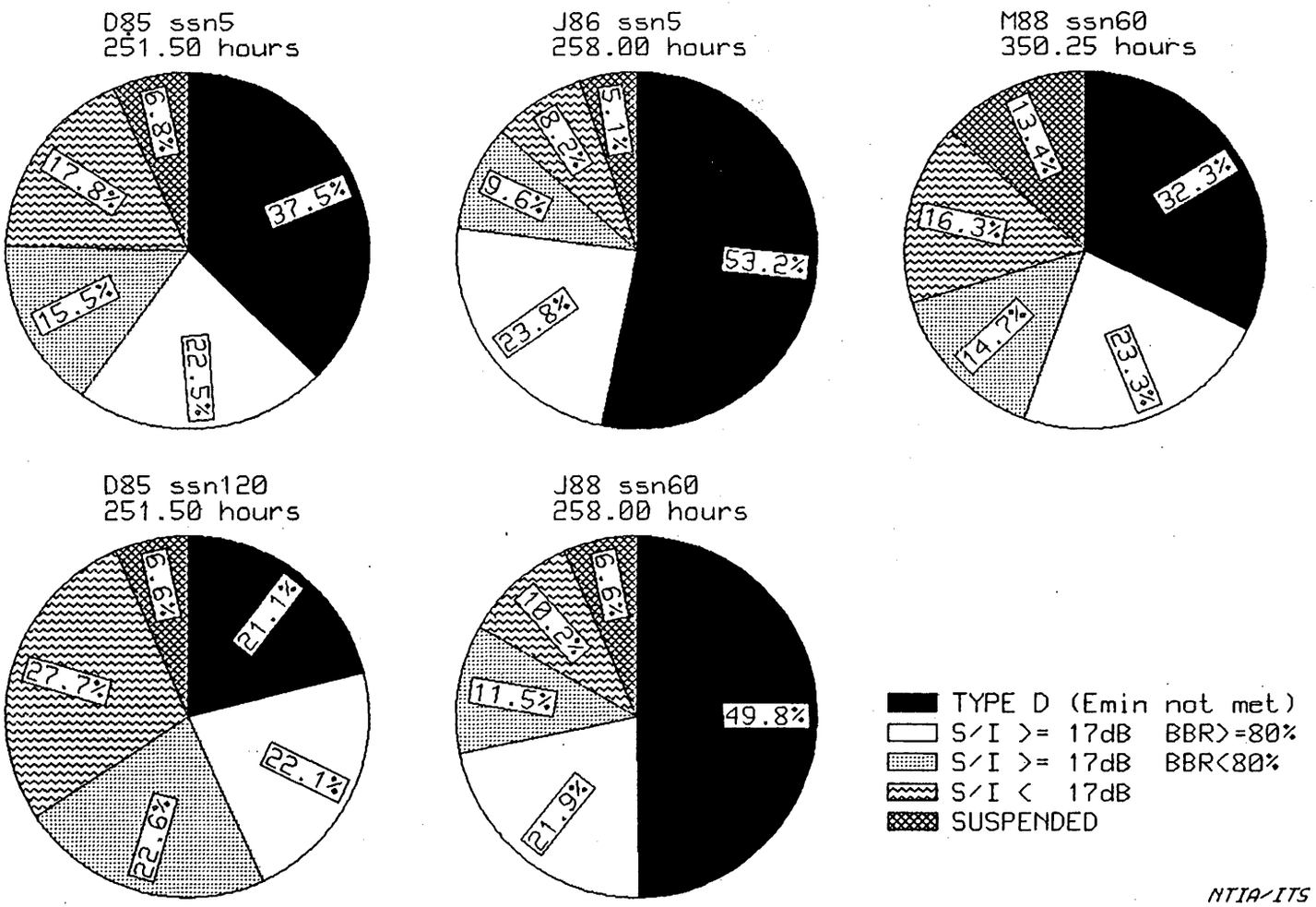
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BUL – BULGARIA



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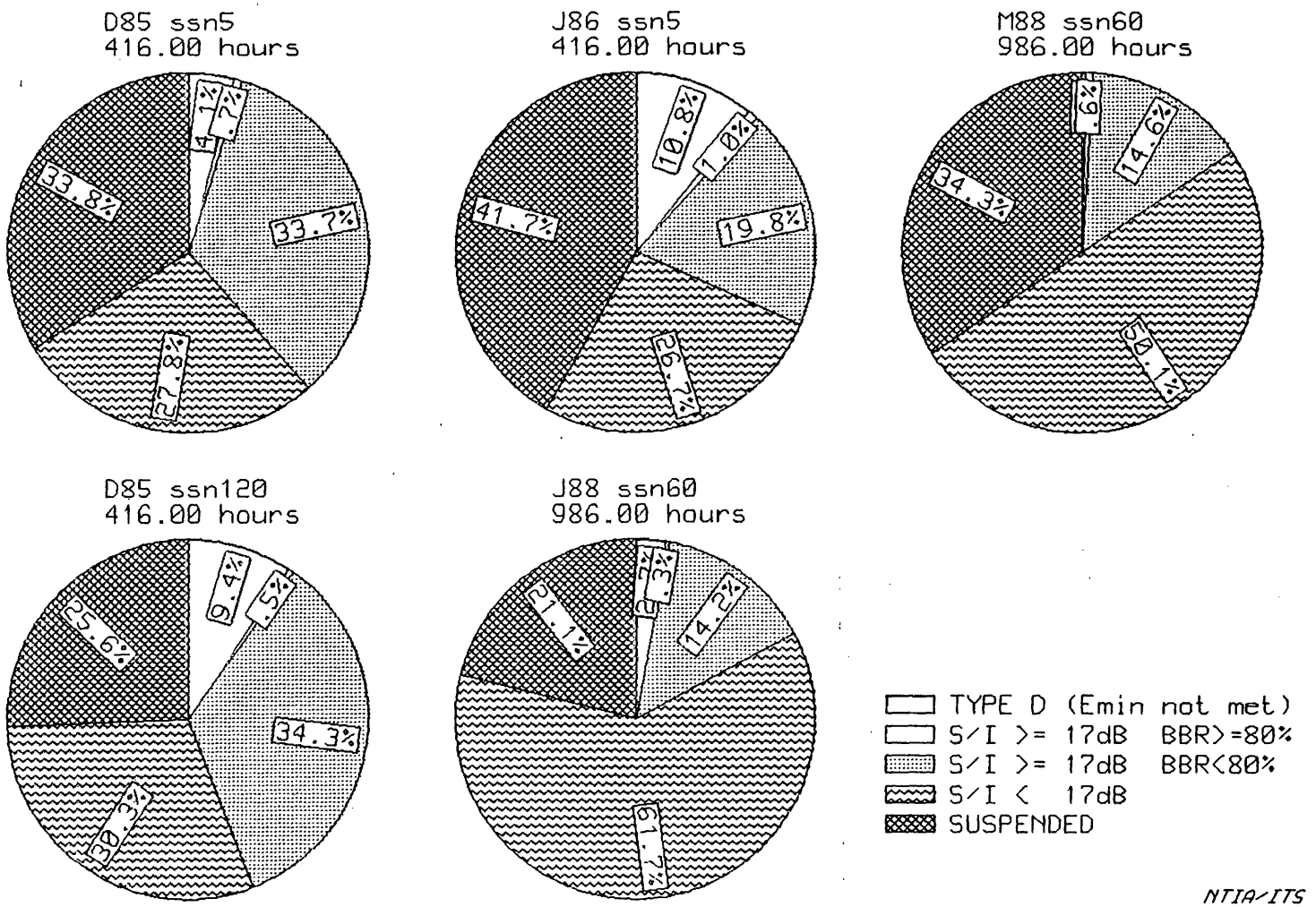
CAN – CANADA



NTIA/ITS

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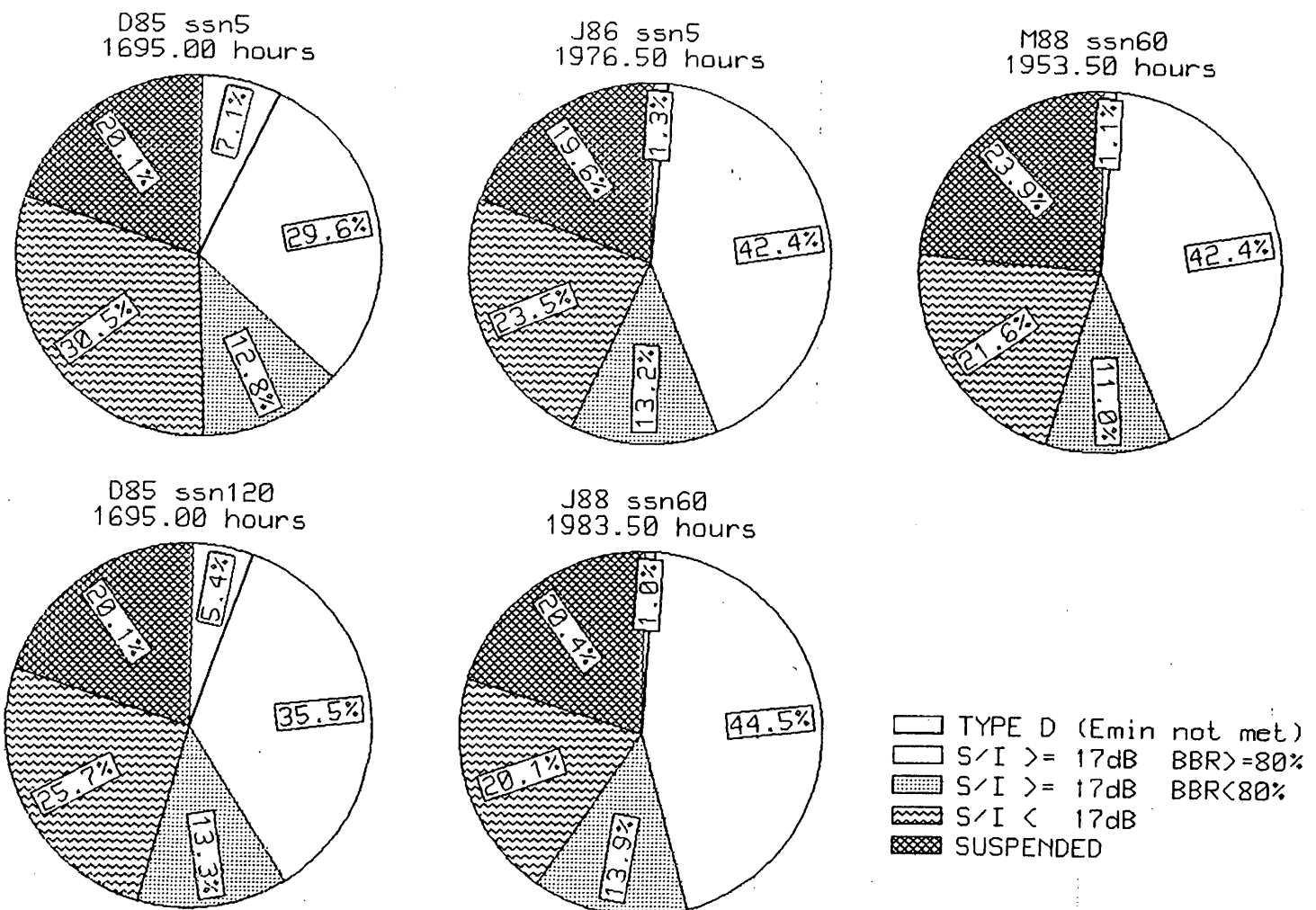
CHL – CHILE



NTIA/ITS

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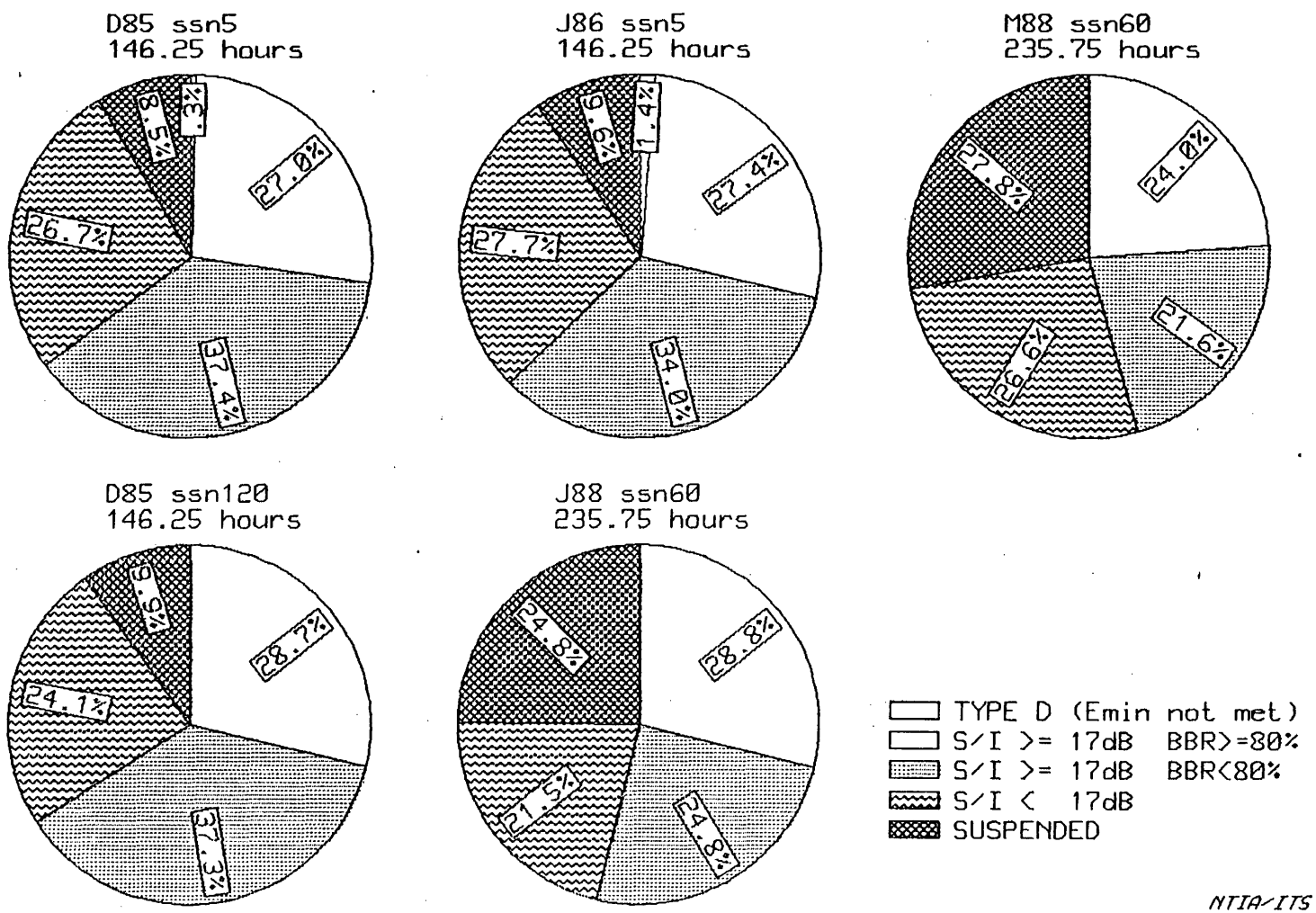
CHN – CHINA



NTIA/ITS

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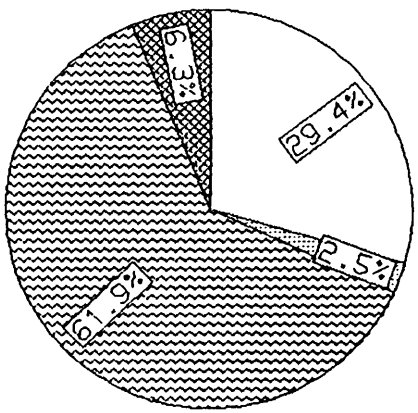
CLN – SRI LANKA



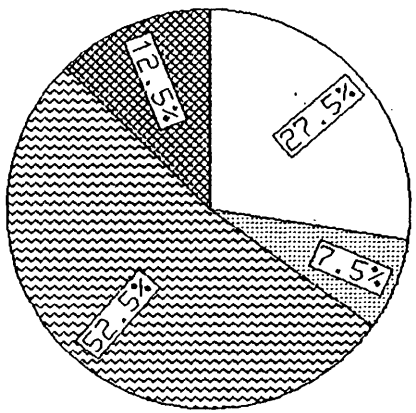
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COG – CONGO

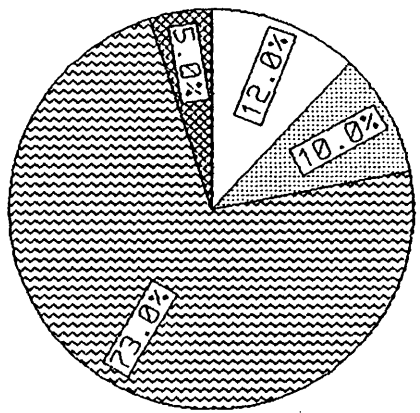
D85 ssn5
40.00 hours



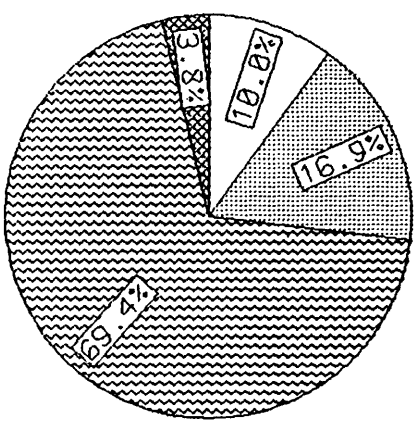
J86 ssn5
40.00 hours



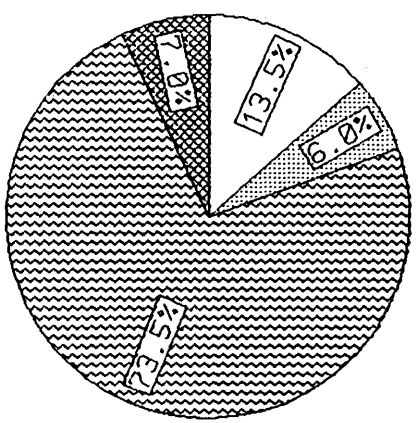
M88 ssn60
50.00 hours

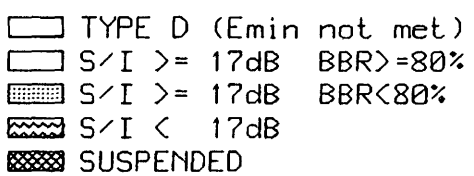


D85 ssn120
40.00 hours



J88 ssn60
50.00 hours

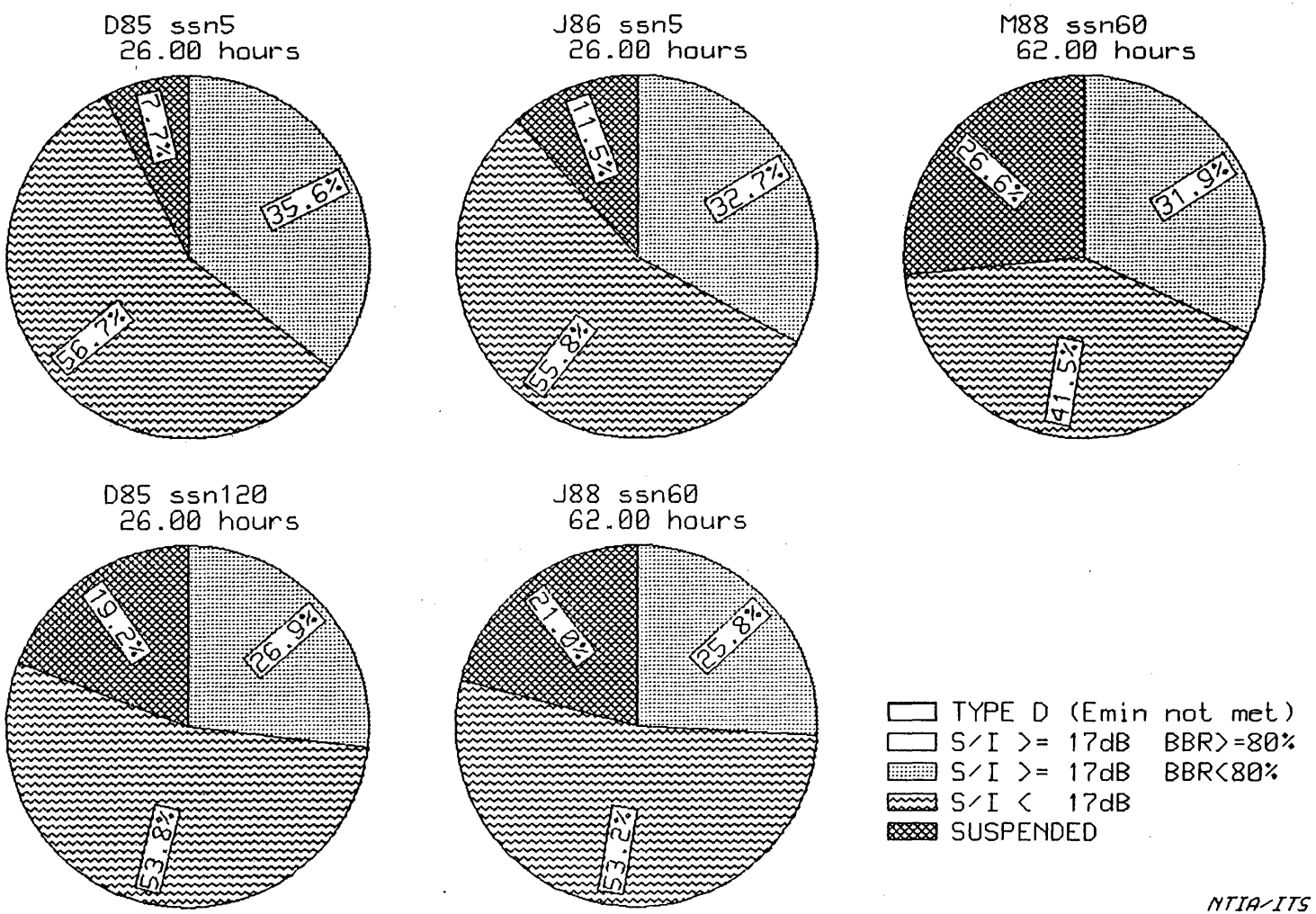




NTIA/ITS

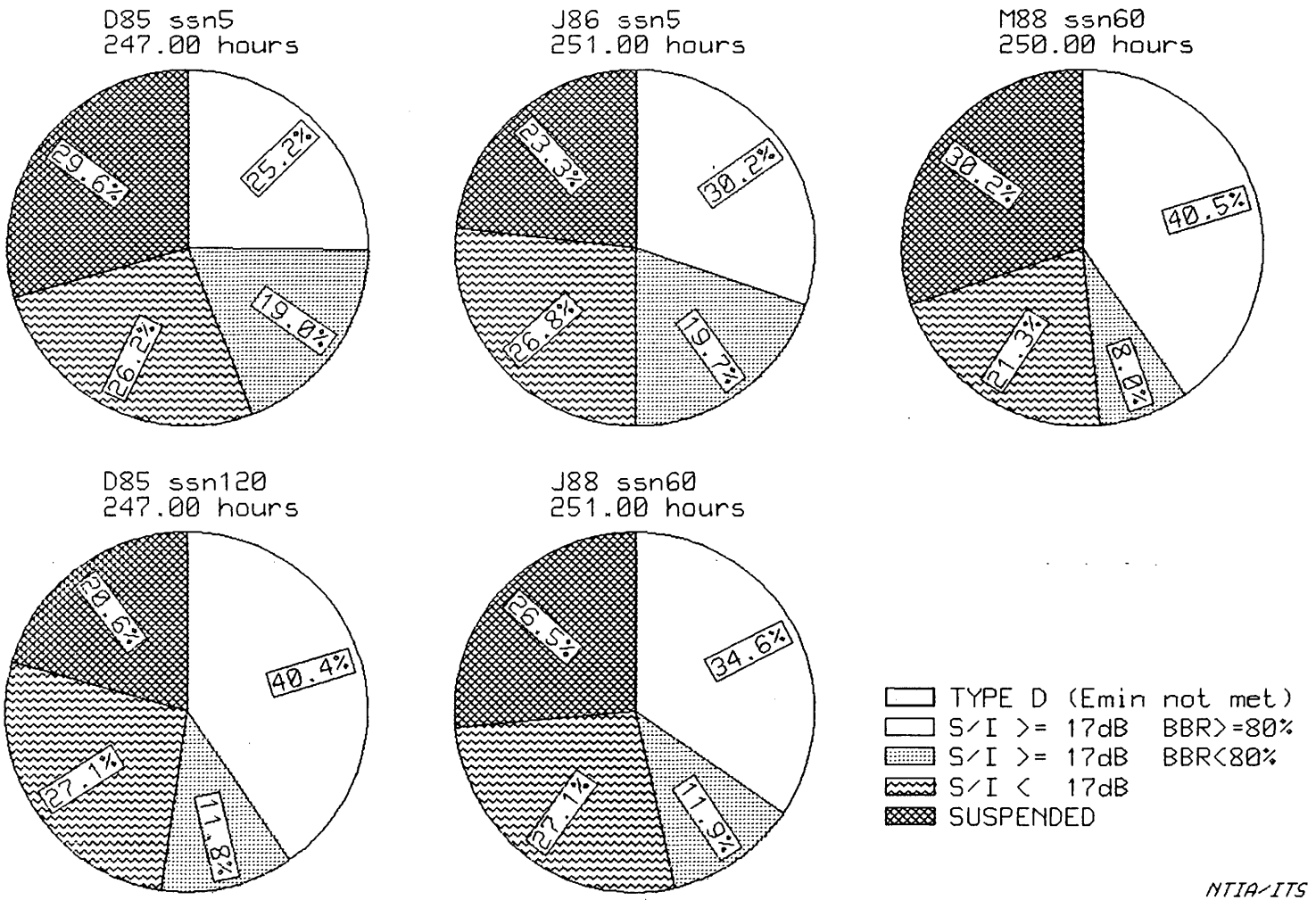
IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

CTI – IVORY COAST



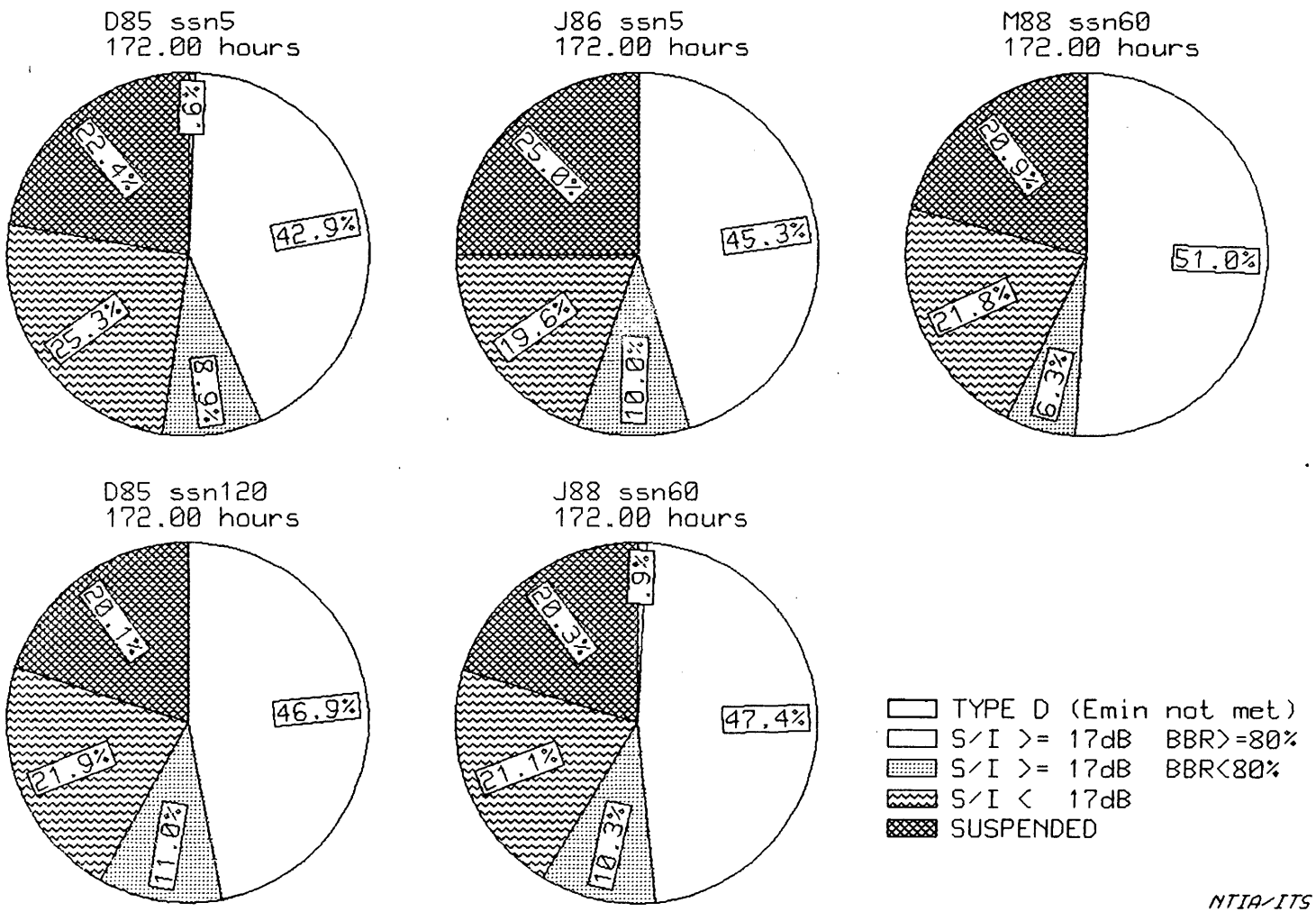
IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

CUB – CUBA



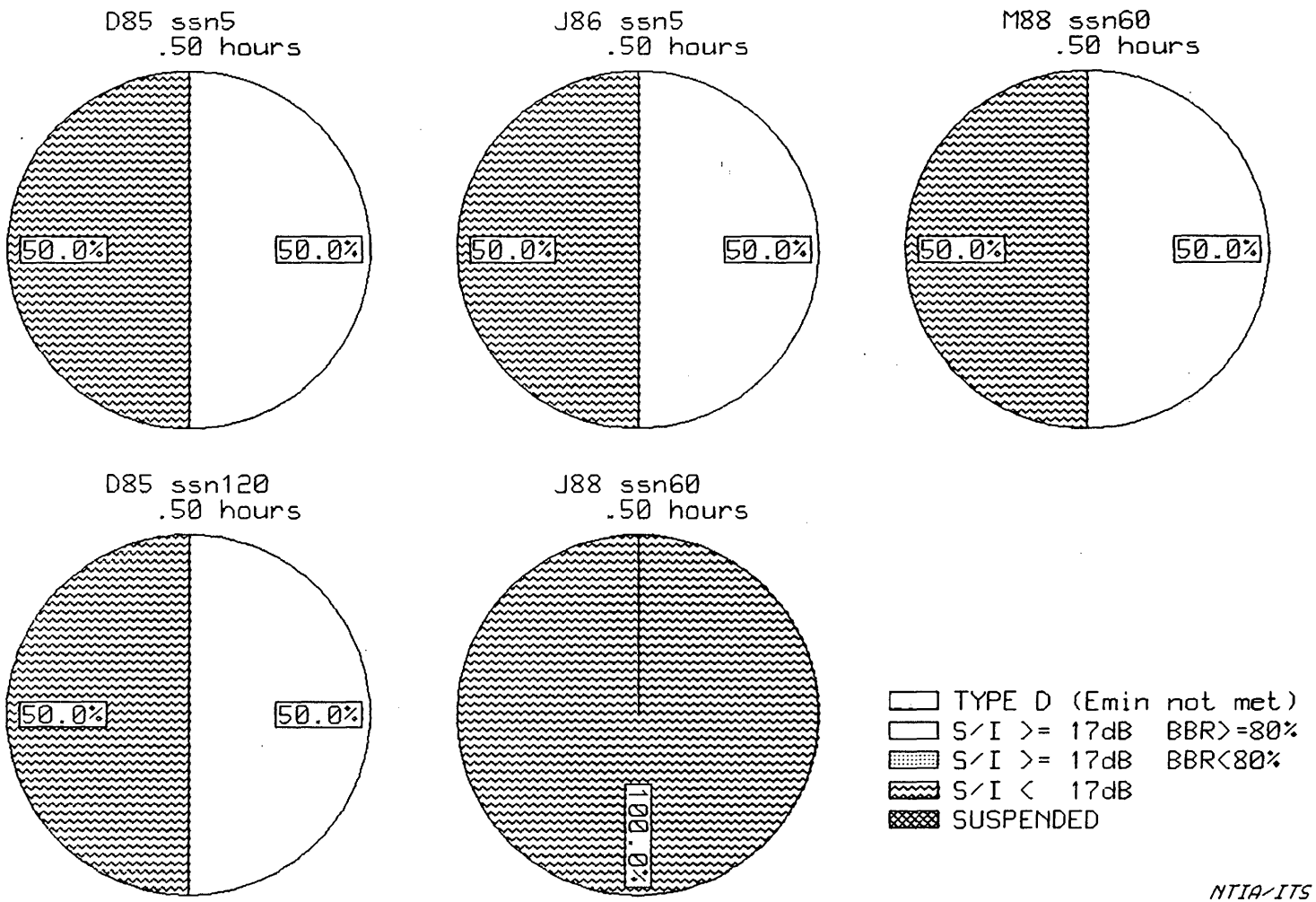
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CVA – VATICAN



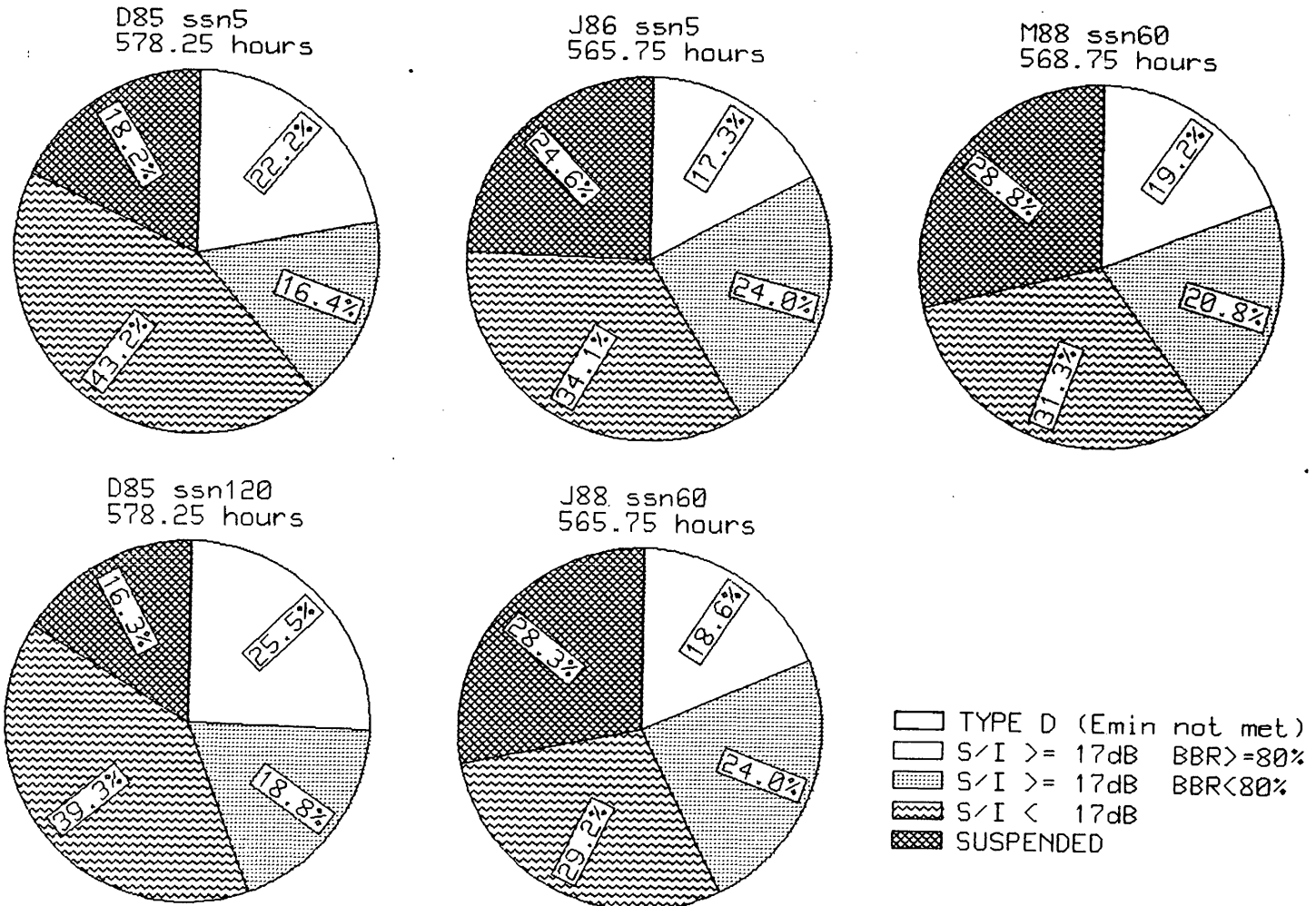
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CYP – CYPRUS



IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

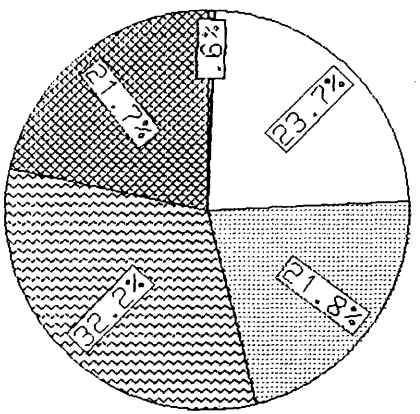
D — FEDERAL REPUBLIC of GERMANY



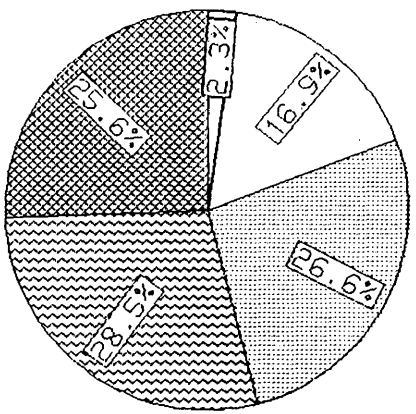
IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

DDR – GERMAN DEMOCRATIC REPUBLIC

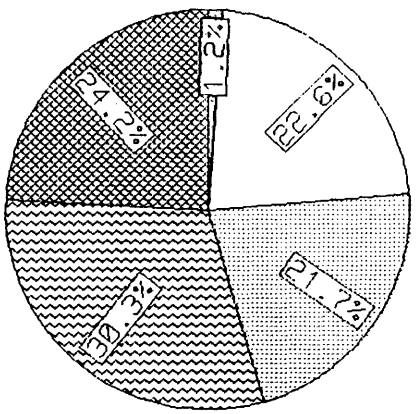
D85 ssn5
213.00 hours



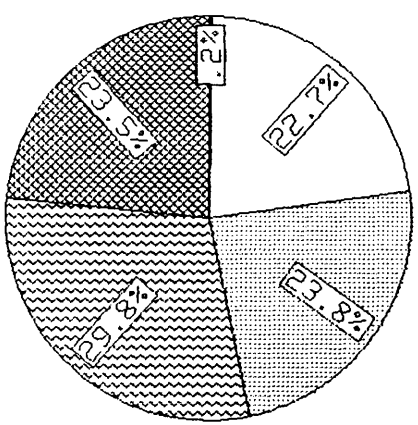
J86 ssn5
213.00 hours



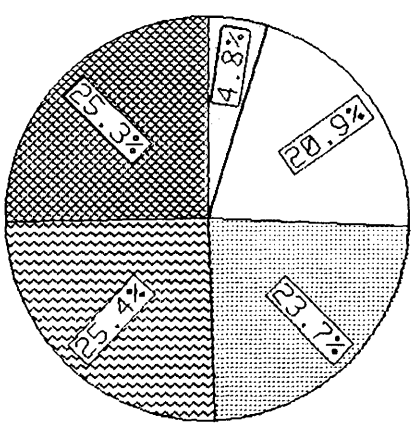
M88 ssn60
233.50 hours



D85 ssn120
213.00 hours



J88 ssn60
233.50 hours

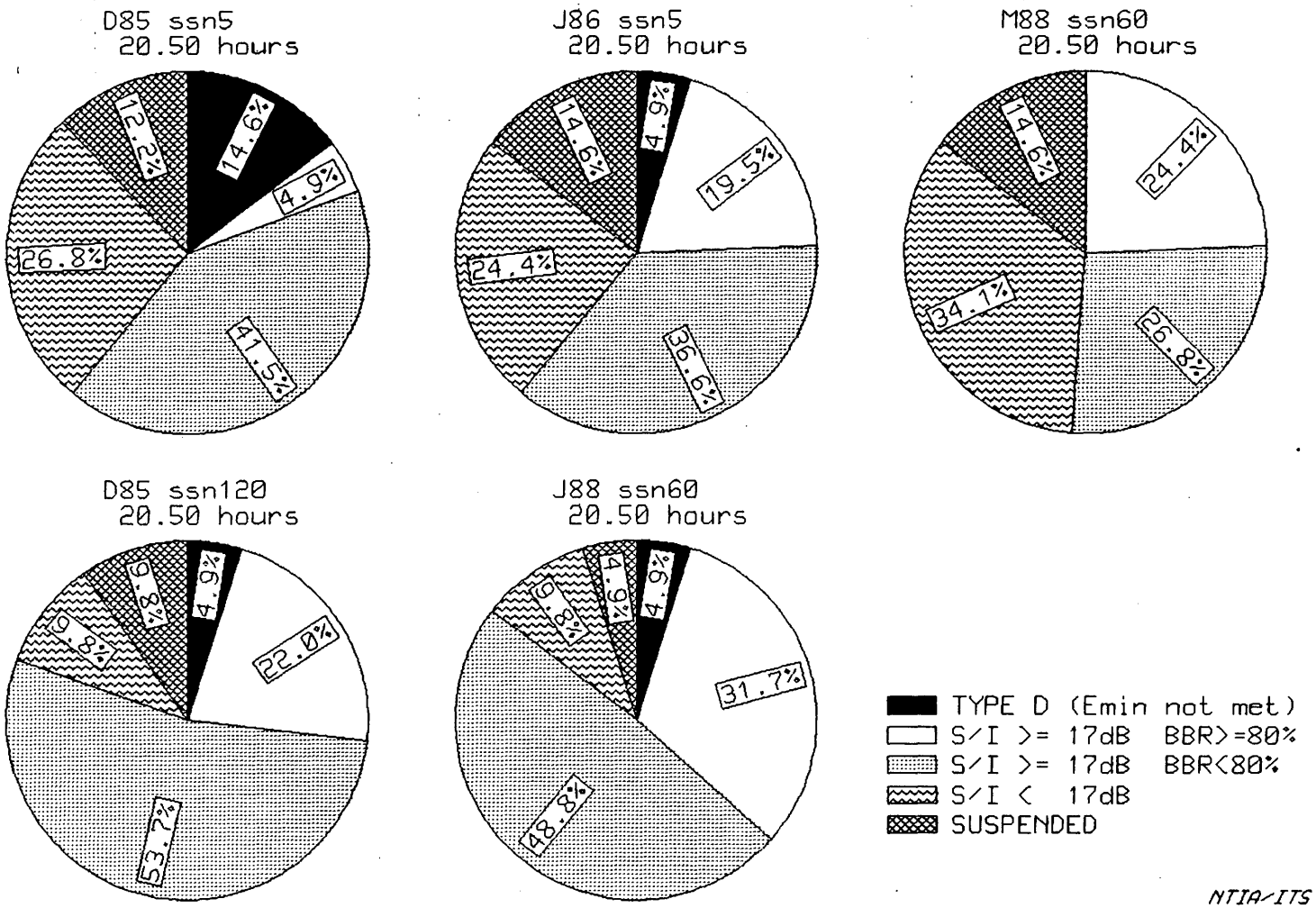


TYPE D (Emin not met)
S/I >= 17dB BBR>=80%
S/I >= 17dB BBR<80%
S/I < 17dB
SUSPENDED

NTIA/ITS

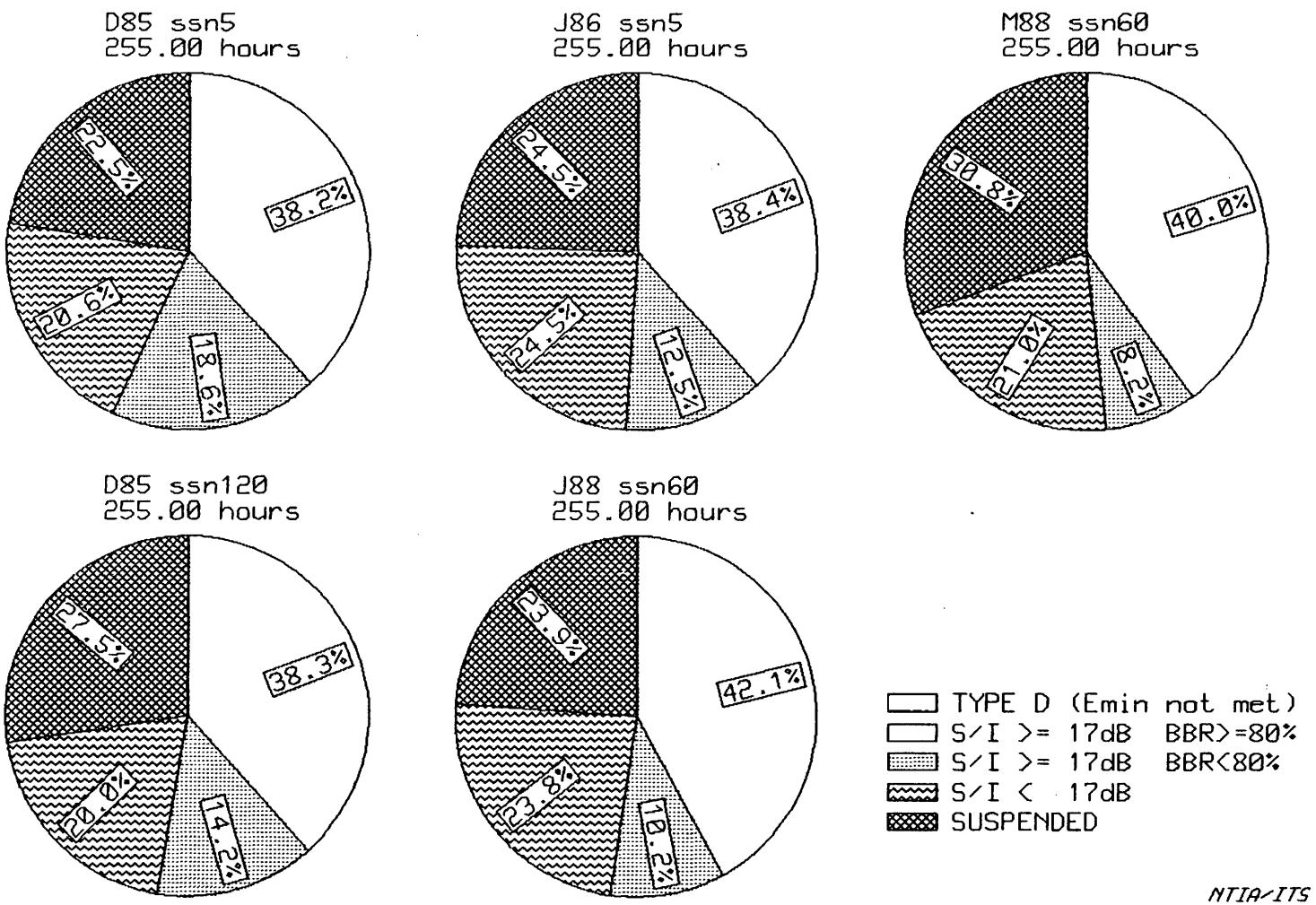
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DNK – DENMARK



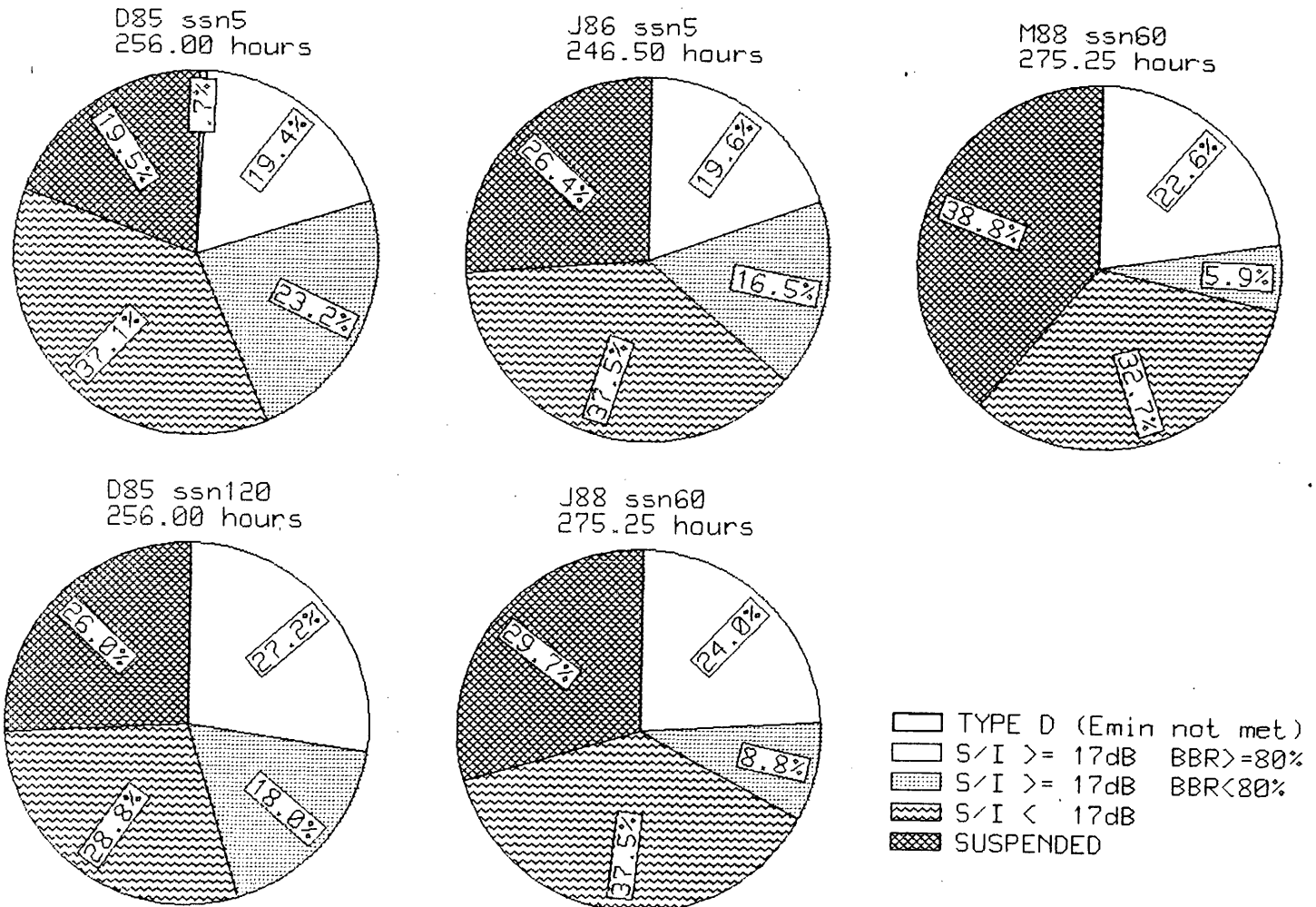
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E – SPAIN



IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

EGY – EGYPT

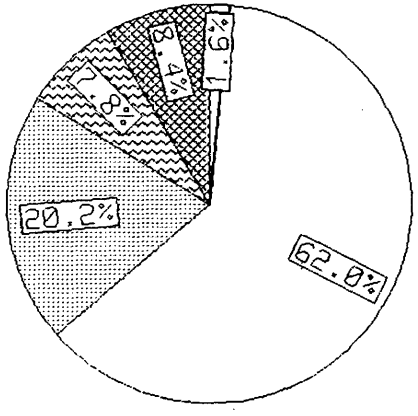


NTIA/ITS

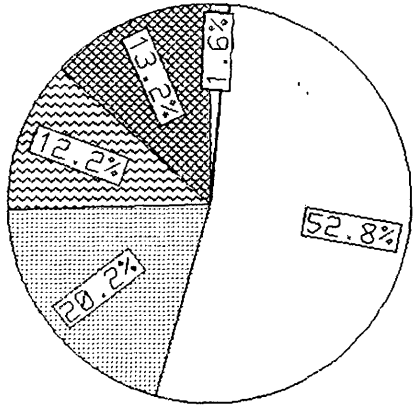
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EQA – ECUADOR

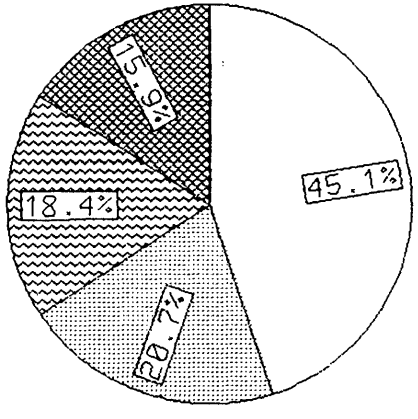
D85 ssn5
125.00 hours



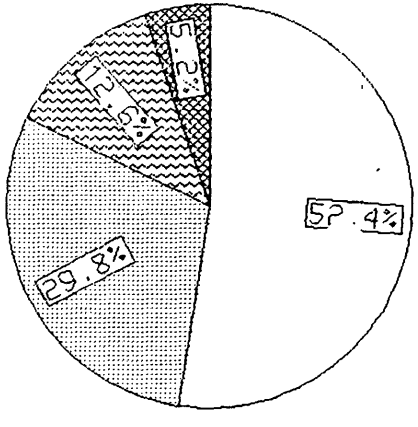
J86 ssn5
125.00 hours



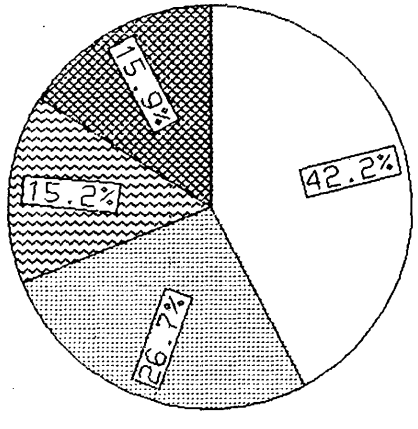
M88 ssn60
141.50 hours

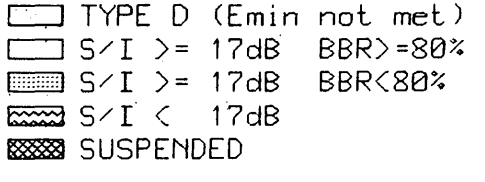


D85 ssn120
125.00 hours



J88 ssn60
141.50 hours





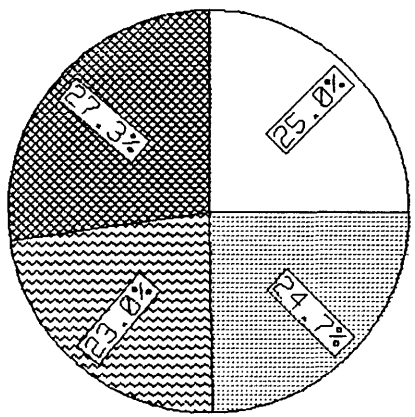
NTIA/ITS

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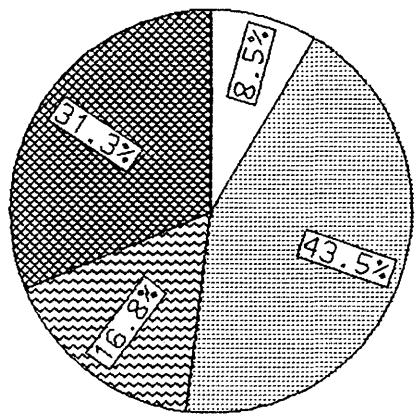
ETH – ETHIOPIA

D85 ssn5
0.00 hours

J86 ssn5
88.00 hours

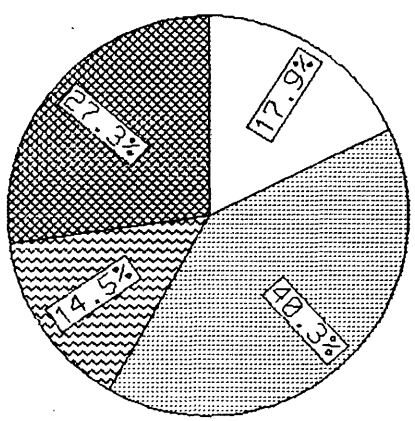


M88 ssn60
88.00 hours



D85 ssn120
0.00 hours

J88 ssn60
88.00 hours

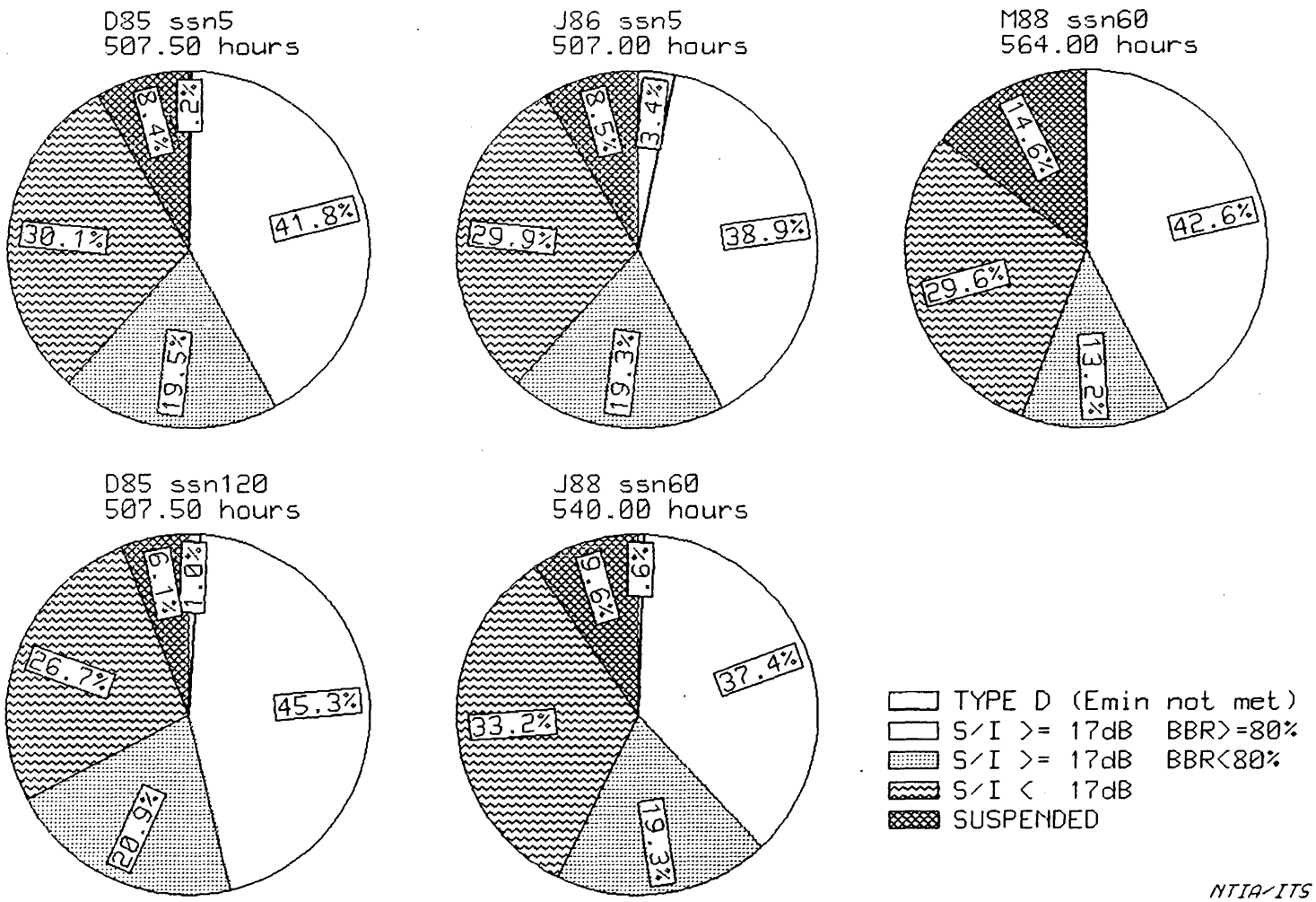


TYPE D (Emin not met)
S/I >= 17dB BBR>=80%
S/I >= 17dB BBR<80%
S/I < 17dB
SUSPENDED

NTIA/ITS

IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

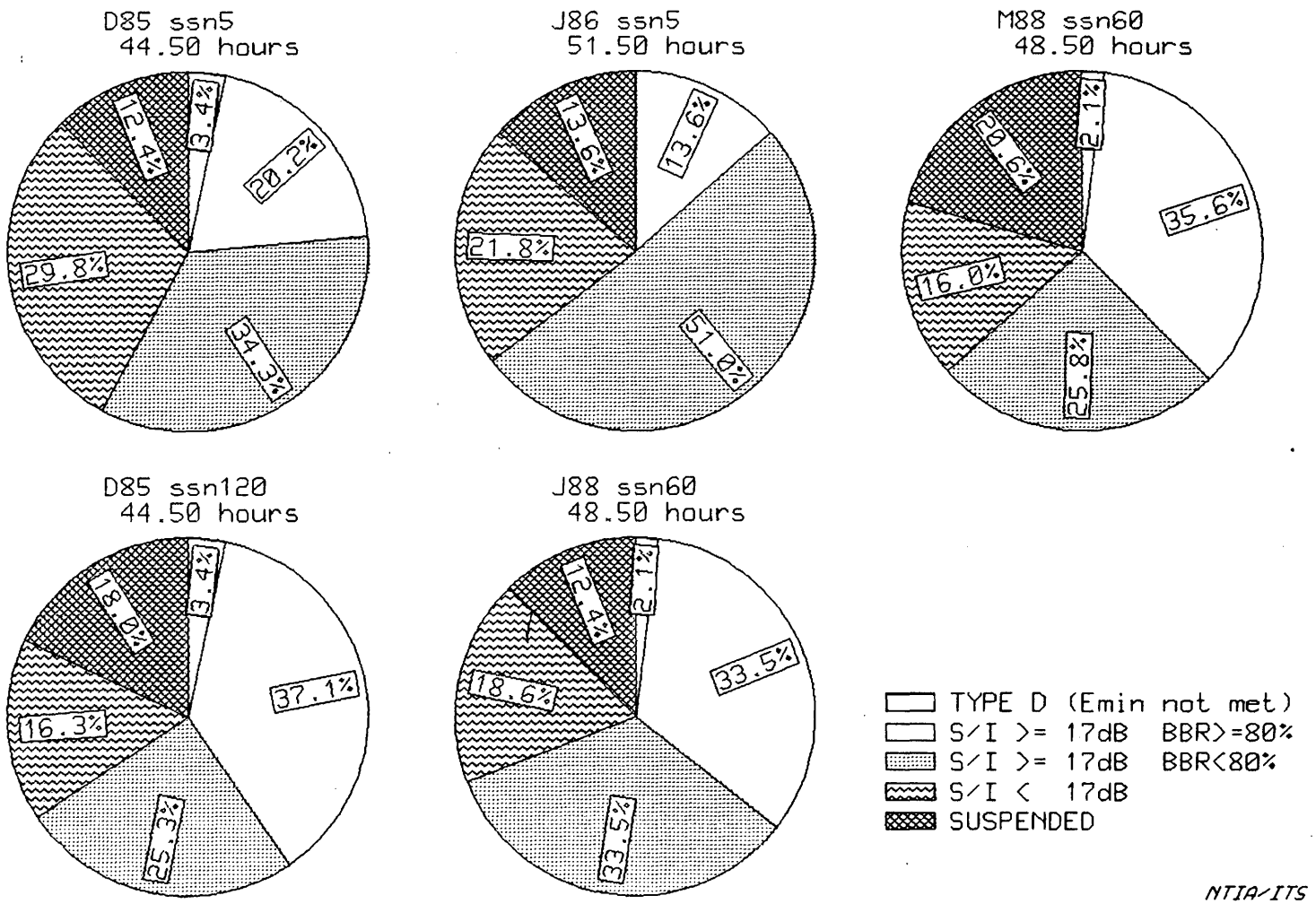
F – FRANCE



NTIA/ITS

IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

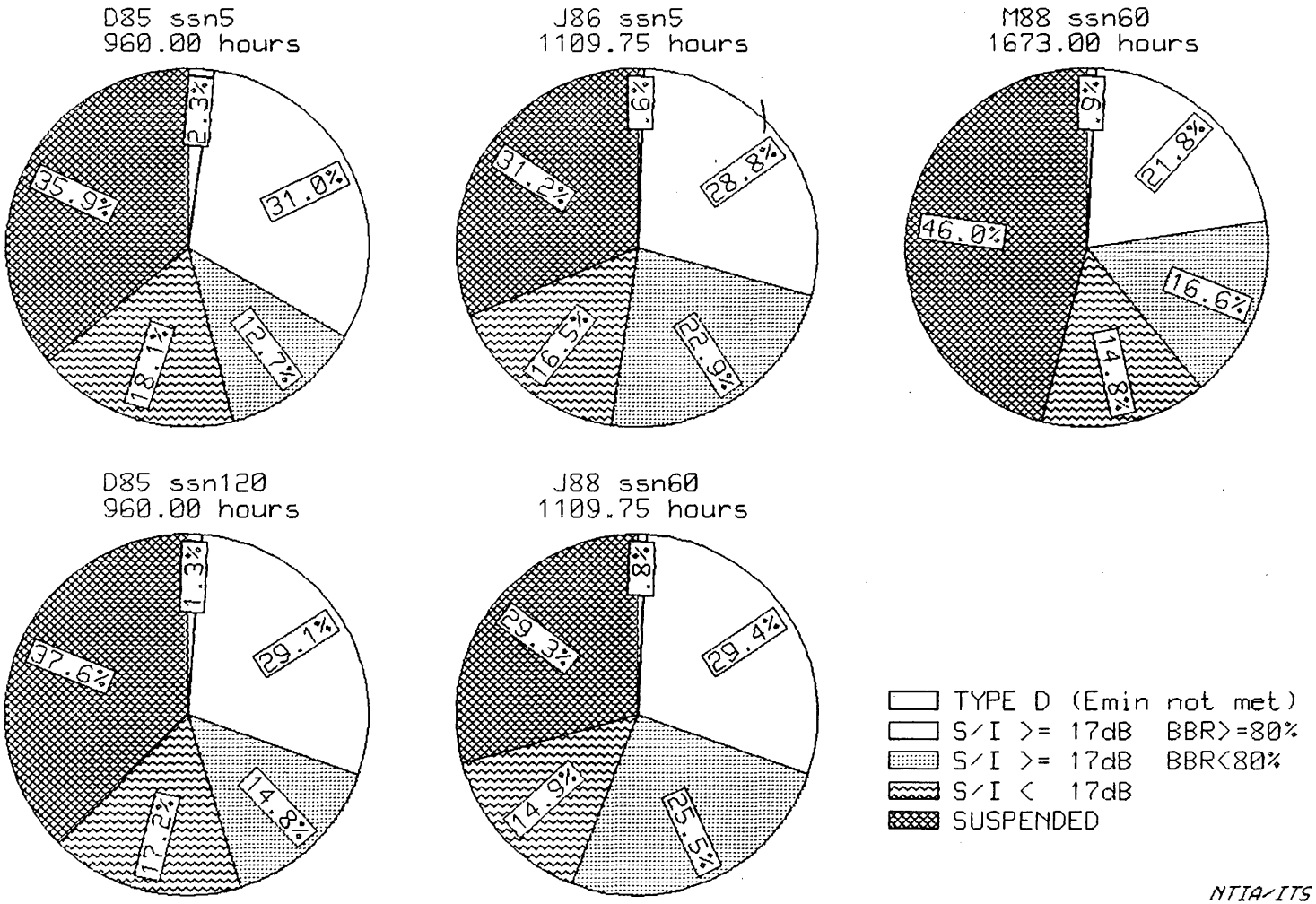
FNL – FINLAND



NTIA/ITS

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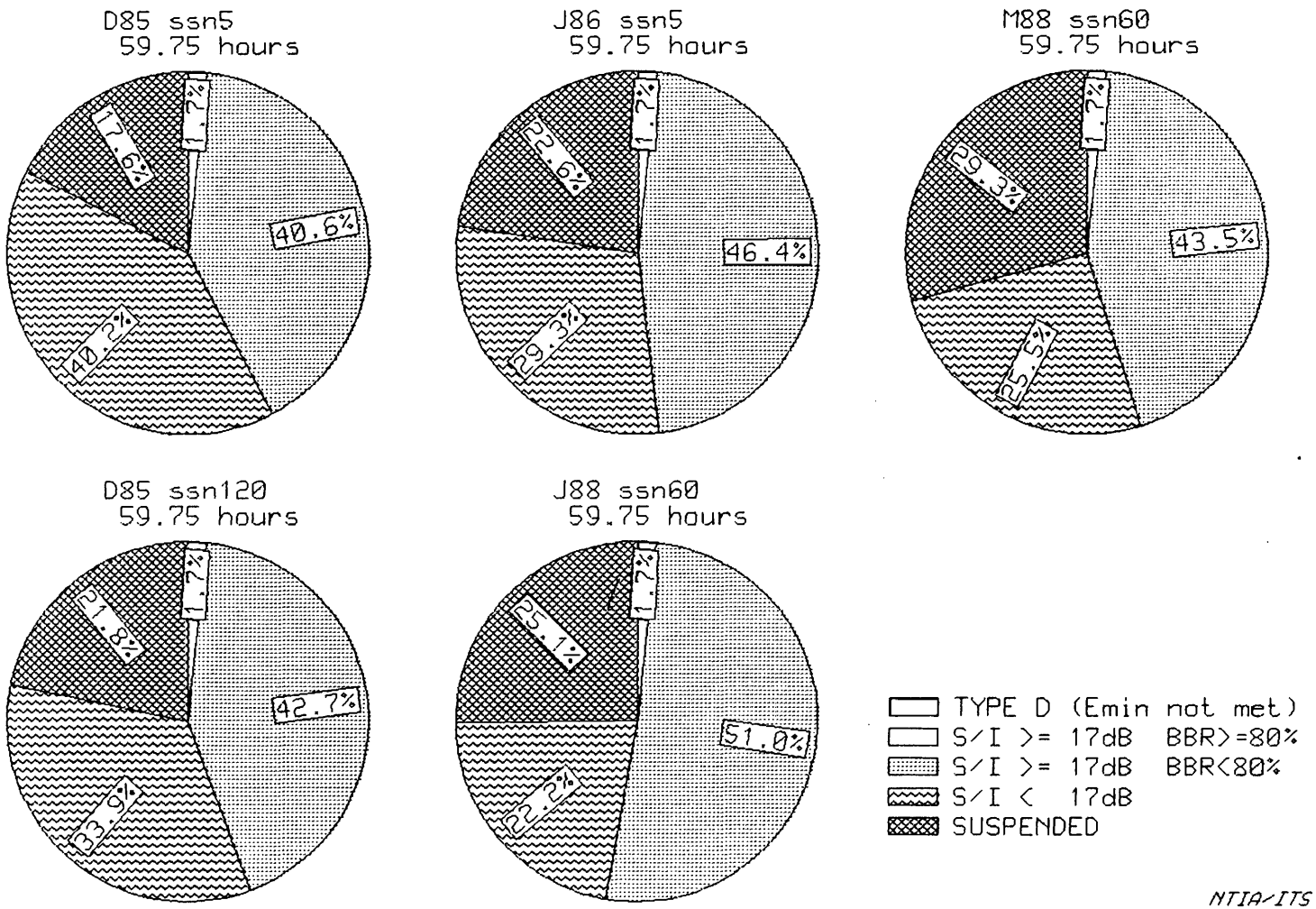
G – UNITED KINGDOM



NTIA/ITS

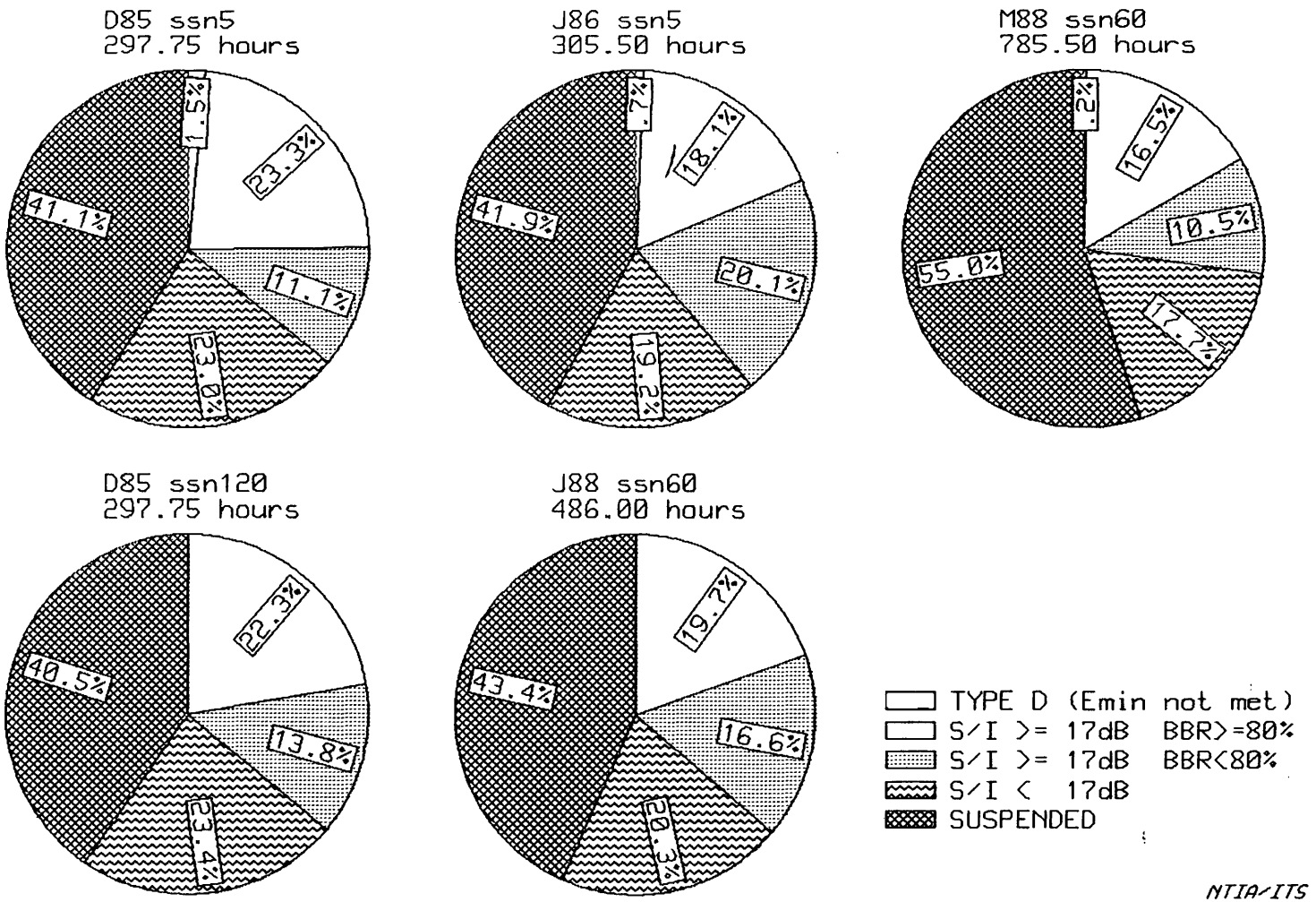
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GHA – GHANA



IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

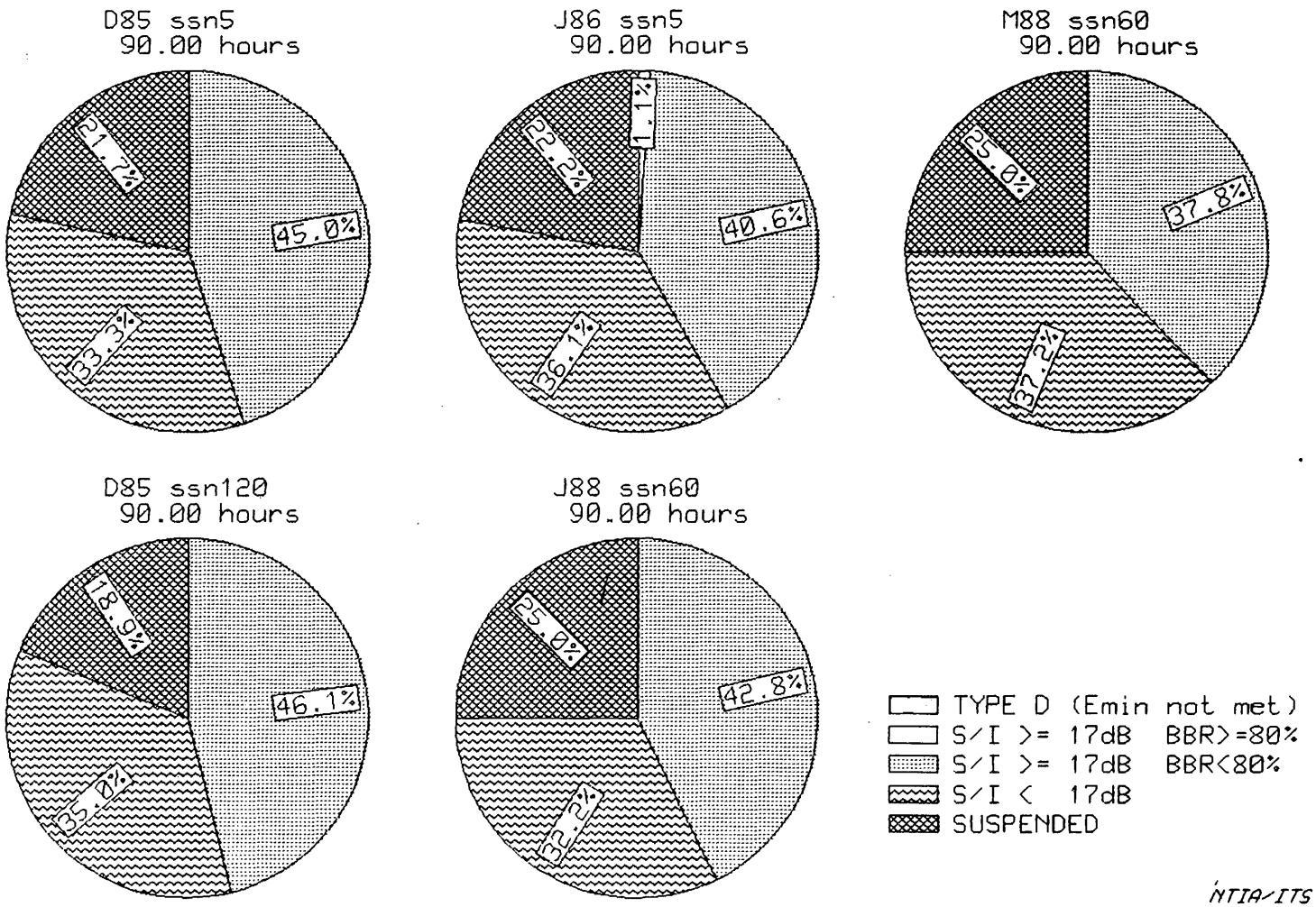
GRC – GREECE



NTIA/ITS

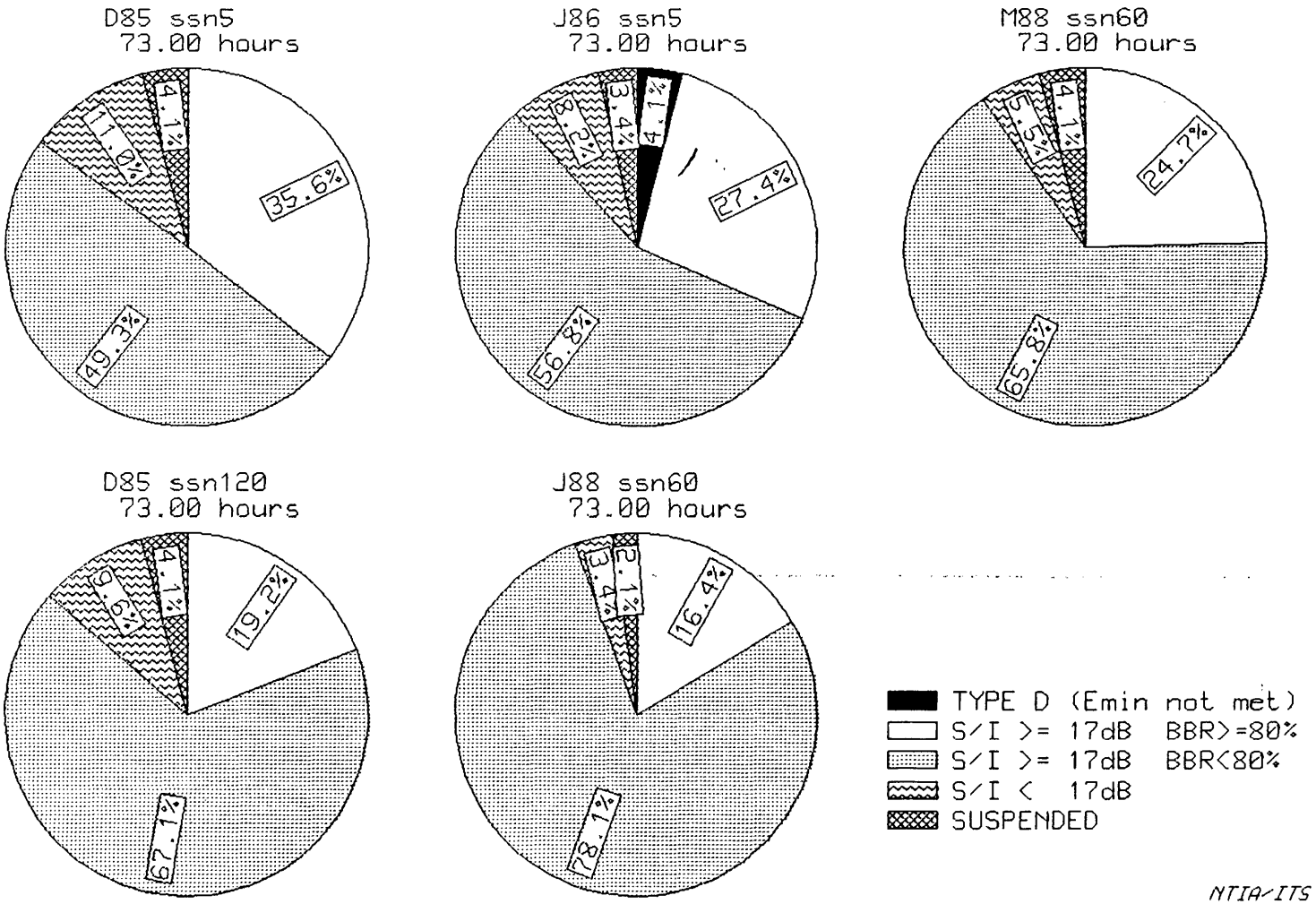
IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

GUI – GUINEA



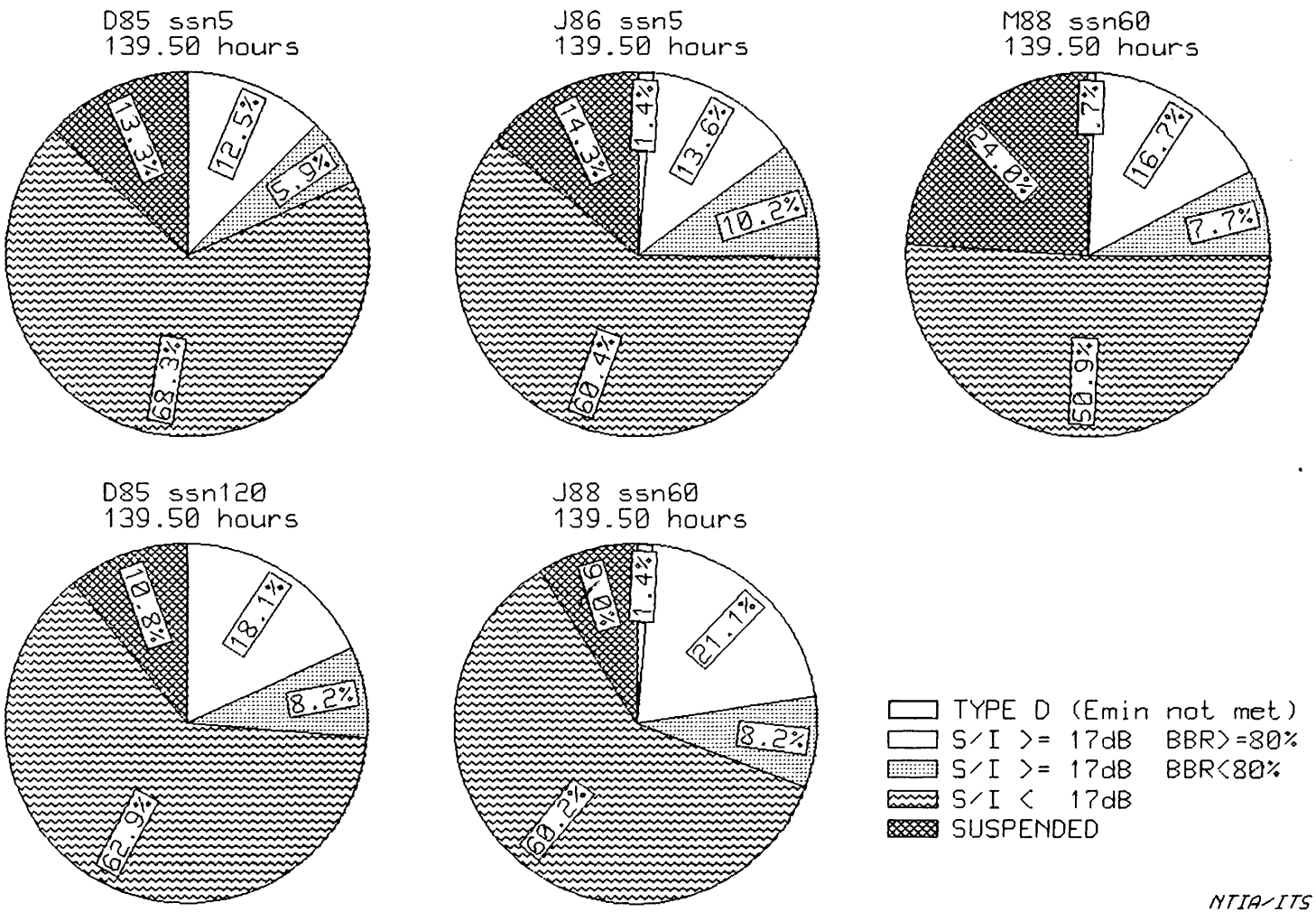
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GUY – GUYANA



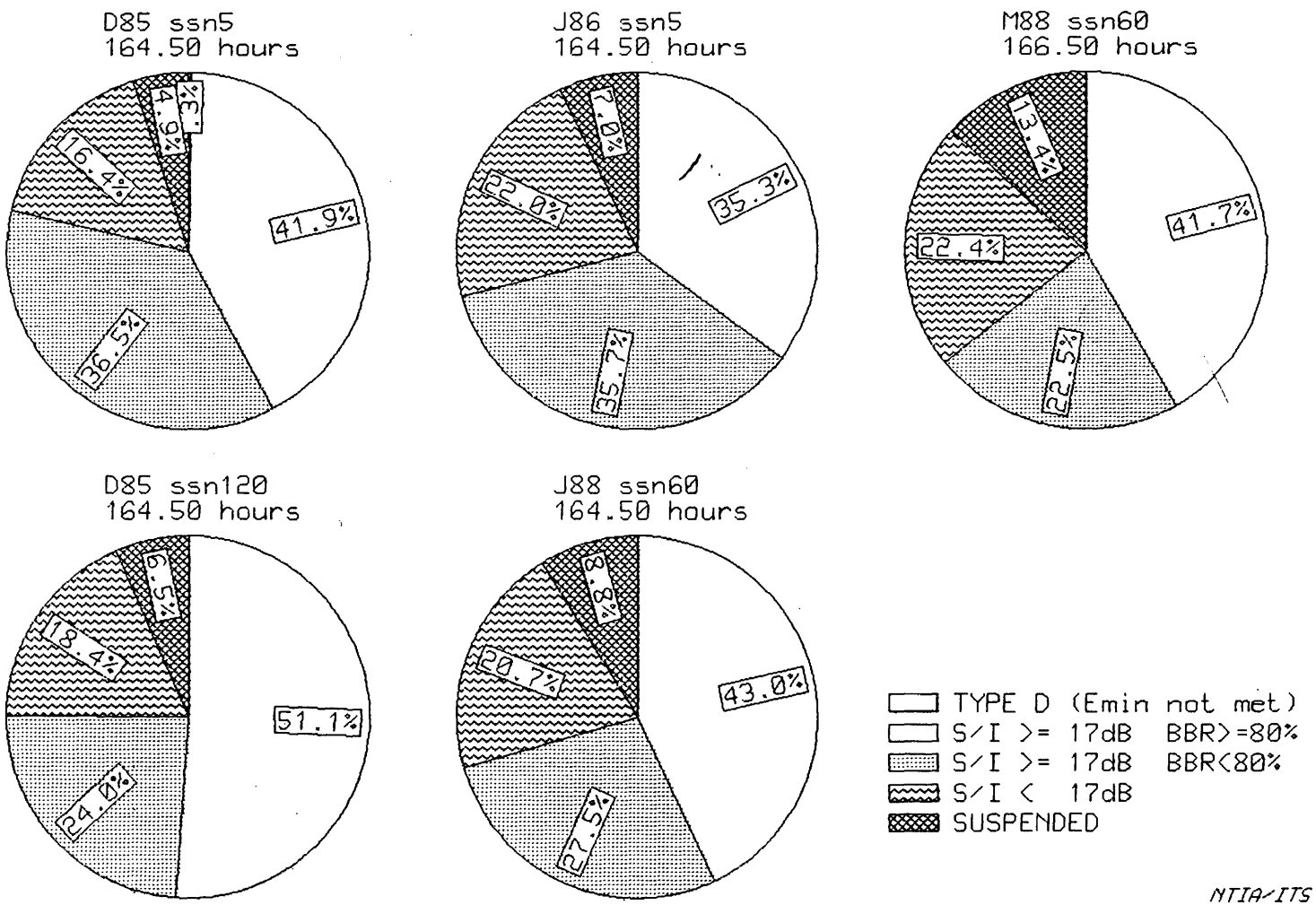
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HNG – HUNGARY



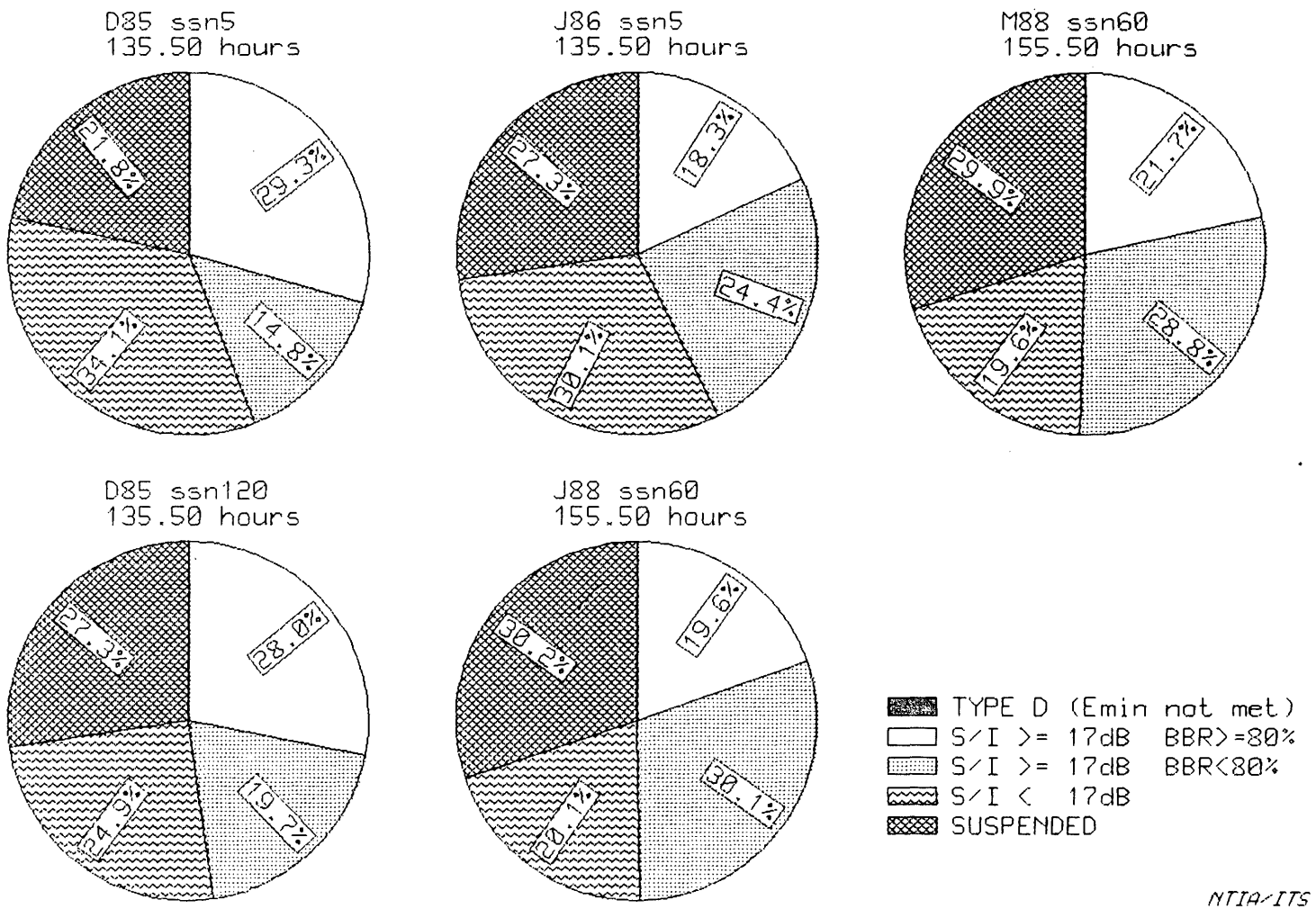
IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

HOL – NETHERLANDS



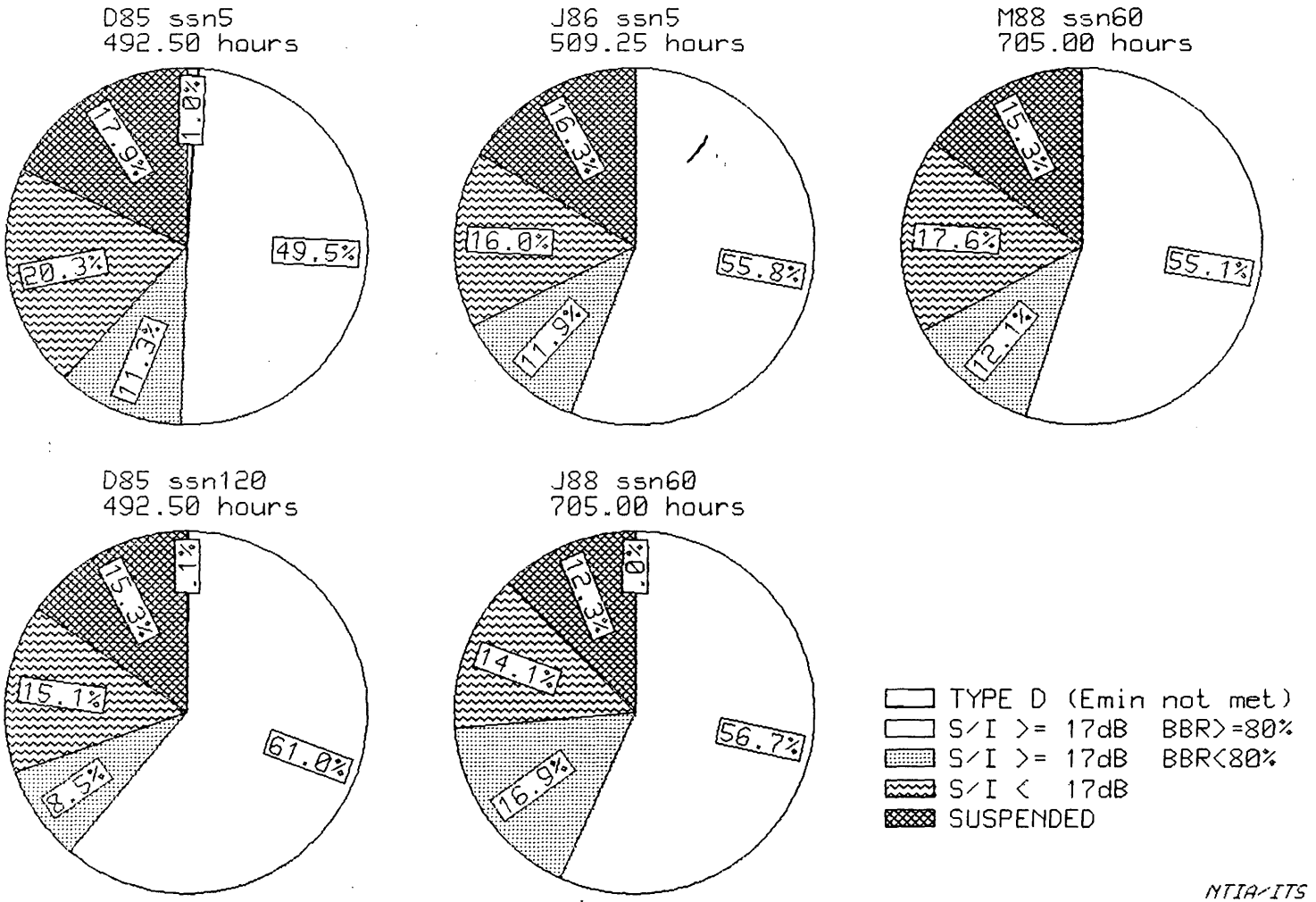
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I — ITALY



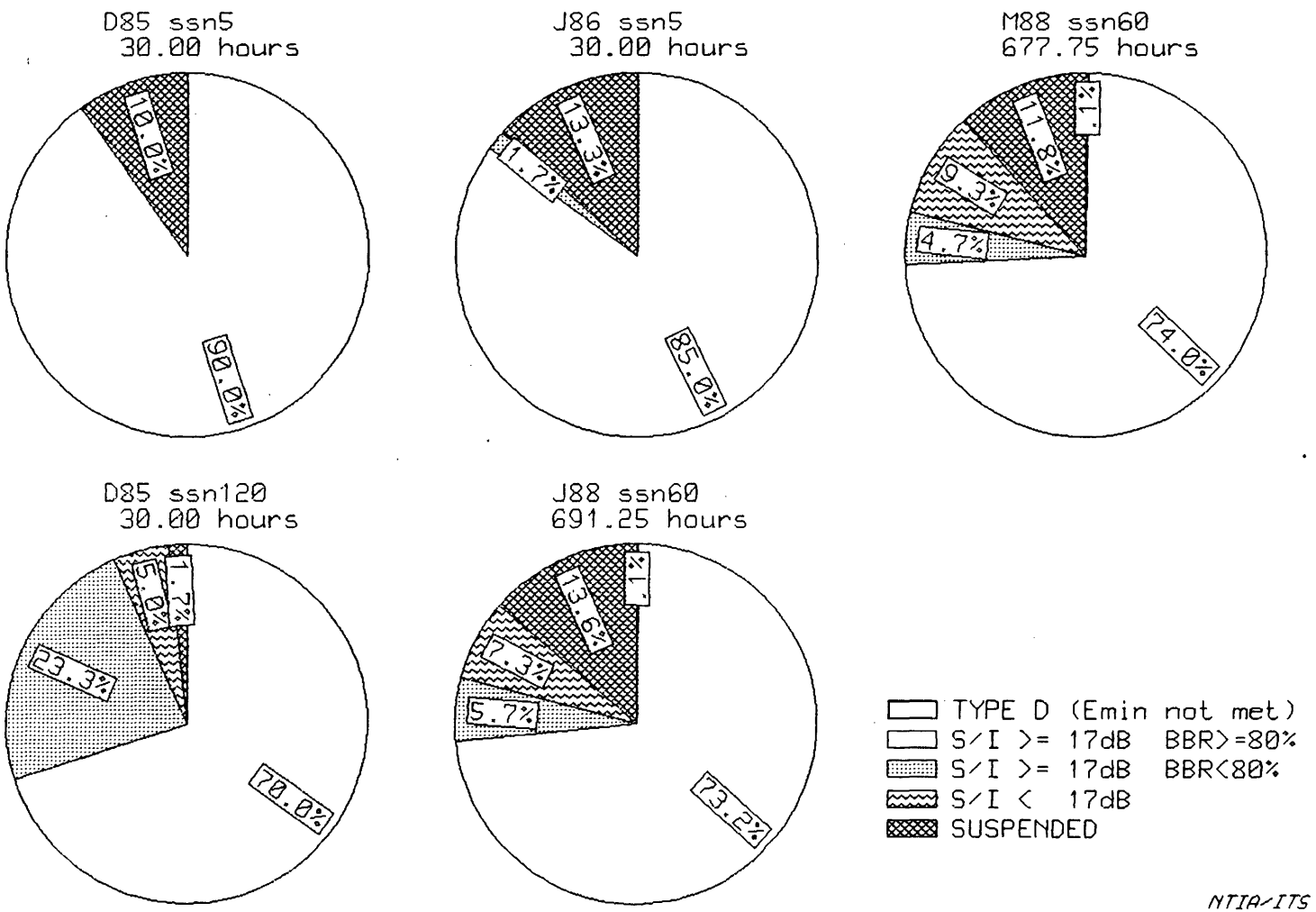
IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

IND – INDIA



IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

INS – INDONESIA



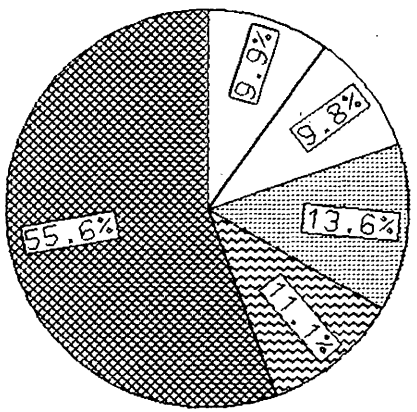
NTIA/ITS

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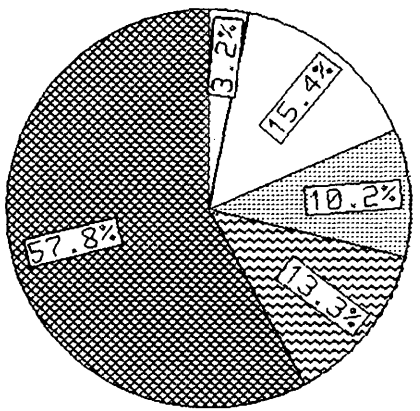
IRN – IRAN

D85 ssn5
0.00 hours

J86 ssn5
1841.50 hours

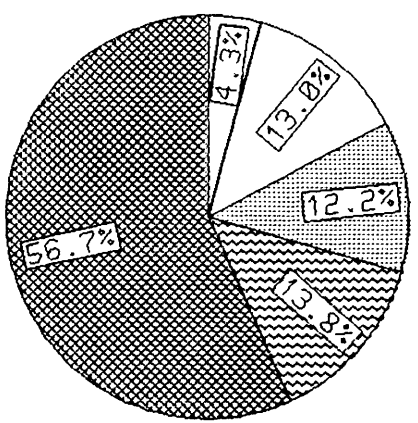


M88 ssn60
2963.50 hours



D85 ssn120
0.00 hours

J88 ssn60
2969.50 hours

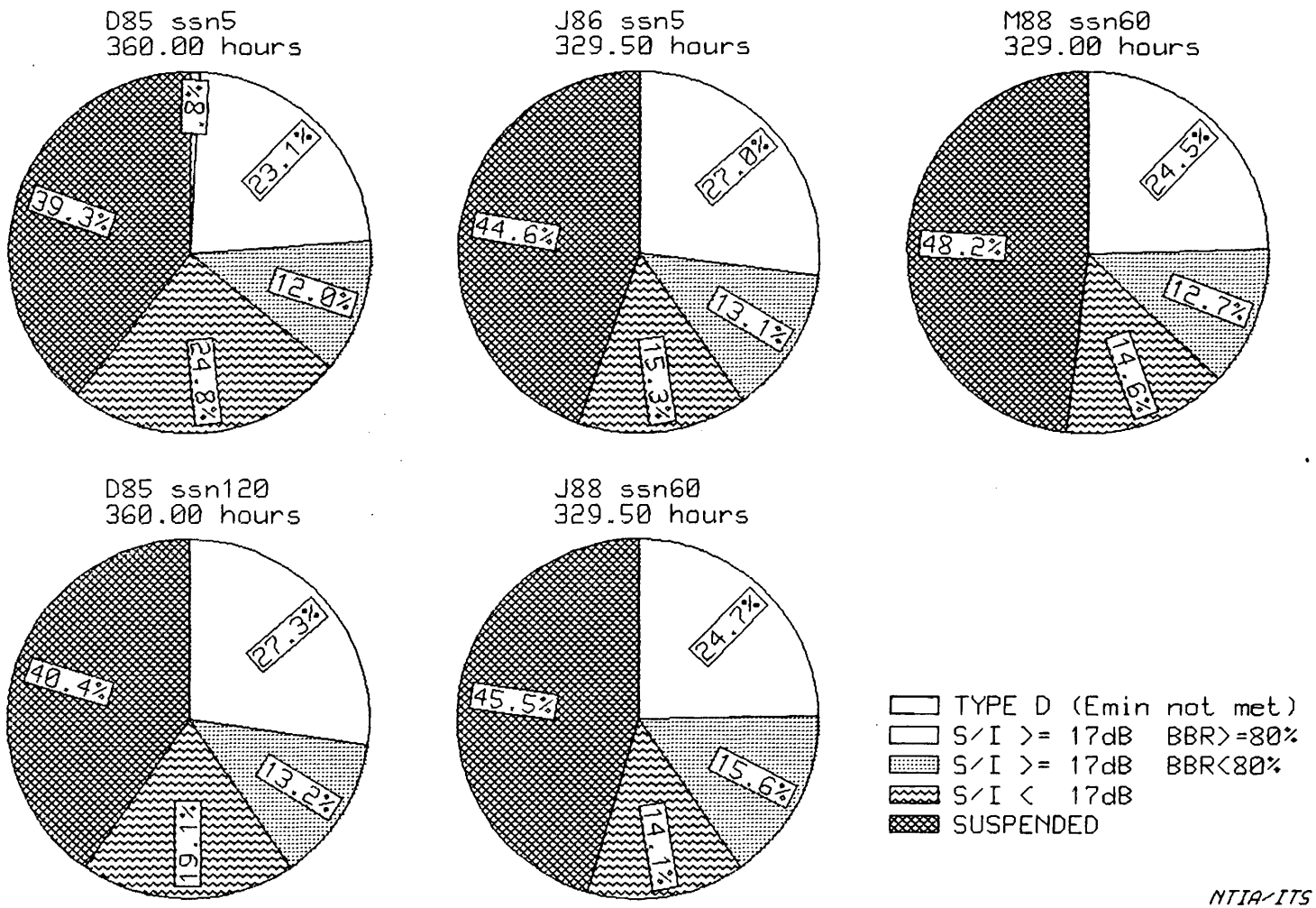


TYPE D (Emin not met)
S/I >= 17dB BBR>=80%
S/I >= 17dB BBR<80%
S/I < 17dB
SUSPENDED

NTIA/ITS

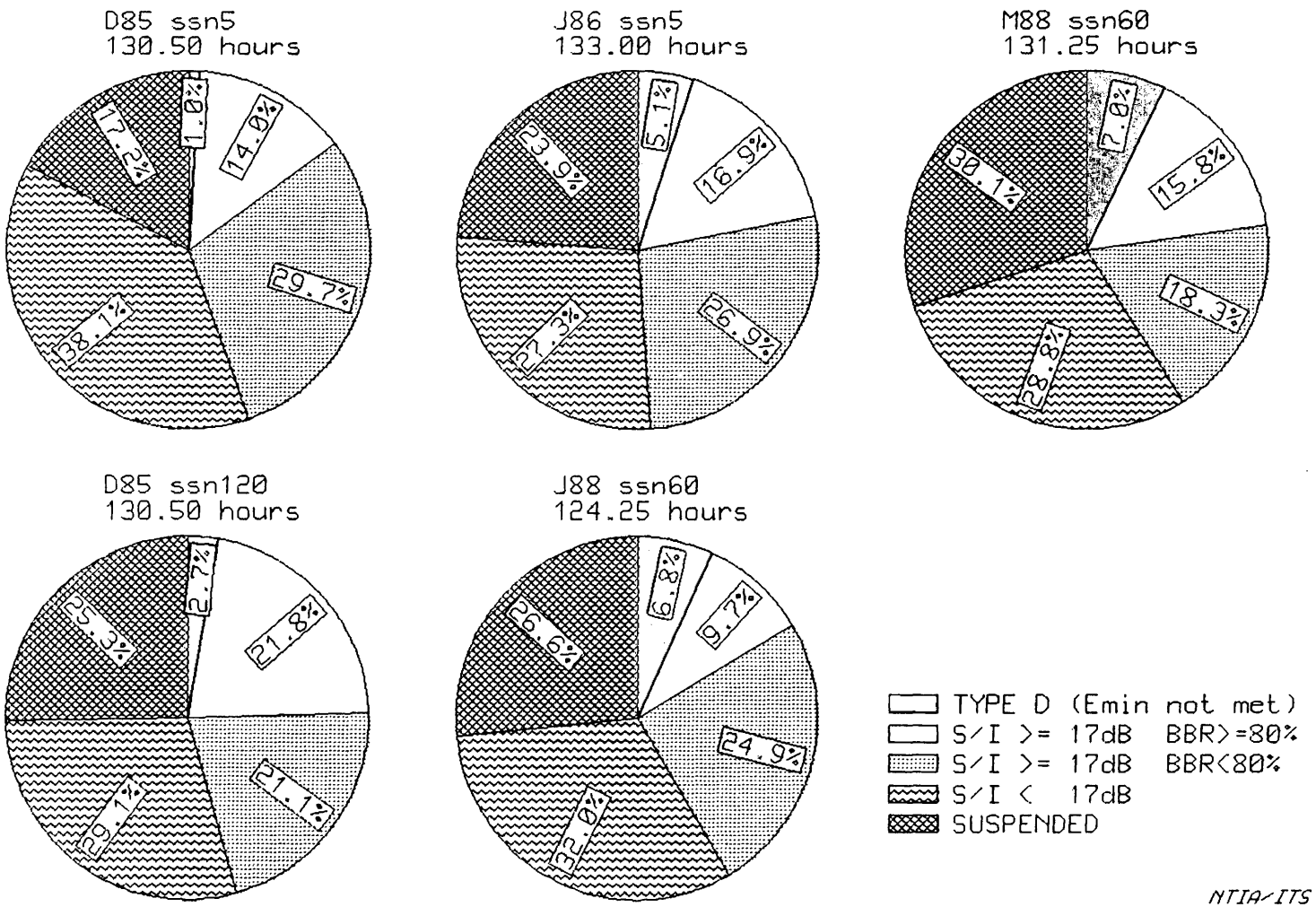
IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

IRQ – IRAQ



IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

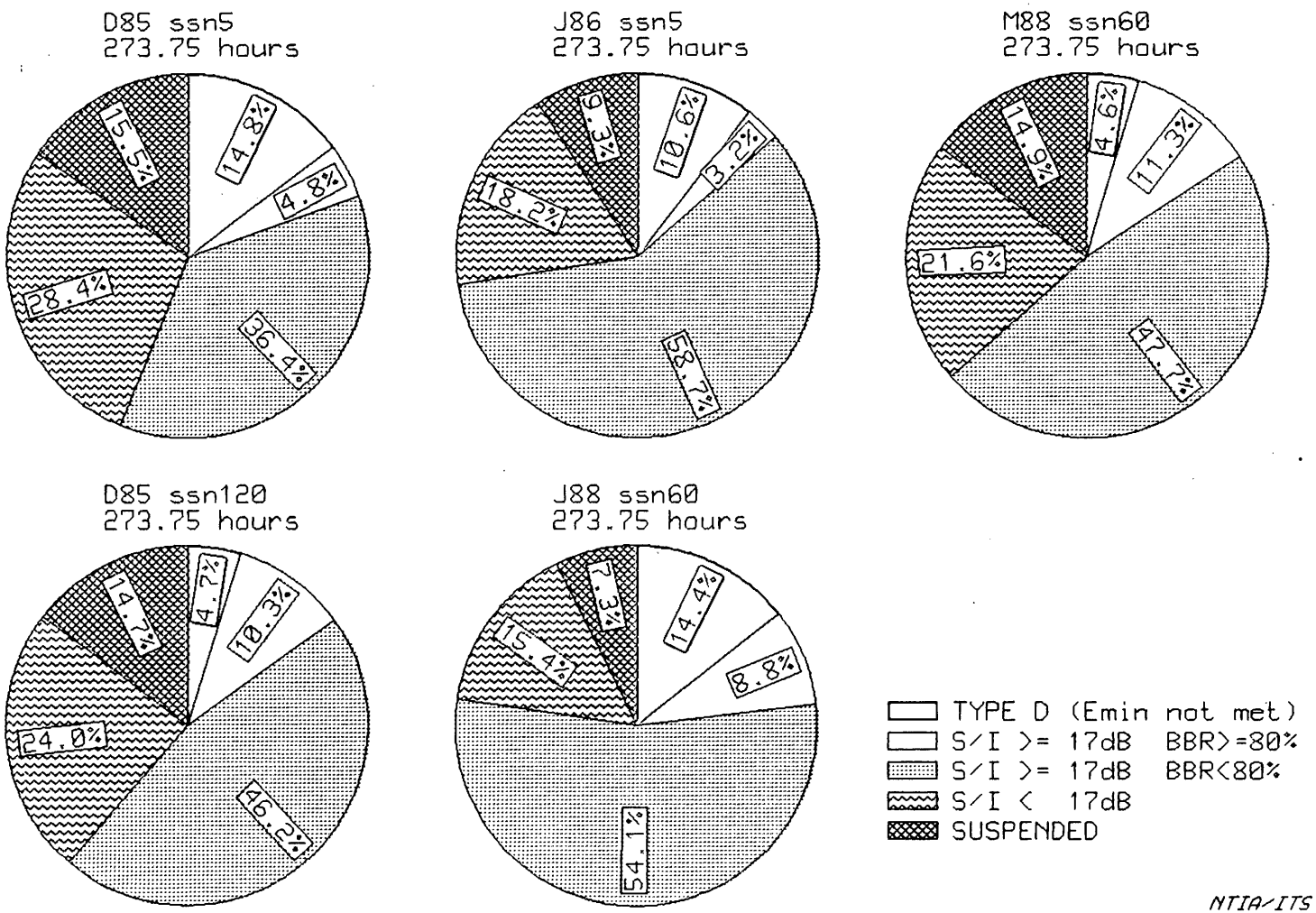
ISR – ISRAEL



NTIA/ITS

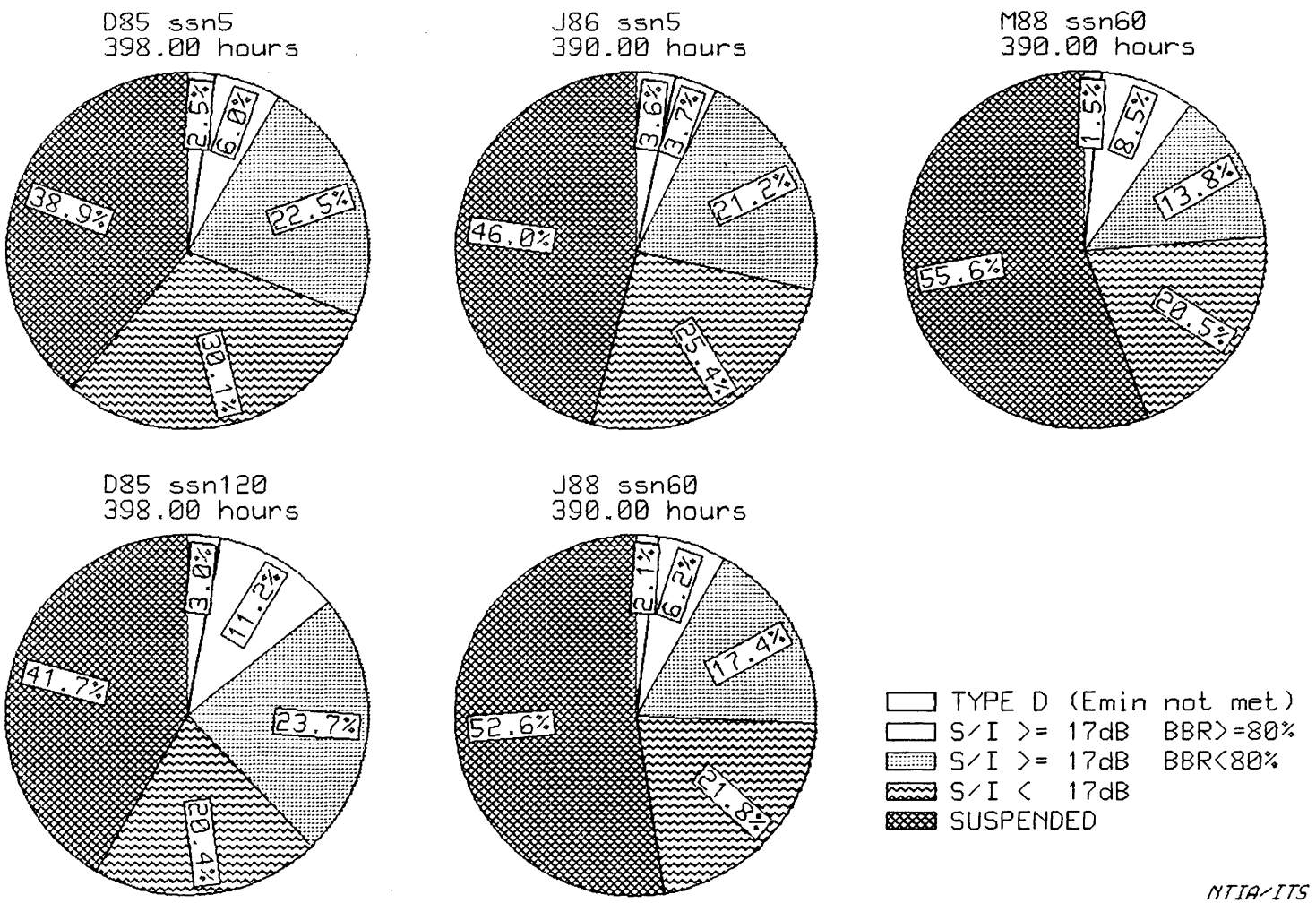
IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

J — JAPAN



IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

JOR – JORDAN

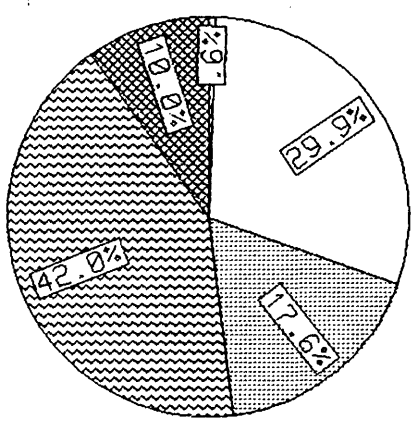


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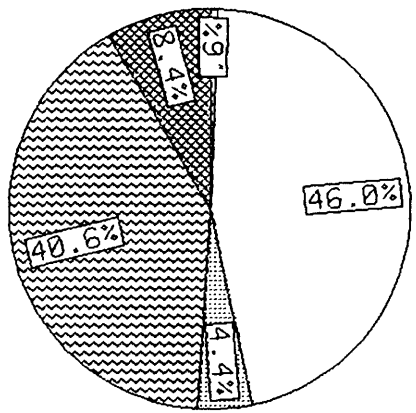
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KEN – KENYA

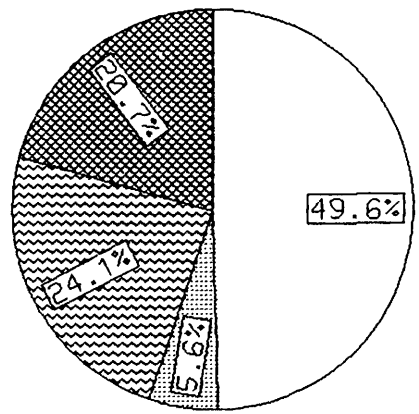
D85 ssn5
130.50 hours



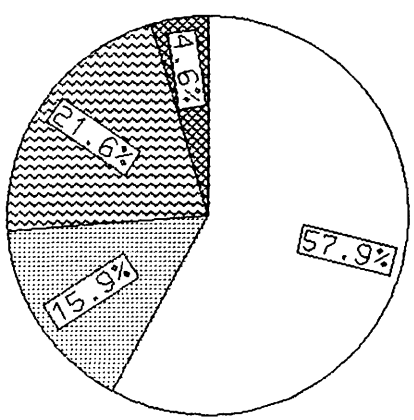
J86 ssn5
130.50 hours



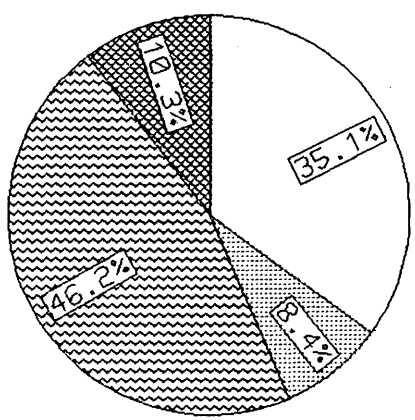
M88 ssn60
130.50 hours

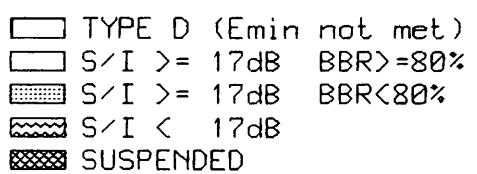


D85 ssn120
130.50 hours



J88 ssn60
130.50 hours



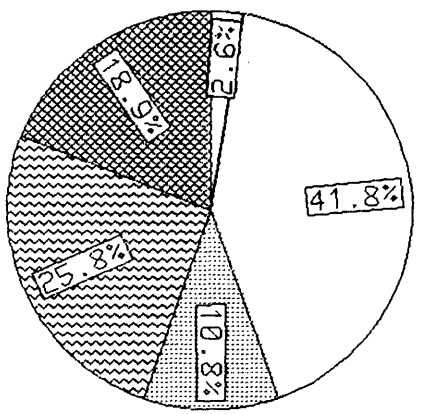


NTIA/ITS

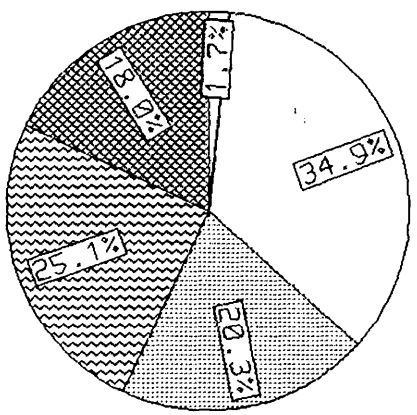
IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

KOR – REPUBLIC of KOREA

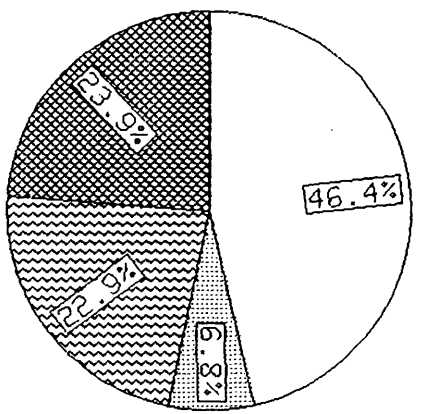
D85 ssn5
190.00 hours



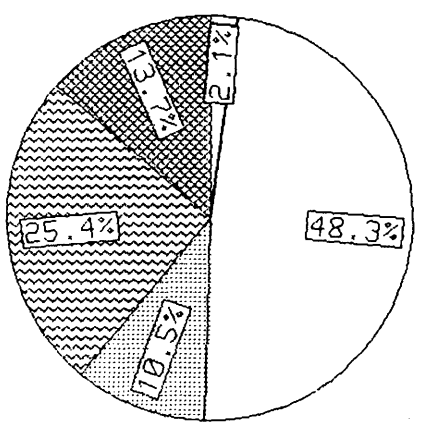
J86 ssn5
172.50 hours



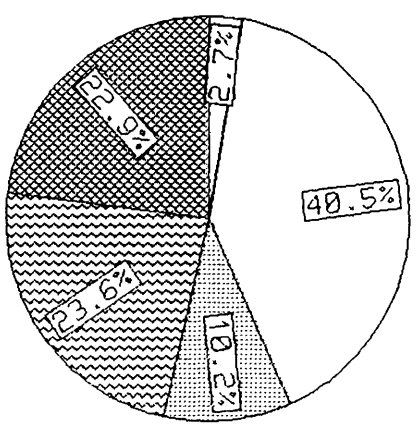
M88 ssn60
224.00 hours

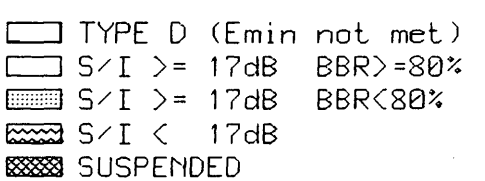


D85 ssn120
190.00 hours



J88 ssn60
200.50 hours



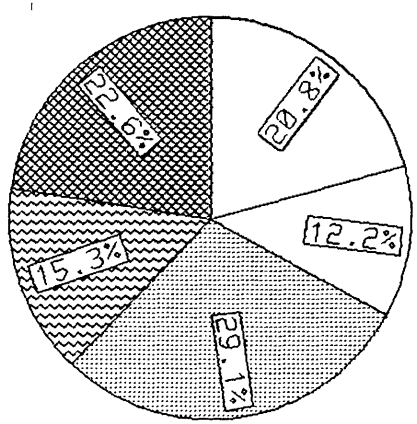


NTIA/ITS

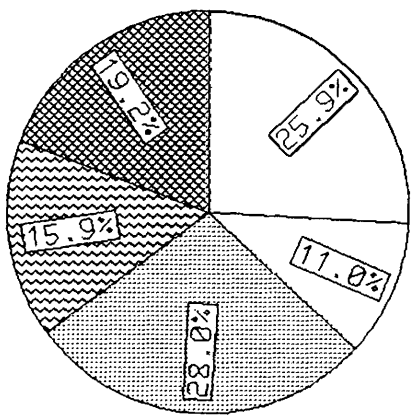
IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

KRE – DEMOCRATIC PEOPLE'S REPUBLIC of KOREA

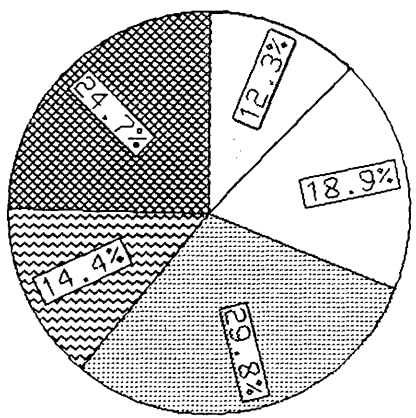
D85 ssn5
394.00 hours



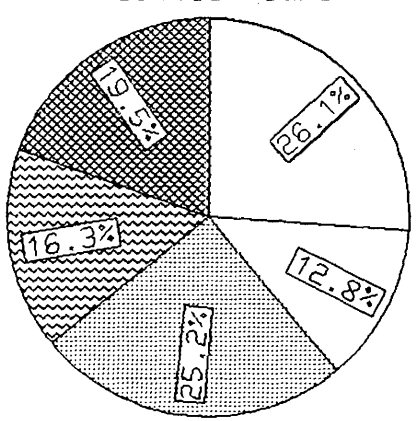
J86 ssn5
413.00 hours



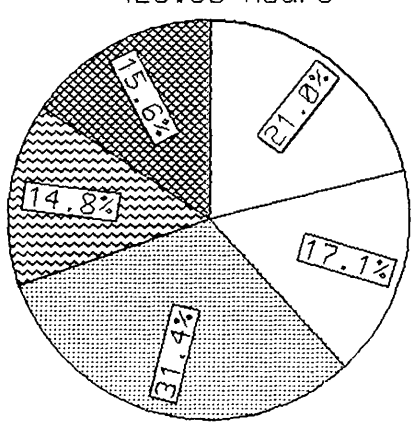
M88 ssn60
423.00 hours

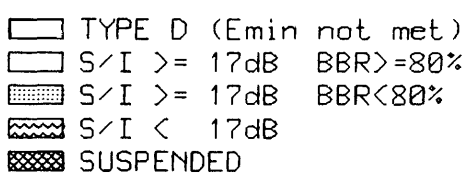


D85 ssn120
394.00 hours



J88 ssn60
423.00 hours

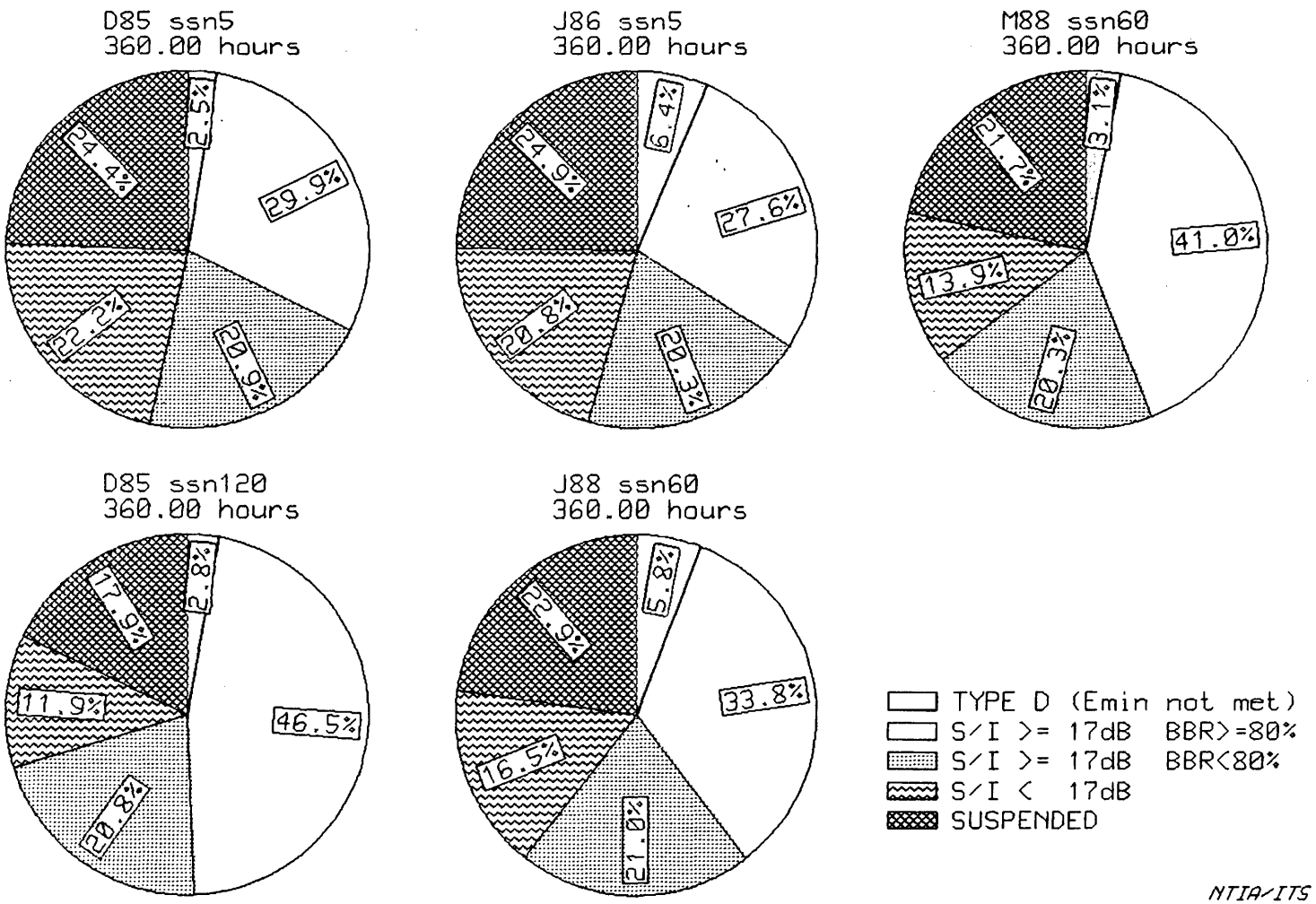




NTIA/ITS

IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

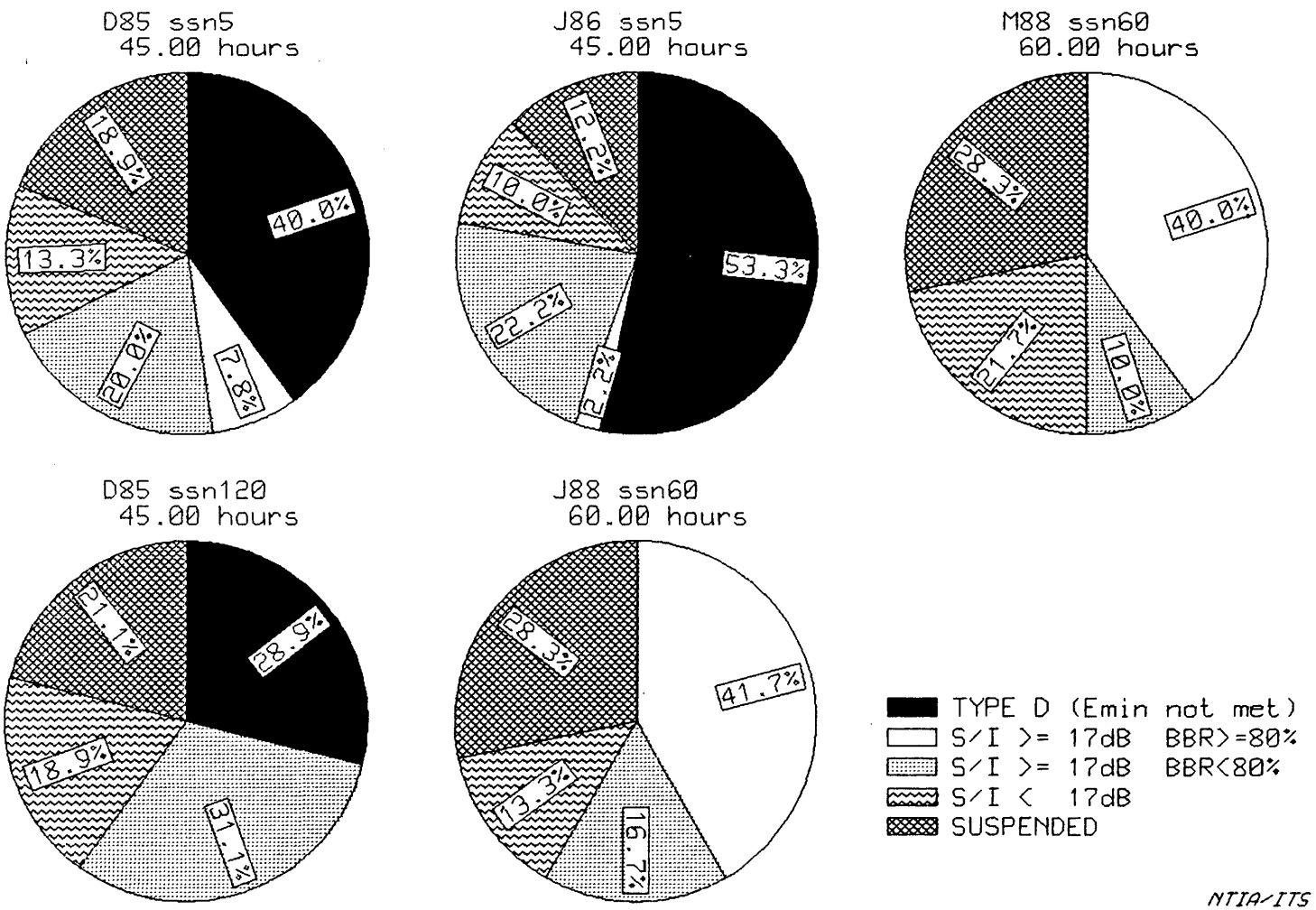
KWT – KUWAIT



NTIA/ITS

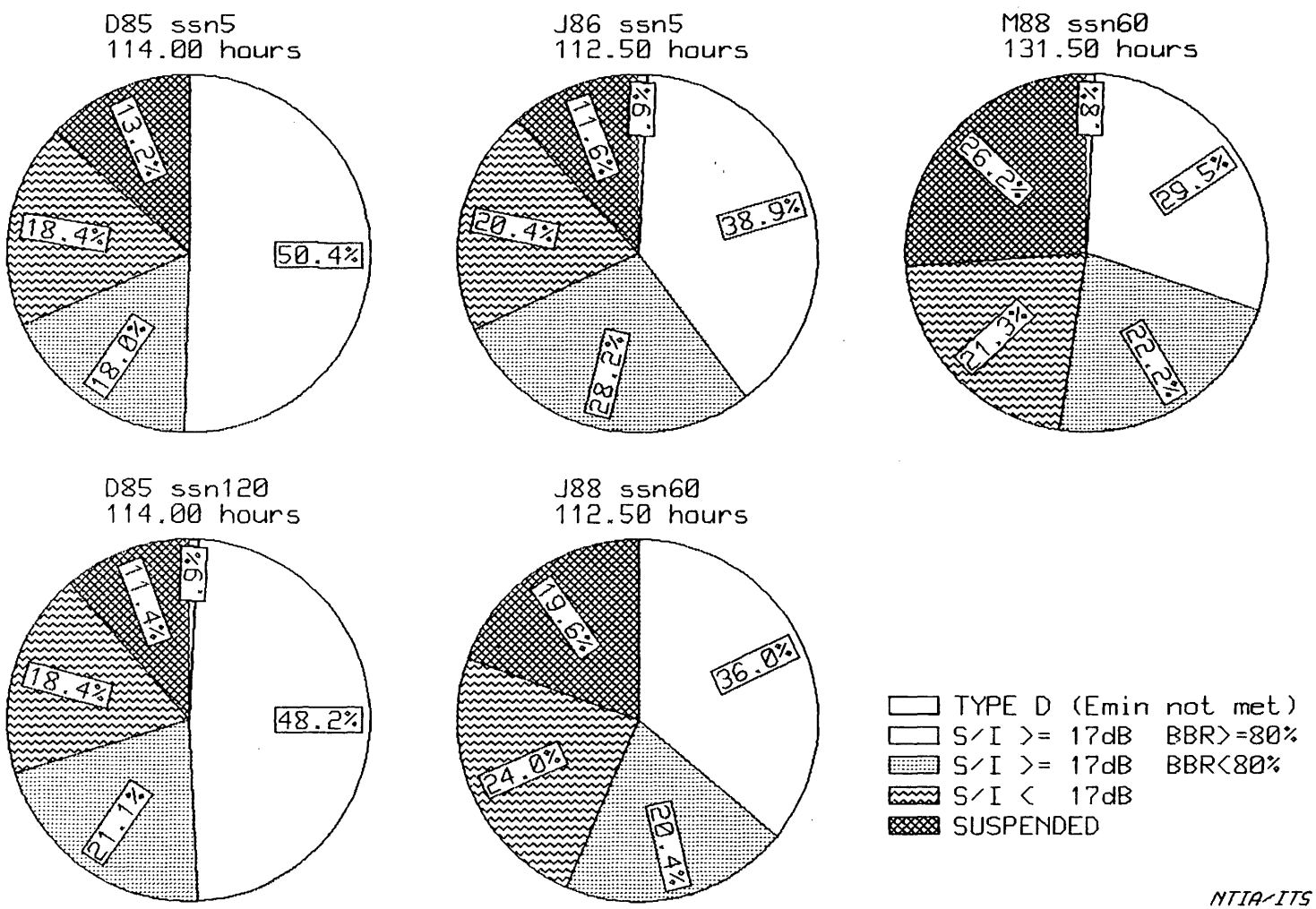
IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

LUX – LUXEMBOURG



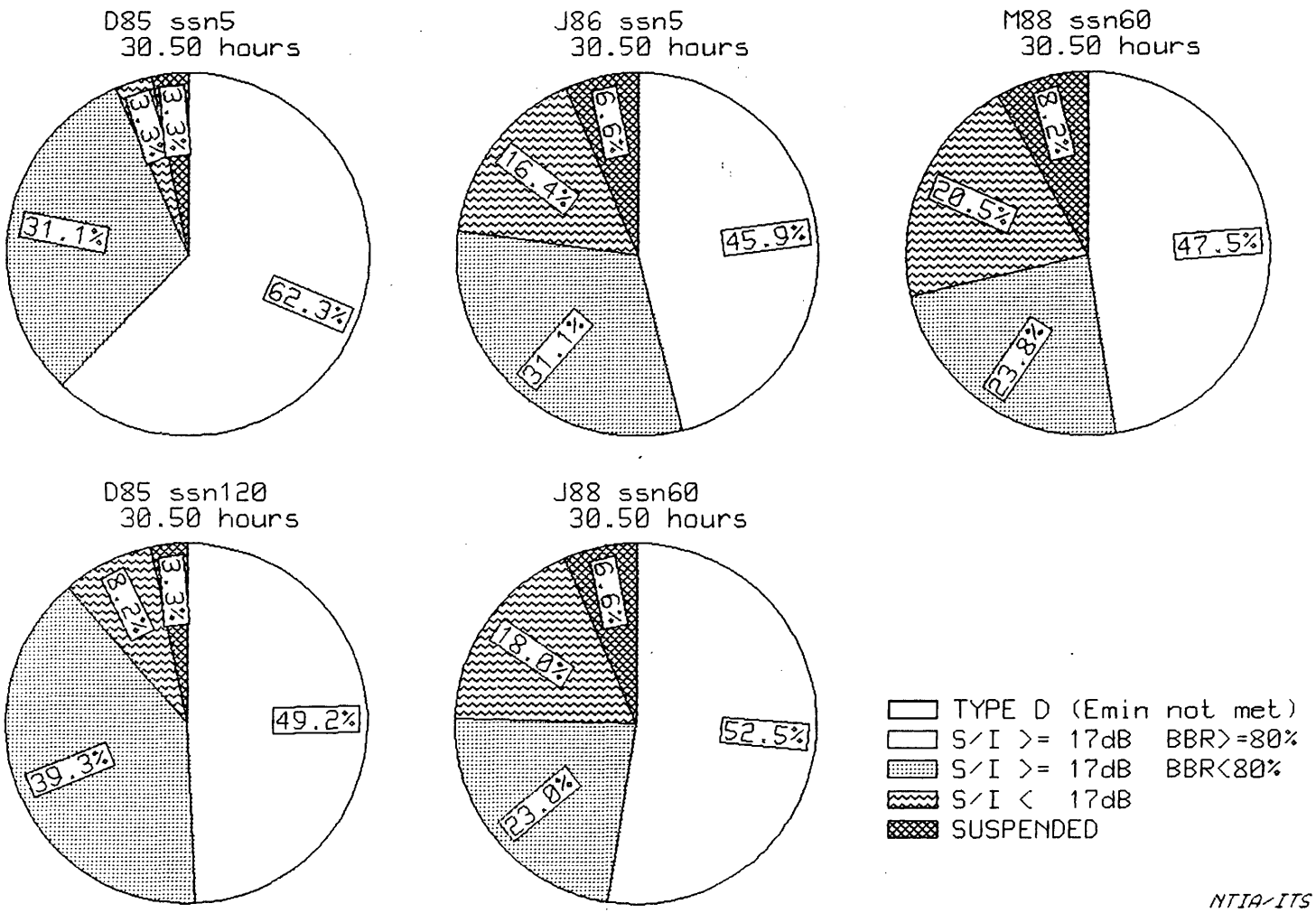
IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

LBR – LIBERIA



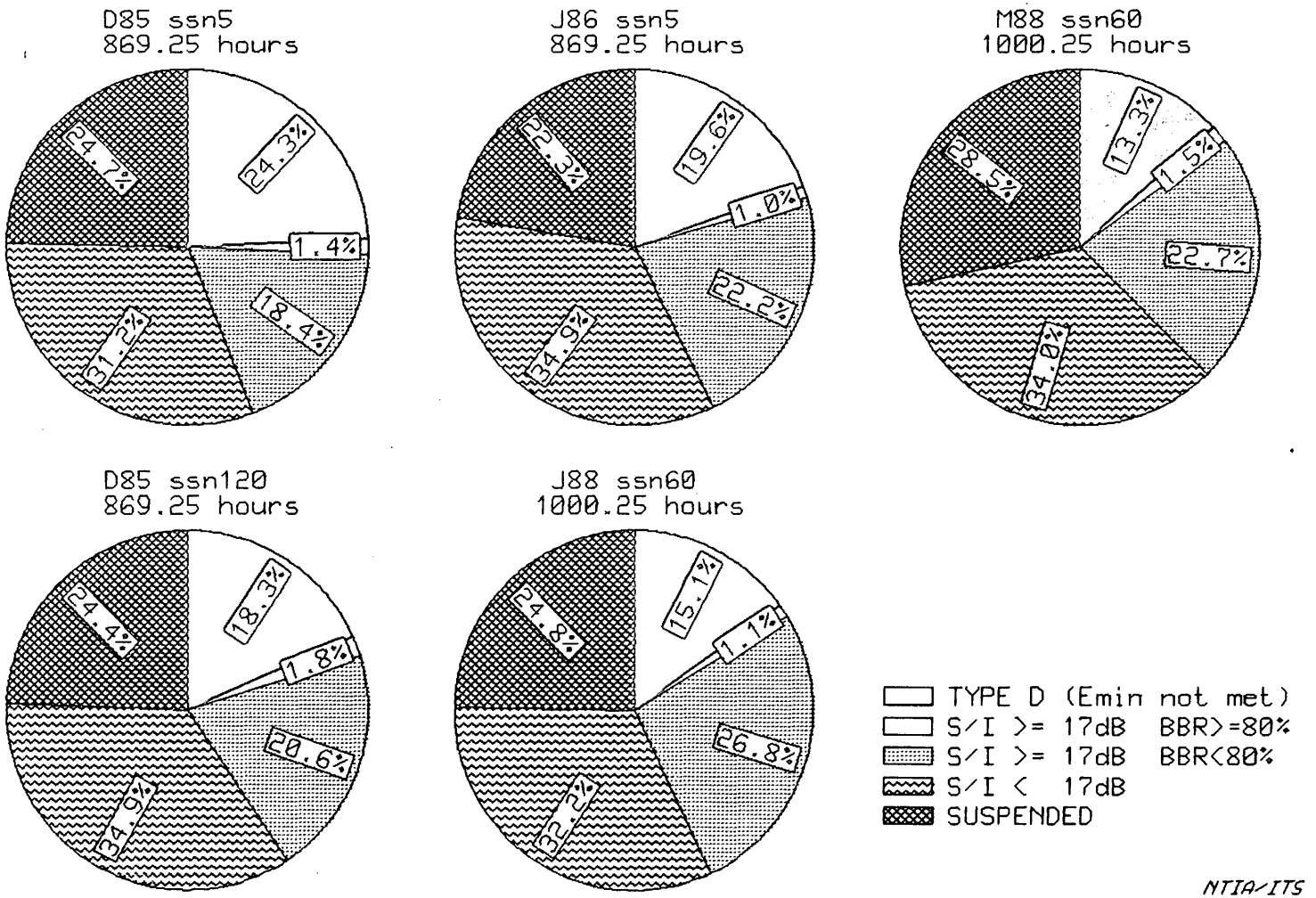
IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

MDG – MADAGASCAR



IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

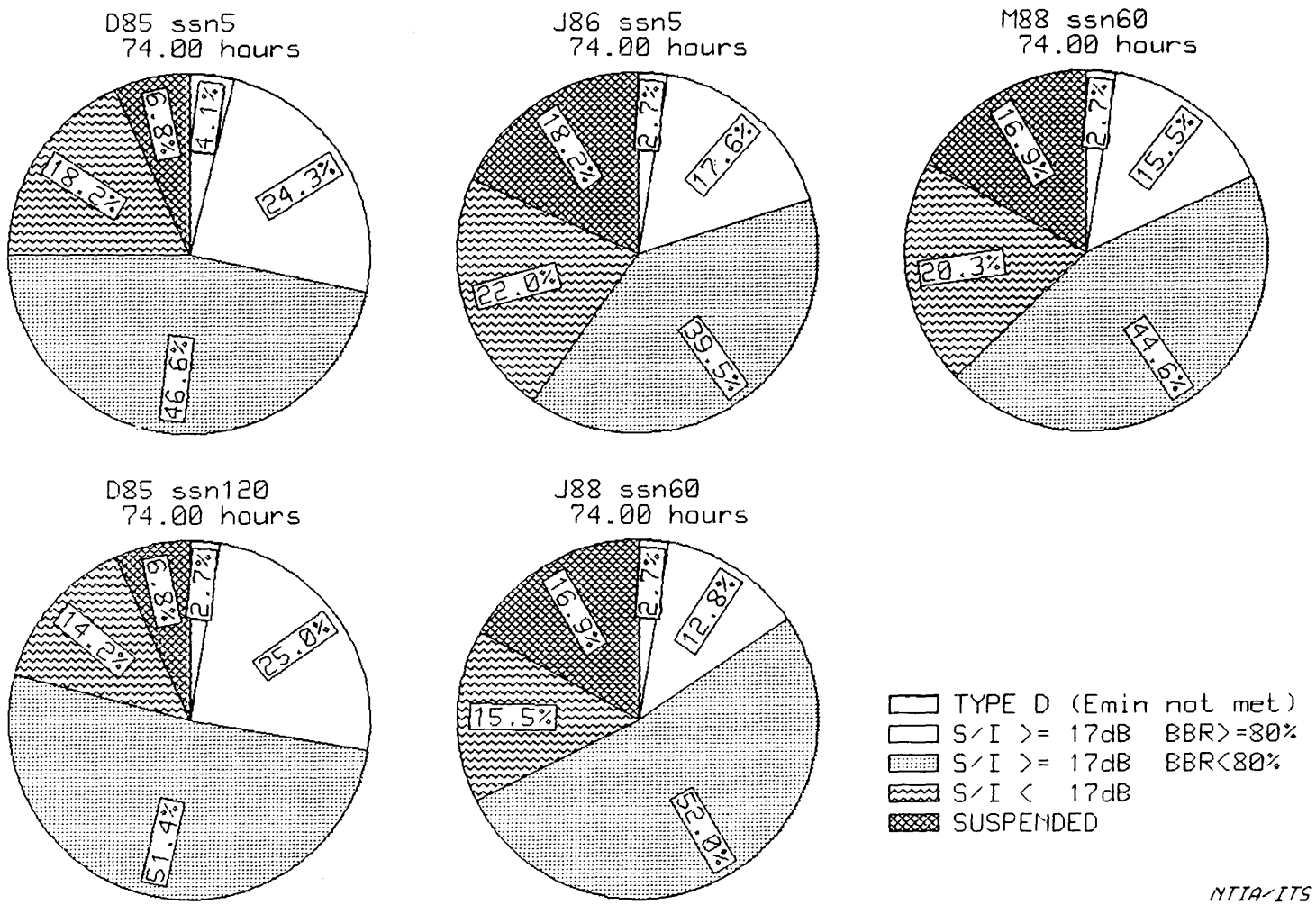
MEX – MEXICO



NTIA/ITS

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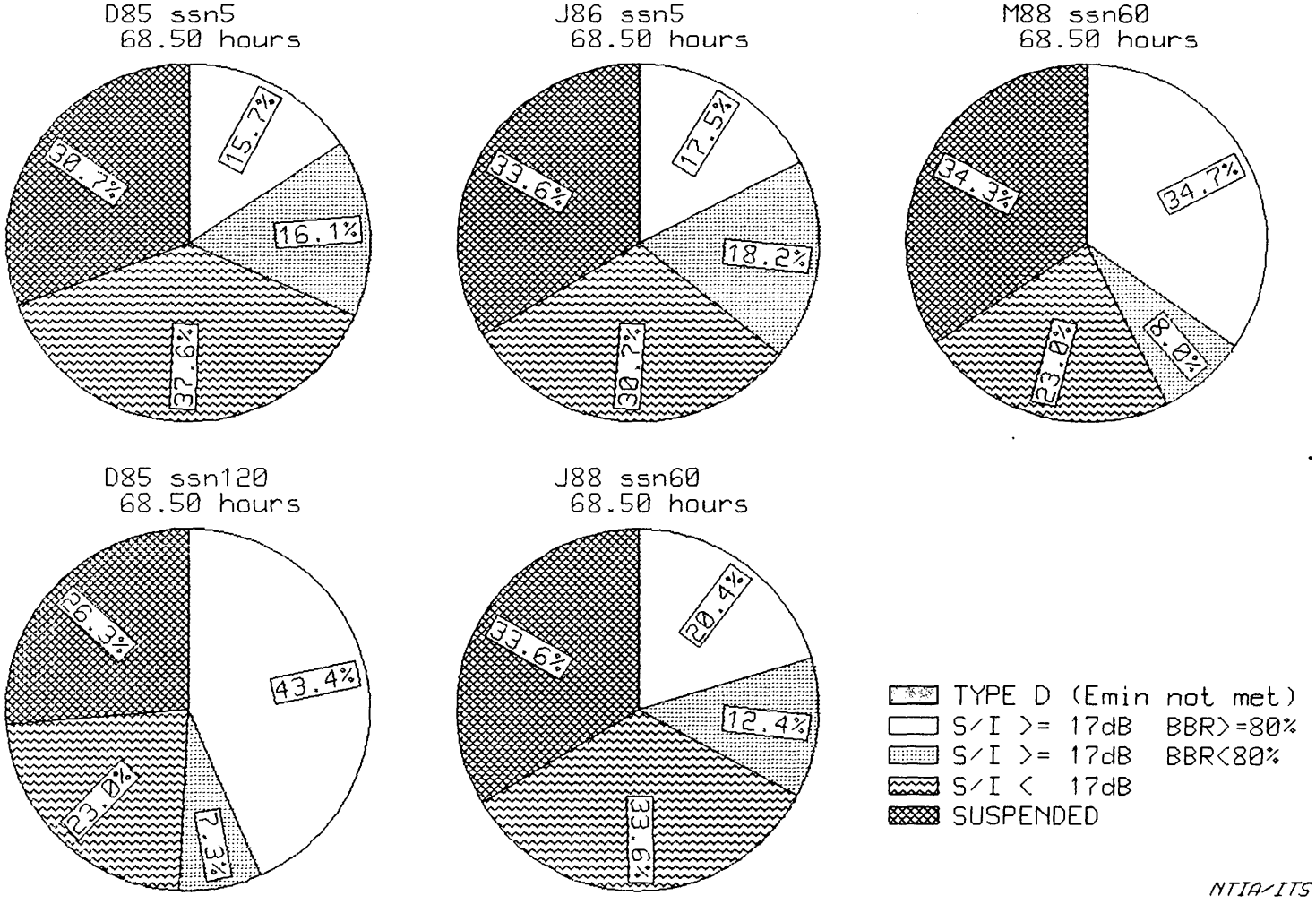
MLI – MALI



NTIA/ITS

IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

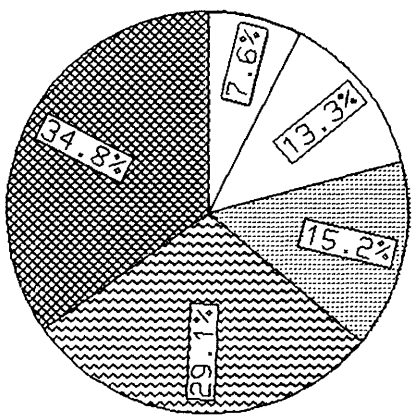
MLT – MALTA



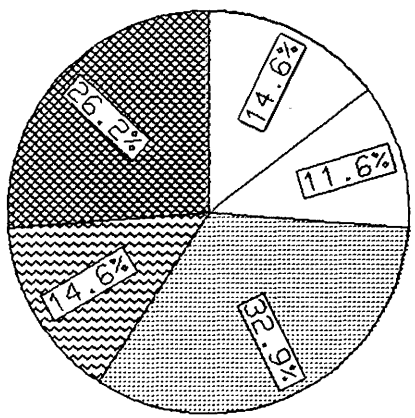
IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

MNG – MONGOLIA

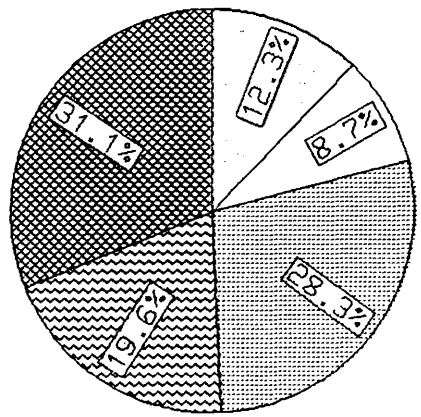
D85 ssn5
79.00 hours



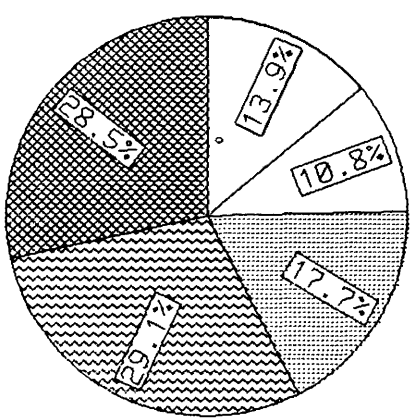
J86 ssn5
82.00 hours



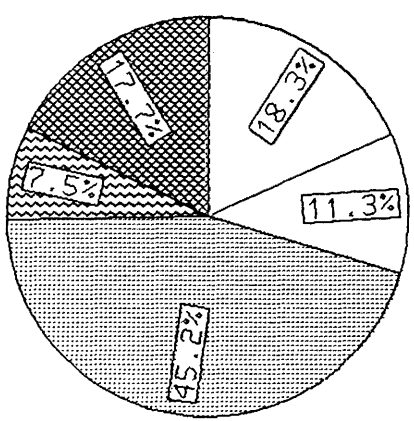
M88 ssn60
106.00 hours



D85 ssn120
79.00 hours



J88 ssn60
93.00 hours



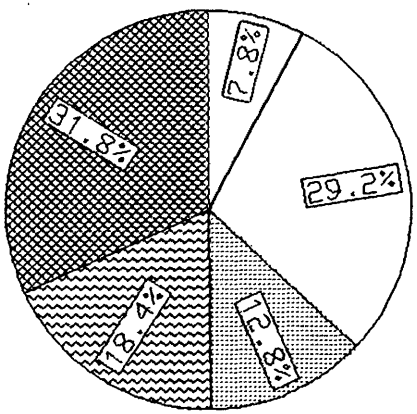
TYPE D (Emin not met)
S/I >= 17dB BBR>=80%
S/I >= 17dB BBR<80%
S/I < 17dB
SUSPENDED

NTIA/ITS

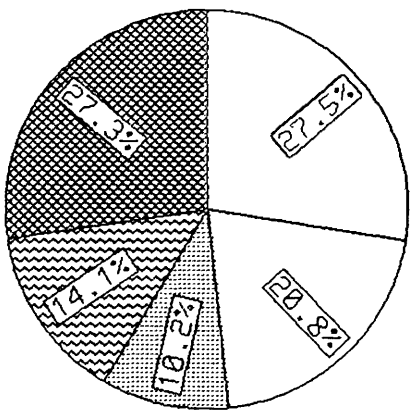
IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

MOZ – MOZAMBIQUE

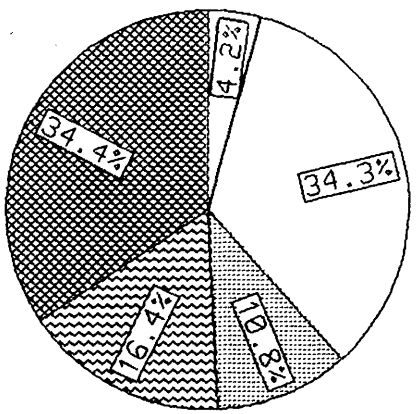
D85 ssn5
835.75 hours



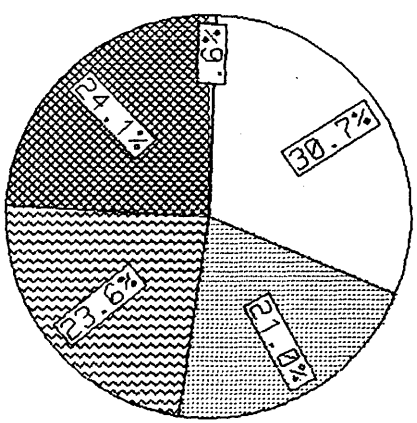
J86 ssn5
826.75 hours



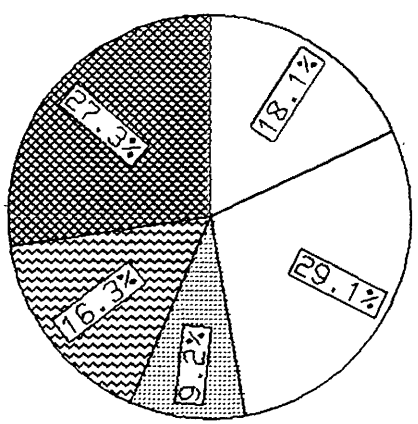
M88 ssn60
832.75 hours

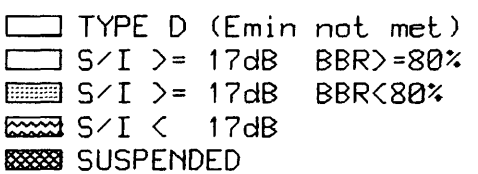


D85 ssn120
835.75 hours



J88 ssn60
826.75 hours

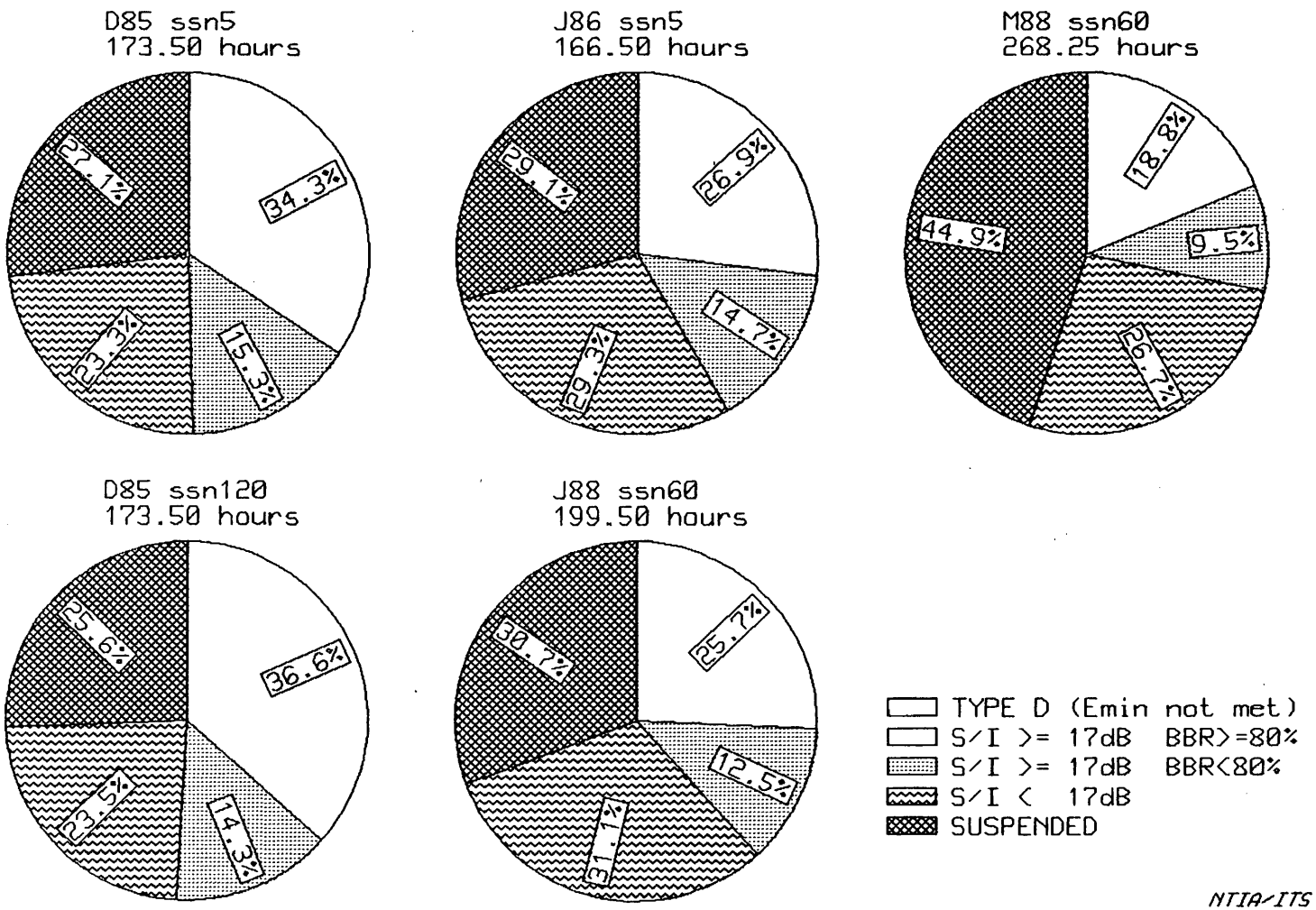




NTIA/ITS

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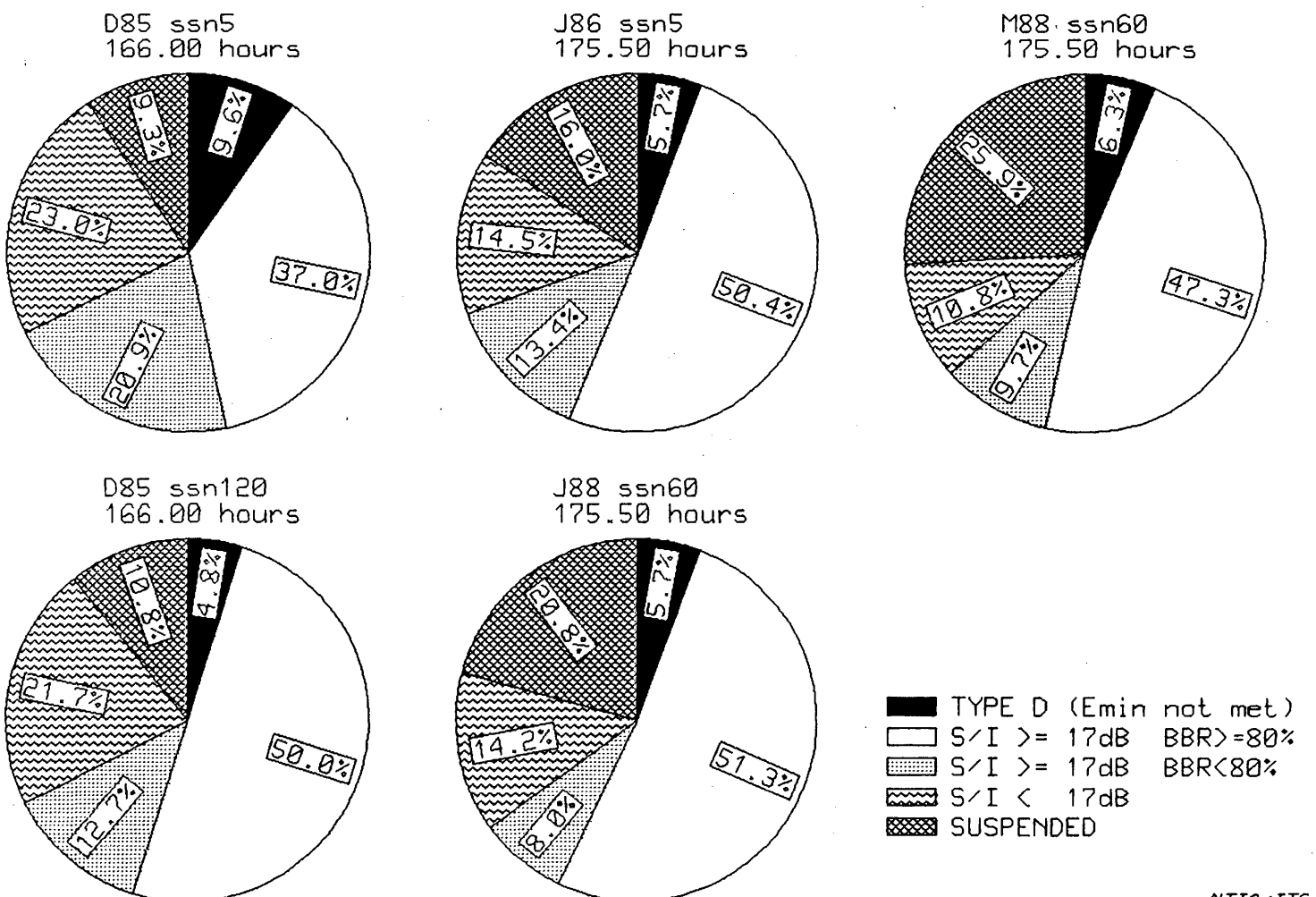
MRC – MOROCCO



NTIA/ITS

IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

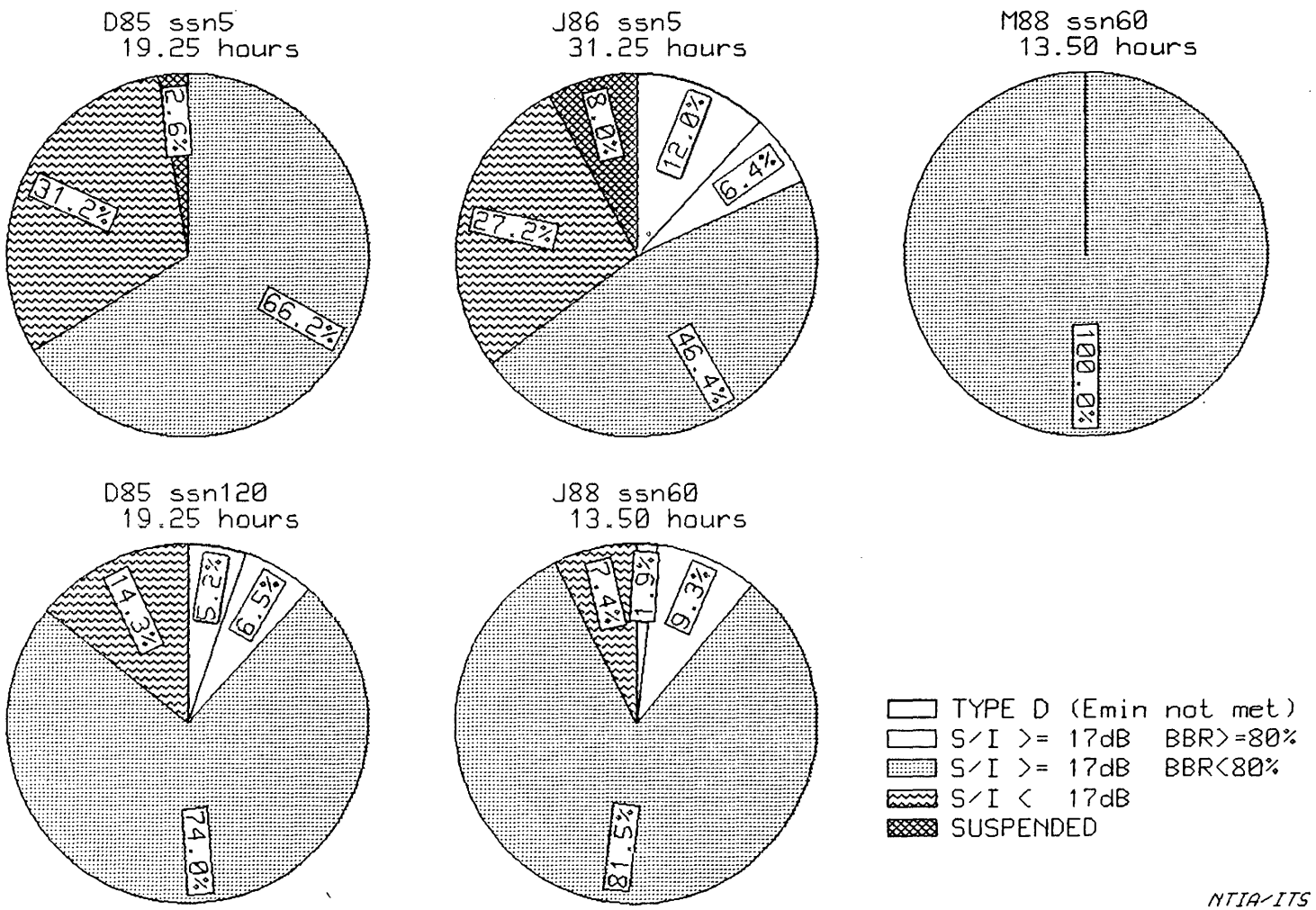
MTN — MAURITANIA



NTIA/ITS

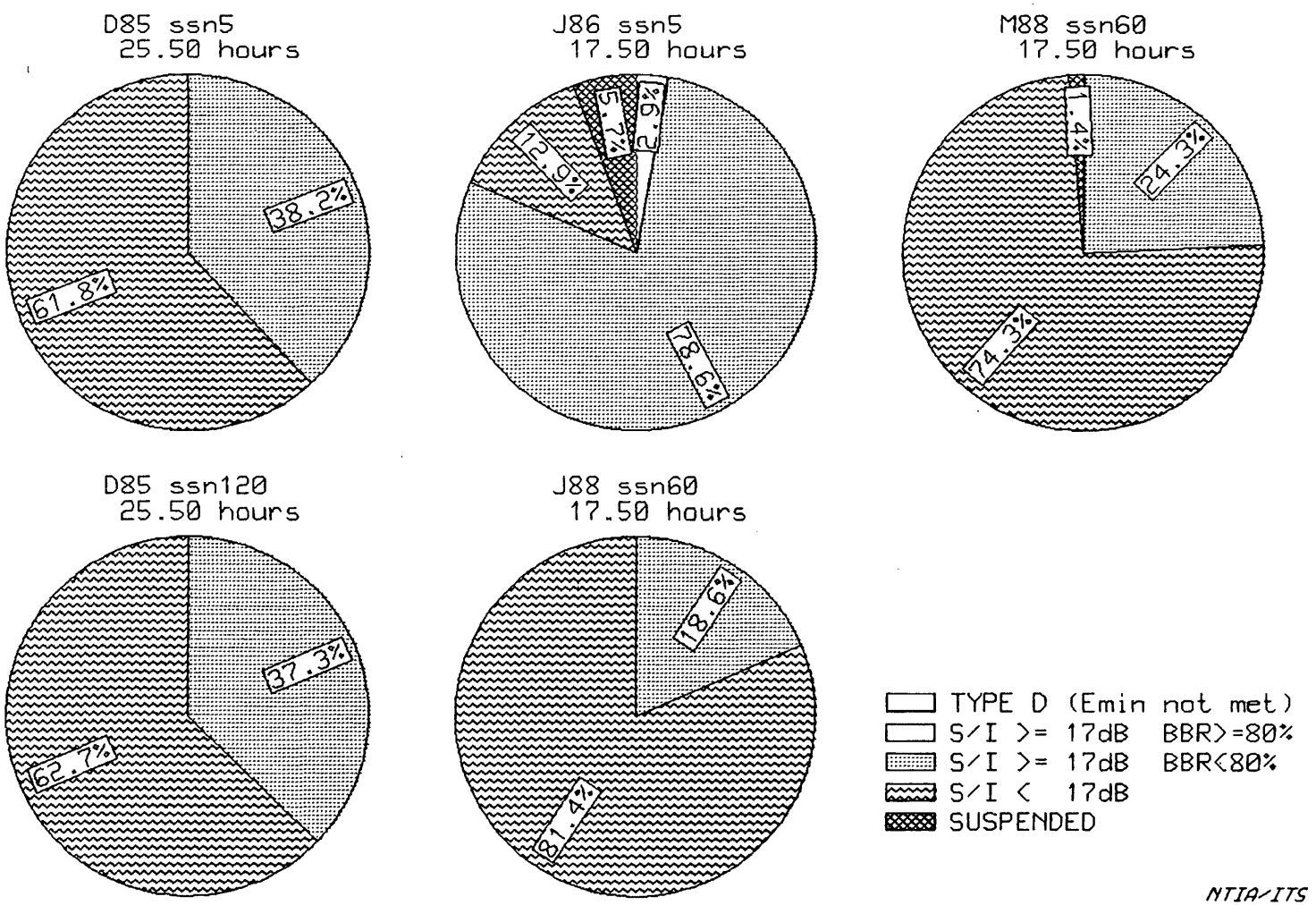
IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

MWI – MALAWI



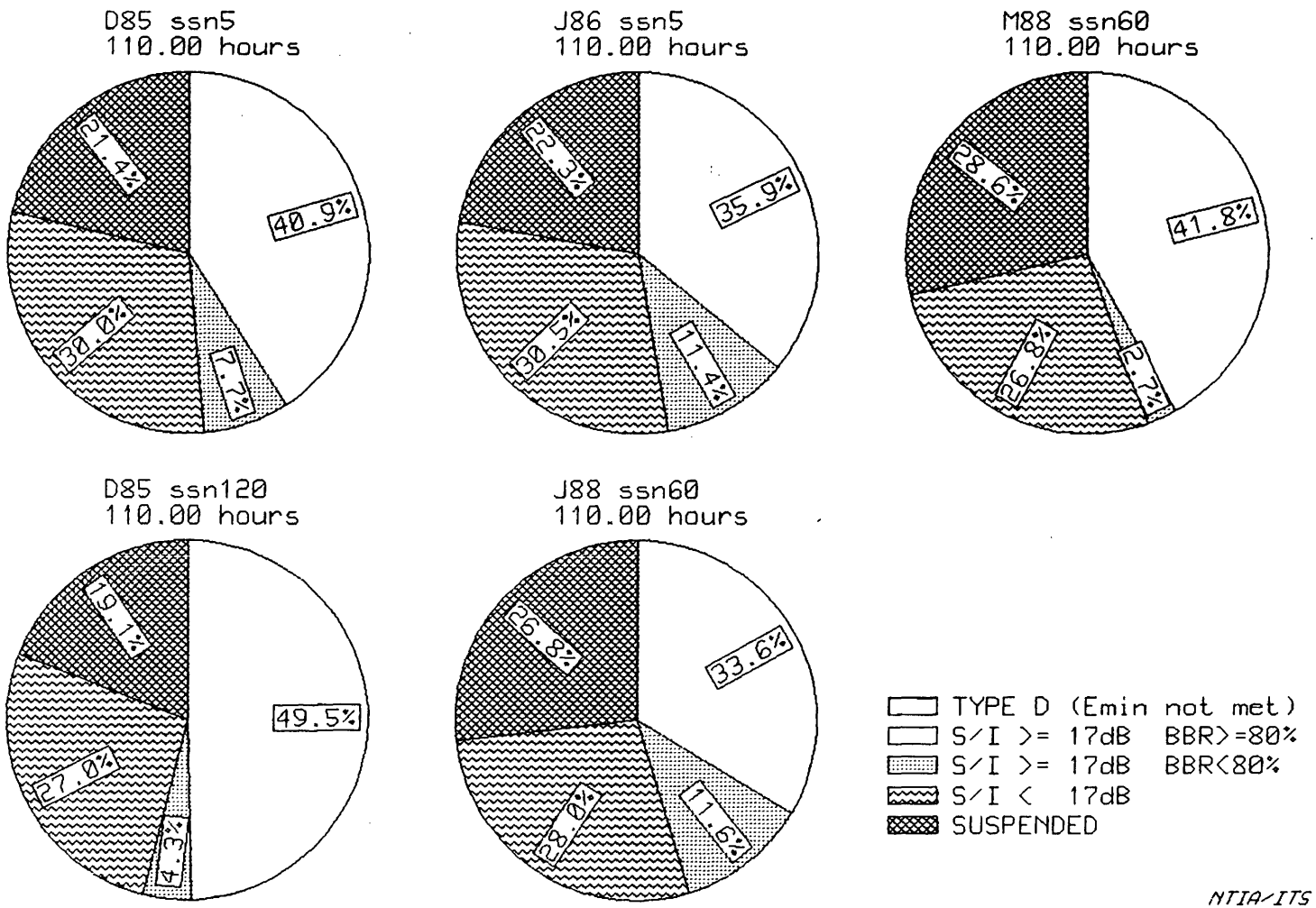
IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

NZL – NEW ZEALAND



IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

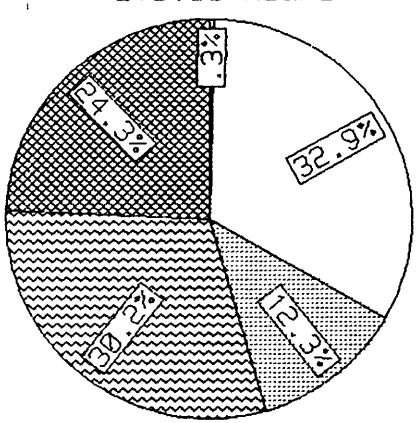
OMA – OMAN



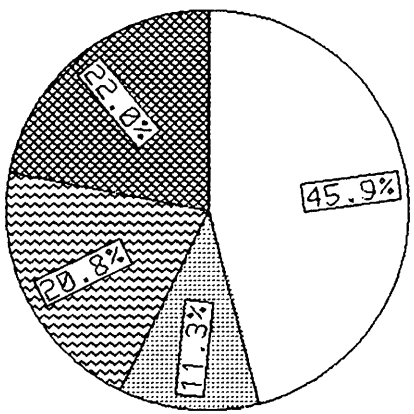
IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

PAK – PAKISTAN

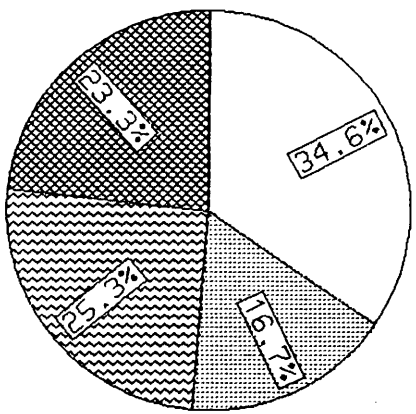
D85 ssn5
216.00 hours



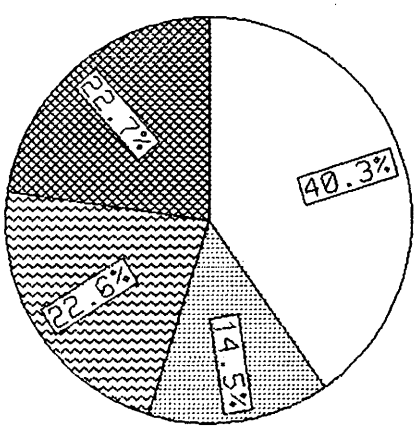
J86 ssn5
217.25 hours



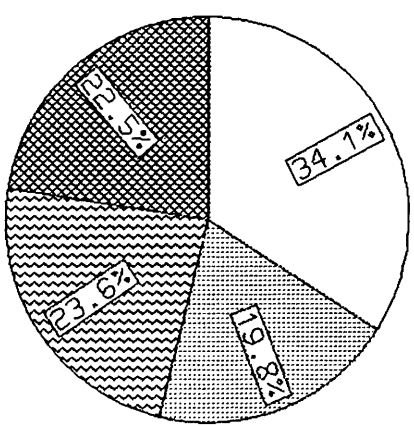
M88 ssn60
212.25 hours



D85 ssn120
216.00 hours



J88 ssn60
216.25 hours

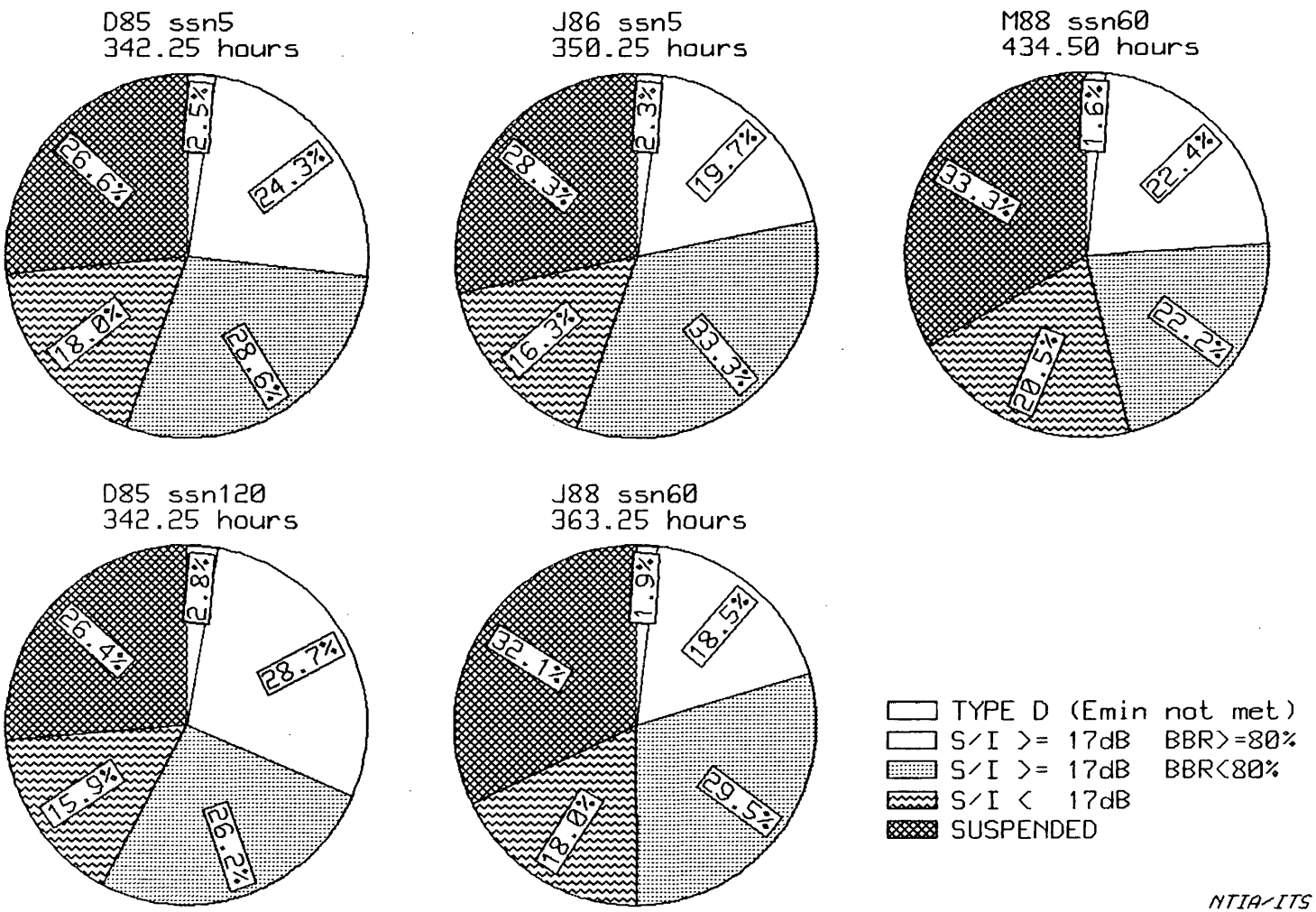


TYPE D (Emin not met)
S/I >= 17dB BBR>=80%
S/I >= 17dB BBR<80%
S/I < 17dB
SUSPENDED

NTIA/ITS

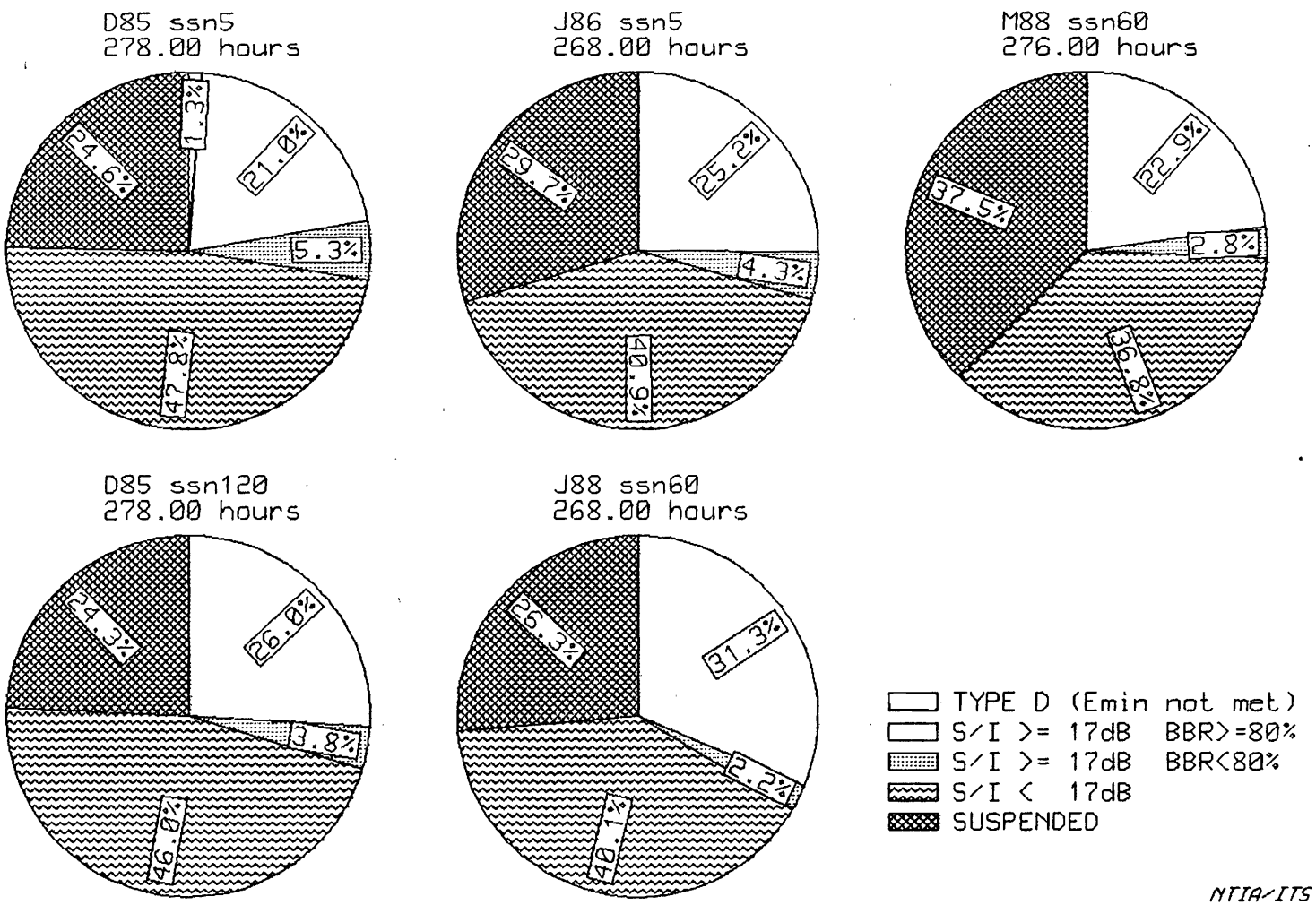
IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

PHL – PHILIPPINES



IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

POL – POLAND

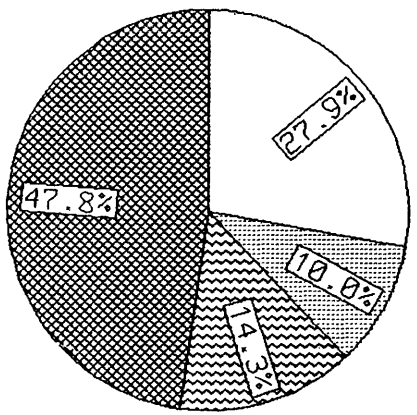


NTIA/ITS

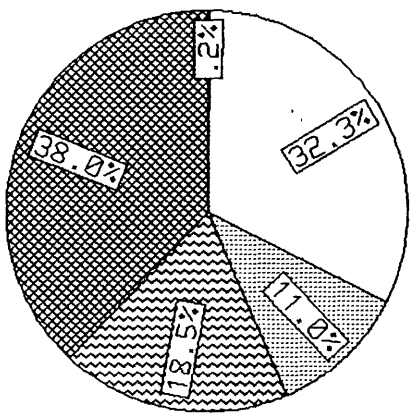
IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

POR – PORTUGAL

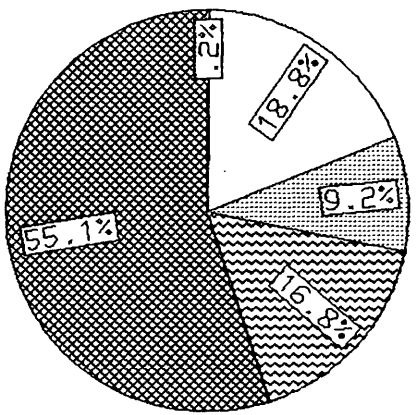
D85 ssn5
612.75 hours



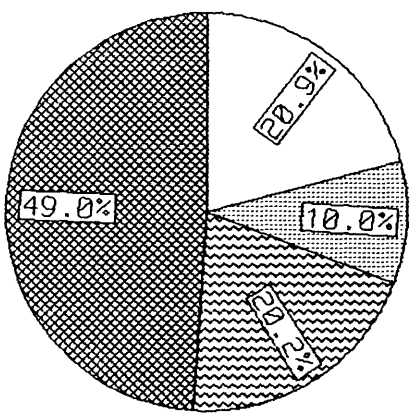
J86 ssn5
614.75 hours



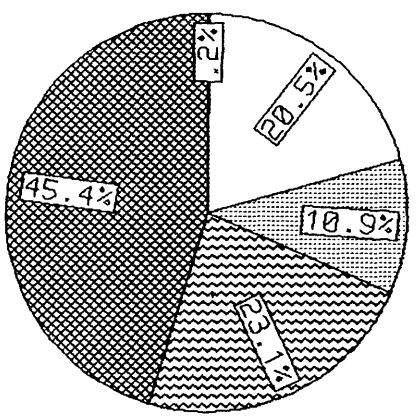
M88 ssn60
614.75 hours



D85 ssn120
612.75 hours



J88 ssn60
614.75 hours

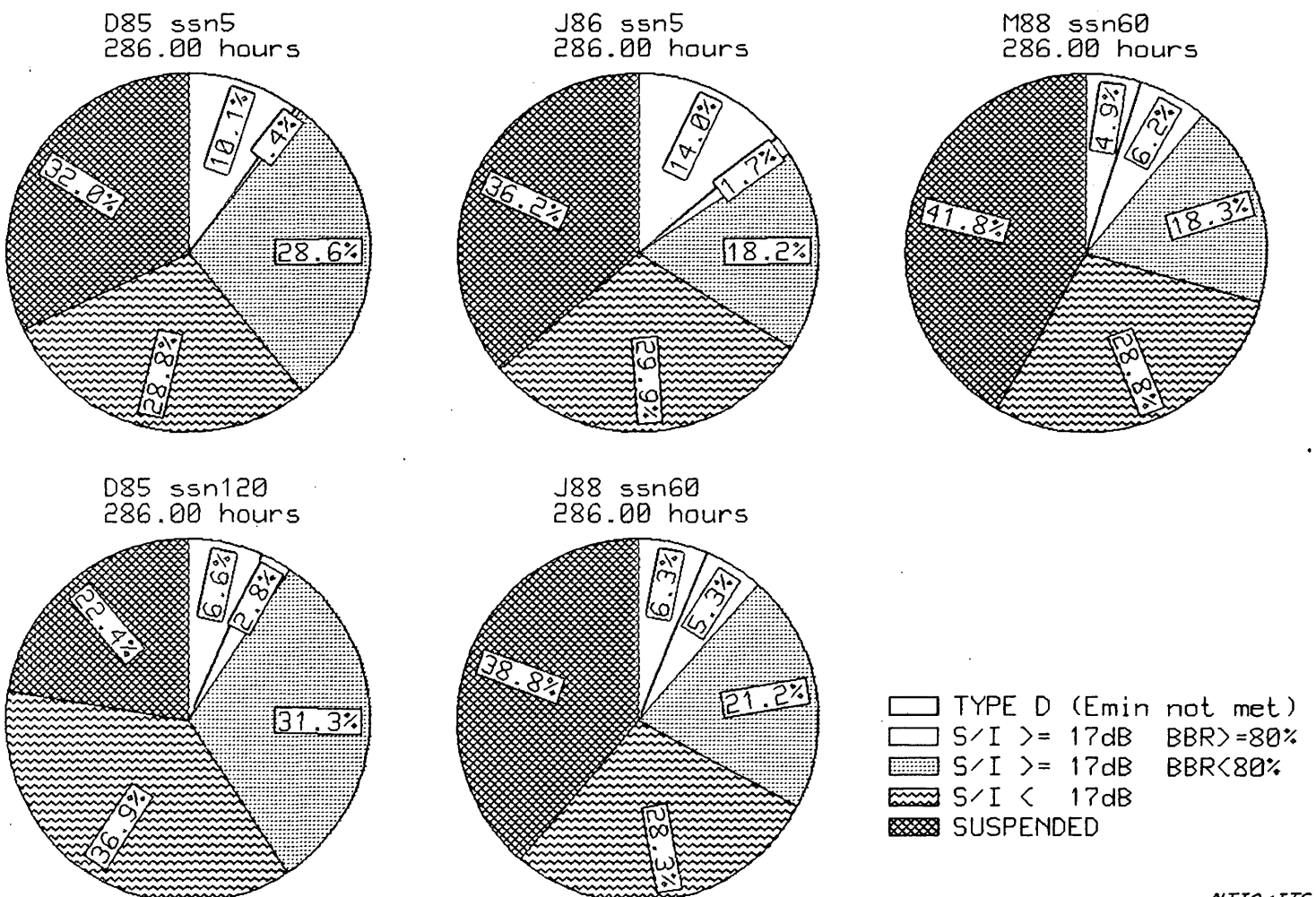


TYPE D (Emin not met)
S/I >= 17dB BBR>=80%
S/I >= 17dB BBR<80%
S/I < 17dB
SUSPENDED

NTIA/ITS

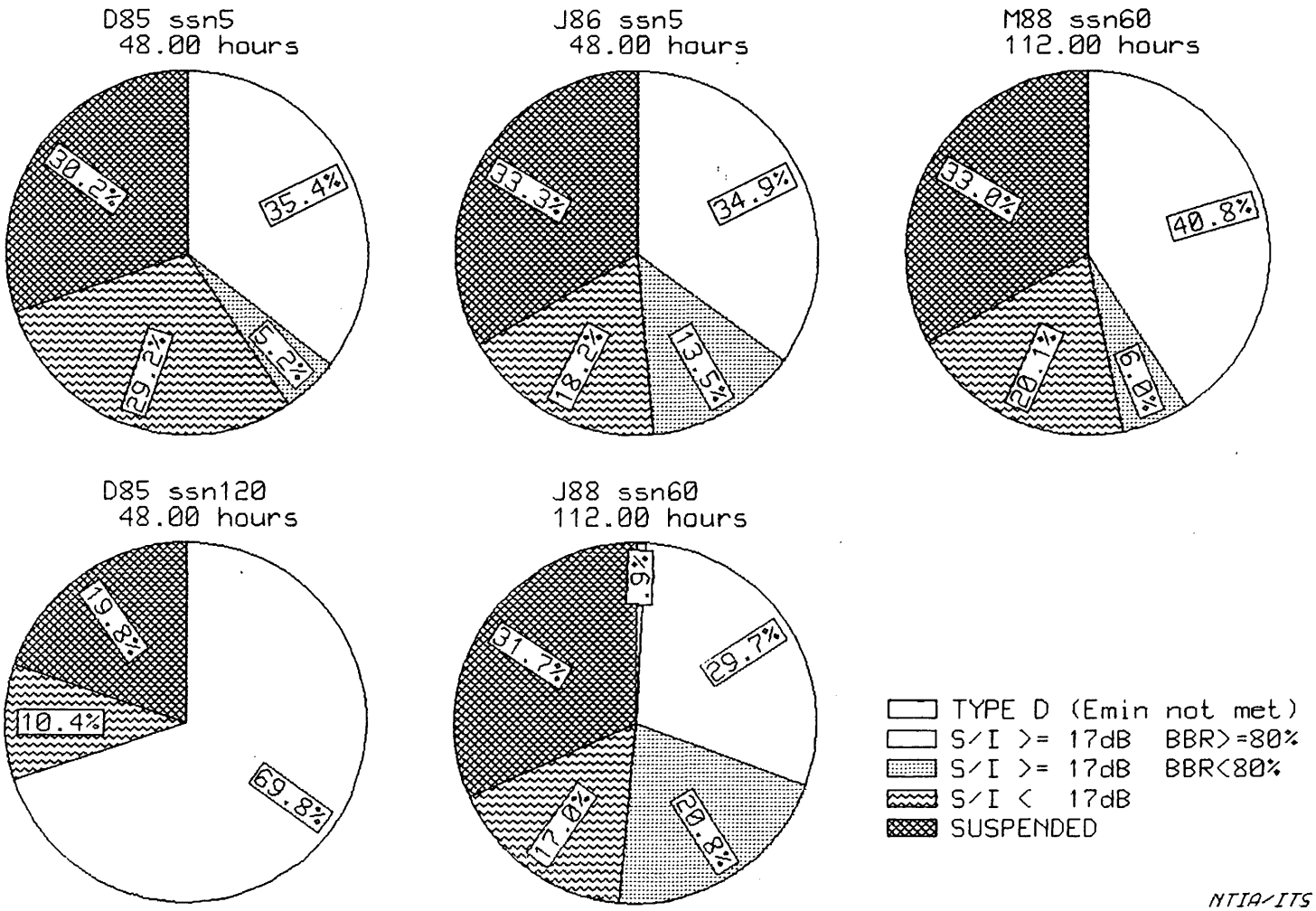
IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

PRG – PARAGUAY



IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

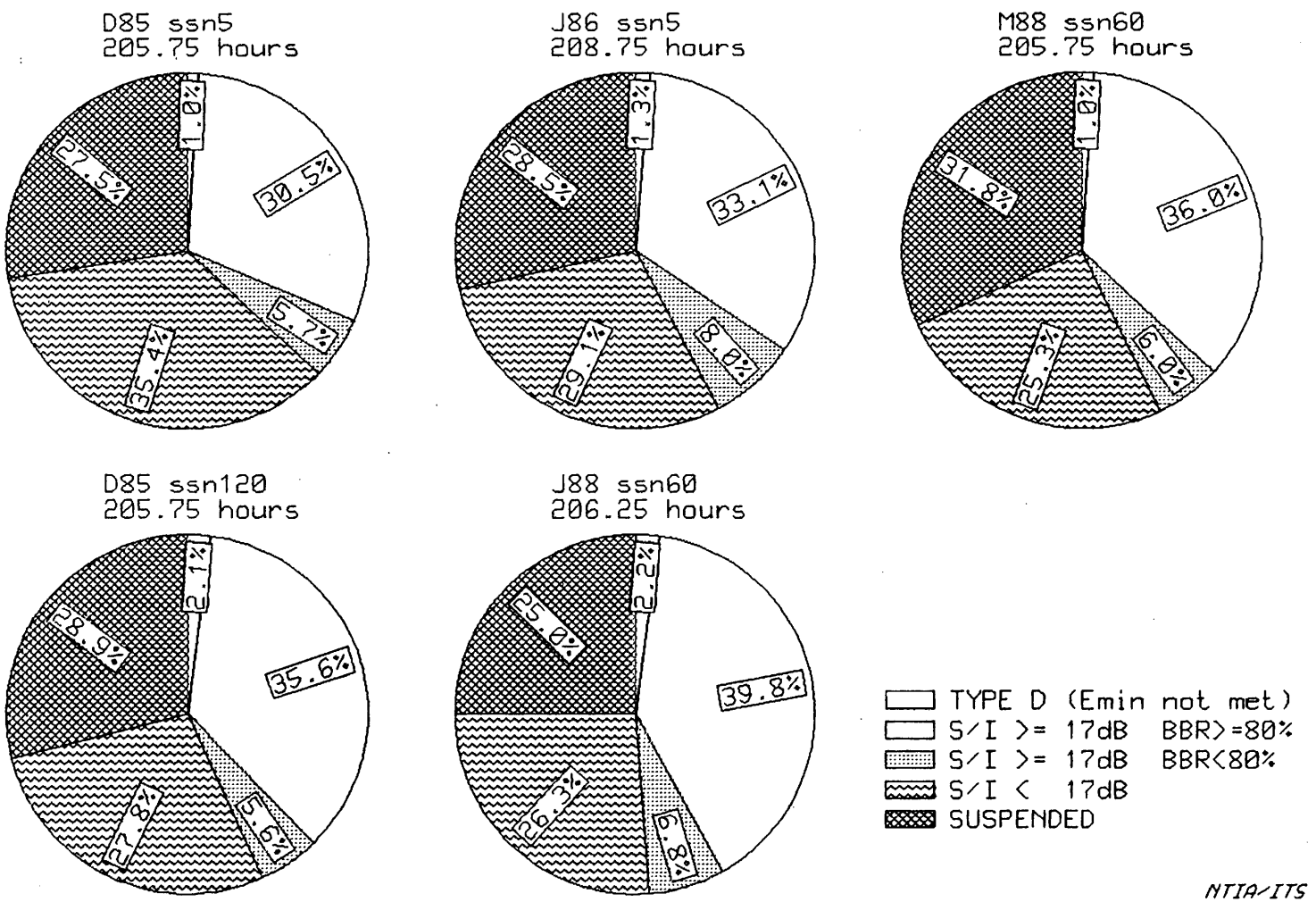
QAT – QATAR



NTIA/ITS

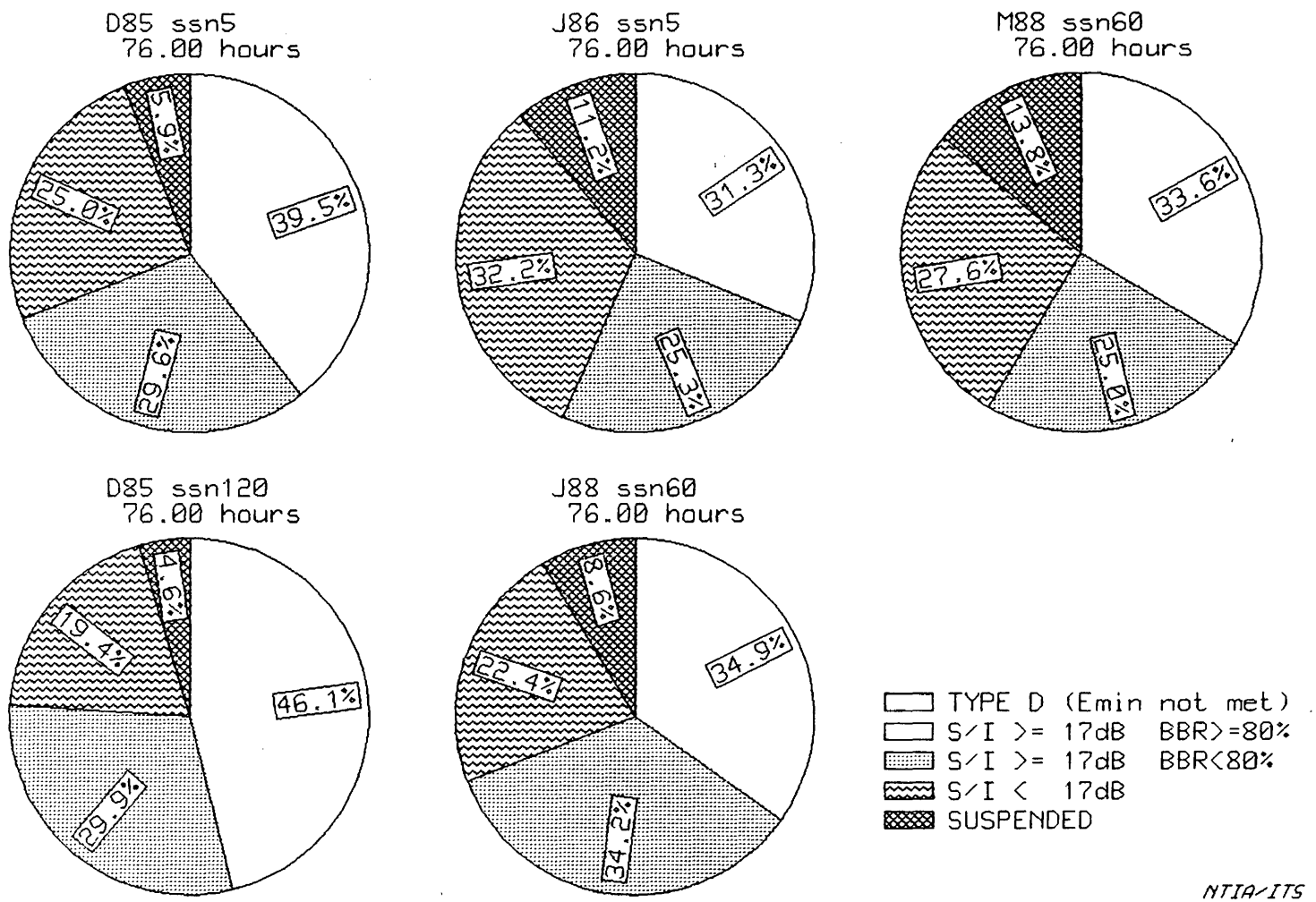
IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

ROU – ROUMANIA



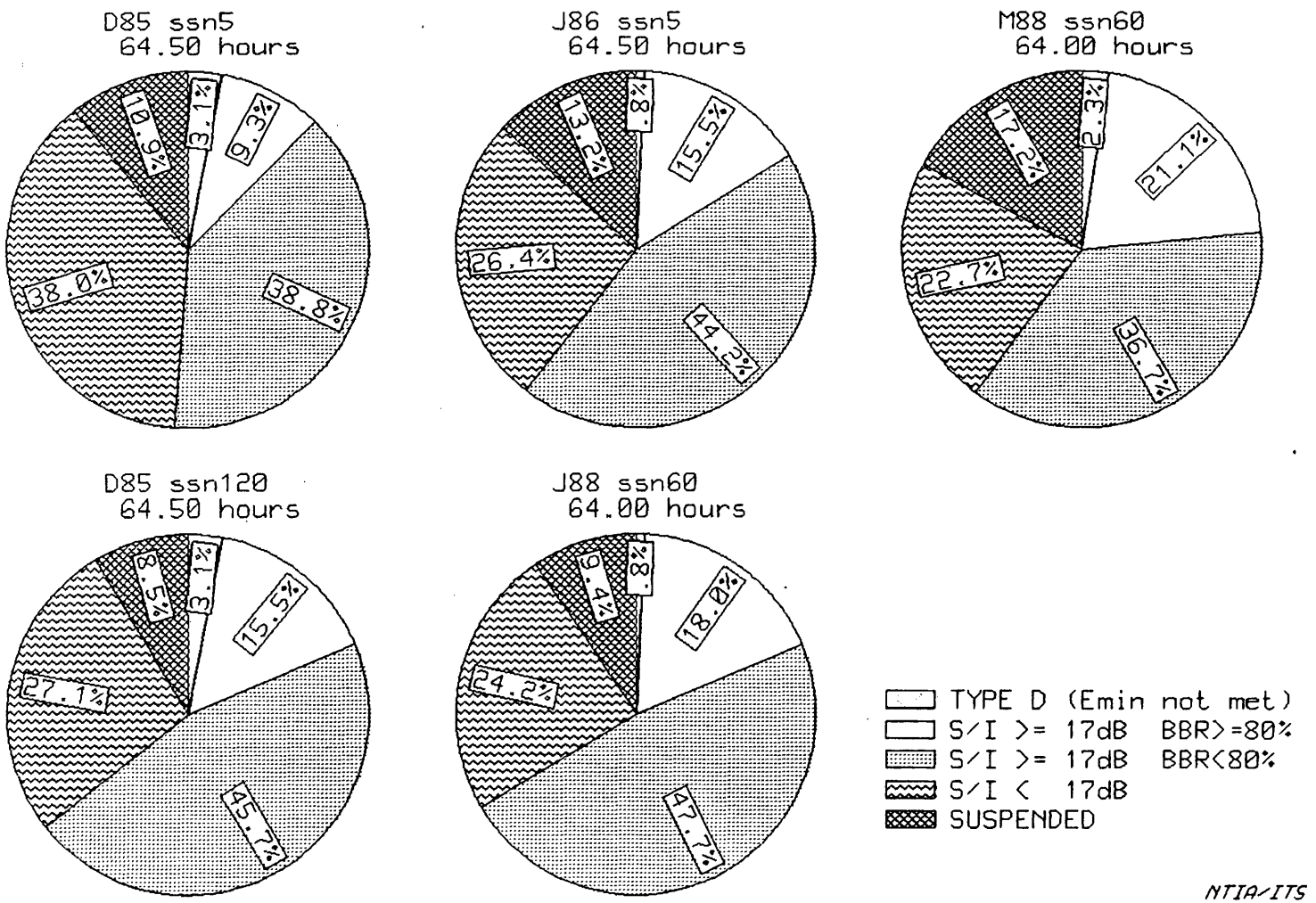
IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

RRW – RWANDA



IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

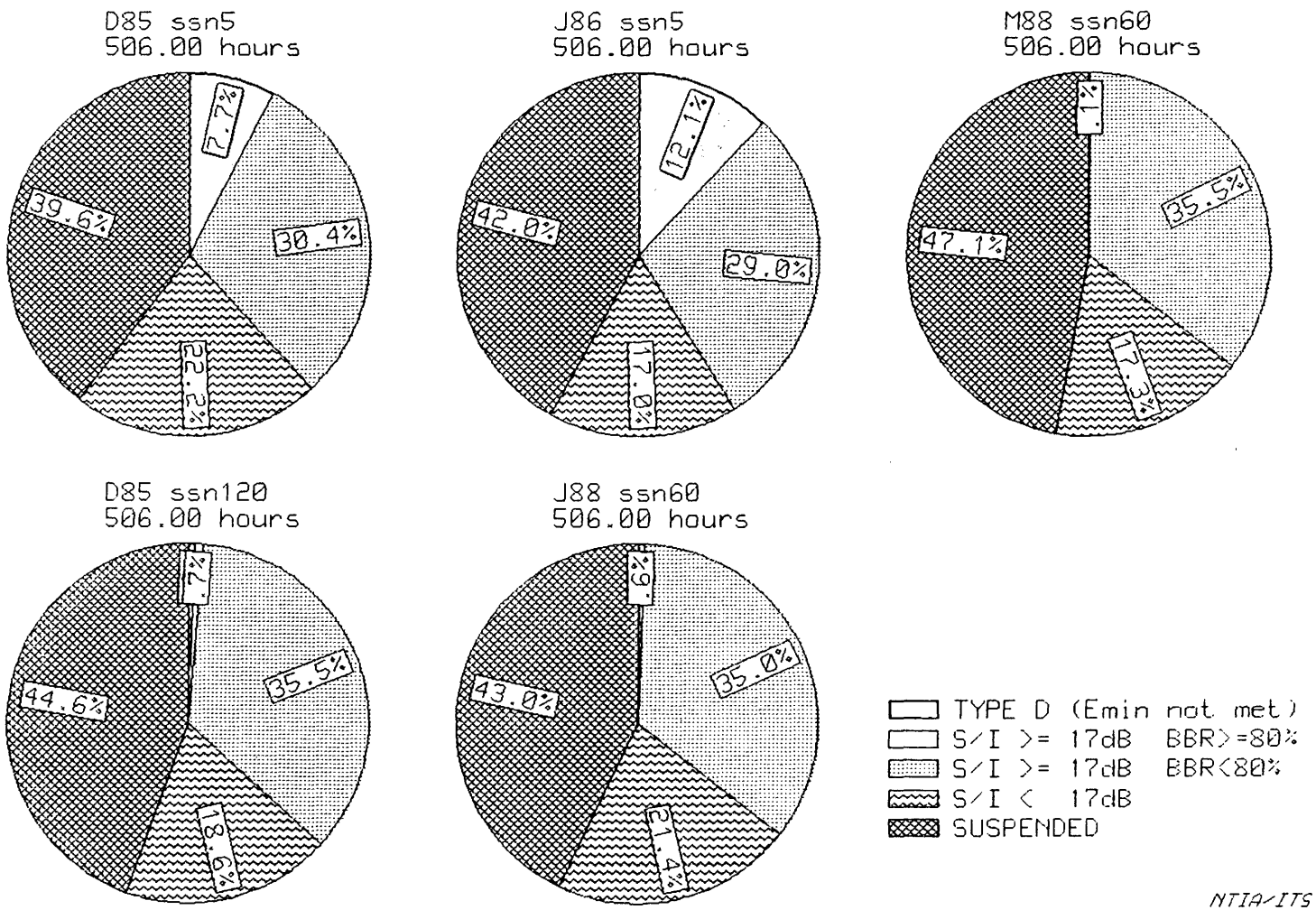
S – SWEDEN



NTIA/ITS

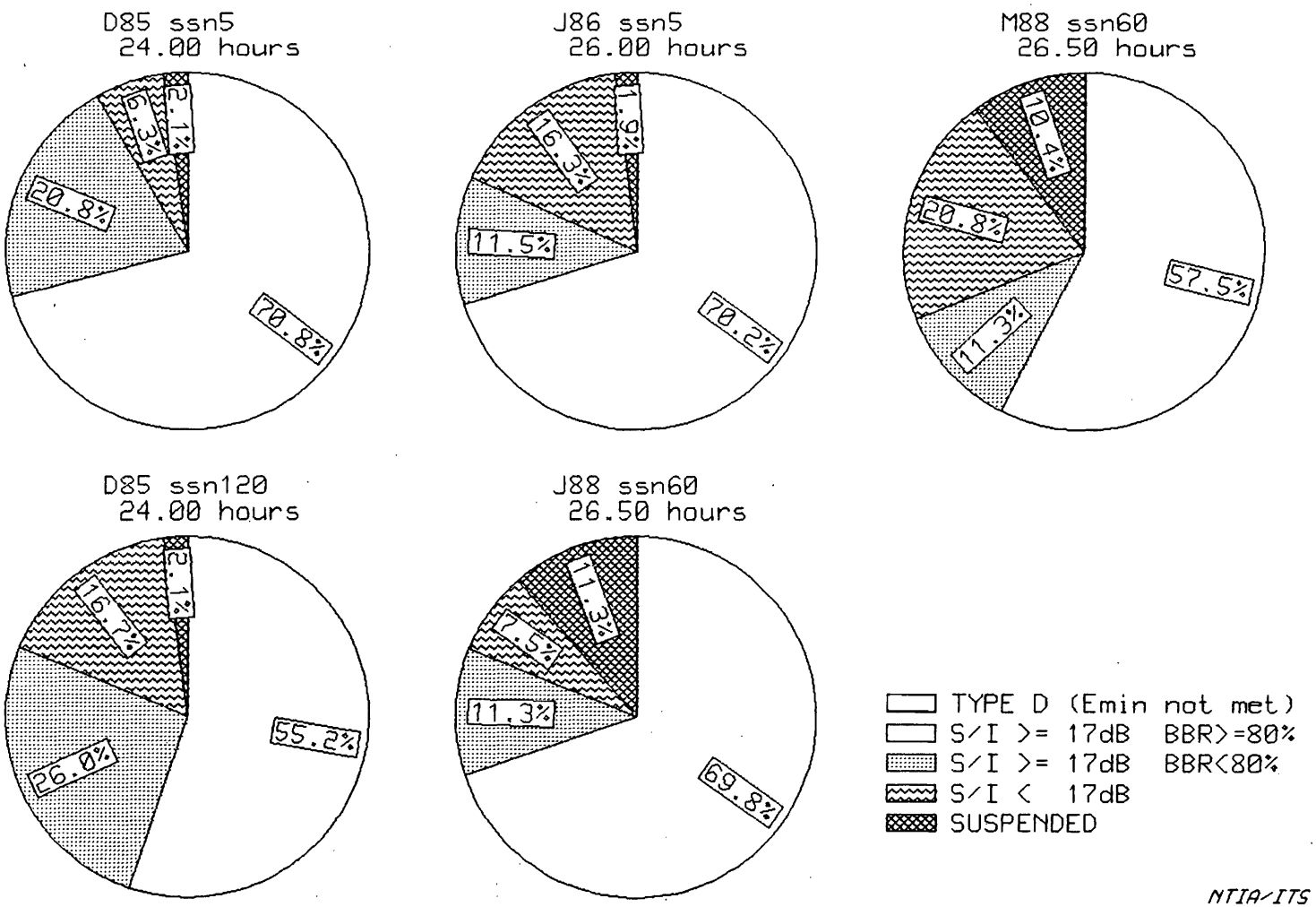
IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

SEN – SENEGAL



IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

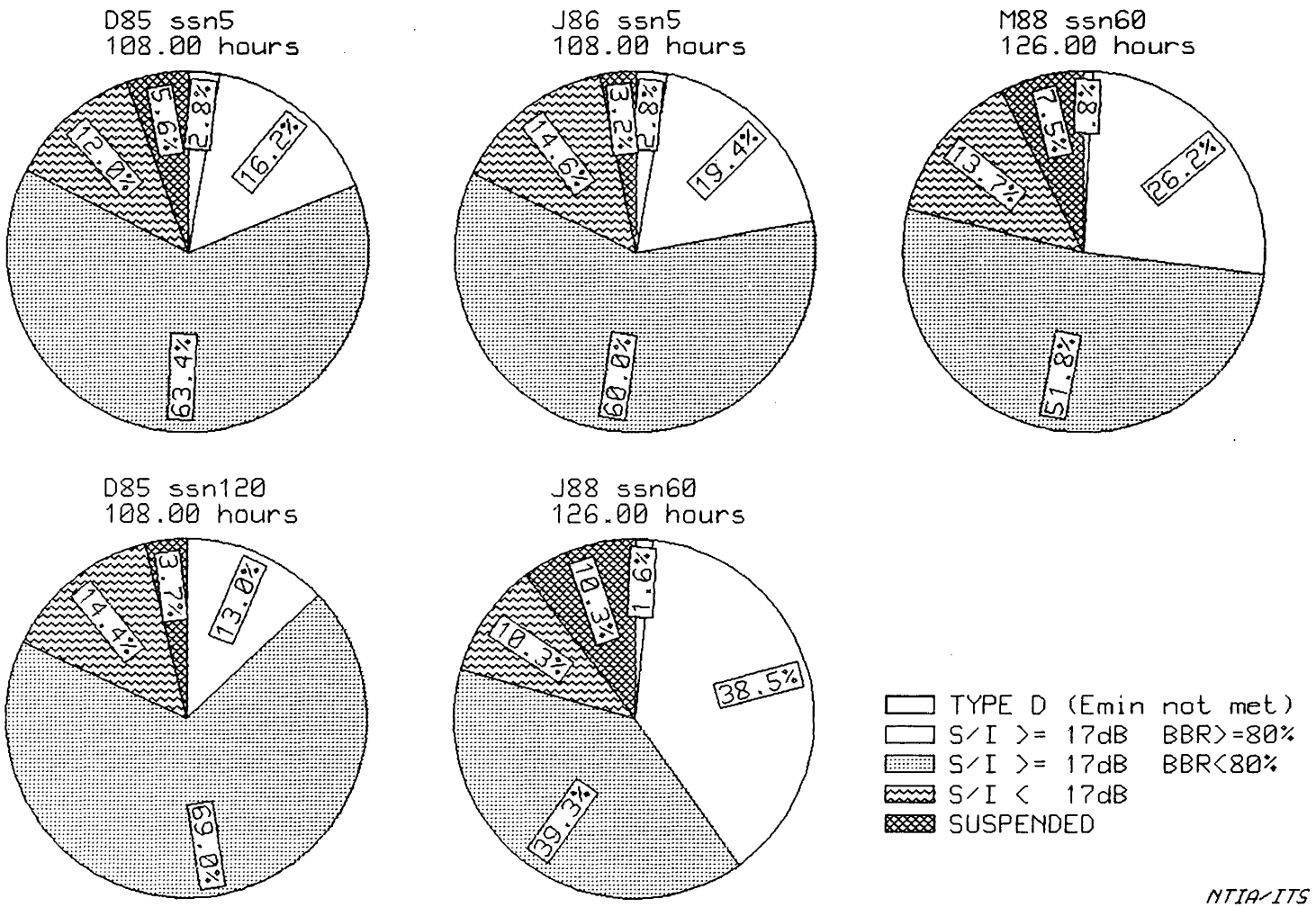
SEY – SEYCHELLES



NTIA/ITS

IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

SNG – SINGAPORE

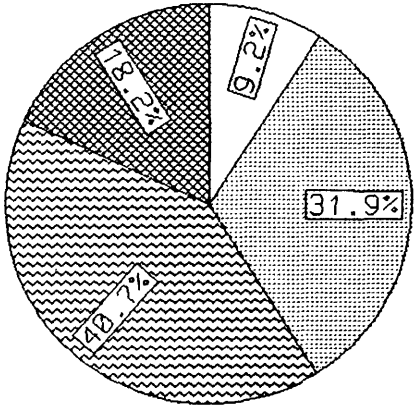


NTIA/ITS

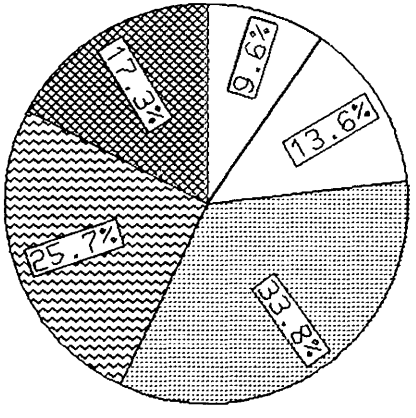
IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

SUI – SWITZERLAND

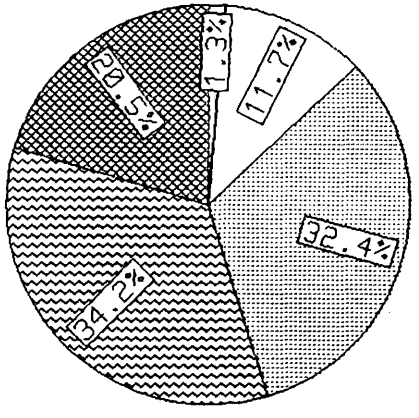
D85 ssn5
119.75 hours



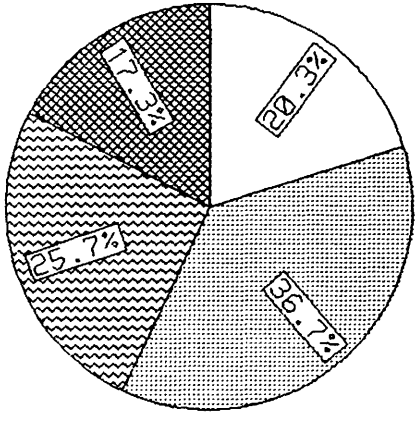
J86 ssn5
119.75 hours



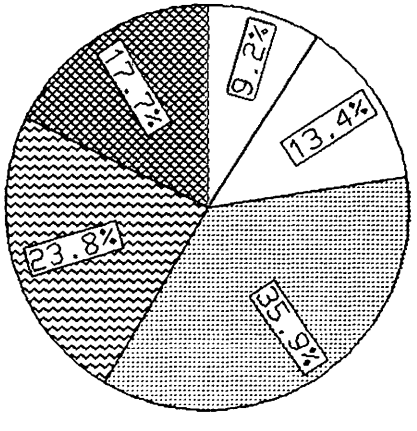
M88 ssn60
119.75 hours

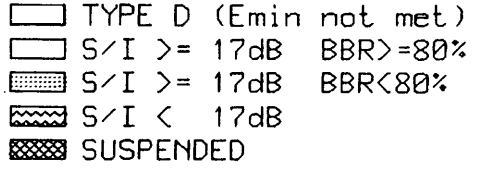


D85 ssn120
119.75 hours



J88 ssn60
119.75 hours

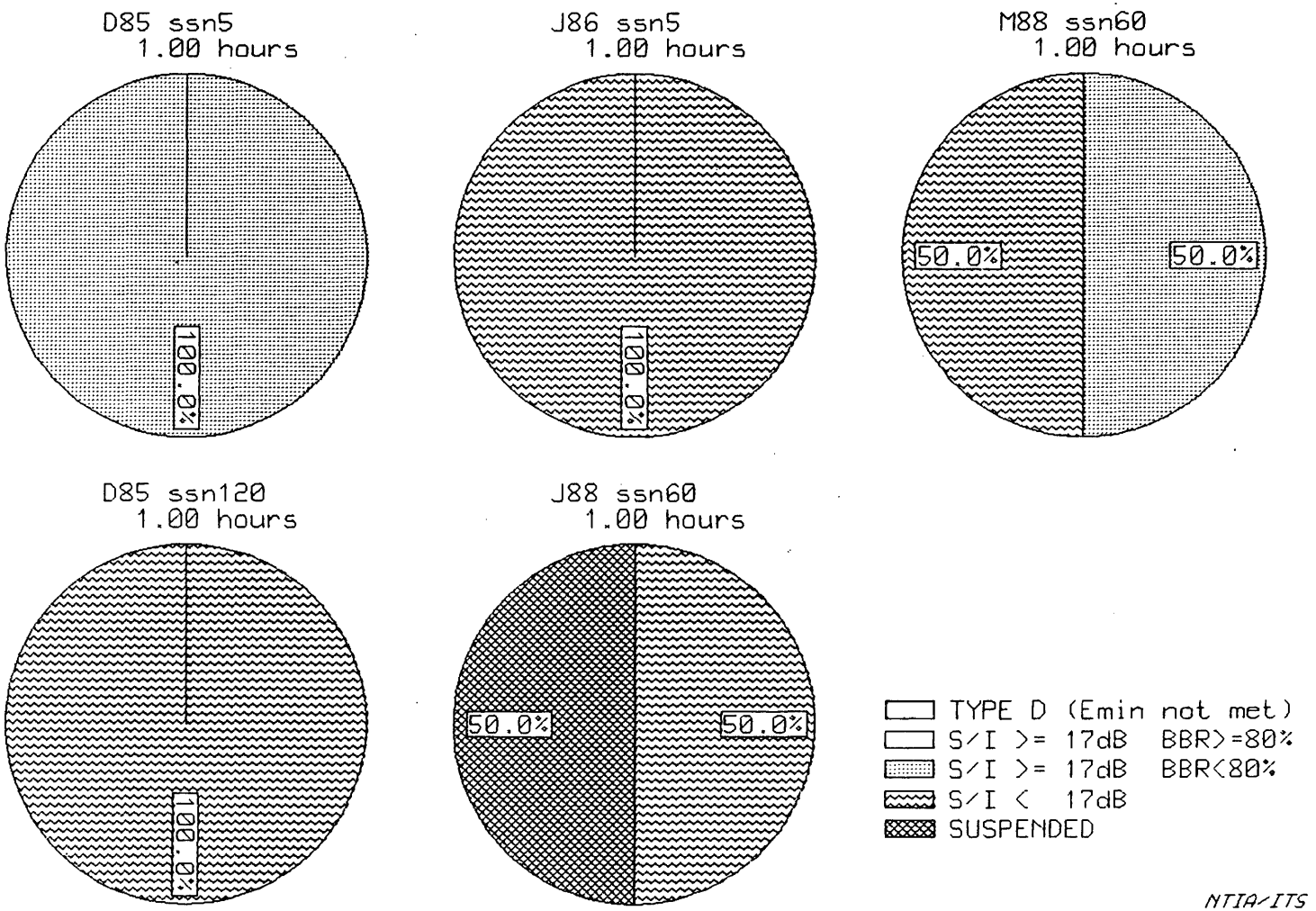




NTIA/ITS

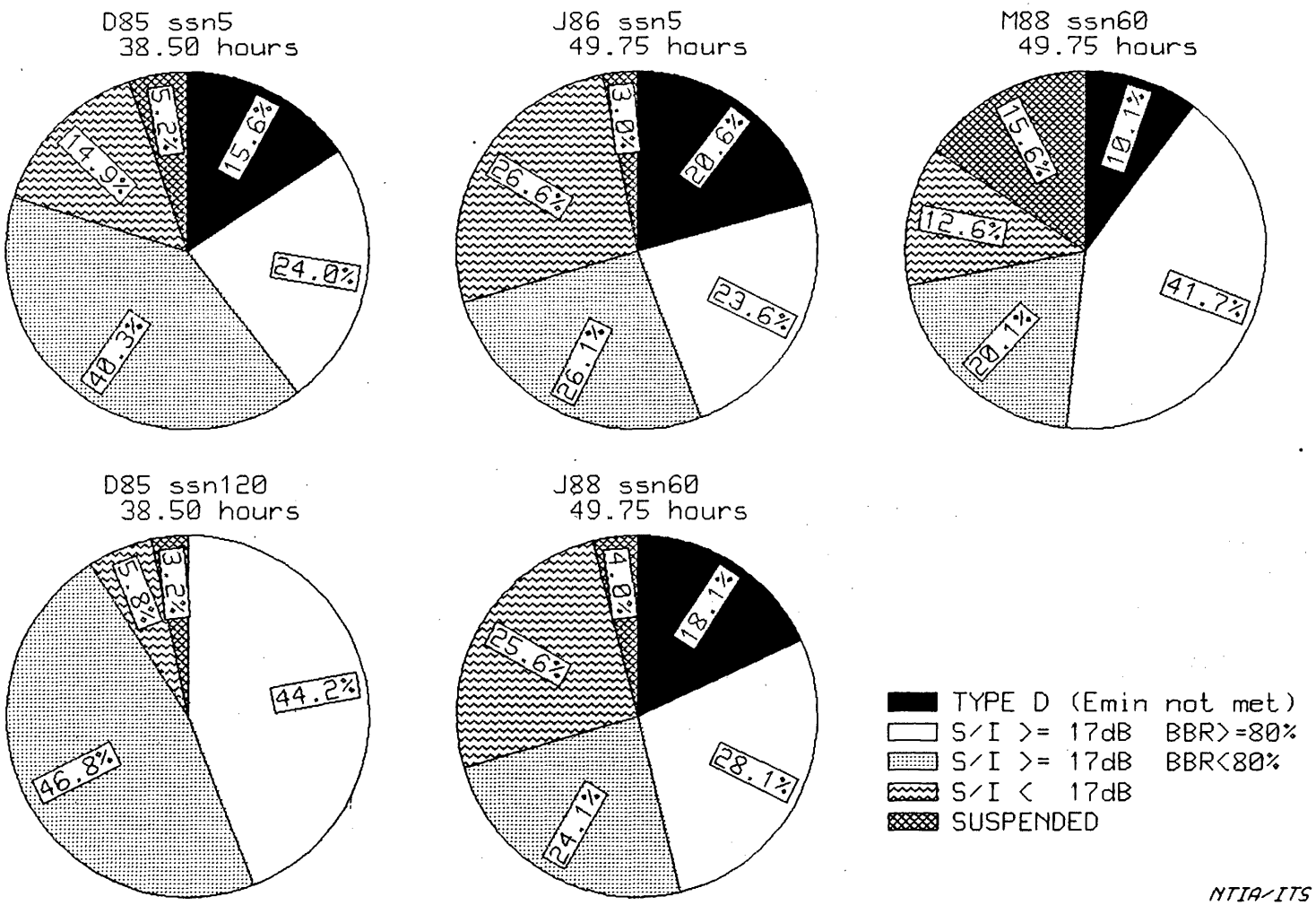
IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

SUR – SURINAM



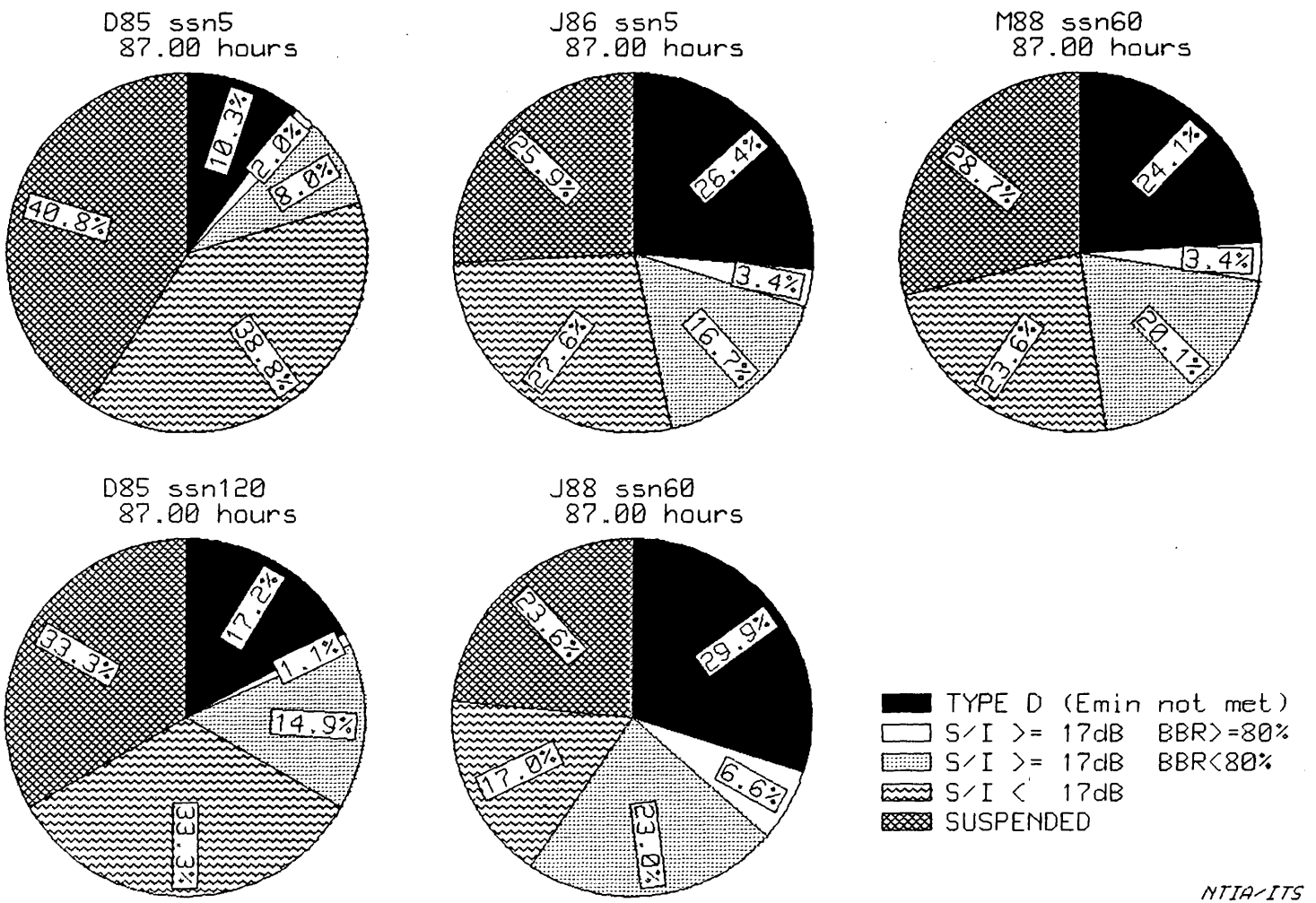
IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

SWZ – SWAZILAND



IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

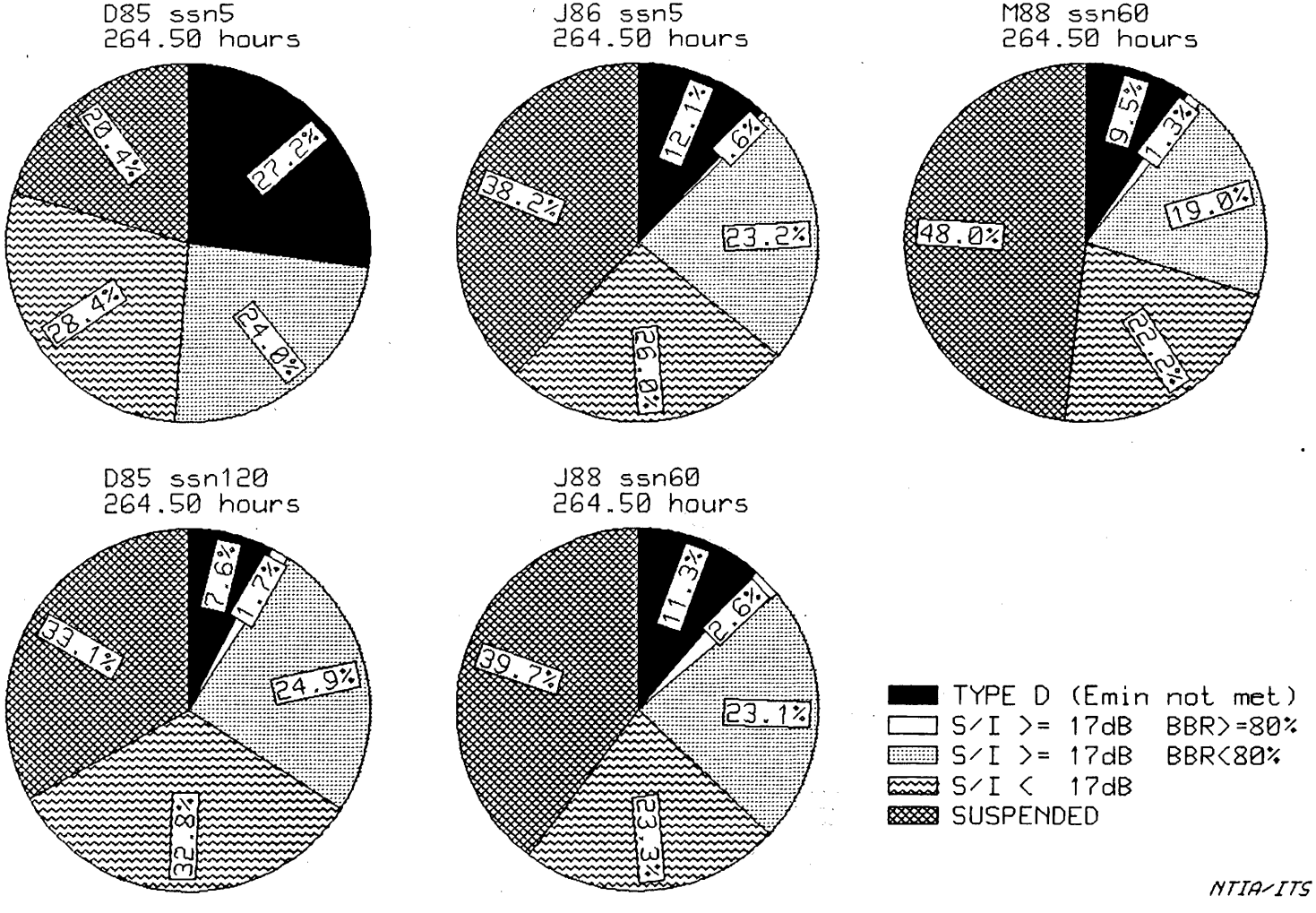
SYR – SYRIA



NTIA/ITS

IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

TCH – CZECHOSLOVAKIA

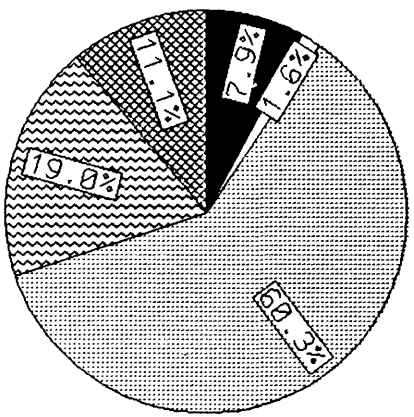


NTIA/ITS

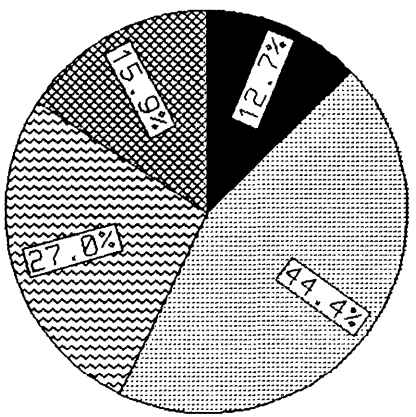
IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

TGO – TOGOLESE

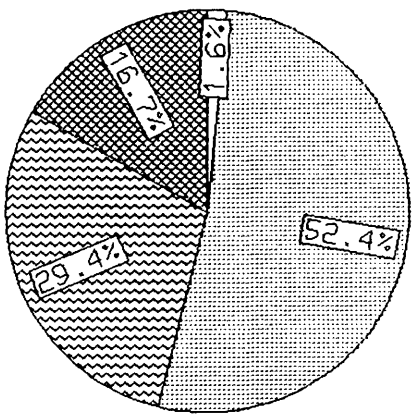
D85 ssn5
63.00 hours



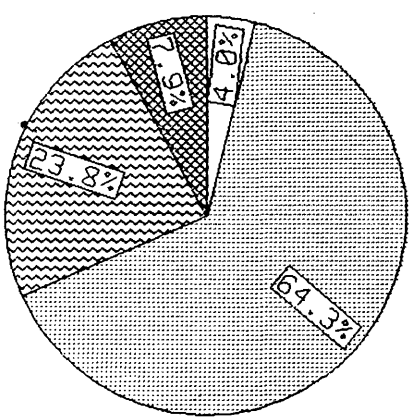
J86 ssn5
63.00 hours



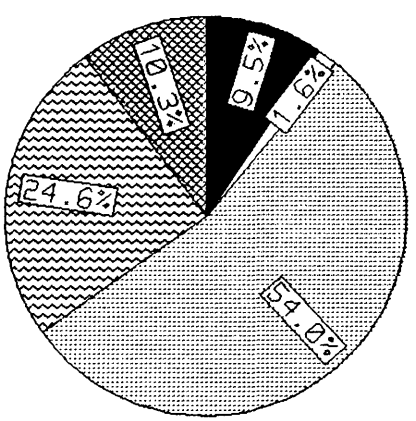
M88 ssn60
63.00 hours



D85 ssn120
63.00 hours



J88 ssn60
63.00 hours

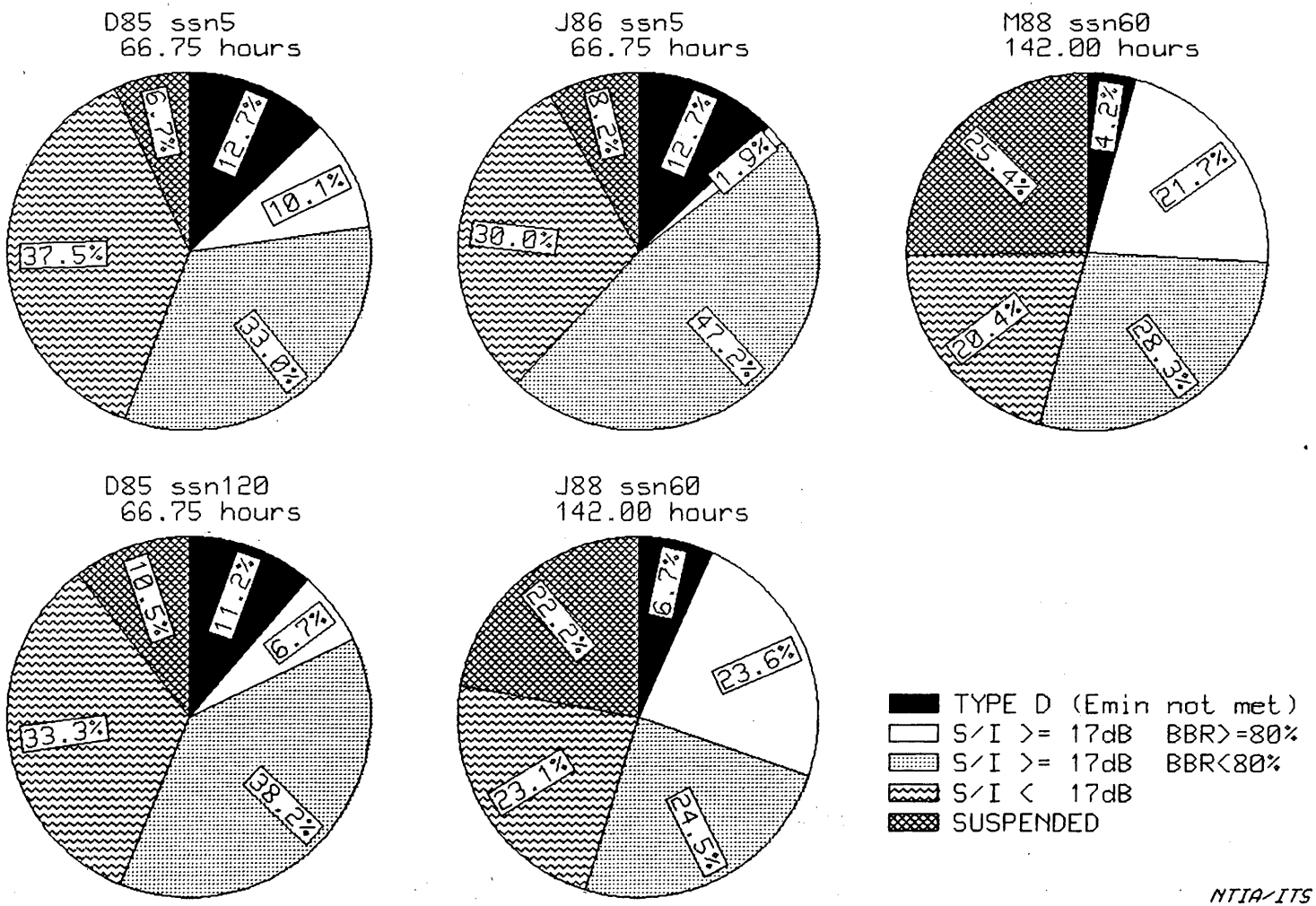


TYPE D (Emin not met)
S/I >= 17dB BBR>=80%
S/I >= 17dB BBR<80%
S/I < 17dB
SUSPENDED

NTIA/ITS

IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

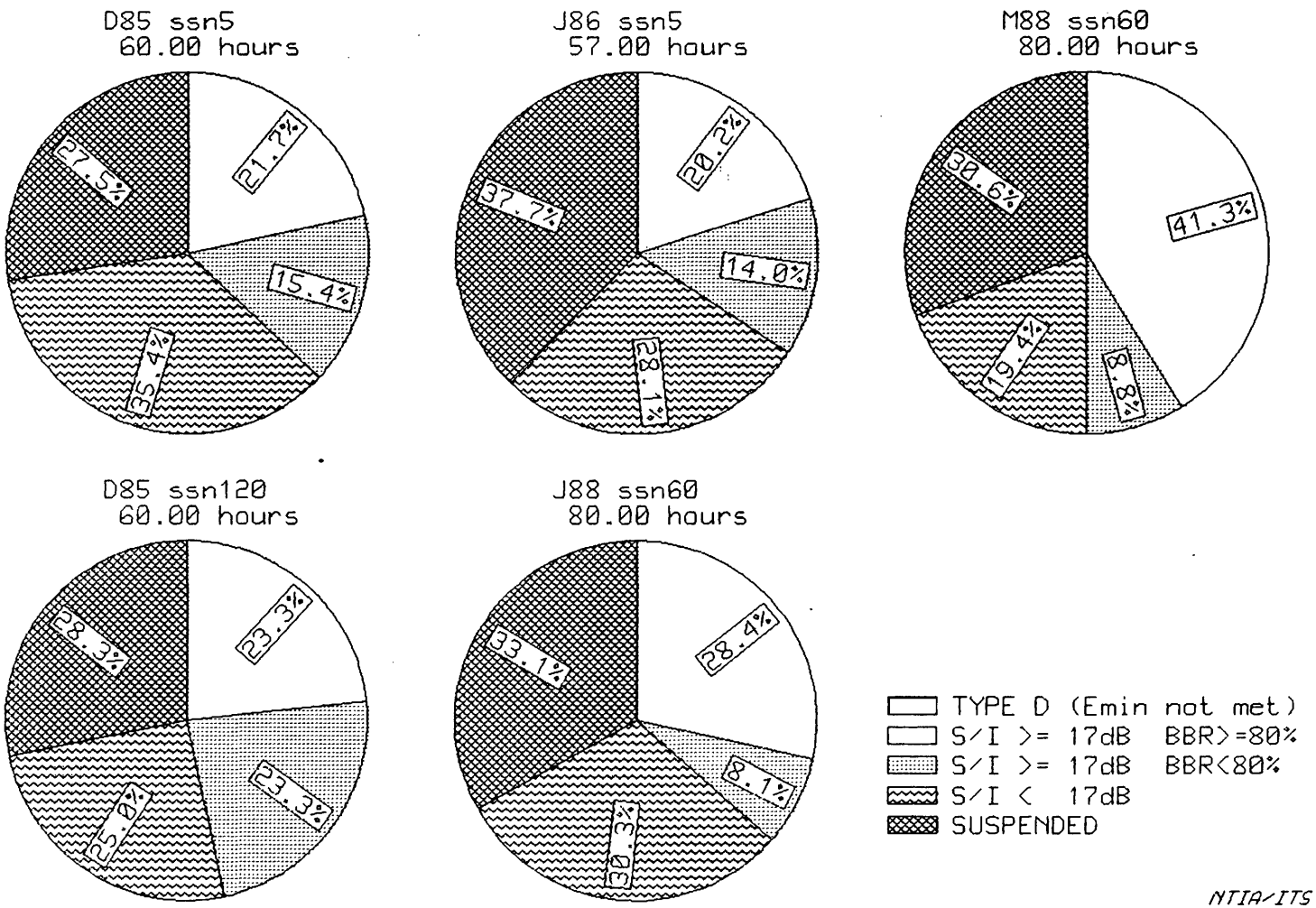
THA – THAILAND



NTIA/ITS

IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

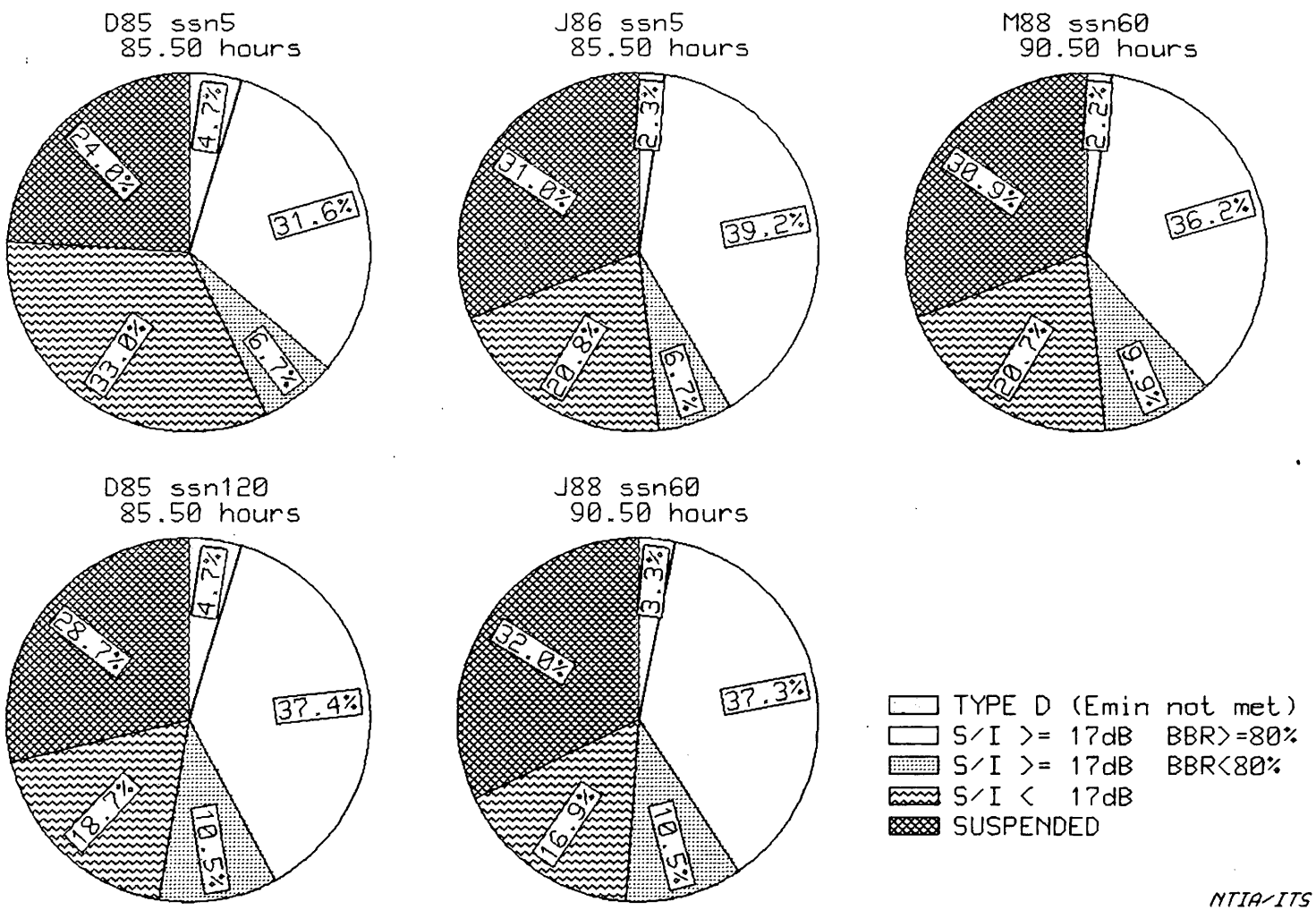
TUN – TUNISIA



NTIA/ITS

IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

TUR – TURKEY

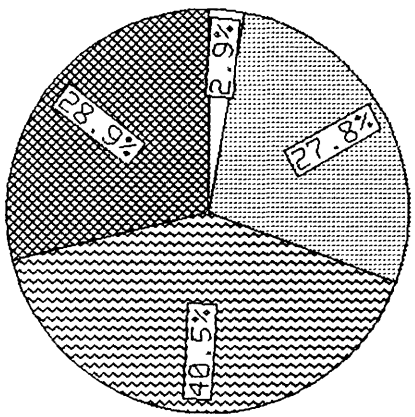


NTIA/ITS

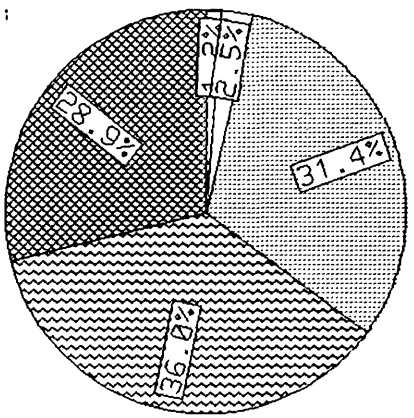
IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

TZA – TANZANIA

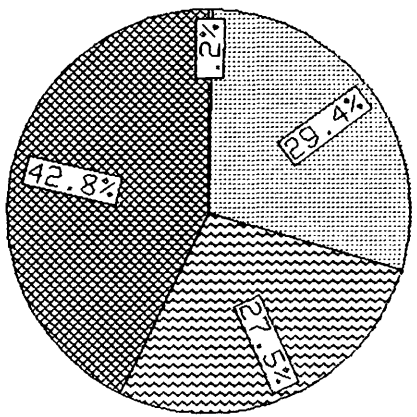
D85 ssn5
140.25 hours



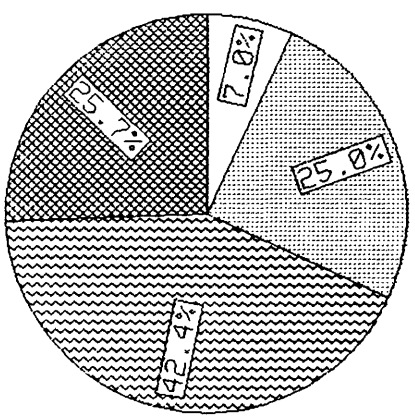
J86 ssn5
140.25 hours



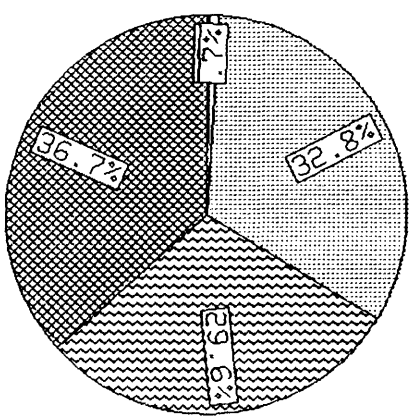
M88 ssn60
227.00 hours



D85 ssn120
140.25 hours



J88 ssn60
211.25 hours

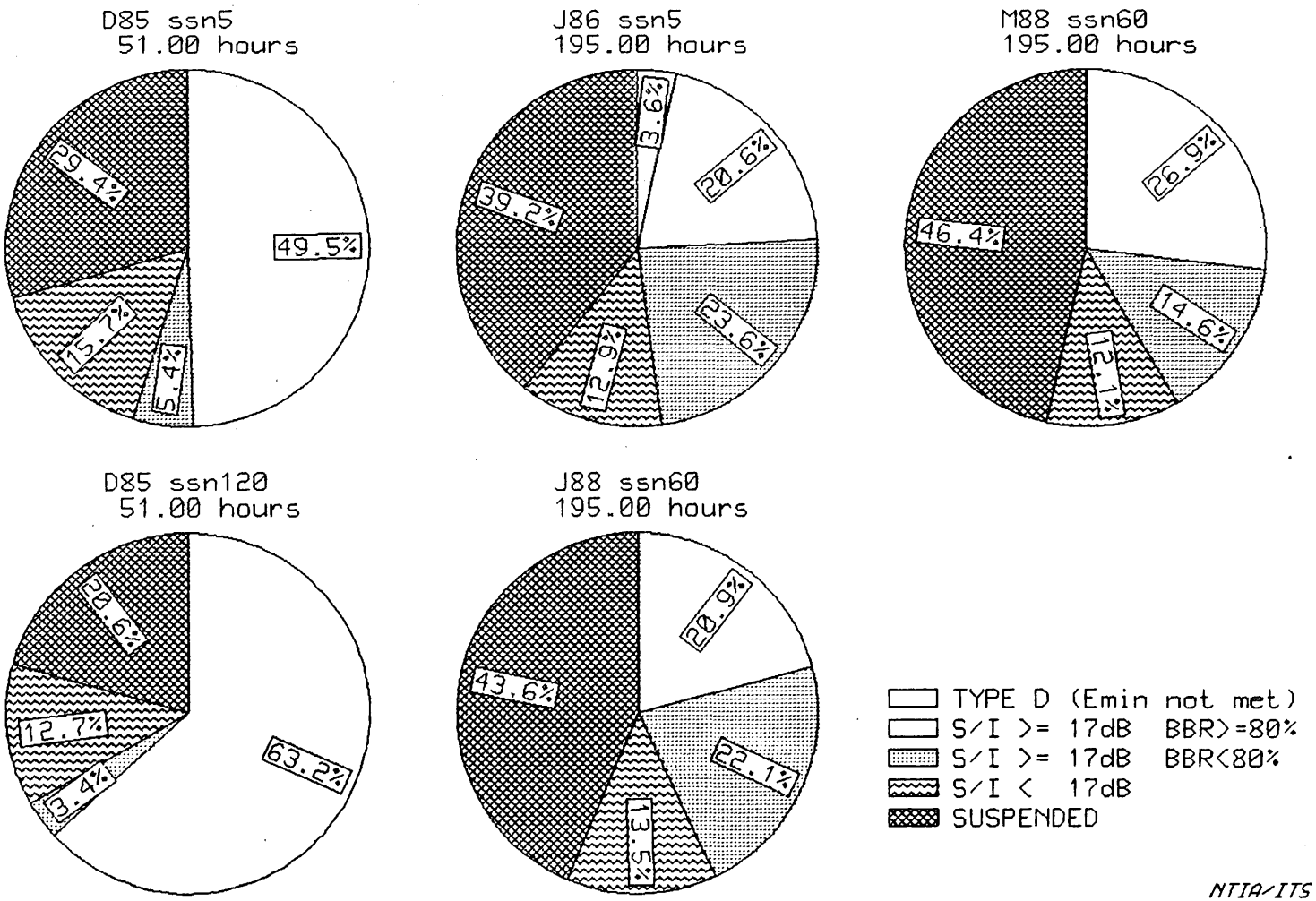


TYPE D (Emin not met)
S/I >= 17dB BBR>=80%
S/I >= 17dB BBR<80%
S/I < 17dB
SUSPENDED

NTIA/ITS

IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

UAE – UNITED ARAB EMIRATES

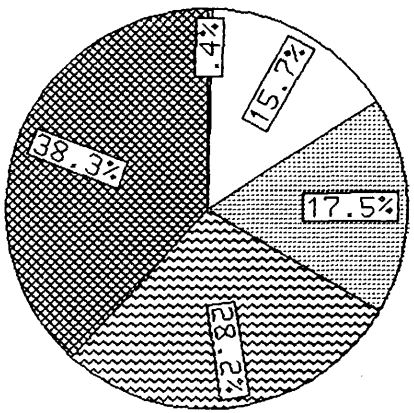


NTIA/ITS

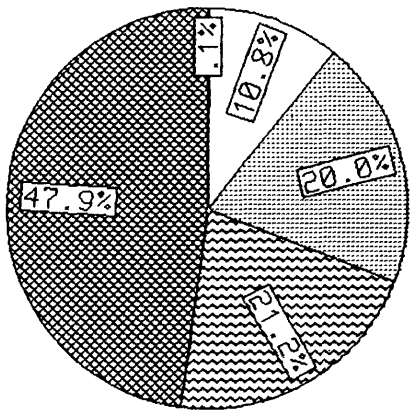
IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

UKR – UKRAINIA

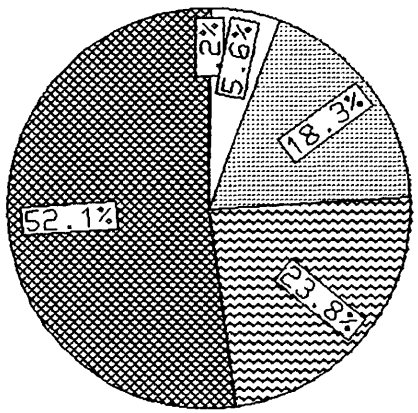
D85 ssn5
551.50 hours



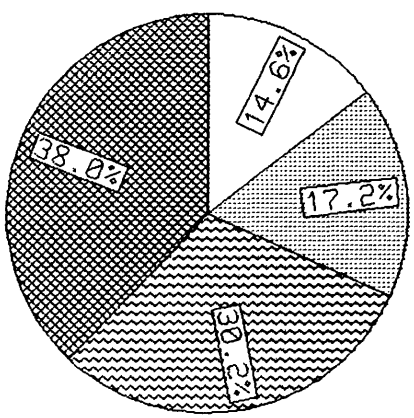
J86 ssn5
719.50 hours



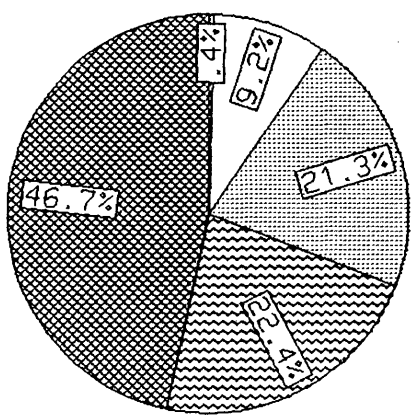
M88 ssn60
642.50 hours

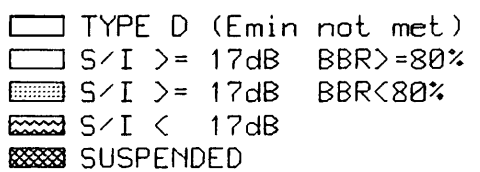


D85 ssn120
551.50 hours



J88 ssn60
737.50 hours

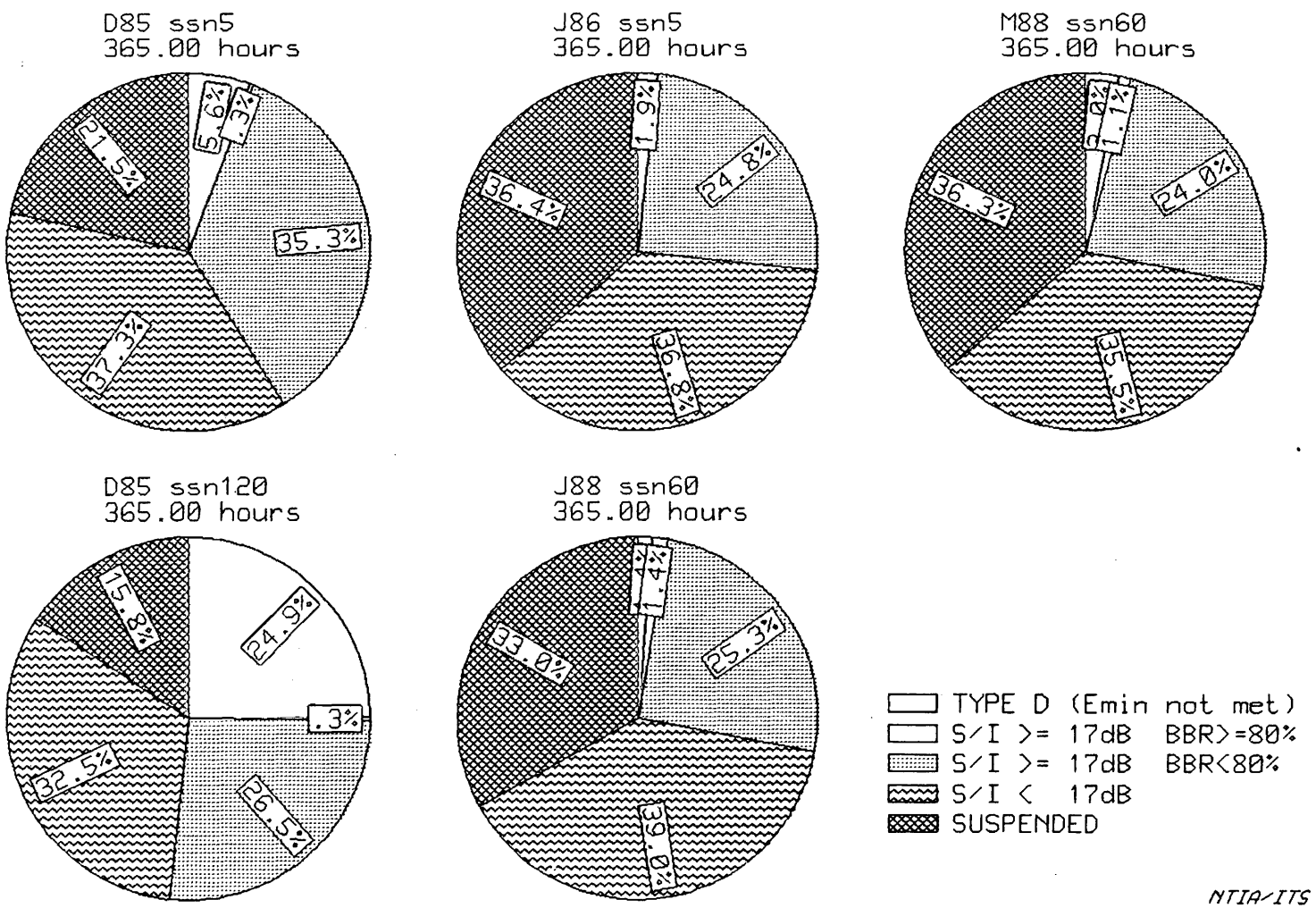




NTIA/ITS

IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

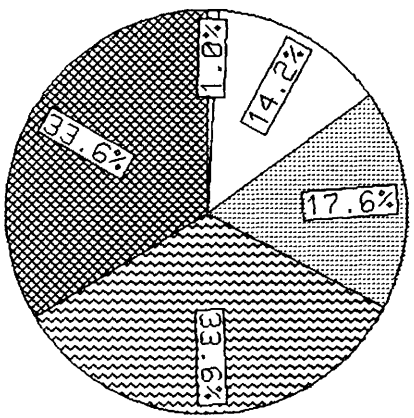
URG – URUGUAY



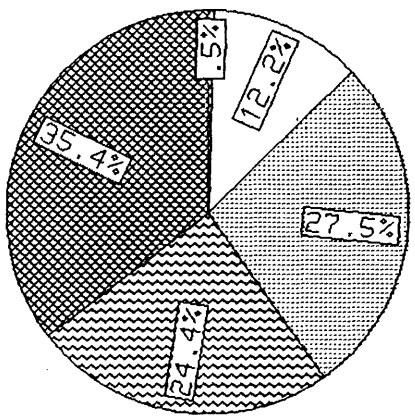
IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

URS – SOVIET UNION

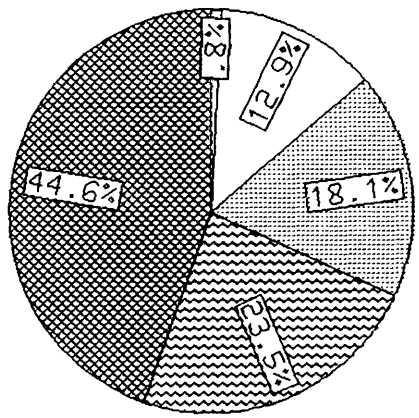
D85 ssn5
4311.50 hours



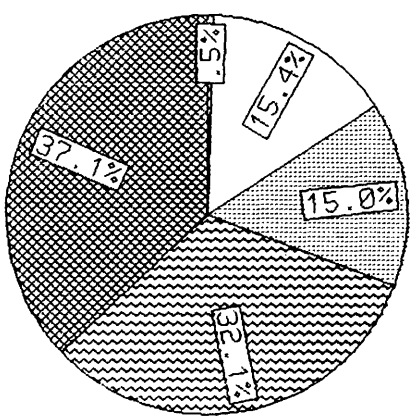
J86 ssn5
4589.50 hours



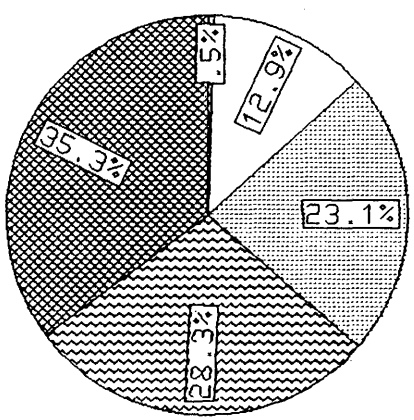
M88 ssn60
4742.00 hours



D85 ssn120
4311.50 hours



J88 ssn60
4642.00 hours

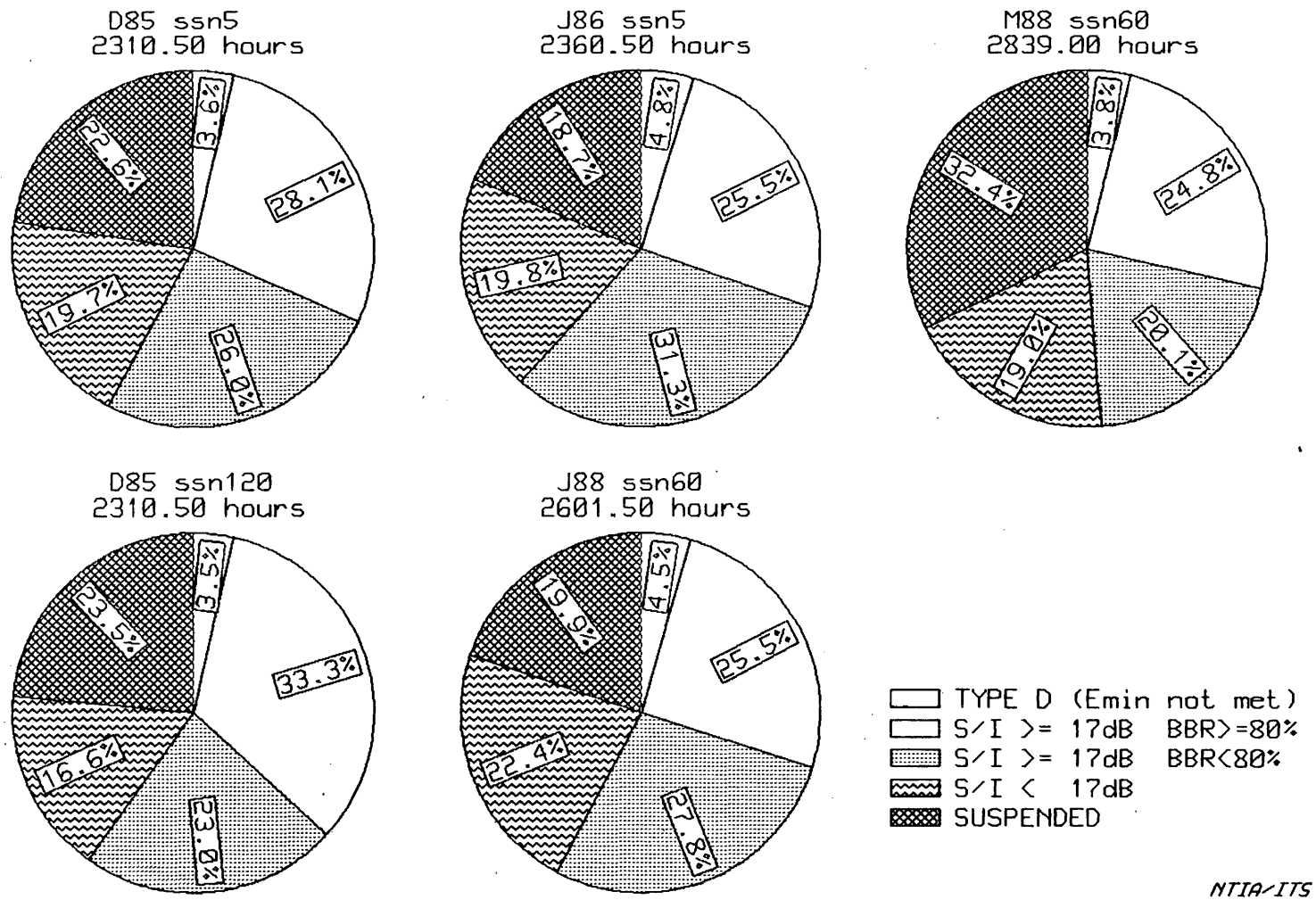


TYPE D (Emin not met)
S/I >= 17dB BBR>=80%
S/I >= 17dB BBR<80%
S/I < 17dB
SUSPENDED

NTIA/ITS

IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

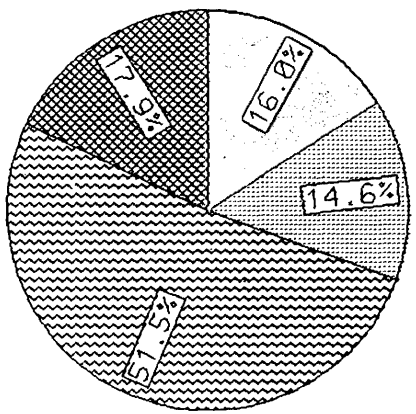
USA – UNITED STATES



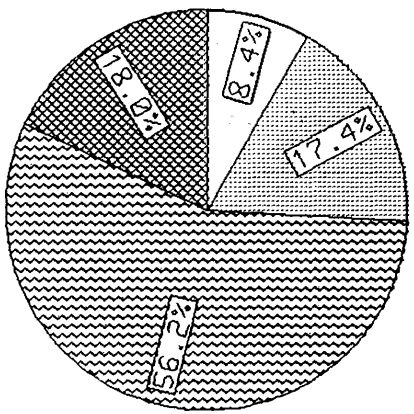
IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

VEN – VENEZUELA

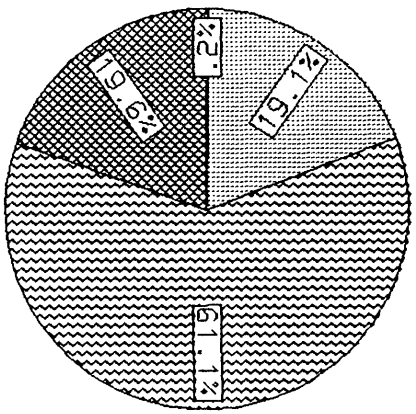
D85 ssn5
1205.00 hours



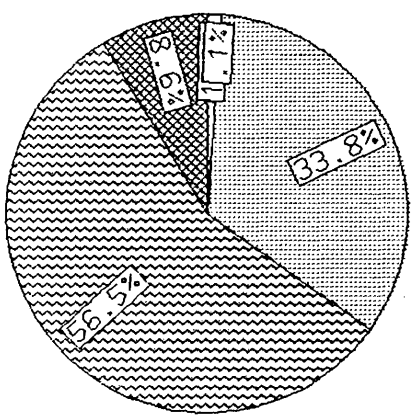
J86 ssn5
1661.00 hours



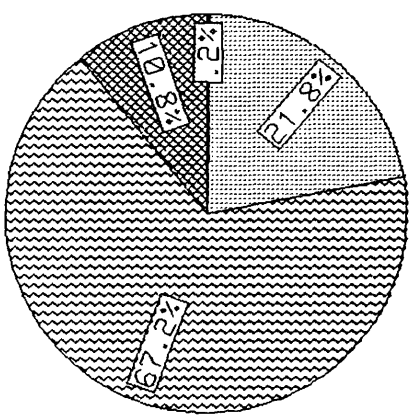
M88 ssn60
1661.00 hours



D85 ssn120
1205.00 hours



J88 ssn60
1661.00 hours



TYPE D (Emin not met)
S/I >= 17dB BBR>=80%
S/I >= 17dB BBR<80%
S/I < 17dB
SUSPENDED

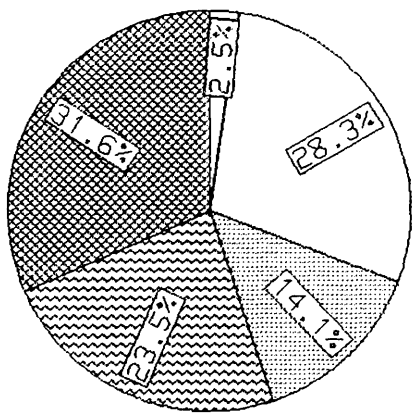
NTIA/ITS

IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

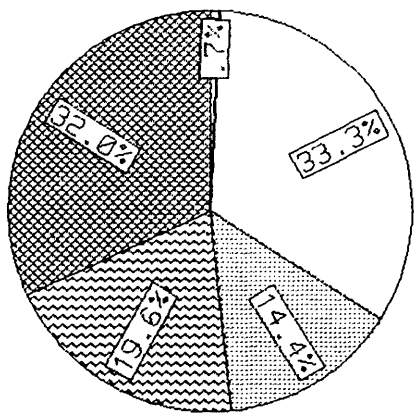
YEM – YEMEN

D85 ssn5
0.00 hours

J86 ssn5
280.00 hours

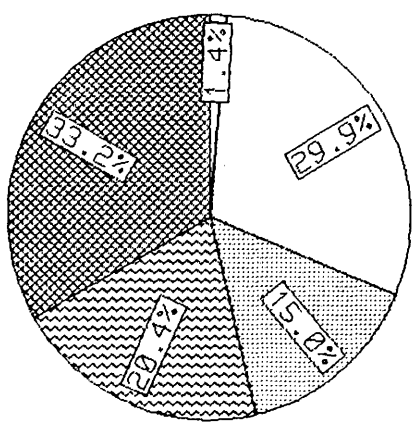


M88 ssn60
280.00 hours



D85 ssn120
0.00 hours

J88 ssn60
280.00 hours



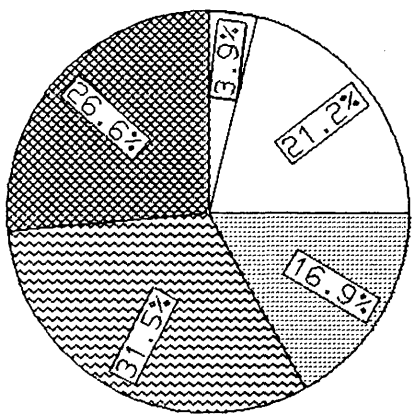
TYPE D (Emin not met)
S/I >= 17dB BBR>=80%
S/I >= 17dB BBR<80%
S/I < 17dB
SUSPENDED

NTIA/ITS

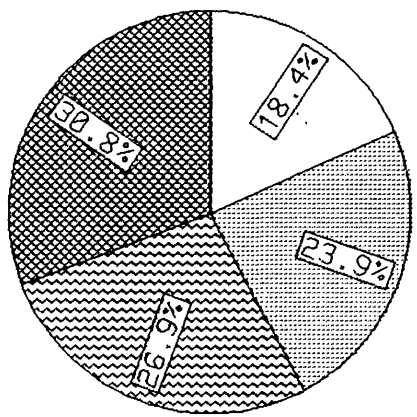
IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

YUG – YUGOSLAVIA

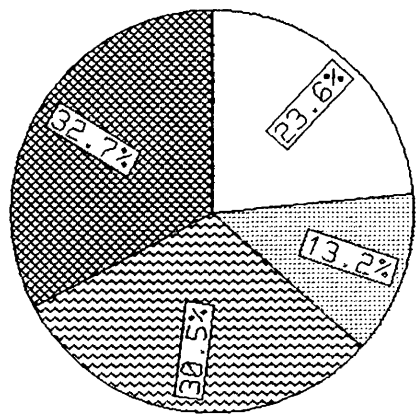
D85 ssn5
198.50 hours



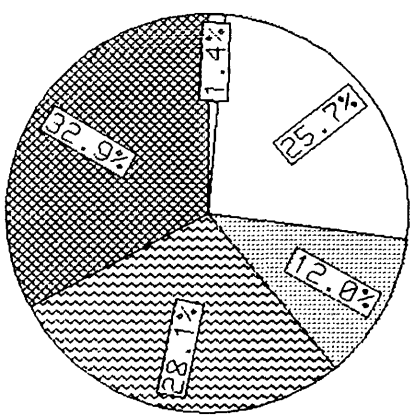
J86 ssn5
201.00 hours



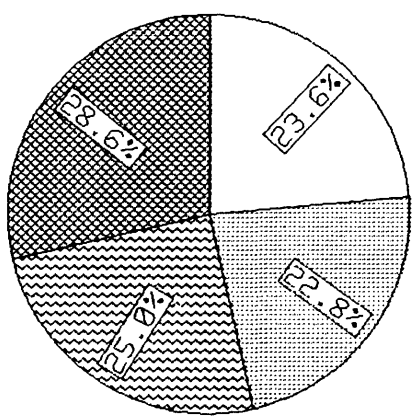
M88 ssn60
198.50 hours



D85 ssn120
198.50 hours



J88 ssn60
201.00 hours

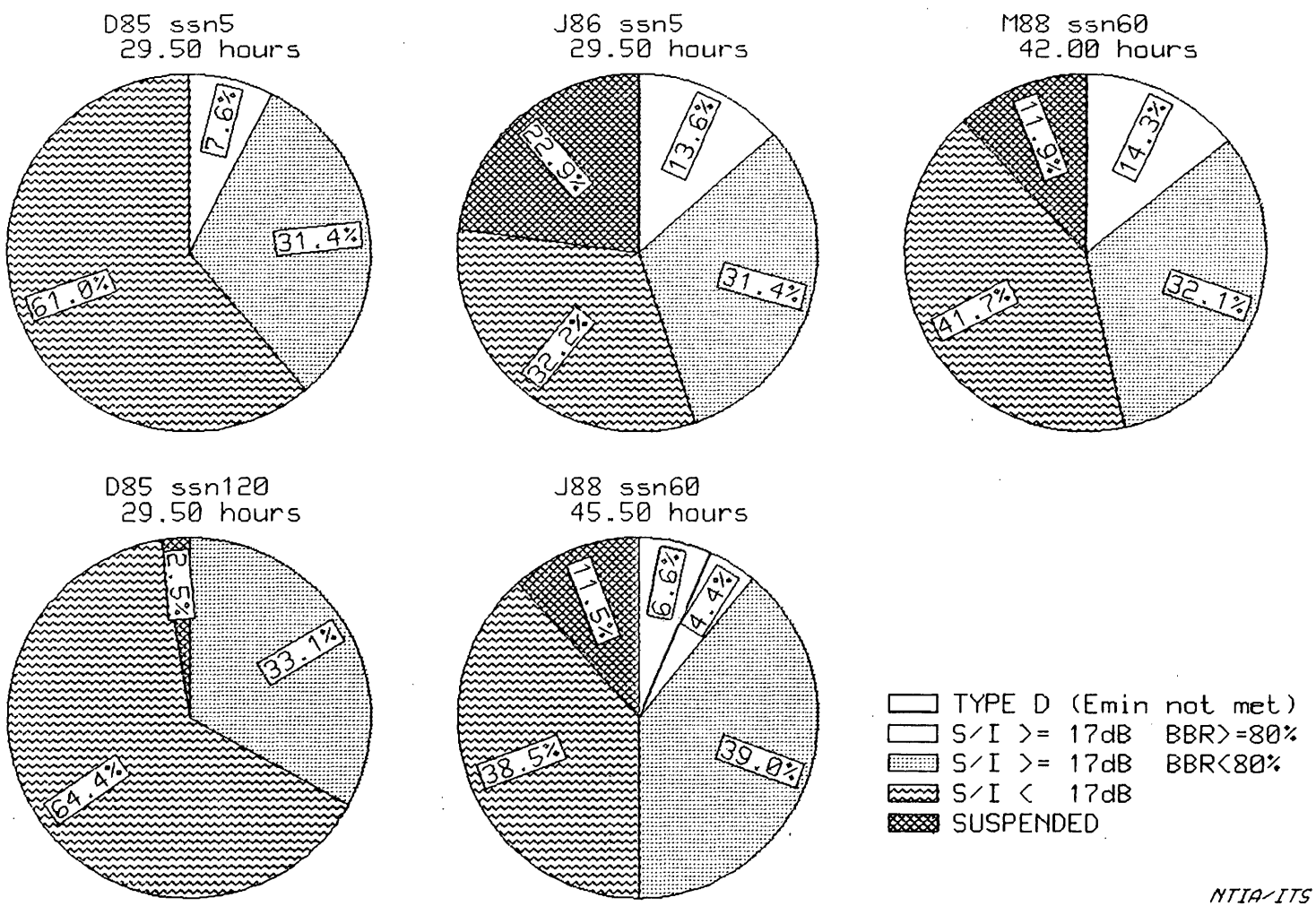


TYPE D (Emin not met)
S/I >= 17dB BBR>=80%
S/I >= 17dB BBR<80%
S/I < 17dB
SUSPENDED

NTIA/ITS

IFRB PLAN REQUIREMENT HOUR DISTRIBUTION

ZWE – ZIMBABWE



NTIA/ITS

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Corrigendum 1 to
Document 121-E
30 April 1987
Original: English

COMMITTEE 4

SUMMARY RECORD

OF THE

FIFTH MEETING OF COMMITTEE 4

(TECHNICAL)

Paragraph 3.1

Amend the penultimate sentence to read:

"He proposed, however, that the entire text of resolves and instructs the Secretary-General of the ITU surrounded by square brackets should be deleted; ..."

For reasons of economy, this document is printed in a limited number of copies. Participants are therefore kindly asked to bring their copies to the meeting since no others can be made available.

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, **February-March 1987**

Document 121-E
20 February 1987
Original: English

COMMITTEE 4

SUMMARY RECORD

OF THE

FIFTH MEETING OF COMMITTEE 4

(TECHNICAL)

Tuesday, 17 February 1987, at 1405 hrs

Chairman: Mr. J. RUTKOWSKI (People's Republic of Poland)

Subjects discussed:	Documents
1. Approval of summary records	48, 67, 88, 95
2. Report of Working Group 4-A	118, 106, 107, 117, 116
3. Report of Working Group 4-B	99, 104, 105

For reasons of economy, this document is printed in a limited number of copies. Participants are therefore kindly asked to bring their copies to the meeting since no others can be made available.

1. Approval of summary records (Documents 48, 67, 88 and 95)

The summary records of the first, second, third and fourth meetings were approved, as amended (see Corrigendum No. 1 to Document 88).

2. Report of Working Group 4-A (Documents 118, 106, 107, 117, 116)

2.1 The Chairman of Working Group 4-A, introducing the Report (Document 118) said that the Working Group had held a large number of meetings and had considered most of the substance of the work entrusted to it. Four ad hoc Groups had been set up, all of which had comleted their work and their results had been taken into account. Discussion had been slow at times, in view of the difficulties of the subjects, such as reliability and use of additional frequencies, but progress had been steady. The Group had taken note earlier in the day of Document 108 from Committee 6, and, while that document did not directly affect the Group at the time, it would be useful in the eventual preparation of texts, a fact which the Group had borne in mind when considering HF field-strength prediction methods, which had involved an extensive debate on the amount of information to go into texts and, eventually, into the Radio Regulations. It had been agreed that Dr. Damboldt of the Federal Republic of Germany should chair a new Sub-Working Group, 4-A ad hoc 5, whose terms of reference were set forth in Document DL/11. The first meeting of the ad hoc Group would probably take place on the morning of Thursday, 19 February and the work should be completed by Friday, 20 February. Apart from that new item, all the remaining business entrusted to Working Group 4-A was expected to be completed by Wednesday, 18 February.

Turning to section 1 of the Report, Antenna characteristics, the Committee was invited to consider draft Resolution [COM4/3] contained in Document 106.

2.2 The delegate of Mexico, supported by the delegate of Paraguay suggested that the resolves section should take the form of a request to administrations rather than an instruction, which was too strong.

2.3 The delegate of Finland suggested that the problem might be solved by using the passive form: "1. that the most appropriate type of antenna should be used for the required service", and, "2. that the use of antennas ... should be avoided ...". In the following section, invites administrations, administrations would be invited to take resolves 1 and 2 into account.

That proposal was approved.

2.4 The delegate of the United States of America said that his Delegation had a different problem in resolves 2, namely that identifying a specific antenna (rhombic antennas) did not give a complete picture of the problem. Other antennas were also inappropriate. The point his Delegation had been trying to make in the Sub-Working Group was that antennas which radiated outside the intended reception areas should be avoided. He therefore proposed that resolves 2 should read:

"that the use of antennas which, because of their large number and size of side-lobes, radiate significant energy outside the required service area, should be avoided.".

2.5 The Chairman said that in his view that point had been taken care of in the text as it stood, which contained a valid example of the type of antenna used in many cases.

2.6 The Chairman of Working Group 4-A pointed out that the wording of resolves 2 had been taken in its entirety from another text.

2.7 The representative of the IFRB (Mr. Brooks) said that there was a slight difference of substance between the United States proposal and the text as it stood, in that it brought into question antennas not specifically pointed at the service area, a problem frequently encountered by the Board in dealing with requirements.

2.8 The delegate of the Netherlands said that resolves 1 covered the case described by the representative of the IFRB.

2.9 The delegate of the United States of America reiterated his Delegation's concern that the focus on rhombic antennas was inappropriate when there were other antennas that also needed to be avoided because of the problems of radiation into areas outside the intended reception zones. The problem might be solved by simply deleting the reference to rhombic antennas. In view of the Chairman's difficulty in agreeing to the deletion, however, he agreed to accept the text as it stood.

Draft Resolution [COM4/3] (Document 106) was approved, as amended by the delegate of Finland, for transmission to the Editorial Committee.

2.10 The Chairman of Working Group 4-A, turning to sub-section 1.2 of Document 118, said that the information which it contained was intended for Committees 5 and 6 to facilitate their work in preparing the requirement form. He indicated a number of typographical errors. Paragraph I contained a list of information in respect of antennas contained in the technical standards; paragraph II detailed the procedure for modification of the set of reference antennas, and drew attention to draft Resolution COM4/3 to encourage the inclusion of information in the CCIR Handbook and IFRB Technical Standards.

2.11 The delegate of the Netherlands suggested that the title of paragraph I should be expanded to avoid confusion with section II, by inserting the words "within the standard set and not in the standard set", after "for all types of antennas".

2.12 The Chairman of Working Group 4-A said that his interpretaton of the title as it stood was that described by the delegate of the Netherlands.

Following an attempt to clarify the presentation of the document by the delegate of France, it was agreed that since the text was intended for Committee 6, and the final wording would not be the responsibility of Committee 4, the text should be left as drafted.

2.13 The Chairman of Working Group 4-A said that sub-section 1.3 represented a new item. Having dealt with the draft Resolution and list of procedures for dealing with the requirement form, the Working Group had considered it appropriate to delete Appendix 2, section III of the Radio Regulations, since they were no longer required.

2.14 The Chairman of Working Group 4-A invited the Committee to consider draft Recommendation [COM4/D], Use of synchronized transmitters in the HF bands allocated to the broadcasting service, contained in Document 107.

The draft Recommendation [COM4/D] was approved, with considering a) amended to read "that the use of synchronized transmitters, where technically appropriate, is an efficient means of economizing the frequency spectrum".

It was agreed for transmission to the Editorial Committee.

2.15 The Chairman of Working Group 4-A said that Document 117 contained the revised sub-section 3.2.4 of the Report to the Second Session. As a result of extensive discussions in the Working Group, it had been agreed that a complete text corresponding to sub-section 2.3.4 of that Report should be prepared, so that the Committee would have all the material available to it. It had not yet been decided how the material should be included in the Radio Regulations, but that aspect was not for the attention of Committee 4 at the present time. Although many proposed changes had been made, the number of changes decided upon was in fact small. It was not intended that the document should go to any other Committee at the present stage, since the Working Group was still dealing with Document DT/4 which contained a section on reliability which had not yet been discussed. The Working Group would have to decide what action should be taken in respect of that set of technical criteria, given that it would be more easily taken as a package along with other criteria, also bearing in mind the comments of Committee 6 regarding two lists of criteria.

He indicated a number of changes to be made to the text.

It was agreed, in view of the uncertainty surrounding a number of items in the document, in particular steps 3 and 9 of Table 3-9, and Note 2 on page 6, to leave Document 117 in abeyance until the next meeting of Committee 4.

2.16 The Chairman of Working Group 4-A invited the Committee to consider the revised material on the provision and use of additional frequencies contained in Document 116. The Working Group sought the approval of the Committee at the present stage, but emphasized that it still had to decide on the disposition of the technical parameters and how they were to be included in the output documents.

The Working Group had retained the same paragraph numbering as the original document. Sub-paragraphs 3.8.1 and 3.8.2 were essentially the same. In sub-section 3.8.3, a slightly different procedure was suggested, taking account of the need to improve coverage when a second frequency was provided, particularly in areas poorly served by a first frequency. The new approach was essentially designed to ensure that a second frequency provided an adequate service at the worst points excluded from the assessment of the BBR. A BBR then had to be calculated for two frequencies meeting those conditions. The technicalities had been discussed at length in Working Group 4-A and should not need review at the Committee level.

2.17 The delegate of India, referring to the third and last paragraph of sub-section 3.8.3, proposed that since the use of a third frequency was only necessary in case of difficulty, it should be used only to improve reliability as a whole, and not reliability of the first two frequencies. In other words, the original idea in the Report to the Second Session should be retained. The percentage could be left unspecified in square brackets.

2.18 The delegates of Brazil, Algeria and Yugoslavia supported that proposal.

2.19 The Chairman invited the delegates of India, Brazil, Algeria and Yugoslavia to prepare a written text for subsequent approval by Committee 4. He also agreed that the delegate of the United Kingdom should help in the preparation of that text.

At the request of the representative of the IFRB (Mr. Brooks) it was agreed that the Drafting Group should also consider whether or not footnote 2 on page 2 of Document 116 was to be included. If so, the wording should be revised so that it referred to the figure and not to the Report of the Second Session.

2.20 The Chairman proposed that, since sub-paragraph 3.8.3 would have to be left in abeyance until the next meeting of Committee 4, the whole of Document 116 be considered by the Committee at its next meeting.

It was so agreed.

3. Reports of Working Group 4-B (Documents 99, 104, 105)

3.1 The Chairman of Working Group 4-B said that the Working Group had finished its work but had been unable to solve all the problems covered by its terms of reference. Introducing Document 99, he pointed out that the draft text included in the annex should be entitled Recommendation, not Resolution. The text would probably require further substantive and editorial amendments in the light of the note from the Chairman of Committee 6 (Document 108), which Committee 4 had not yet considered. With reference to the table in the annex, he stressed that the reference value should always be understood as the co-channel protection ratio for DSB wanted and DSB unwanted signals. The square brackets throughout the text referred to matters not yet considered by the Conference. He proposed, however, that the square brackets surrounding the entire text of resolves and insructs the Secretary-General of the ITU should be deleted; he also felt that the square brackets in item 3 of the annex could be deleted, depending on the outcome of Working Group 4-A's deliberation on the subject. Throughout the text, the reference to Document 84(Rev.1) could be replaced by COM4/A.

3.2 The Chairman invited the Committee to consider Document 99, including the oral amendments proposed by the Chairman of Working Group 4-B. In response to observations by the delegate of the Netherlands and the Chairman of Working Group 4-B relating to considering d), he proposed that the text after "shall cease" should be deleted. He also proposed that, pending consideration by the Editorial Committee, square brackets should be placed around the term COM4/A which was to substitute the reference to Document 84(Rev.1) throughout the text. In response to an observation by the Chairman of Working Group 4-A relating to item 3 of the annex he proposed that the text enclosed in square brackets should be deleted. With reference to the table in the annex, he also proposed, following observations by the delegate of Canada, the Chairman of Working Group 4-B and the representative of the IFRB (Mr. Brooks), the addition of a footnote to the effect that frequency separations Δf less that -20 kHz and greater than +20 kHz need not be considered in planning. On a proposal by the Chairman of Working Group 4-A, a similar footnote would be shown in the appropriate table relating to the DSB technique.

On the basis of those proposals and amendments, Document 99 was approved for transmission to Committee 6.

3.3 The Chairman of Working Group 4-B introduced Document 104.

3.4 The representative of the IFRB (Mr. Brooks), suggested that since the Conference was concerned only with frequencies above roughly 6 MHz, the existing Note 21 should begin with the words "For the band 4 MHz - 5.9 MHz it is suggested ..." and a further sentence should be added, worded as proposed in Document 104 but beginning: "For the band 5.9 - 29.7 MHz it is suggested ...".

It was so agreed.

Document 104, as amended, was approved for transmission to Committee 6.

3.5 The Chairman of Working Group 4-B, introducing Document 105, said that the Working Group had failed to agree on the proposed date for cessation of DSB emission; however, the date of 31 December 2015 shown in square brackets in the annex was purely for guidance purposes and did not imply a compromise. It must also be borne in mind that in any case a future competent conference might review the date in the light of developments.

3.6 The Chairman invited the Committee to consider Document 105. In the light of observations by the Chairman of Working Group 4-B, he suggested that the outer square bracket surrounding considering h) should be removed but that considering j) should be placed within square brackets; in requests the Administrative Council of the ITU, the word "appropriate" should be inserted between the words "future" and "world", and the word "requests" should be replaced by "invites", as suggested by the representative of the IFRB (Mr. Brooks). With regard to items 2, 4, 5 and 6 of the annex, he proposed that the text should be amended to the effect that all double-sideband emissions should cease by the date determined by a conference as mentioned in resolves 2 of the draft Resolution.

3.7 The delegate of the Netherlands thought that it would be better to propose a definite date; to do so would provide the requisite stimulus for industry, without implying any compulsion.

3.8 The Chairman drew attention to item 1 of the annex, to the effect that immediate introduction of single-sideband emission was encouraged. Replying to a question by the delegate of the Syrian Arab Republic, he said that, in view of item 1, the transition period would be deemed to begin immediately; nothing in the current Radio Regulations prevented administrations from introducing SSB emissions at once, and some had already done so.

3.9 The delegate of Zimbabwe supported the proposal that the cessation date should be left for determination by a future conference before the year 2000. The equipment lifetimes referred to in considerings e) and f) were reasonable; in fact, many developing countries would wish to prolong them.

3.10 The delegate of France said that, given the great importance of improved spectrum use, to stipulate a date would have considerable advantages.

3.11 The Chairman felt that to set a date thirty years ahead was unwise; a later WARC would be much better placed to fix a date in the light of the information then available.

3.12 The delegate of the USSR said that the discussion in Working Group 4-B had highlighted the complexity and importance of the issue as well as the disparity of views about the length of the transition period; some administrations, in a position to introduce SSB emissions speedily, were anxious to determine the period; others, which for economic and other reasons wished to go on using their DSB equipment for as long as possible, thought that the cessation date should be specified on a later occasion. It would be as well to eschew undue theorizing or fanciful forecasting; a future conference would surely be in a better position to take a realistic decision. Therefore, he was in favour of not stipulating a cessation date at the current Conference.

3.13 The delegate of Yugoslavia said that his Delegation had reservations about the inclusion of such a date in the annex.

3.14 The Chairman said he took it that Document 105 was approved subject to discussion, at the Committee's next meeting, of the way in which the transition period was to be reflected in the annex to the Resolution.

It was so agreed.

The meeting rose at 1705 hours.

The Secretary: The Chairman:

T. O'LEARY J. RUTKOWSKI

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, January-March 1987

Document 122-E
17 February 1987
Original: French

COMMITTEE 4

NOTE BY THE CHAIRMAN OF COMMITTEE 5

TO THE CHAIRMAN OF COMMITTEE 4

The First Session approved a relationship between the protection ratios and the quality grade (Report of the First Session, Figure 3-6), according to which a protection ratio of 17 dB produces grade 3 quality. This no doubt derives from the provisions of the Radio Regulations relating to required frequency stability, which does not preclude the eventuality of audible beats occurring between the co-channel carriers.

In order to derive the utmost benefit from synchronized emissions, it might be advantageous to opt for greater stability, so that the beat will be produced at a very low frequency of around 0.1 Hz.

Accordingly, Committee 4 is requested to consider whether improved stability would enable grade 3 quality to be obtained with a protection ratio of less than 17 dB.

C.T. NDIONGUE
Chairman of Committee 5

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HFBC (2) INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS
ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 123-E
17 February 1987
Original: English

COMMITTEE 5

Kingdom of the Netherlands

PROPOSAL RELATING TO AGENDA ITEM 2.1.2

Introduction

At the World Administrative Radio Conference, Geneva, 1979 it was already realized that the available spectrum allocated to HF broadcasting was insufficient and it was then decided to expand the bands allocated to that service. It was also decided to hold the Conference on HFBC which was given the task to develop a planning method. At the First Session of this Conference the planning principles and criteria were established and the IFRB was invited to develop a number of trial seasonal plans to be submitted to the Second Session.

Evaluation of these test plans have indicated that in order to accommodate the large number of requirements, the planning parameters established by the First Session would have to be refined. Moreover, it appears that congestion in the bands is so great that despite the band expansions (RR 531), insufficient band space is available to accommodate all the requirements.

It appears that the Board is of the opinion that the results of the planning exercises are unsatisfactory due to:

1) the volume of requirements and

2) the high quality criteria which had to be met.

In order to obtain a satisfactory access to the HFBC bands on an equitable basis, the Netherlands Administration is of the opinion that prior to a centralized and complete planning of the HFBC bands on the basis of improved parameters an interim procedure is desired.

This proposal outlines a procedure for the establishment of a seasonal HF broadcasting schedule. The procedure includes some advantages of the proposed planning algorithm and adds some flexibility to frequency planning by administrations.

Guidelines for a procedure

HOL/123/1 1. The requirements file will be created on the basis of data relating to operational and projected broadcasting requirements and the associated facilities submitted by administrations over a period of [3] years.

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New requirements, or changes in requirements can be entered into this file upon request of administrations concerned.

2. Each season the IFRB selects the requirements the administrations indicated for the season concerned.

3. The IFRB calculates for each requirement the field strength at each test point of the required service area, the BBR in the service area and the most appropriate band. These calculations are carried out with the latest version of the computer method and are communicated to the administrations for information purposes.

4. On the basis of the information obtained by step 3, the administration prepares its transmission schedule by selecting a frequency in each assigned band.

5. The administration submits its intended transmission schedule to the IFRB and indicates whether the help of the IFRB is required in solving possible incompatibilities in the draft seasonal schedule.

6. The IFRB, after receiving this data, carries out an internal check against step 3.

7. The IFRB starts a compatibility analysis, considering all the frequency data submitted by the administrations.

8. The IFRB draws up a draft seasonal schedule and gives suggestions for a more efficient spectrum use which may include suggestions to change the assigned frequency to one which is more compatible with other transmissions in the same band. The frequencies submitted by the administrations are considered by the IFRB as so-called preferred frequencies. An S/I of 17 dB under stable conditions is considered to be appropriate in order to achieve efficient spectrum usage.

The draft seasonal schedule, the incompatibilities and suggestions for improvement are sent to all administrations.

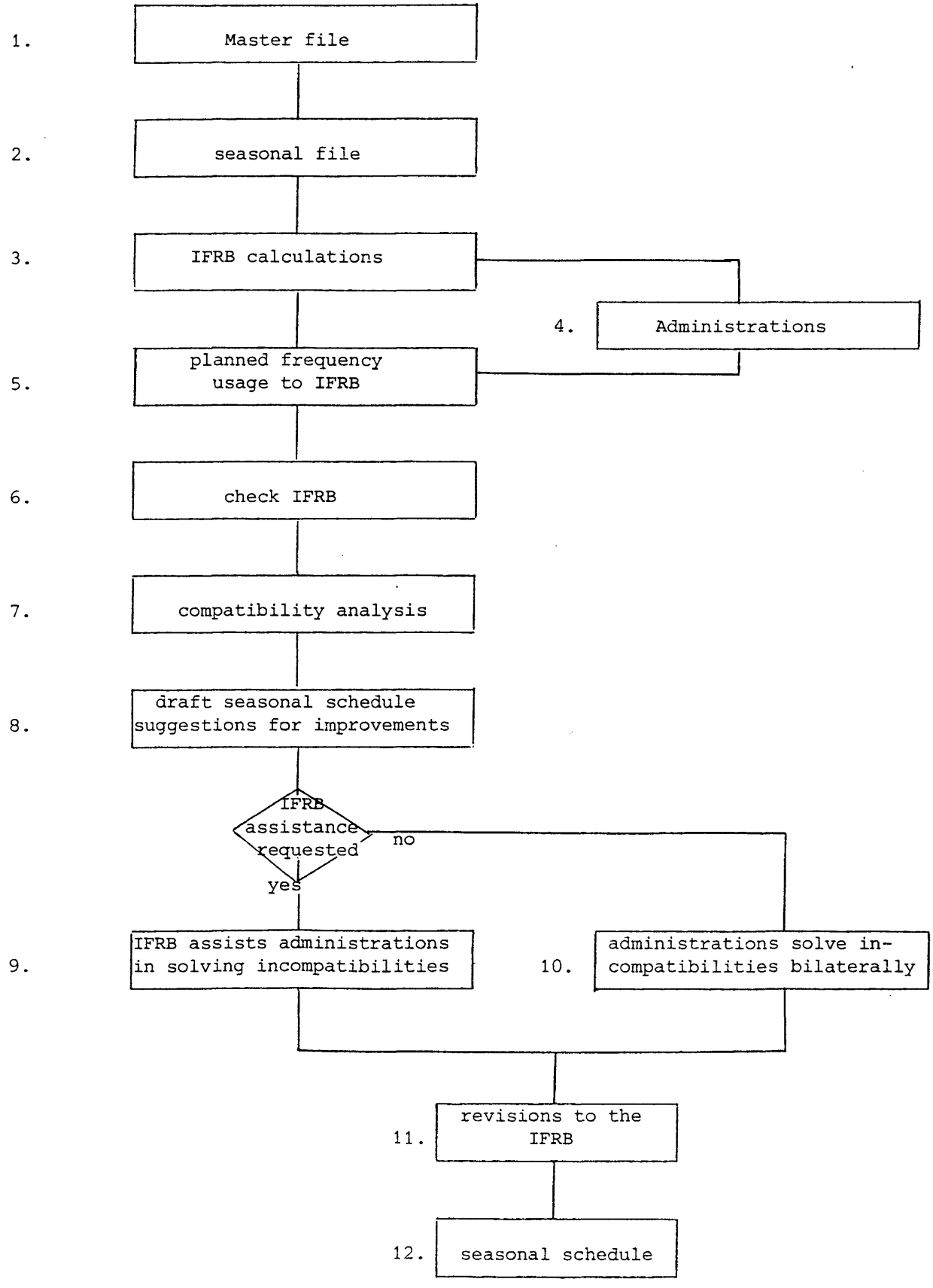
9. For administrations requiring assistance from the IFRB, the IFRB endeavours to find a way to solve the incompatibilities.

10. Incompatibilities are dealt with bilaterally by the administrations who did not ask for the assistance of the IFRB.

11. Administrations, having considered the draft seasonal schedule, the incompatibilities and suggestions for improvement and which have revised their intended transmission schedule on the basis of this and coordination with other administrations, should take appropriate actions to resolve incompatibilities and should notify the IFRB as soon as possible about any amendments.

12. The IFRB includes these revisions in draft seasonal schedule and draws up the seasonal broadcasting schedule for the season concerned and sends this to the administrations.

FLOWDIAGRAM OF THE PROPOSED INTERIM PROCEDURE



HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS
ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 124-E
17 February 1987
Original : French

BUDGET CONTROL
COMMITTEE

Note by the Secretary-General

LIMIT ON EXPENDITURE LAID DOWN BY THE 1982 NAIROBI CONFERENCE FOR WARC HFBC

The following table shows the limit on expenditure laid down by the 1982 Nairobi Plenipotentiary Conference for preparatory work, the 1st and 2nd Sessions of the Conference, intersessional work and work undertaken immediately after the 2nd Session of the Conference. It also shows actual and estimated Conference expenditure.

The amounts shown are based on Swiss francs value 1.9.1982, the date on which the Nairobi Conference laid down the limits on expenditure.

R.E. BUTLER
Secretary-General

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WARC-HFBC	Sections 11 & 17		
	Limit on expenditure Add.Prot. 1	Actual or estimated expenditure	Differences
		Swiss francs	
Limit on expenditure	10,000,000		
1983 : Preparatory work		* 403,000	
1984 : Preparatory work, cost of 1st Session intersessional work		* 2,860,600	
1985 : Intersessional work		* 1,655,000	
1986 : Intersessional work		+ 1,934,000	
1987 : Intersessional work, cost of 2nd Session, work immediately after the Conference		o 2,448,000 1)	
	10,000,000	9,300,600	699,400

The sums shown in the table are based on 1.9.1982 values.

* Actual expenditure
\+ Estimated expenditure
o Expenditure foreseen in the budget

1) including 4 P.4 posts until 30 June 1987 (243,000 Swiss francs) plus additional computer facilities (217,000 Swiss francs).
(See Document 17, pages 4 and 5).

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS
ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 125-E
17 February 1987
Original : French

BUDGET CONTROL
COMMITTEE

Note by the Secretary-General

SITUATION OF ACCOUNTS OF THE CONFERENCE AS AT 10 FEBRUARY 1987

I herewith submit for consideration by the Budget Control Committee an estimate of Conference expenditure as at 10 February 1987.

The figures show a margin of 21,000 Swiss francs in relation to the budget as approved by the Administrative Council, adjusted to take account of changes in the common system of salaries and allowances.

R.E. BUTLER
Secretary-General

Annex : 1

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Annex 1

Situation of accounts for WARC-HFBC as at 10 February 1987

Heading	Budget approved by AC	Budget adjusted on 01.01.87	Expenditure at 10.02.87 actual	committed estimated	total
col.	1	2	3	4	5
		thousands of Swiss francs			
Art. II-IV. Work of the Conference					
Art. II. Staff costs					
423.11 Salaries and rel.exp.	1326	1247	29	1208	1237
423.38 Recruit.travel costs	81	81	1	60	61
423.41 Insurance	35	35	4	40	44
	1442	1363	34	1308	1342
Art. III Premises and equipment costs					
433.61 Premises,furniture,machines	40	40	0	38	38
433.62 Document production	60	60	0	60	60
433.63 Office supplies & costs	50	50	0	40	40
433.64 PTT	50	50	16	34	50
433.65 Technical installations	4	4	0	4	4
433.69 Sundry & unforeseen	10	10	0	10	10
	214	214	16	186	202
Art. IV Other expenditure					
443.00 Finals Acts of the Conf.	54	54	0	54	54
Art. VI Post-Conf. work					
461.11 Salaries & related exp.	103				0
461.12 Supernumerary staff	120	230	44	198	242
461.41 Insurance	20				0
461.50 Computer facilities	217	217	0	217	217
461.61 Premises,furniture,machines	40	40	0	40	40
	500	487	44	455	499
Total Section 11.4	2210	2118	94	2003	2097
Unused credits					21

Col 2: Budget including additional credits to take account of changes in the common system of the United Nations and its specialized agencies.

HFBC (2) INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, January-March 1987

Document 126-E
17 February 1987
Original: French

COMMITTEE 5

Algeria

PROPOSAL

ALG/126/1 4.2.3.4.3.3 Power

a) For each requirement, the planning method shall determine the power needed to achieve the basic broadcast reliability required for the whole duration of the transmission.

b) When the transmitter power is less than or equal to [100 kW] and the administration indicates only a single power value due to equipment constraints, that value shall be used in the planning process.

c) In the case of power values above [100 kW], when the requirement file indicates that the transmitter power is greater than that determined by the Planning Method, the Board shall advise the administration that it must not exceed the power value thus determined.

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HFBC (2) INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 127-E
17 February 1987
Original: English

COMMITTEE 4

FOURTH REPORT OF WORKING GROUP 4-A TO COMMITTEE 4

Note - This text is to be communicated to Committee 5.

PERFORMANCE ASSESSMENT

In order to assess the performance of a requirement, the following values should be given for each 15 minute period, each hour, or for the duration of the requirement, as appropriate:

1) BBR - basic broadcast reliability at [X%] percentile of all test points;

2) percentage of test points for each frequency band where field strength is equal to or exceeds E_{min} or (E_{min} - [Z]) where proportionally reduced protection applies;

[3) OBR* - overall broadcast reliability at [X%] percentile of all test points;]

4) SIR i) signal-to-interference value for each frequency band at [X%] percentile of test points where the field strength is equal to or exceeds E_{min} or (E_{min} - [Z]) where proportionally reduced protection applies. [The test points which have been used in determining the signal to interference ratio should be indicated where possible**],

ii) percentage of test points for each frequency band where both the field strength is equal to or exceeds E_{min} or (E_{min} - [Z]) where proportionally reduced protection applies, and the signal to interference ratio is equal to or exceeds [a specified value];

[5) F - number of frequency changes for each frequency band, associated with a requirement;]

6) Sp - extent of suspended periods associated with a requirement.

L.W. BARCLAY
Chairman of Working Group 4-A

[* The majority agreed that OBR is not required, however, the consequences of its deletion will need to be followed through within the Report.]

[** The IFRB pointed out that the requirement to indicate the test points may add significantly to the computer memory required and to the volume of the reports].

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HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
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ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 128-E
17 February 1987
Original: English

COMMITTEE 5

Note by the Chairman of Working Group 5-A

Following the discussions at the ninth meeting of Working Group 5-A, I have requested the IFRB, to clarify their concerns regarding the application of type 2 continuity. The following answer was provided by the Board

1. DIFFICULTIES ASSOCIATED WITH TYPE 2 CONTINUITY

1.1 In the context of the discussions which took place within Working Group 5A regarding frequency continuity of type 2 it should be noted that within the HFBC Planning System the Board had included in the requirement form the possibility to indicate the request for frequency continuity in box 07. In so doing the Board intended to include in the system the frequency continuity between a pair of requirements. In practice the Board was faced with sets of requirements necessitating the analysis of networks of several stations. This situation is described in paragraph 8.4 of Document 8.

In the same paragraph the Board indicated that the situation is even more complex due to the combination of box 07 with other boxes 08 (synchronous network) and box 09 (concurrent requirements). While this last difficulty could be resolved the problem of frequency continuity between a chain of requirements remained a serious difficulty in terms of the software to be developed. The required software would be even more complex if it has to afford continuity under the conditions described in paragraph 3 of Document 31.

1.2 As a result of the above, the following conclusions were reached by the Board:

a) To afford frequency continuity between a pair of requirements without applying the conditions described in paragraph 3 of Document 31 is possible.

b) The same frequency continuity as applied in paragraph 3 of Document 31 may lead to some difficulties regarding the determination of the appropriate band which should be the best combination for two requirements.

c) To afford the frequency continuity among a set of requirements as described in Document 31 would lead to develop a complex software the consequences of which should be taken into account by Committee 5.

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1.3 Type 2 continuity also refers to equipment constraints; in this respect the Board does not have the means to assess whether or not for a given set of requirements and from the information provided by administrations, equipment constraints do exist which warrant the mandatory application of type 2 continuity. Committee 5 is therefore requested to specify which equipment constraints should be considered in applying type 2 continuity.

J.F. ARNAUD
Chairman of Working Group 5-A

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS
ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 129-E
18 February 1987
Original: English

Source: Document 99

COMMITTEE 7

SECOND SERIES OF TEXTS FROM COMMITTEE 4 TO THE EDITORIAL COMMITTEE

The texts contained in the annex are submitted to the Editorial Committee.

J. RUTKOWSKI
Chairman of Committee 4

Annex: 1

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ANNEX

DRAFT

RECOMMENDATION [COM4/1]

Relative RF Protection Ratio Values for the Use of Single-Sideband Systems in the HF Bands Allocated to the Broadcasting Service

The World Administrative Radio Conference for the Planning of the HF Bands Allocated to the Broadcasting Service (Geneva, 1987),

considering

a) that this Conference has adopted a method for the planning of HF bands allocated to the broadcasting service;

b) that this method is based on the use of double-sideband emissions;

c) that the RF co-channel protection ratio is one of the basic planning parameters;

[d) that this Conference has adopted a final date on which all double-sideband emissions shall cease [(see Resolution COM4/2)];]

[e) that during the transition period single-sideband emissions are permitted under specified conditions (see Resolution [COM4/2]);]

f) that the single-sideband system specification for HF broadcasting is contained in [Appendix (COM4/A) to the Radio Regulations];

g) that, however, due to their provisional character, values for the RF protection ratio to be applied for all relevant combinations of wanted and unwanted double- and single-sideband emissions have not been included in the appendix mentioned in f) above;

h) that preliminary studies have shown that for the same reception quality assessment grade, single-sideband emissions may require a lower RF co-channel protection ratio,

recommends

that the values of relative RF protection ratio given in the annex to this Recommendation be used whenever single-sideband systems are involved in the planning of the HF bands allocated to the broadcasting service,

requests the CCIR

to continue to study values of relative RF protection ratio for the different cases and frequency separations covered in the annex to this Recommendation,

invites administrations

to participate actively in these studies,

Annex to Recommendation [COM4/1]

Relative values of RF protection ratio

1. The values of relative RF protection ratio given in the table should be used whenever single-sideband systems as specified in Appendix (COM4/A) to the Radio Regulations are involved in the planning of the HF bands allocated to the broadcasting service.

2. The values given are referred to the case of co-channel double-sideband wanted and unwanted signals for the same reception quality assessment grade (reference co-channel RF protection ratio).

3. For the reception of double-sideband and single-sideband (6 dB carrier reduction relative to peak envelope power) wanted signals, a conventional double-sideband receiver with envelope detection designed for a channel spacing of 10 kHz is assumed.

4. For the reception of a single-sideband (12 dB carrier reduction relative to peak envelope power) wanted signal the reference receiver as specified in Appendix (COM4/A), section 3, to the Radio Regulations is assumed.

5. Single-sideband signals with 6 dB carrier reduction relative to peak envelope power assume equivalent sideband power as specified in Appendix (COM4/A), section 1.2, to the Radio Regulations.

6. The figures for case 2 in the table below relate to a situation where the centre frequency of the intermediate frequency pass-band of the double-sideband receiver is tuned to the carrier frequency of the wanted single-sideband signal. If this is not the case the value for +5 kHz may increase to -1 dB.

Relative RF protection ratio values referenced to the co-channel RF protection ratio for the DSB wanted and DSB unwanted signals (dB)*

(For use in the HFBC Planning System)

	Wanted signal	Unwanted signal	Carrier frequency separation f unwanted-f wanted, Δf (kHz)								
			-20	-15	-10	-5	0	+5	+10	+15	+20
1	Double-sideband	Single-sideband (6 dB carrier reduction rel. to p.e.p.)	-51	-46	-32	+1	3	-2	-32	-46	-51
2	Single-sideband (6 dB carrier reduction rel. to p.e.p.)	Double-sideband	-54	-49	-35	-3	0	-3	-35	-49	-54
3	Single-sideband (6 dB carrier reduction rel. to p.e.p.)	Single-sideband (6 dB carrier reduction rel. to p.e.p.)	-51	-46	-32	+1	0	-2	-32	-46	-51
4	Single-sideband (12 dB carrier reduction rel. to p.e.p.)	Single-sideband (12 dB carrier reduction rel. to p.e.p.)	-57	-57	-57	-45	0	-20	-47	-52	-57

* Frequency separations Δf less than -20 kHz as well as Δf greater than 20 kHz need not be considered in planning.

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, January-March 1987

Document 130-E
18 February 1987
Original: French

COMMITTEE 7

THIRD SERIES OF TEXTS FROM COMMITTEE 4 TO THE EDITORIAL COMMITTEE

The text in Document 107, slightly amended, has been transmitted to the Editorial Committee.

J. RUTKOWSKI
Chairman of Committee 4

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HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, **February-March 1987**

Corrigendum 1 to
Document 131-E
20 February 1987
Original: English

COMMITTEE 6

The final paragraph should be replaced by the following:

"For the bands 5.9 - 29.7 MHz it is suggested that administrations avoid carrier frequency differences of a few hertz, which cause degradations similar to periodic fading. This could be avoided if the frequency tolerance were 0.1 Hz."

J. RUTKOWSKI
Chairman of Committee 4

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HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, January-March 1987

Document 131-E
18 February 1987
Original: English

Source: Documents 104, 118

COMMITTEE 6

PROPOSED MODIFICATIONS TO ARTICLES OF THE RADIO REGULATIONS CONCERNING THE USE OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE RELATED TO THE WORK OF COMMITTEE 4

Committee 4 has further considered the texts contained in Document DT/6 and proposes the following modifications to the Radio Regulations:

1) Appendix 2, Section III - To be deleted.

2) Modify Note 21) of Appendix 7 to read as follows:

"21) For the bands 4.0 - 5.9 MHz it is suggested that administrations avoid carrier frequency differences of a few hertz, which cause degradations similar to periodic fading. This could be avoided if the frequency tolerance were 0.1 Hz, a tolerance which would also be suitable for single-sideband emissions.

For the bands 5.9 - 27 MHz it is suggested that administrations avoid carrier frequency differences of a few hertz, which cause degradations similar to periodic fading. This could be avoided if the frequency tolerance were 0.1 Hz."

J. RUTKOWSKI
Chairman of Committee 4

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HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, **February-March 1987**

Document 132-E
18 February 1987
Original: English

Source: Document 118

COMMITTEE 5
COMMITTEE 6

NOTE FROM THE CHAIRMAN OF COMMITTEE 4 TO THE CHAIRMEN OF COMMITTEES 5 AND 6

The annexed text is submitted to Committees 5 and 6 for their consideration and appropriate action.

J. RUTKOWSKI
Chairman of Committee 4

Annex: 1

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ANNEX

I. Information concerning antenna characteristics should be provided by administrations when submitting requirements

a) For all types of antennas:

1. Type

(When appropriate, reference should be made to the corresponding antenna type appearing in the set of antenna patterns in the IFRB Technical Standards.) (See Resolution COM4/3.)

2. Azimuth of maximum radiation

In degrees from true North in clockwise direction.

3. Maximum gain (isotropic, G_i*, dB)

(If different from that associated with the relevant pattern in the reference antenna set.)

4. Covered frequency band(s), in MHz (lowest and highest frequency bands for multi-band antennas, or the band for single band antennas)

b) In addition to the above parameters, for horizontal dipole arrays:

5. Type of radiator (end-fed or centre-fed dipole elements)

6. Type of reflector (tuned dipoles or aperiodic screen)

c) In addition to the above parameters, for multi-band horizontal dipole arrays:

7. Design frequency, in MHz

(If not indicated, the design frequency will be assumed as the arithmetic mean of the centre frequencies of the lowest and highest frequency bands covered by the antenna.)

d) In addition to the above parameters, for slewed horizontal dipole arrays:

8. Azimuth of the normal to the plane of the radiating elements

In degrees from true North in clockwise direction.

II. Modification of the set of reference antenna patterns in the IFRB Technical Standards

According to the draft Resolution [COM4/3], when an administration wishes to use a type of antenna not included in the reference set, a suitable

---

* $G_i = G_d + 2.2$ dB.

procedure for submitting the relevant information to the IFRB and CCIR should be developed. It is suggested that any new type of antenna pattern should be submitted by the administration wishing to use it under the form of tabulated values describing the full pattern. These relative gain values should be given at 5 degrees azimuth intervals (from 0 to 355 degrees) and at 3 degrees elevation intervals (value at 8 degrees included) (from 0 to 90 degrees). A suitable entry for the maximum gain should also be provided.

According to the draft Resolution [COM4/3], modifications and additions to the reference antenna set in the IFRB Technical Standards will also be implemented by the Board according to the updates of the Book of HF Antenna Diagrams as provided by CCIR.

HFBC (2) INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Corrigendum 1 to
Document 133-E
30 April 1987
Original: English

PLENARY MEETING

MINUTES

OF THE

SIXTH PLENARY MEETING

1. Paragraph 2.11

Replace by the following:

"2.11 The delegate of Australia said that his Delegation would make every effort to ensure the success of the Conference. From the outset it had been generally recognized that the results of the Planning System were unsatisfactory and that a spirit of friendly cooperation would be needed in order to find solutions to outstanding problems. Many reasons were being offered for the system's failure to solve those problems. One was that there was not enough spectrum. That was true but it was a fundamental physical constraint. It was also argued that there were too many requirements but those, too, were fundamental constraints which had to be recognized. The failure of the Planning System to meet expectations was not due to any lack of dedication or professionalism on the part of those responsible. The reason might be either that the requirements were not conducive to a solution or that the system might not be able to provide a solution at all.

For nearly three weeks, his Delegation, like others, had participated in the Working Groups in attempting to redefine or improve the foundations of the system. As a result, a number of changes had been agreed and others would be agreed shortly. An agreed basis for revision was therefore likely to become available. His Delegation would be unable to express a final opinion until the results of the changes could be evaluated. Before entering into any agreement, the Australian Administration would have to consider it fully and that could only be done in the light of the results of testing and evaluation conducted over a certain period. In conclusion, he pledged his Delegation's intention to cooperate fully in reaching agreement on the package outlined by the Chairman."

2. Paragraph 2.16

In the third sentence, replace the words "assignments not attaining the requisite BBR value" by "type D requirements" and "that paragraph" by "those issues". In the fourth sentence, replace the word "restrictions" by "constraints".

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3. Paragraph 2.17

In the third sentence, delete the word "possibly".

4. Paragraph 2.21

Replace by the following:

"The delegate of Saudi Arabia said he had listened with great interest to the statements expressing good intentions for the success of the Conference and achievement of its goals.

He assured the Chairman of the Delegation's full cooperation with a view to achieving that success and thought that such a result was possible if the good intentions that had been stated were demonstrated in practice during the remaining part of the Conference."

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS
ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 133-E
24 February 1987
Original: English

PLENARY MEETING

MINUTES

OF THE

SIXTH PLENARY MEETING

Wednesday, 18 February 1987, at 1400 hrs

Chairman: Mr. K. BJÖRNSJÖ (Sweden)

Subjects discussed:		Documents
1.	Oral reports by Chairmen of Committees	-
2.	Comments by the Chairman of the Conference concerning the progress of work	-
3.	First series of texts submitted by the Editorial Committee to the Plenary Meeting for first reading (B.1)	109
4.	Approval of the minutes of the fifth Plenary Meeting	94

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1. Oral reports by Chairmen of Committees

1.1 Committee 2

1.1.1 The Chairman of Committee 2 said that the Committee's Working Group had held a meeting on 13 February 1987, when it had examined the credentials of 29 delegations and had found them all in order. He drew attention to Documents 74 and 103 listing all the credentials examined so far, and appealed to delegations which had not yet submitted their credentials to do so by the deadline of 3 March 1987.

1.2 Committee 3

1.2.1 The Chairman of Committee 3 said that pending the Committee meeting to be held on the next day he had nothing to report.

1.3 Committee 4

1.3.1 The Chairman of Committee 4 said that Working Group 4-D had completed its work and Working Group 4-A hoped to do so shortly. Working Group 4-A ad hoc 5 had been established in order to deal with the only problem still outstanding, that of propagation methods description. The results of its work were expected to be made available to Working Group 4-A the next morning and to Committee 4 the next afternoon. The remaining documents were now being printed and should be before the Committee at the next afternoon's meeting. Unless further questions were forthcoming from Committees 5 or 6, the Committee hoped to complete its work on Friday. The document already transmitted by it to the Editorial Committee formed the first series of texts submitted by that Committee to the Plenary, to be discussed under item 3 of the agenda.

1.4 Committee 5

1.4.1 The Chairman of Committee 5 said that since the fifth Plenary Meeting the Committee had endeavoured to make progress. Following the conclusion on 14 February of the informal consultations in progress since the start of the Conference he had decided, on his own responsibility, to produce a document outlining the main elements of a possible compromise and suggesting an approach which took the form of an agenda for the Committee's next meeting. Those two documents had been submitted to the Committee's fifth meeting, which had achieved some progress by setting up Working Group 5-B under the chairmanship of Mr. Terzani (Italy), the Committee's Vice-Chairman. Other essential questions, however, still remained unsolved and the two other Working Groups proposed had not yet been established.

Referring to Working Group 5-A, he said that of the four Sub-Groups established, three had already submitted documents which were at present under consideration. Work in the fourth Sub-Group was continuing.

1.5 Committee 6

1.5.1 The Chairman of Committee 6 said that at its second meeting the Committee had completed the review of provisions of the Radio Regulations where action could be taken without awaiting the conclusions of Committees 4 and 5. The text of Resolution No. 641 had been revised and Provisions Nos. 530, 2665, 3603 and 4103 of the Radio Regulations as well as Recommendations Nos. 5 and 9 maintained without change. The Committee had considered that while Provisions Nos. 2665, 3603 and 4103 might require some editorial improvement, that work could not be done by the present Conference because the changes concerned services other than HF broadcasting. The delegate of Pakistan recalling his Administration's position on Resolution No. 641, had reserved his position on the revised text of that Resolution, and the delegate of Botswana

had also reserved his position on that text. The revised text of Resolution No. 641 had been submitted to the Editorial Committee for subsequent submission to the Plenary.

The Committee had also considered the note from the Chairman of Committee 4 contained in Document 91 and had accordingly requested Committee 4 to draw up two lists, one containing those technical parameters which were not subject to change in the future and the other showing those which might need to be changed or improved upon. The Committee had set up a Group under the chairmanship of Mr. DuCharme (Canada) to draw up a Resolution describing the procedure to be applied in the event of such changes being adopted by the Conference and included in its Final Acts. The ad hoc Group had already finished its work and was expected to report to the Committee at its next meeting.

1.5.2 The delegate of Botswana withdrew his reservations on the revised text of Resolution No. 641.

2. Comments by the Chairman of the Conference concerning the progress of work

2.1 The Chairman said that the Conference was now precisely half-way through its second session; in practice, only two weeks were left for elaborating the texts that would constitute the Final Acts of the Conference. In order to achieve a successful outcome it was absolutely necessary to converge at once upon a possible compromise solution. Every day or even hour lost would reduce the possibilities of improving the situation in the HFBC bands. He therefore strongly urged all delegations to put into practice the assurances they had given at the third Plenary Meeting that every effort would be made towards a successful outcome. Delegations had come to the Second Session with widely differing views, ranging from the view that the Planning System should be implemented with only minor improvements to the view that no Planning System should be implemented at all. At the present stage it was necessary to agree upon the direction in which the Conference could proceed in order to achieve a result acceptable to all. There was no way in which a solution could be found that might satisfy those holding strong views in any direction.

In the light of the deliberations of Committee 5 and more particularly of Document DT/41 issued by the Committee's Chairman, as well as of various consultations, he believed that a compromise solution might take the form of a package comprising several elements. First, the HFBC Planning System had to be improved, e.g. by assuring frequency continuity to a certain degree, finding an appropriate solution for domestic and international uses, and taking care of congestion to an acceptable level (suspensions leading to reduced quality to an agreed level). That element was treated in Committee 5 and its Working Group 5-A. Second, a full implementation of the improved HFBC Planning System would require a substantially higher number of channels in the lower bands. That was obvious from the test plans as reported by the IFRB. It should also be borne in mind that not all countries at present operating HFBC stations had submitted requirements for test purposes. Even if some administrations were able to reduce their requirements when the system was applied in practice, it seemed likely that the total number of channels in the real application of an improved HFBC System would not diminish. An increase in the number of channels could be achieved by a) widening the HFBC bands; a Recommendation to invite a competent future WARC to review the frequency allocations in the HF band was to be drafted by the proposed Working Group 5-D; b) the introduction of SSB, which when fully implemented, i.e. after the transition period, would double the number of available channels. That element was being dealt with by Committee 4.

Since the improved HFBC Planning System could not be fully implemented in the short term, some intermediate action had to be taken. Such action might consist in a) partial implementation of the improved system, i.e. implementation in some of the bands or parts thereof, to be considered in Working Group 5-B; and b) a new coordination procedure using parts of the HFBC Planning System to replace the present provisions of Article 17, to be considered in Working Group 5-C.

All delegations should now concentrate on finding the best solution for each of the elements of the compromise package just outlined. He urged them to support the Chairmen of Committees, Working Groups, Sub-Working Groups, etc. in their efforts to guide the work in a progressive way, and, in particular, to refrain from disputing the wording of agenda items; once an item was under discussion, objections on matters of substance would of course be in order. The same restraint should be practised when approving terms of reference for Sub-Groups.

2.2 The delegate of Canada said that his Delegation shared the Chairman's wise and balanced assessment of the situation and endorsed his suggestions for a possible consensus. The Conference had reached a very delicate stage of its work; if it was to end positively, all delegations would have to address themselves with responsibility and discipline to the key substantive problems. Committee 5, in particular, must rapidly complete the task of setting up Working Groups 5-C and 5-D without becoming bogged down in procedural points and minor substantive issues.

Some delegations apparently feared that a consensus solution might somehow frustrate the will of the majority. Yet the reasons for trying to operate by consensus were clear. The results of the Conference had to be fair to all groups, but they also had to be realistic enough to be acceptable to international broadcasters, since otherwise the results achieved would not be respected. Failure of the Conference would benefit no one. An overwhelming majority of delegations did not want a return to the status quo and would support a fair package of measures even if it fell somewhat short of their first preferences.

In assuring the Chairman of the Conference of his Delegation's unswerving support, he referred to the ITU's proud record of reaching workable solutions on divisive issues and expressed the hope that, with the help of all delegations, that tradition would be maintained.

2.3 The Chairman, replying to a query by the delegate of Mexico, said that both possibilities of extending the number of available channels would have to be applied. Even after the changeover to SSB that number would not be sufficient, especially in the lower bands. Both Committee 4 and Committee 5 should work on the assumption that the number of channels would have to be increased by widening the HFBC bands as well as by the introduction of SSB.

2.4 The delegates of Pakistan, China and Yugoslavia fully endorsed the Chairman's remarks, supported his proposals for a compromise solution and pledged themselves to work towards the success of the Conference.

2.5 The delegate of the United States of America also expressed full support of the Chairman's proposals and pledged his Delegation to participate actively in the work of all Committees. The Conference had spent two weeks on exploring the weaknesses of the plan and trying to improve it. The constraints resulting from those improvements would made the work of implementing the plan still more difficult. Before the Conference, United States computer experts had spent thousands of hours on calculations using the standards set by the IFRB and had produced a chart showing the results for each administration. That chart,

which would shortly be distributed as a Conference document, showed that each administration suffered an average of 25% of suspensions; it also showed the quality of service received by each administration and confirmed the view expressed by the Chairman of the IFRB that the results obtained were not satisfactory. His Delegation, for one, wished to make it absolutely clear that it could not accept the results of any new plan the Conference might adopt until that plan had been fully tested. Until that was done - and, in that connection, a statement by the IFRB as to the length of time such testing was likely to take would be welcome - it was necessary to make some improvements in existing procedures. Working Groups 5-C and 5-D should be set up promptly to discharge that task. A further problem which would have to be discussed in Committee 5 at some stage was that of out-of-band operation. It would also be necessary to consider Documents 9 and 26 dealing with the implications of harmful interference, for the planning process. His Delegation intended to address that issue at an appropriate moment during the deliberations of Committee 5.

2.6 The delegate of Algeria said that he agreed with the Chairman's appreciation of the urgency of the situation. His Delegation had been among the first to point out that a duration of five weeks was inadequate for the Second Session. Paradoxically enough, what had thus far been lacking at the Conference was a broad and candid discussion of the problems involved; many difficulties had arisen because the practice of referring matters of substance to Working Groups, far from facilitating a solution, had actually led to loss of time and proved harmful to the work of the Conference as a whole.

It was indeed a proud tradition of the Union to seek consensus under difficult conditions and that tradition should be consolidated further. However, consensus in the past had meant bringing the minority round to the majority's views, or, at least, persuading the minority to yield more ground than the majority. His Delegation had, on repeated occasions, assured the Conference of its full cooperation and would continue to make the efforts necessary to achieve the ultimate goal of the Conference - that of establishing a new order more equitable to the international community as a whole.

2.7 The delegate of Libya said that the essential problem facing the Conference was not one of certain delegations making statements during Committee meetings but the request of 10% of administrations for more than 500 broadcasting hours a day and the position of the other countries requesting, say, 200 hours. He regretted that the Chairman had omitted a reference to that vital issue from his remarks. Delegations had come to the Conference in order to establish a plan - a plan between countries, not between transmitters. His country considered the HF band to be a natural resource to which each country had a natural right of access. Having participated in the previous day's Committee meetings, it failed to see how the interventions of some delegates during a single day could be held responsible for the probable collapse of the plan. The central problem, as everyone knew but not everyone would admit, was very different.

His Delegation was in constant touch with many other delegations in the search of a compromise solution. That solution could not, however, be reached at the expense of each country's natural right for a guaranteed minimum of requirements.

2.8 The Chairman pointed out that item 2.1.3 of the Conference agenda read: "if possible, draw up one or more basic plans for the First Sessions ...". Two weeks into the Conference it had to be recognized that that would not be possible.

2.9 The delegate of the United Kingdom said that his Delegation remained committed to trying to develop a system for the rational management of the spectrum available for HF broadcasting in a manner satisfactory to all members. It would therefore support the approach outlined by the Chairman. While recognizing the need for further work on the Planning System, it would not be able to pronounce itself definitively until testing results were available. It also saw the need for Article 17 or its replacement to be refined so as to manage the spectrum in the interim, agreed that a Recommendation concerning the expansion of bands should be forwarded to a future WARC, and wished to see a timetable established for the introduction of SSB.

2.10 The delegate of Senegal endorsed the Chairman's suggestions and emphasized the importance of maintaining a balance between the constituent elements of a package solution. Appealing to the realism and sense of responsibility of all delegations, he expressed the hope that feelings of pessimism about the prospects of success might prove unfounded.

2.11 The delegate of Australia said that his Delegation would make every effort to ensure the success of the Conference. From the outset it had been generally recognized that the results of the Planning System were unsatisfactory and that a spirit of friendly cooperation would be needed in order to find solutions to outstanding problems. Many reasons were being offered for the system's failure to solve those problems in the initial phase. One was that there was not enough spectrum. That was true but it was a fundamental physical constraint. It was also argued that there were too many requirements but those, too, were fundamental constraints which had to be recognized. The failure of the Planning System's result to meet expectations was not due to any lack of dedication or professionalism on the part of those responsible. The reason was either that the requirements were not conducive to a solution or that the system might not be able to provide a solution at all.

For nearly three weeks, his Delegation, like others, had participated in the Working Groups in attempting to redefine or improve the foundations of the system. As a result, a number of changes had already been agreed and others would be agreed shortly. An agreed basis for revision was therefore likely to become available. His Delegation would be unable to express any opinion until the results of the changes made could be evaluated. Before entering into any treaty or agreement, the Australian Administration would have to consider its obligations in the light of the results of testing and evaluation conducted over a certain period. That condition was fundamental to the way in which Australia would enter into a treaty. In conclusion, he pledged his Delegation's intention to cooperate fully in reaching agreement on the package outlined by the Chairman.

2.12 The delegate of Italy said that his Delegation fully shared the Chairman's views concerning the situation of the Conference and supported his suggestions, on the understanding that improvements of the HFBC System entailed testing of the new planning method. Italy would collaborate actively in ensuring the success of the Conference.

2.13 The delegate of the Federal Republic of Germany said that the Chairman's suggestions were based on a correct analysis of the situation and provided a sound basis for the pursuance of the practical work set out in the terms of reference of the Conference. His Delegation would contribute to that work with all its good will and technical expertise. All delegations wanted to achieve generally acceptable results, but had to face the fact that it took time to work out regulations which would be thus acceptable and, above all, binding: for texts that were binding under international law, it would not suffice to outline regulations while leaving blanks to be filled in, or to prepare a

programme without knowing how it would work. In view of that very real problem, it was necessary to concentrate more on what could actually be achieved during the Conference - and he believed that quite a lot could be achieved. For example, the hard work and wisdom that the IFRB had applied to the complicated problems of HF broadcasting could be put to good use in assisting all administrations in their efforts to get through to their listeners, and that could lead to an improved coordination process which would be a step forward for everyone. The Conference should therefore try to ensure that those and other possible improvements were properly regulated in the days to come. At the same time, work on the Planning System should be continued, and the texts already prepared and to be prepared in Committee 5, allowing for a step-by-step approach, provided a correct framework for that effort, in which his Delegation would participate in a spirit of compromise.

2.14 The delegate of Syria said that his Delegation had come to the Session hoping that agreement could be reached between all administrations, but had noted during the first two weeks that the broad outstanding issues had not been discussed either in Plenary or in the main Committees. Like other delegations which had submitted documents on the subject, Syria wished to ensure that a minimum number of broadcasting hours should be allocated for requirements with acceptable specifications, but for various reasons that proposal had not yet been seriously considered. His Delegation therefore supported all efforts to secure the cooperation of all administrations in making the Conference a success.

2.15 The delegate of India assured the Chairman that his Delegation fully supported his efforts to guide the Conference to a successful conclusion. While it was normal for every delegation to come to an international conference with its own views and with the desire to defend its national interests, it was absolutely essential for all to understand the machinery of international cooperation and to show at least a degree of flexibility and a spirit of give and take, in order to ensure that the basic objectives of the conference were not seriously vitiated. He therefore appealed to all participants to maintain that spirit of cooperation, to relinquish their rigidly held positions and to reach a compromise solution acceptable to all, so that the spirit and objectives of the ITU as a whole might be respected - bearing in mind that there might be other conferences in the future at which the present givers could become the takers.

2.16 The delegate of Botswana fully associated his Delegation with the Chairman's views on the progress of the Conference. As a participant in the First Session, his country was aware of the last-minute compromise that had been reached in order to attain the planning principles embodied in the Report to the Second Session. Although his Administration had not submitted its requirements in time, it had decided to send a delegation to the Second Session in order to cooperate in finding a solution; yet from the very outset of the Session his Delegation had been surprised that great stress had been laid on the shortcomings of the system presented by the IFRB but that very few proposals had been made to remedy those shortcomings such as, for instance, the fact that assignments not attaining the requisite BBR value had not been taken into account and failure to take paragraph 4.1.2.2 into consideration - not because of any omission on the part of the IFRB, but because the First Session had not given the Board full instructions on how to deal with that paragraph. Elimination of those restrictions from the planning method would certainly help to improve the plan to the general satisfaction. In any case, it seemed to him to be superfluous to consider the continuity of assignments before they were actually recognized in the plan. As the Chairman of Committee 5 had consistently urged at the meetings of that body, consensus was absolutely essential if results were to be achieved, and he therefore fully supported the statement of the Chairman of the Conference.

2.17 The delegate of Brazil said that his Delegation had participated in the First Session with a view to improving the conditions of the utilization of the HF bands for broadcasting, with special reference to the problems of low-power stations mainly used for national services. Nevertheless, Brazil had been extremely disappointed by the results of the test plans emerging from the decisions of the First Session and the intersessional work carried out by the IFRB, since those plans failed to meet its fundamental requirements. Like a number of other administrations, Brazil could not possibly accept the elimination of its national requirements. As the Chairman had pointed out, however, the Conference would have to take that problem into consideration, and the Brazilian Delegation still considered that a generally acceptable solution could be achieved in the spirit of compromise that always prevailed in the ITU, thus leading to the success of the Conference.

2.18 The delegate of Israel said that his Administration, like others with limited resources, was still striving for an HFBC Planning System that would result in a sound and equitable plan. Yet after everything that had been said about the practical impossibility of producing a plan at that stage, participants should bear in mind that a plan should not be regarded as an end in itself but as a means of attaining their target as broadcasters - that of bringing to their listeners the contents of broadcasts, without interference.

2.19 The delegate of France said that his Delegation, which had always held the success of the Conference at heart, had recognized early on that the best way of achieving that goal was to follow the procedure outlined by the Chairman. He could not agree, however, that the Chairman's proposals represented a compromise; in his opinion, the proposed course was one of wisdom and good sense. At the outset of the Session, it had been unanimously recognized that the Conference had before it a plan which was impossible to apply, and there were three possible reactions to that situation - first, to acknowledge that the plan was a failure, to admit defeat and to return to a state of anarchy; secondly, to acknowledge the failure and to hasten immediately to draw up another plan, which was clearly impracticable; and thirdly, to draw on the experience of the failure and to resume the efforts, but prudently, rationally, more modestly and with increased precautions - in fact, just what the Chairman had proposed. The new exercise would of course take a considerable time, and the status quo which was the Article 17 procedure would have to prevail in the interim period, although that did not preclude improvement of that procedure. Thus, as he had said before, the Chairman's proposals did not constitute a compromise, but the only reasonable course of action which would ultimately lead to the success of the Conference.

2.20 The delegate of the USSR expressed his Delegation's agreement with the Chairman's analysis of the situation and its appreciation of the wise and realistic approach he had adopted to the solution of the problems before the Conference. The USSR Delegation would do everything in its power to contribute to the successful conclusion of the Conference and would suggest that that end could best be served by proceeding forthwith to the practical work.

2.21 The delegate of Saudi Arabia endorsed those remarks.

2.22 The Chairman thanked all the speakers in the debate for their encouraging statements, which had greatly strengthened his belief that the Conference could have a successful outcome.

3. First series of texts submitted by the Editorial Committee to the Plenary Meeting for first reading (B.1) (Document 109)

3.1 Recommendation COM4/A

3.1.1 The Chairman of Committee 7 drew attention to a drafting error in the English version of the title and said that the square brackets in the "requests the CCIR" paragraph should be kept for the time being, until the Conference adopted the field strength prediction method in question.

3.1.2 The delegate of India suggested that the "requests the CCIR" paragraph should be brought into line with the title of the Recommendation.

3.1.3 The Secretary-General said that it might be preferable not to go into undue detail of drafting at that stage, but to await certain results of the work of Committee 6. The Chairman of Committee 4 added that the text had been discussed at length in the relevant Working Group and in Committee 4.

3.1.4 The delegates of Algeria and Mexico said that, although they could support the Indian suggestion, it might be better to follow the Secretary-General's advice and to return to the problem at a later stage.

3.1.5 The delegate of Brazil said that, if the approval of the Recommendation were to be deferred, consideration might be given to whether the title should not refer to different HF bands according to different planning methods that might be adopted.

3.1.6 The representative of the IFRB (Mr. Berrada) said that the first paragraph of the Recommendation, which had been reproduced from an Administrative Council Resolution, omitted the word "exclusively" before the word "allocated". In addition, the reference to Recommendation COM5/1 in "considering" paragraph b) would not appear in the Final Acts, so that the phrase should read "in accordance with the request of the First Session of the Conference".

It was decided to refer Recommendation COM4/A back to Committee 4 for reconsideration in the light of the above comments.

3.2 Recommendation COM4/B

3.2.1 The Chairman of Committee 7 said that the words "minimum-cost" in the third line of the "invites administrations" paragraph should be replaced by "low-cost".

3.2.2 The Chairman of Committee 4 said that "considering" paragraph b) should be placed in square brackets, since Committee 4 was proposing the deletion of Recommendation No. 501 and its replacement by another text. In addition, the word "exclusively" might be inserted in the first paragraph, as Mr. Berrada had suggested in the case of Recommendation COM4/A.

3.2.3 The Secretary-General observed that, whereas there could be no doubt that the Conference was concerned with planning in the HF bands exclusively allocated to the broadcasting service, neither WARC-79 nor the Plenipotentiary Conference nor the Administrative Council had included the word "exclusively" in the title. He therefore believed that the desirability of that insertion should be given further consideration, although the word should clearly appear somewhere in the Final Acts of the Conference.

3.2.4 The delegate of the Netherlands pointed out that, whereas in his statement under item 2 - which his Delegation fully supported - the Chairman had mentioned the introduction of the SSB system as a valuable means of reducing congestion, the "recommends to administrations" paragraph contained only a very weak statement urging administrations to plan as far as possible new transmitters capable of working in both the DSB and the SSB modes or in the SSB mode only. Countries might indeed find it impossible to introduce such transmitters for a number of reasons, but the fact remained that the installation of transmitters that were not capable of working in the SSB mode could delay the introduction of the system for as much as 15 or 20 years. He therefore proposed that the word "new" should be inserted before "transmitters" at the beginning of the paragraph and that the words "as far as possible" should be deleted. The delegate of the United Kingdom supported that proposal, adding that the difficulties that might be experienced by some countries and the realities of the receiver situation had been taken into account by setting a reasonable time limit for the transition. The delegates of Finland and Israel also supported the Netherlands proposal.

3.2.5 The delegate of Pakistan said that a number of financial constraints were involved for many administrations and that the change to two-mode transmitters could double the cost incurred. He therefore could not support the Netherlands proposal. The delegate of Cuba endorsed that statement.

3.2.6 The delegate of the Federal Republic of Germany said he supported the Netherlands proposal and suggested that the delegates of Pakistan and Cuba might agree to the proposed deletion if a somewhat later time limit was set for the introduction of the SSB system.

3.2.7 The delegate of the USSR, supported by the delegates of Algeria and Mexico, considered that the text, which had been approved after long discussion in Committee 4, should be kept in its existing form.

3.2.8 The Chairman of Committee 4 confirmed that the wording was the result of a compromise reached after prolonged discussions in the Committee. He wished to point out, however, that during those discussions and during debates at the First Session, it had repeatedly been made quite clear that the difference between the price of transmitters working in the DSB mode only and that of transmitters capable of working in both modes was practically negligible.

3.2.9 The Chairman suggested that the words should be retained, since the text was only a Recommendation and was therefore not mandatory.

3.2.10 The delegate of the Netherlands said he would not press his proposal to delete the words "as far as possible" but maintained his proposal to insert the word "new" before "transmitters" at the beginning of the paragraph.

3.2.11 The representative of the IFRB (Mr. Berrada) observed that the wording of the "invites administrations" paragraph gave the impression that all the transmitters concerned must be manufactured before 31 December 1990.

3.2.12 The Chairman of the IFRB drew attention to a drafting anomaly in "considering further" paragraph f): the SSB system could not be introduced in the absence of transmitting equipment. Since the paragraph contained nothing new, it might simply be deleted. The Chairman of Committee 4 said he was against that deletion. The Chairman suggested that Committee 7 should be asked to take account of that comment, as well as Mr. Berrada's remarks.

3.2.13 The delegate of Syria, referring to the date of 31 December 1990 in the "recommends to administrations" and "invites administrations" paragraphs, reiterated the reservation concerning the date which his Delegation had made in Committee 4.

3.2.14 The Chairman of Committee 4 said he wished to reiterate his reminder to delegations, especially those of developing countries, that it was in their own interests to ensure as soon as possible that any new transmitters they bought were equipped for working in both the DSB and SSB modes - bearing in mind the very small difference in price vis-à-vis transmitters working in the DSB mode only - since that was the only way in which the transition period could be shortened and the benefits of SSB working could be secured.

The first series of texts submitted by the Editorial Committee (B.1), as amended and with the exception of Recommendation COM4/A, was approved on first reading.

4. Approval of the minutes of the fifth Plenary Meeting (Document 94)

The minutes of the fifth Plenary Meeting were approved as amended (see Corrigendum 1 to Document 94).

The meeting rose at 1650 hours.

The Secretary-General: The Chairman:

R.E. BUTLER K. BJÖRNSJÖ

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, January-March 1987

Document 134-E
18 February 1987
Original: French/English

COMMITTEE 5

NOTE BY THE CHAIRMAN OF WORKING GROUP 5-A

In the course of work in Sub-Working Group 5-A-4, two delegations submitted proposals which to my mind raise questions of principle for which Committee 5 is competent.

The proposals are as follows:

Proposal No. 1

"There should be a guarantee of a minimum total number of preferred requirements/hours/zones for each administration to be satisfied which will be determined during the organization of the plan in the congested bands, as well as the guarantee of the technical criteria which will be adopted by this Conference".

Proposal No. 2

"All rules shall only apply to requirements above an equal minimum number of requirement hours that should be satisfied for each administration on an equal basis".

J.F. ARNAUD
Chairman of Working Group 5-A

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HFBC (2) INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, January-March 1987

Document 135-E
18 February 1987
Original: French/English

COMMITTEE 5

Note by the Chairman of Committee 5

TERMS OF REFERENCE OF WORKING GROUPS

Terms of reference of Working Group 5-B

- To determine the frequency bands in which the HFBC Planning System once it has been improved and approved in accordance with the decisions of this Conference would be applied.

- To examine the problem of the number of requirements to be planned.

Terms of reference of Working Group 5-C

To prepare for consideration by Committee 6 guidelines for the improvement of Article 17 of the Radio Regulations to be applied in accordance with the decisions of this Conference.

Terms of reference of Working Group 5-D

To prepare if necessary a draft Recommendation for consideration by the Administrative Council on the possibility of extending the frequency bands allocated to HF broadcasting at a future competent world administrative radio conference.

C.T. NDIONGUE
Chairman of Committee 5

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HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, **February-March 1987**

Document 136-E
18 February 1987
Original: English

COMMITTEE 4

FIFTH REPORT OF WORKING GROUP 4-A TO COMMITTEE 4

DOUBLE-SIDEBAND SYSTEM SPECIFICATION FOR THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE

This text is to be communicated to Committee 6 (according to Document 108), and to Committee 5 for further consideration.

Notes for Committee 5

Note 1 - As regards proportionally reduced protection, during the intersessional work the IFRB has used a value of 5 dB for Z, but there are proposals for a value of 5 or 10 dB to be used. The decision as to the appropriate value of Z is not a technical matter.

Note 2 - [Document DT/46]

L.W. BARCLAY
Chairman of Working Group 4-A

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DOUBLE-SIDEBAND SYSTEM SPECIFICATION FOR THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE

LIST A - System planning and technical parameters which are not likely to be improved

1. System planning parameters

1.1 Channel spacing

The nominal spacing for double sideband (DSB) shall be 10 kHz. However the interleaved channels with a separation of 5 kHz may be used in accordance with the relative protection criteria.

1.2 Proportionally Reduced Protection (PRP)

PRP is a margin (M) by which the RF protection ratio to be applied at a test point is reduced under the following specified conditions:

1) the BBR < 80%, and

2) only one frequency band is given by the planning system, and

3) at the test point considered the field strength E_w is less than E_{min} and greater than or equal to E_{min} - Z[1].

In these conditions M is determined as: $M = E_{min} - E_w$.

In such cases the proportionally reduced protection ratio is used in the evaluation of S/I at the test point considered. For all the remaining points within the required service area, full protection as determined by the relevant protection ratio is given when $E_w \geqslant E_{min}$ and no protection is given when $E < E_{min} - Z$.

In cases where PRP is not applicable, full protection as determined by the relevant protection ratio is afforded when $E_w \geqslant E_{min}$ and no protection is afforded when $E_w < E_{min}$.

1.3 Required service areas and test points

1.3.1 In specifying the required service area reference shall be made to a combination of:

- CIRAF zones,
- quadrants of CIRAF zones,
- a part of a quadrant specified by the set of test points contained within that part.

1.3.2 Where it is necessary to specify a required service area which is smaller than an entire zone or quadrant, this may be done by specifying the boundaries of the area as two azimuths and two ranges from the transmitter location.

---

1 Z is defined in section [...].

1.3.3 The set of 911 test points listed in the IFRB Technical Standards shall be used to represent the CIRAF zones and quadrants for planning purposes.

Where a required service area is defined as set out in paragraph 1.3.2, and where such an area does not include a test point, the IFRB shall generate a new test point and include it within the Technical Standards. Such additions to the Technical Standards will be distributed to administrations (Nos. 1001 and 1001.1 of the Radio Regulations).

1.4 Seasonal divisions of the year and representative months

The year shall be sub-divided into four seasons for propagation prediction purposes. These seasons are listed in Table 3-14. When predictions are made for a single month to represent a season, the month selected shall be as indicated in the second column of the table.

TABLE 3-14

Season	Representative month
November-February	January
March-April	April
May-August	July
September-October	October

1.5 Solar index values

The 12-month running mean sunspot number R_{12} shall be the solar index to be used for planning.

The [seasonal] plan shall be prepared in accordance with the values of R_{12} provided by the Director of the CCIR for the period. The lowest value of R_{12} predicted for any of the months in that [season] shall be used.

1.6 Reliability[1]

1.6.1 Calculation of basic circuit reliability (BCR)

The process for calculating basic circuit reliability is indicated in Table [3-8]. The median value of field strength for the wanted signal at step (1) is determined by the field strength prediction method. The upper and lower decile values (2) through (5) are also determined, taking account of long-term (day-to-day) and short-term (within the hour) fading. The combined upper and lower deciles of the wanted signal are then calculated in steps (6) and (7) in order to derive the signal levels exceeded for 10% and 90% of the time at steps (8) and (9).

[1] Abbreviations of the English terms are used in the formulas throughout the three languages in order to facilitate the practical implementation of the methods described in this section.

The wanted signal probability distribution, assumed to be log-normal, is illustrated in Figure [3-4] which indicates the signal level (in decibels) versus the probability that the value of signal level is exceeded (plotted on a normal probability scale). This distribution is used to obtain the basic circuit reliability (11), which is the value of probability corresponding to the minimum usable field strength (10).

TABLE [3-8]

Parameters used to compute basic circuit reliability

STEP	PARAMETER	DESCRIPTION	SOURCE
(1)	$E_W(50)$ dB (μV/m)	Median field strength of wanted signal[1]	Prediction method (section 3.3.1)
(2)	$D_U(S)$ dB	Upper decile of slow fading signal (day-to-day)	(section 3.4.2)
(3)	$D_L(S)$ dB	Lower decile of slow fading signal (day-to-day)	(section 3.4.2)
(4)	$D_U(F)$ dB	Upper decile of fast fading signal (within the hour)	5 dB (section 3.4.1)
(5)	$D_L(F)$ dB	Lower decile of fast fading signal (within the hour)	-8 dB (section 3.4.1)
(6)	$D_U(E_W)$ dB	Upper decile of wanted signal	$\sqrt{D_U(S)^2 + D_U(F)^2}$
(7)	$D_L(E_W)$ dB	Lower decile of wanted signal	$\sqrt{D_L(S)^2 + D_L(F)^2}$
(8)	$E_W(10)$ dB (μV/m)	Wanted signal exceeded 10% of the time	$E_W + D_U(E_W)$
(9)	$E_W(90)$ dB (μV/m)	Wanted signal exceeded 90% of the time	$E_W - D_L(E_W)$
(10)	E_{min} dB (μV/m)	Minimum usable field strength	section 3.2
(11)	BCR	Basic circuit reliability	Figure [3-4]

Note 1 - In the calculation of BCR at the test points within the required service areas of synchronized transmitters, the field strength value to be used is calculated by the method of root sum square of the contributing field strengths in volts/metre.

Note 2 - For synchronized transmissions, the fading allowance associated with the predominant signal is to be used. For those conditions where the contributing wanted field strengths and Note 1 of Table III of CCIR Report 266-6 applies to at least one of the paths, the values for geomagnetic latitudes $\geq 60^{\circ}$ are used.

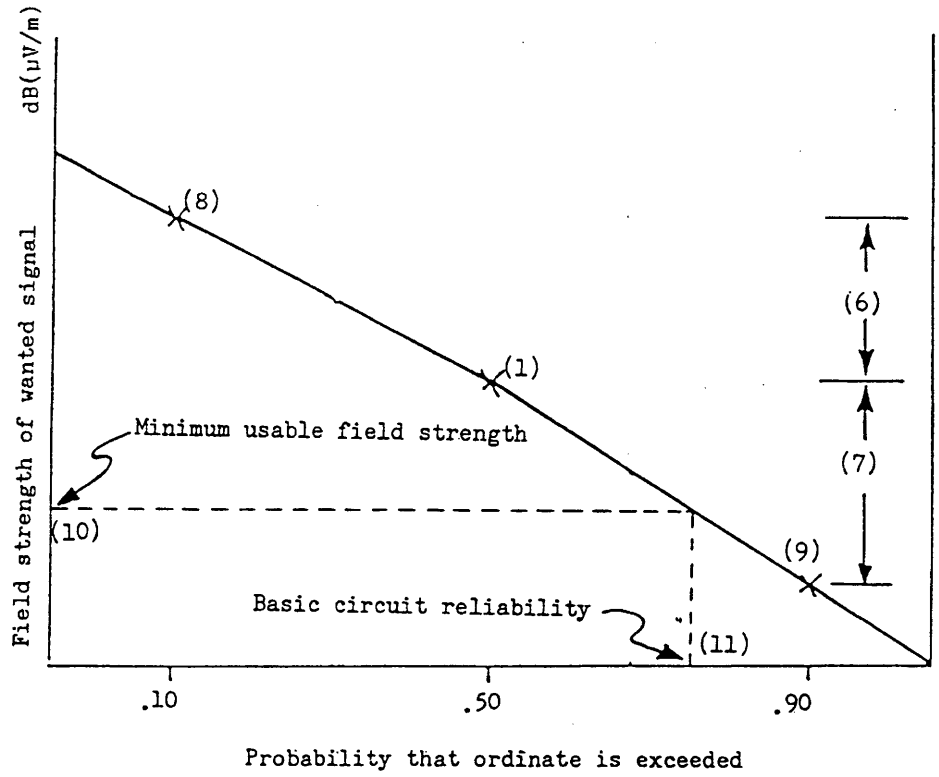


FIGURE [3-4]

Parameters used to compute basic circuit reliability

(Figures appearing in brackets refer to step numbers as shown in Table [3-8])

The basic circuit reliability is given by the expression:

$$BCR = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{Y} \exp(-\tau^2/2)\, d\tau$$

when $E_W \geq E_{min}$

$$Y = \frac{E_W - E_{min}}{\sigma_L}$$

$$\sigma_L = D_L(E_W)/1.282$$

when $E_W < E_{min}$

$$Y = \frac{E_W - E_{min}}{\sigma_U}$$

$$\sigma_U = D_U(E_W)/1.282$$

1.6.2 Calculation of [overall/interference] circuit reliability [(OCR) (ICR)]

The method is outlined in Table [3-9]. In step (1), the median wanted signal level is computed by the signal strength prediction method.

In step (2), the median field strength levels (E_i) of each interfering source are obtained from the prediction method. In step (3), for a single source of interference the predicted median field strength is used; for multiple sources of interference the median field strength is calculated as follows : the field strengths of the interfering signals E_i are listed in decreasing order. Successive r.s.s. additions of the field strengths E_i are computed, stopping when the difference between the resultant field strength and the next field strength is greater than 6 dB. In step (3), the resultant field strength I is taken as the last computed value.

The values of the wanted signal and interference determined in steps (1) and (3) are combined in step (4) to derive the median signal-to-interference ratio. The 10% and 90% fading allowances are included in steps (5) and (6) in order to derive the signal-to-interference ratio exceeded for 10% and 90% of the time in steps (7) and (8).

The probability distribution for the signal-to-interference ratio may now be determined as shown in Figure [3-5]. The ratios are presented in decibels on a linear scale versus the probability that the value of the signal-to-interference ratio is exceeded on a normal probability scale. In Figure [3-5], the value of probability corresponding to the required signal-to-interference ratio (9) is the circuit reliability in the presence of interference only (ICR). [The overall circuit reliability (OCR, step (12)) is the minimum value of either ICR (step (10)) or BCR (step (11)), whichever produces the lower value.]

The mathematical treatment of the calculation of ICR can be given in terms of the probability density distribution of the protection ratio. These functions are taken to be log normal, as is the resulting distribution of the signal-to-interference ratio.

The parameter ICR is given by the following expression :

$$ICR = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{\gamma} \exp(-\tau^2/2)\, d\tau$$

when for $E_W - I \geq RSI$

$$\gamma = \frac{E_W - I - RSI}{\sigma_L}$$

$$\sigma_L = D_L(SIR)/1.282$$

and for $E_W - I < RSI$

$$\gamma = \frac{E_W - I - RSI}{\sigma_U}$$

$$\sigma_U = D_U(SIR)/1.282$$

Values of the various parameters in the above expressions are found in the steps indicated below of Table [3-9].

E_W	step 1
I	step 3
$D_U(SIR)$	step 5
$D_L(SIR)$	step 6
RSI	step 9

TABLE [3-9]

Parameters used to compute overall circuit reliability

STEP	PARAMETER	DESCRIPTION	SOURCE
1	E_W dB (μV/m)	Median field strength of wanted signal	Prediction method (section 3.2.1)
2	E_i dB (μV/m)	Median field strength of interfering signals $E_1, E_2, \ldots E_n$	Prediction method (section 3.2.1)
3	I dB (μV/m)	Resultant field strength of interference	$I=20 \log_{10}\sqrt{\sum_{i=1}^{n} 10^{\left(\frac{E_i+\alpha}{10}\right)}}$ 1)
4	SIR(50)dB	Median signal to interference ratio	$E_W - I$
5	D_U(SIR)dB	10% fading allowance	10 dB(<60°), 14 dB(≥60°) 2)
6	D_L(SIR)dB	90% fading allowance	10 dB(<60°), 14 dB(≥60°) 2)
7	SIR(10)dB	Subjective signal-to-interference ratio exceeded 10% of the time	SIR(50) + D_U(SIR)
8	SIR(90)dB	Subjective signal-to-interference ratio exceeded 90% of the time	SIR(50) - D_L(SIR)
9	RSI dB	Required RF protection ratio	[... dB] 3)
10	ICR	Circuit reliability in presence of interference only (without noise)	See figure 3-5
11	BCR	Basic circuit reliability	See figure 3-4
12	OCR	Overall circuit reliability	Min(ICR, BCR)

Note 1 - α is the appropriate relative protection ratio corresponding to the carrier frequency separation between the wanted and each unwanted signal. For separations ≤ 20 kHz, α is given by [Document DT/34, section 1.2.2] or [Table, Document 99].

Note 2 - i) If any point on that part of the great circle which passes through the transmitter and the receiver and which lies between control points located 1,000 km from each end of the path reaches a corrected geomagnetic latitude of 60° or more, the values for ≥ 60° have to be used.

[ii) The value of 14 dB applies for overall circuit reliabilities not exceeding 80%. In other cases the value of 10 dB applies.]

iii) These values relate to the path of the wanted signal only.

iv) For synchronized transmissions, the fading allowance associated with the predominant wanted signal is to be used. For those conditions where the contributing wanted field strengths are equal and Note 1 applies to at least one of the paths, the value of 14 dB is to be used for D_U(SIR) and D_L(SIR).

Note 3 - In these calculations a single value of the co-channel protection ratio must be used.

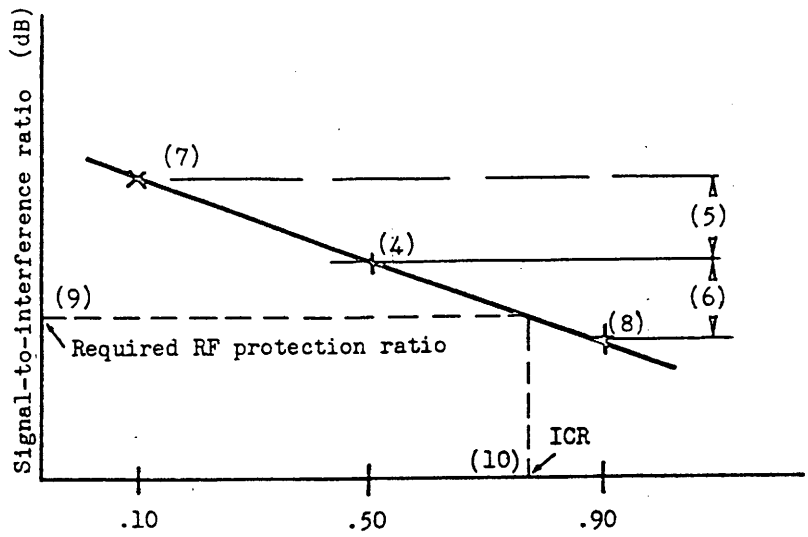


FIGURE [3-5]

Parameters used to compute overall circuit reliability

(Figures appearing in brackets refer to step numbers as shown in Table [3-9])

1.6.3 Basic reception reliability (BRR)

The method for computing basic reception reliability is outlined in Table [3-10]. With a single frequency, basic reception reliability (BRR) is the same as the basic circuit reliability (BCR) defined in the section 1.7.1.1. With multiple frequencies, the interdependence between propagation conditions at different frequencies leads to the computation method given in Table [3-10]. In steps (4) and (6), BCR (n) is the basic circuit reliability for frequency n, where n = F_1, F_2, etc. The basic reception reliability is obtained in step (2) for a single frequency, in step (4) for a set of two frequencies and in step (6) for a set of three frequencies.

1.6.4 Overall reception reliability (ORR)

The method for computing overall reception reliability is outlined in Table [3-11]. With a single frequency, overall reception reliability (ORR) is the same as the overall circuit reliability (OCR) defined in section 1.7.1.2 With multiple frequencies, the interdependence between propagation conditions at different frequencies leads to the computation method given in Table [3-11]. In steps (4) and (6), OCR (n) is the overall circuit reliability for frequency n, where n = F_1, F_2, etc. The overall reception reliability is obtained in step (2) for a single frequency, in step (4) for a set of two frequencies and in step (6) for a set of three frequencies.

TABLE /¯3-10_7

Basic reception reliability

The following parameters are involved :

Single-frequency operation

Step	Parameter	Description	Source
(1)	BCR (F_1) %	Basic circuit reliability for frequency F_1	step 11, Table /¯3-8_7
(2)	BRR (F_1) %	Basic reception reliability	BCR (F_1)

Two-frequency operation [1]

(3)	BCR (F_2) %	Basic circuit reliability for frequency F_2	step 11, Table /¯3-8_7
(4)	BRR (F_1) (F_2) %	Basic reception reliability	$1-\prod_{n=F_1}^{F_2}(1-BCR(n))$

[1] The two frequencies F_1 and F_2 shall be situated in different frequency bands allocated to the HF broadcasting service.

TABLE [3-10] (continued)

Basic reception reliability

Three-frequency operation[1]

Step	Parameter	Description	Source
(5)	BCR (F_3) %	Basic circuit reliability for frequency F_3	Step 11, Table [3-8]
(6)	BRR (F_1)(F_2)(F_3) %	Basic reception reliability	$1-\prod_{n=F_1}^{F_3}(1-BCR(n))$

[1] The three frequencies F_1, F_2 and F_3 shall be situated in different frequency bands allocated to the HF broadcasting service.

TABLE [3-11]

Overall reception reliability

The following parameters are involved :

Single-frequency operation

Step	Parameter	Description	Source
(1)	OCR (F_1) %	Overall circuit reliability for frequency F_1	Step 12, Table [3-9]
(2)	ORR (F_1) %	Overall reception reliability	OCR (F_1)

Two-frequency operation [1]

(3)	OCR (F_2) %	Overall circuit reliability for frequency F_2	Step 12, Table [3-9]
(4)	ORR (F_1) (F_2) %	Overall reception reliability	$1-\prod_{n=F_1}^{F_2}(1-OCR(n))$

[1] The two frequencies F_1 and F_2 shall be situated in different frequency bands allocated to the HF broadcasting service.

TABLE [3-11] (continued)

Overall reception reliability

Three-frequency operation [1]

Step	Parameter	Description	Source
(5)	OCR (F_3) %	Overall circuit reliability for frequency F_3	Step 12, Table [3-9]
(6)	ORR (F_1) (F_2) (F_3) %	Overall reception reliability	$1-\prod_{n=F_1}^{F_3}(1-OCR(n))$

[1] The three frequencies F_1, F_2 and F_3 shall be situated in different frequency bands allocated to the HF broadcasting service.

1.6.5 Basic and [overall/interference] broadcast reliability

The determination of basic broadcast reliability involves the use of test points within the required service area. The basic broadcast reliability is an extension of the basic reception reliability concept to an area instead of a single reception point. The method for computing basic broadcast reliability is outlined in Table [3-12]. In step (1), the basic reception reliabilities BRR (L_1), BRR (L_2), --- BRR (L_N) are computed as described in Table [3-10] at each test point L_1, L_2 ---L_N. These values are ranked in step (2) and the basic broadcast reliability is the value associated with a percentile [X] of the test points.

In a similar way, the [overall/interference] broadcast reliability is computed as described in Table [3-13] and it is the value associated with a percentile [X] of the test points.

Note that the test points used in determining broadcast reliability must be specified, e.g. see section [1.7] for the use of BBR in choosing additional frequency bands and section [Document 127] for the use of BBR [and OBR/LBR] in assessing the quality of an assignment.

Broadcast reliability is associated with the expected performance of a broadcast service at a given hour. For periods longer than an hour, computation at one-hour intervals is required.

TABLE 3-12

Basic broadcast reliability

The following parameters are involved :

Step	Parameter	Description	Source
(1)	BRR (L_1), BRR (L_2) --- BRR (L_N) %	Basic reception reliability at all test points considered in the required service area	Step (2), (4) or (6), as appropriate, from Table 3-10
(2)	BBR (X) %	Basic broadcast reliability associated with percentile [X]	Any percentile chosen from the values ranked from (1) of this Table

TABLE 3-13

Overall broadcast reliability

The following parameters are involved :

Step	Parameter	Description	Source
(1)	ORR (L_1), ORR (L_2) --- ORR (L_N) %	Overall reception reliability at all test points considered in the required service area	Step (2), (4) or (6), as appropriate, from Table 3-11
(2)	OBR (X) %	Overall broadcast reliability associated with percentile [X]	Any percentile chosen from the values ranked from (1) of this Table

1.7 Maximum number of frequencies required for broadcasting the same programme to the same zone

1.7.1 Introduction

Wherever possible, only one frequency should be used to broadcast a particular programme to a given reception area. In certain special circumstances, it may be found necessary to use more than one frequency per programme, i.e.:

- over certain paths, e.g. very long paths, those passing through the auroral zone, or paths over which the MUF is changing rapidly;
- areas where the depth of the area extending outwards from the transmitter is too great to be served by a single frequency;
- when highly directional antennas are used to maintain satisfactory signal-to-noise ratios, thereby limiting the geographical area covered by the station concerned.

The decision to use more than one frequency per programme should be made on the merits of the particular case concerned.

Use of synchronized transmitters should be encouraged whenever possible with a view to minimizing the need for additional frequencies.

1.7.2 Use of additional frequencies

The number of frequencies needed to achieve the specified level of basic broadcast reliability shall be determined by the method given below. If the calculated basic broadcast reliability for a single frequency does not reach the adopted value, it is necessary to consider whether the BBR could be improved by additional frequencies in separate bands and whether the improvement would justify the use of additional frequencies.

1.7.3 Determination of additional frequency bands

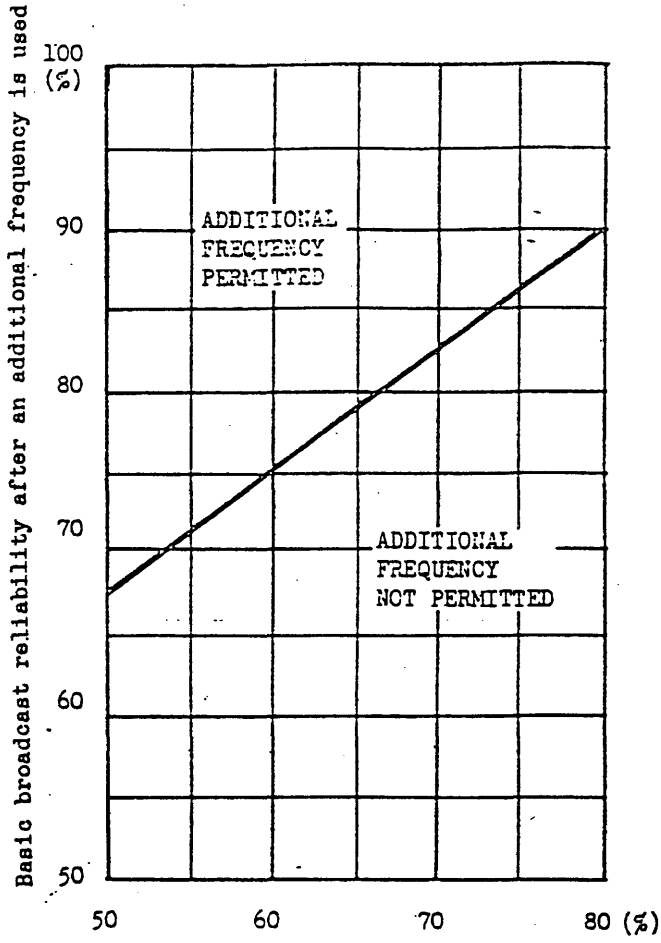
In cases where the BBR[1] for the first band, based on all test points in the required service area, is between 50% and 80%, an additional band shall be tested as follows.

[Those test points whose basic circuit reliability BCR is less than or equal to the BBR are identified and only these points are used to determine the second band. For each band, the minimum value of BCR (BCR_{min}) at these points is determined and that band having the highest BCR_{min} value is selected. If more than one band has this value, the highest frequency band is selected. The two-band BBR, taking account of the BRR at all test points in the required service area is then computed and if it exceeds [P]%[2] then the second band may be used. Additionally, if this BBR is less than [R]%[2] then a third band shall be tested as follows.

Those test points whose basic reception reliability (BRR) for the two bands (section 1.6.3) is less than or equal to the two-band BBR are identified and these points are used for the calculation of the BCRs for the remaining bands. For each band, the minimum value of BCR (BCR_{min}) at these points is determined and that band having the highest BCR_{min} value is selected as the third band. If more than one band has this value, the highest frequency band is selected. If the resulting BBR taking account of the BRR at all test points exceeds [Y]%[2], the third band may be used.]

1 For calculation of the basic broadcast reliability, see paragraph 1.6.5.

2 P, R and Y are percentage values used in determining the application of additional frequency bands. During the intersessional period the value for R of 80% was used; P and Y are specified in Figure [3-14].



Basic broadcast reliability before an additional frequency is to be used

FIGURE /3-14/

Limits for use of an additional frequency

2. Transmission characteristics

2.1 Nominal carrier frequencies

Carrier frequencies shall be integral multiples of 5 kHz.

2.2 Audio-frequency band

The upper limit of the audio-frequency band (-3 dB) of the transmitter shall not exceed 4.5 kHz and the lower limit shall be 150 Hz, with an attenuation of 6 dB per octave for frequencies lower than 150 Hz.

2.3 Modulation processing

If audio-frequency signal processing is used, the modulating signal shall retain a dynamic range of not less than 20 dB.

2.4 Necessary bandwidth

The necessary bandwidth shall not exceed 9 kHz.

LIST B - System planning and technical parameters which may be improved in the future as a result of further studies

3.1 RF protection ratios

/ 3.1.1 The co-channel protection ratio for unsynchronized transmissions shall be / to be developed /. /

3.1.2 The protection ratio for synchronized transmissions

The co-channel protection ratio between synchronized transmissions in the same network shall be:

Distance L between synchronized transmitters: km	Protection ratio dB
$L \leq 700$	0
$700 < L \leq 2{,}500$	4
$2{,}500 < L$	8

3.1.3 The relative rf protection ratios (α) for carrier frequency separations*, with reference to that for the co-channel case, shall be:

Δf	α
0 kHz	0 dB
±5 kHz	-3 dB
±10 kHz	-35 dB
±15 kHz	-49 dB
±20 kHz	-54 dB

3.2 Minimum usable field strength

The minimum usable field strength shall be determined by adding 34 dB to the greater of:

- the field strength due to atmospheric radio noise as contained in CCIR Report 322-2;
- 3.5 dB (μV/m), which is the intrinsic receiver noise level.

3.3 The method to be used to determine the sky-wave field strength for HF broadcast planning purposes

[3.3.1 To be developed by Working Group 4-A ad hoc 5.]

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* Frequency separations, $\Delta f < -20$ kHz, as well as $\Delta f > +20$ kHz, need not be considered in planning.

3.4 Signal fading

3.4.1 Short-term (within the hour) fading

The upper-decile amplitude deviation from the median of a single signal is to be taken as 5 dB and the lower-decile deviation is to be taken as -8 dB.

3.4.2 Long-term (day-to-day) fading

The magnitude of the long-term fading, as determined by the ratio of the operating frequency to the basis MUF, is given in Table 3 of CCIR Report 266-6.

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS
ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 137-E
19 February 1987
Original: English

Source: Document DT/47

WORKING GROUP 4-A

Draft

RECOMMENDATION [COM4/F]

Propagation Prediction Method to be Used for the [Planning] of the HF Bands Allocated to the Broadcasting Service

The World Administrative Radio Conference for the Planning of the HF Bands Allocated to the Broadcasting Service (Geneva, 1987),

considering

a) that the First Session of the Conference (Geneva, 1984) established a propagation prediction method to be used for the [planning] of the HF bands allocated to the broadcasting service;

b) the work by the CCIR during the intersessional period in improving some aspects of the adopted method;

c) that the IFRB has developed and implemented computer software* based on the propagation prediction method established by the First Session of the Conference (Geneva, 1984) and the further work by the CCIR and has used this for its intersessional work;

d) that the propagation prediction method and the associated computer software used by the IFRB is the starting basis for further improvements;

e) Recommendation [COM4/A] (Document 109) relating to Further Improvements to the Propagation Prediction Method to be Used for the Planning of the HF Bands Allocated to the Broadcasting Service,

recommends

1. that the propagation prediction method and the associated computer software to be used immediately after the Conference shall be that implemented by the IFRB during the intersessional period;

---

* Note - The current version of the computer software is available to administrations on request.

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2. that the IFRB prepare detailed documentation of the propagation prediction method, summarized in [Document DT/34(Rev.1), section 1.5.1], for inclusion in its Technical Standards;

3. that the procedures to be applied by the IFRB in the revision of relevant parts of its Technical Standards, as established in Resolution [COM6/1] (Document 112), be used for further improvements to this method.

T. DAMBOLDT
Chairman of Working Group 4-A ad hoc 5

BLUE PAGES

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS
ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 138-E
21 February 1987

B.2

PLENARY MEETING

SECOND SERIES OF TEXTS SUBMITTED BY THE EDITORIAL COMMITTEE TO THE PLENARY MEETING

The following texts are submitted to the Plenary Meeting for first reading:

Source	Documents	Title
COM.6	113	Resolution No. 641 (Rev. HFBC-87)
COM.4	107 (130)	Recommendation COM4/D
COM.4	129	Recommendation COM4/E

D. SAUVET-GOICHON
Chairman of Committee 7

Annex: 5 pages

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RESOLUTION No. 641 (Rev. HFBC-87)

Use of the Frequency Band
7 000 - 7 100 kHz

The World Administrative Radio Conference for the Planning of the HF Bands Allocated to the Broadcasting Service (Geneva, 1987),

considering

a) that the sharing of frequency bands by the amateur and broadcasting services is undesirable and should be avoided;

b) that it is desirable to have world-wide exclusive allocations for these services in Band 7;

c) that the band 7 000 - 7 100 kHz is allocated on a world-wide basis exclusively to the amateur service,

resolves

that the broadcasting service shall be prohibited in the band 7 000 - 7 100 kHz and that the broadcasting stations operating on frequencies in this band shall cease such operation,

urges

the administrations responsible for the broadcasting stations operating on frequencies in the band 7 000 - 7 100 kHz to take the necessary steps to ensure that such operation ceases immediately,

instructs the Secretary-General

to bring this Resolution to the attention of administrations.

RECOMMENDATION COM4/D (HFBC-87)

Use of Synchronized Transmitters in the HF Bands Allocated to the Broadcasting Service

The World Administrative Radio Conference for the Planning of the HF Bands Allocated to the Broadcasting Service (Geneva, 1987),

considering

a) that the use of synchronized transmitters, where technically appropriate, is an efficient means of economizing frequency spectrum;

b) Recommendation No. 503;

c) that, where the path location is unfavourable, a Doppler frequency difference greater than 0.1 Hz may occur at certain hours of the day;

d) CCIR Recommendation 205-2,

recognizing

that further studies are needed on the use of synchronized transmitters for broadcasting in the HF bands,

invites the CCIR

to accelerate the studies defined in CCIR Study Programme 44L/10 with a view to comprehensive CCIR Recommendations being made on this subject.

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 139 (Rev.1)-E
4 March 1987
Original: French

PLENARY MEETING

France and Canada

RESOLUTION

Participation by Administrations in the Improvement of the Method of Planning the HF Bands Allocated to Broadcasting

The World Administrative Radio Conference for the Planning of the HF Bands Allocated to the Broadcasting Service (Geneva, 1987),

considering

a) that it has improved the planning method and instructed the IFRB to modify the HFBC System accordingly;

b) that the work assigned to the IFRB is to be carried out in the years which follow the Conference;

c) that the steps of the planning method relate to technical and operational constraints which may vary from country to country and from region to region;

d) that the IFRB can only obtain information on these constraints through contacts with the administrations;

e) that administrations from all the regions must have an opportunity to take part in the improvement process through the participation of qualified experts;

f) that to promote the participation of countries from all the regions it may be necessary to defray the expenses involved from the Union budget,

resolves

1) to establish a Group of Experts seconded by their administrations to assist the IFRB in carrying out the tasks relating to the planning method entrusted to it by the Conference;

2) that the Group shall comprise [25] experts from countries belonging to the five administrative regions, distributed as follows:

Region A: 5
Region B: 5
Region C: 3
Region D: 7
Region E: 7

3) that the Group of Experts shall hold one annual meeting of one week on the initiative of the Board, and that if necessary a second meeting could be organized;

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4) that in order to keep all the administrations informed of the progress of work, it may be necessary to organize, in conjunction with a Group of Experts meeting, an information meeting of two to three days to which all the administrations shall be invited,

instructs the Secretary-General

1) to consult the administrations and request them, if they so wish, to nominate an expert with the necessary qualifications to sit on the Group of Experts with a view to his or her appointment by the Administrative Council;

2) to examine the nominations received in collaboration with the Board and put forward to the Administrative Council a list of experts to be appointed in line with the distribution indicated in resolves 2,

invites the Administrative Council

to make provision in the budget of the Union for the resources required for the Group's activities, and particularly the cost of participation in meetings by an expert from each administration.

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS
ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 139-E
19 February 1987
Original: French

COMMITTEES 5 AND 6

France, Canada

PROPOSED ESTABLISHMENT OF A GROUP OF EXPERTS

All the administrations represented at the Conference now concur that, at the present stage of its development, the HFBC Planning System does not produce satisfactory results.

The Second Session is required to decide on the modifications needed for the improvement of the system, but since the five weeks of the Conference are quite insufficient to put these modifications to the test, it is unfortunately unable to assess their effect on the results of the plans.

It is therefore essential to set up a machinery designed to follow up the work to be carried out by the IFRB after the Conference, in accordance with the instructions which it receives. For this purpose, the Administrations of France and Canada put the attached draft Resolution before the Conference.

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CAN/F/139/1 RESOLUTION

Participation by Administrations in the Improvement of the Method of Planning the HF Bands Allocated to Broadcasting

The World Administrative Radio Conference for the Planning of the HF Bands Allocated to the Broadcasting Service (Geneva, 1987),

considering

a) that all the administrations represented at the Conference recognize that, at the present stage of its development, the HFBC planning method does not produce satisfactory results;

b) that this situation requires the Second Session to study and define the modifications needed to improve the system;

c) that the Second Session had insufficient time to assess the effect of these improvements on the results of the plans;

d) that the Second Session instructed the IFRB to proceed with the improvement of the system following the instructions issued by that Session,

noting

that the conclusions drawn from the intersessional interval suggest that the IFRB will need a fairly long period to implement and test the improvements in the method as adopted by the Second Session,

noting also

that it is essential, throughout the entire duration of the Board's activities, to maintain a virtually constant interchange between the administrations and the IFRB,

resolves

1. to establish a Group of Experts seconded by their administrations and comprising between 19 and 21 representatives selected on the basis of a balanced geographical distribution;

2. to set up this Group for a provisional term of two years, with provision for two annual meetings of one week each;

3. to assign this Group the tasks defined in the annex to this Resolution,

resolves further

4. that the Group shall report its findings annually to the Administrative Council;

5. that the findings of the Group shall also be embodied in the Report by the Administrative Council to the Plenipotentiary Conference (Nice, 1989) in order to enable it to take the appropriate decisions on the continued activities of the Group,

invites the Administrative Council

to make provision in the budget of the Union for the resources required for the activities of the Group, and particularly the cost of participation in meetings by an expert from each administration member of the Group.

ANNEX

Terms of reference of the Group of Experts

A. Follow up the development of the planning method improved by the Second Session, particularly with regard to:

- the improvement of the propagation forecasting method in keeping with the work of the CCIR (requested by Committee 4);

- the incorporation in the HFBC system of the modifications introduced by the Second Session (antenna patterns, different types of continuity, suspension rules).

B. Analysis of plan tests carried out by the IFRB:

These plan calculations will be conducted by the IFRB on the basis of the new requirements file updated every season by the administrations. The IFRB will use the most refined version of the planning method in each case.

The Group of Experts will suggest to the IFRB the form in which these results should be presented for the purpose of facilitating their analysis by administrations.

The Group of Experts will analyze the results of these plans in the light of the comments by the various administrations and will assess the consequences of the improvements introduced.

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS
ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Corrigendum 1 to
Document 140-E
5 March 1987
Original: English

COMMITTEE 3

SUMMARY RECORD

OF THE

SECOND MEETING OF COMMITTEE 3

(BUDGET CONTROL)

In the last line of paragraph 4.6, replace the words "post-conference costs" by "intersessional work costs".

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HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 140-E
25 February 1987
Original: English

COMMITTEE 3

SUMMARY RECORD

OF THE

SECOND MEETING OF COMMITTEE 3

(BUDGET CONTROL)

Thursday, 19 February 1987, at 0900 hrs

Chairman: Dr. M.K. RAO (India)

Subjects discussed:	Documents
1. Approval of the summary record of the first meeting of Committee 3	64
2. Expenditure limits set by the Nairobi Conference, 1982, for WARC-HFBC	124
3. Position of the Conference accounts as at 10 February 1987	125
4. Financial implications of decisions taken by the Conference	-

For reasons of economy, this document is printed in a limited number of copies. Participants are therefore kindly asked to bring their copies to the meeting since no others can be made available.

1. Approval of the summary record of the first meeting of Committee 3 (Document 64)

The summary record of the first meeting of Committee 3 was approved.

2. Expenditure limits set by the Nairobi Conference, 1982, for WARC-HFBC (Document 124)

2.1 The Secretary, introducing Document 124, said that the figures for actual expenditure on intersessional work in 1986 were now available. The relevant amount, 1,754,000 Swiss francs, should be inserted in the second column of the table on page 2 of the document, replacing the estimated figure of 1,934,000 Swiss francs. The total actual or estimated expenditure thus became 9,120,600 Swiss francs, which was 879,400 Swiss francs below the limit on expenditure set by Additional Protocol 1.

With those changes, Document 124 was noted.

3. Position of the Conference accounts as at 10 February 1987 (Document 125)

3.1 The Secretary, introducing Document 125, drew the Committee's attention to column 2 of the table in Annex 1. The budget had now been adjusted to 1 February 1987 and, as a result of the changes in the exchange rate for the dollar, the total budget figure had been reduced by 4,400 Swiss francs.

With that change, Document 125 was noted.

4. Financial implications of decisions taken by the Conference

4.1 The Chairman said that, although as directed by the Committee, he had invited all concerned to provide information on the financial implications of the decisions taken by the Conference, that information was not yet available as the Committees had not yet made any decisions of substance. It was hoped that information would be available from Committee 4 for Committee 3's next meeting.

4.2 The delegate of the United States, noting with satisfaction the favourable balance between budgeted expenditure and the budget ceiling, said it was imperative to know by the end of the Conference whether the funds available would cover the work the IFRB would be asked to do in the period following the Conference. The greatest financial impact was likely to result from the changes to the Planning System at present being discussed in Working Group 5-A. He therefore asked whether it would be possible for the IFRB, in view of the pressure of time, to make a start on considering the financial implications of the decisions that appeared likely to result from the present stage of discussion in Working Group 5-A rather than to wait until such decisions had been processed through Committee 5.

4.3 The delegate of the United Kingdom said caution was needed since the introduction of very stringent financial supervision at an early stage of decision-making might itself, by increasing the work of the staff of the Union, lead to increased costs.

4.4 The delegate of the United States, agreeing with that view, said that his intent had not been to insist on figures being provided at Working Group level but to urge the IFRB to lose no time in considering what financial implications might result from the work of Working Group 5-A since the final decision in Committee 5 might be made late in the Conference. His concern to have the financial implications of decisions clear by the end of the Conference was prompted by the fact that many delegations would find themselves unable to approve decisions if the financial implications were beyond the resources already available.

4.5 The Chairman suggested, in the light of the discussion, that Committee 3 should not require the details of financial implications to be provided until after decisions had been taken at Committee level, but that it should request the IFRB, and where necessary the CCIR, to keep an eye on the likely financial impact of decisions being discussed at Working Group level with a view to being able to produce reasonably accurate estimates of financial implications within a short time of the relevant decisions being taken by the Committees.

It was so agreed.

4.6 The Representative of the IFRB noted that decision and drew the Committee's attention to the fact that although the IFRB would make every effort to provide the Conference with the best possible estimates of the financial implications of its decisions, owing to pressure of time and other constraints those estimates could only be approximate. More accurate estimates would not be available until after the Conference and would be submitted to the Administrative Council. The Committee should note that there could well be a difference between the approximate and the accurate estimates; he recalled that in the case of the recent African Broadcasting Conference it had been found possible to reduce the initial rough estimates of post-conference costs by some 30%.

The meeting rose at 0925 hours.

The Secretary: The Chairman:

R. PRELAZ M.K. RAO

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 141-E
19 February 1987
Original: English

WORKING GROUP 4A

(Statement to be included in Section 3.3.1 of Document 136)

OUTLINE OF THE PROPAGATION PREDICTION METHOD *)

1. INTRODUCTION

The propagation prediction method, implemented by the IFRB and to be used immediately after the Conference as a starting basis (Recommendation [COM4/F]), was established by the First Session. It is based on CCIR studies prior to the First Session, and on further studies by the CCIR of particular aspects of the method.

The method is used for the prediction of HF field strength for HF broadcasting purposes and is composed of three parts:

- for path lengths up to 7 000 km;
- for path lengths greater than 9 000 km;
- an interpolation procedure for path lengths between 7 000 and 9 000 km.

2. IONOSPHERIC PARAMETERS

Values of the ionospheric parameters foF2, M(3 000)F2 and foE are obtained from the numerical maps (the Oslo coefficients) and the procedures set out in CCIR Report 340, at the locations of the control points required by the short and long range methods. From these parameters the basic MUFs for the required distances are obtained, again using the procedures of Report 340. Appropriate interpolations are made for the level of sunspot activity.

3. DISTANCES UP TO 7 000 km

The short range method of prediction, based partly on CCIR Report 252-2, is used for path lengths up to 7 000 km. Calculations are also made by this method for path lengths between 7 000 and 9 000 km and the results are utilized in the interpolation procedure described later.

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*) This outline of the propagation prediction method, implemented by the IFRB, is not intended to introduce any changes to the method.

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The method assumes great-circle propagation with reflection from the E-layer (for ranges up to 4 000 km) and from the F2-layer. The path is split into a number of equal length hops, each less than 4 000 km, for F2-modes, and 2 000 km, for E-modes. The hops are assumed to have mirror reflections in the ionosphere at their mid points. The equivalent reflection height is taken as 110 km for E-modes, and is a variable, depending upon the values of the ionospheric parameters, for F2-modes.

For paths lengths up to 4 000 km, screening of F2 propagation modes by the lower E-layer is applied when appropriate.

The central feature of the method is the prediction of the median field strength using the formula:

$$E_{ts} = 96.85 + P_t + G_t - 20 \log P' - L_i - L_m - L_g - L_h \text{ dB}(\mu V/m).$$

P_t is the transmitter output power in dB relative to 1 kW and G_t is the isotropic antenna gain appropriate for the azimuth of the great circle path and the elevation angle computed for the path geometry and the number of hops being considered. P' is the virtual slant range in km, calculated along the ray paths. L_i, L_m, L_g and L_h are loss terms which account for the absorption loss (calculated for each hop and the results added), the "above the MUF" loss, the ground reflection loss and the auroral plus other signal losses, respectively. The numerical constant term includes, amongst other things, an allowance for those effects of sky-wave propagation not otherwise included in this fast, simplified method.

Although for an isotropic antenna the predicted field strength would be greatest for propagation modes with the minimum number of hops, this is not necessarily the case for practical antennas. The calculation is repeated with progressively greater numbers of hops, taking account of the appropriate antenna gain in each case, until a maximum is found. So as to facilitate the calculation for the large number of cases considered by the IFRB, in the practical implementation field strength values have been pre-calculated and stored as tables for six F2-modes and six E-modes for the paths between all transmitter locations and all test points. During the consideration of each case the appropriate entries in these tables are referred to and the antenna gain factors applied.

The method selects the two strongest F2-modes (i.e. the modes with the highest field strengths) and, where appropriate, the strongest E-mode, and these values are combined by adding the signal powers together.

4. DISTANCES GREATER THAN 9 000 km

For distances beyond 9 000 km, the method no longer uses geometric ray hops, hypothetical ray paths with a number of equal hops each less than 4 000 km are considered.

In the method it is assumed that the field strength in the "transmission frequency range", i.e. the frequency limit f_L and the upper frequency limit f_M is determined by non-deviative absorption (near f_L) and deviative absorption (near f_M). The empirical fit to observations determines the shape of the curve between f_L and f_M as a function of the solar zenith angle, the path geometry etc. The overall median field strength is given by

$$E_{tl}=E_o\left[1-\frac{(f_M+f_H)^2}{(f_M+f_H)^2+(f_L+f_H)^2}\left(\frac{(f_L+f_H)^2}{(f+f_H)^2}+\frac{(f+f_H)^2}{(f_M+f_H)^2}\right)\right] \quad +P_t+G_{tl}+G_{ap}-32.5 \ \text{dB}(\mu\text{V/m})$$

$E_0 = 139.6 - 20 \log P'$, the free space field where P' is the slant range assuming that the height of the ionosphere is 300 km.

f_M is the upper limit frequency; it is determined separately for the first and last hop of the path and the lower value is taken. $f_M = K.f_b$, where f_b is the basic MUF and K is a correction factor taking into account the diurnal variation and the absolute value of f_b; f_L is the lower frequency limit and is mainly dependent on the solar zenith angle; f_H is the gyro-frequency; P_t is the transmitter output power in dB relative to 1 kW; G_{tl} is the isotropic antenna gain, taken as the highest value in the range of vertical radiation angles from 0° to 8° at the appropriate azimuth; and G_{ap} is the antipodal focussing gain, taking into account the increase in field strength at very long distances greater than 10 000 km. The numerical constant term includes, amongst other things, an allowance for those effects of sky-wave propagation not otherwise included in the method.

5. DISTANCES BETWEEN 7 000 AND 9 000 km

In this distance range the field strengths E_{ts} and E_{tl} are determined by both of the above procedures and the resultant median field strength is obtained by linear interpolation, in decibels, as follows:

$$E_{ti} = E_{ts} + \frac{D - 7\,000}{2\,000}\,(E_{tl} - E_{ts}) \quad \text{dB}(\mu\text{V/m}),$$

where D is the path length in kilometres.

Note: The constant terms in the equations for E_{ts} and E_{tl} include the values of -7.3 dB and 3.9 dB, for the short and long range parts of the method, respectively, which were determined in CCIR Recommendation 621 following studies during the intersessional period.

Dr. T. DAMBOLDT
Chairman of Working Group 4A Ad Hoc 5

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS
ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 142-E
26 February 1987
Original: English

COMMITTEE 6

SUMMARY RECORD

OF THE

THIRD MEETING OF COMMITTEE 6

(REGULATORY)

Thursday, 19 February 1987 at 1000 hrs

Chairman: Mr. R. BLOIS (Brazil)

Subjects discussed:	Documents
1. Documents from Committee 4	98, 119
2. Report of Working Group 6 ad hoc 2	112

ARCHIVES U.I.T. GENÈVE

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1. Documents from Committee 4 (Documents 98 and 119)

1.1 The Chairman said that Document 98 contained modifications proposed by Committee 4 to Articles of the Radio Regulations concerning the use of HF bands allocated to the broadcasting service and related to the work of Committee 4. Action was required in respect of item 3, Recommendation No. 500 and item 4, Recommendation No. 503. Since at the end of the Conference there would be a Resolution dealing with all Recommendations and Resolutions to be deleted from the Radio Regulations, the best course of action would be to wait until all the material to be included in that Resolution was available.

It was so agreed.

1.2 The Chairman, referring to Recommendation No. 503 suggested that Committee 6 should submit the changes proposed by Committee 4 to the Editorial Committee for subsequent submission to the Plenary.

It was so agreed.

It was further agreed, at the suggestion of the delegate of the Federal Republic of Germany that the updating indicator be deleted from the CCIR Recommendation number, and that only the original Recommendation number be used in accordance with CCIR practice.

1.3 The Chairman, turning to Document 119, suggested the Committee take note of the document and leave its decision to a later stage of the Conference.

It was so agreed.

It was also agreed that, if the annex were to be reproduced in the Radio Regulations or Final Acts, the Secretariat would be asked to produce a better drawing of the map showing the zones.

2. Report of Working Group 6 ad hoc 2 (Document 112)

2.1 The Chairman of Working Group 6 ad hoc 2, introducing the report, drew particular attention to paragraphs a), b), c) and d) on page 1.

2.2 The Chairman of the IFRB said that the title of the draft Resolution was not in conformity with the Group's terms of reference contained in DT/40. The technical standards of the Board were dealt with under No. 1454 of the Radio Regulations and also by Resolution No. 35. The draft Resolution now before the Committee ran counter to both of those provisions.

2.3 The Chairman said that those provisions were of a general nature and applied to other services as well. When the establishment of the ad hoc Working Group had first been discussed, the intention of the meeting had been to have some special criteria for HF broadcasting. He therefore invited the Committee to consider the report of the ad hoc Working Group in the light of those comments, those of the Chairman of the IFRB, and also in the light of the points on page 1 of the report, to which attention had been drawn by the Chairman of the ad hoc Group.

Following a discussion among the delegates of China, the United States of America and Canada, it was agreed to leave the words "criteria" and "parameters" in square brackets pending the completion of work by Working Group 4-A ad hoc 5.

2.4 The Chairman, replying to a question raised by the delegate of the Federal Republic of Germany, said that draft Resolution [COM6/1] was intended to deal with future changes to parameters in List II to be produced by Committee 4 and was in reply to a request from Committee 4 (in Document 91) for advice on the mechanism by which future modification of such parameters could be undertaken in accordance with the latest relevant CCIR Recommendations.

2.5 The Chairman of the IFRB said that the parameters in both Lists I and II would be incorporated in the technical standards because there had to be a complete procedure. The Board would therefore include those in the Radio Regulations plus any that appeared in a Recommendation or Resolution.

2.6 The delegate of the United States of America said that there appeared to be some discrepancy between the wording in the title and that of considering a). He therefore suggested that the words "relating to the planning of HF broadcasting" be replaced by "used for HF broadcasting".

It was so agreed.

considering b)

It was agreed to delete the word "seasonal" before "plans" and to align the French and Spanish versions of the phrase "continuing actual implementation" to the English text.

considering f)

2.7 Following a discussion on the aptness of the word "competent", in which the Chairman of the IFRB pointed out that the original Resolution No. 35 from which the text had been taken used the word "professional" and the Chairman of Working Group 6 ad hoc 2 said that in his view the word "competent" was the more appropriate, it was agreed that the last phrase should read:

"the CCIR could provide competent advice on technical matters;"

resolves 2

2.8 The Chairman of Working Group 6 ad hoc 2 said that the text as it stood implied that resolves 2 applied to all technical parameters and criteria. Document DT/33 had square brackets qualifying the technical parameters or criteria referred to. Until Committee 5 had taken further decisions he suggested that the words "HFBC System/Article 17" be reinserted in square brackets after "[parameters and/or criteria]".

2.9 The Chairman said that as he had understood the discussions in the ad hoc Group, resolves 2 would apply regardless of whether the Conference decided on a Planning System or a modified version of Article 17. It did not only apply to the HFBC Planning System decided by the Conference.

2.10 In answer to the delegate of Australia who asked whether the text was considered as defining the powers of the Board to change the parameters or whether the Board's authority under RR 1454 would permit it to change them in any case, the Chairman of the IFRB said there appeared to be some duplication between the text and certain provisions of the Radio Regulations but no real conflict.

2.11 The delegate of the United States of America proposed the following wording:

"2. that whenever the IFRB considers it appropriate to review its Technical Standards relating to the technical [parameters and/or criteria] of HF broadcasting without departing from the decisions of this Conference, it shall circulate to all administrations their proposed changes and the reasons for them;".

2.12 The Chairman of the IFRB said that that wording changed the situation considerably since the Committee now appeared to be dealing more with the Technical Standards than with the manner of their incorporation.

2.13 The Chairman said that the wish of the Conference was that the Board should only change technical standards for HF broadcasting after consultation with administrations which was why resolves 2 had been drafted in that manner.

The United States proposal was approved.

resolves 3 and 4

It was agreed to remove the square brackets from the term "4 months" and delete the reference to 6 months.

2.14 The Chairman of the IFRB proposed the addition of the words "to the extent practicable" which appeared within square brackets in resolves 3 of the draft text in Document DT/33.

2.15 The delegate of India, referring to resolves 4, said that in the light of considering g), he thought the Board should not only circulate the comments received but add its own views about the need to convene a meeting: such a procedure would help to dispel difficulties regarding the financial and other aspects.

2.16 The Chairman of the IFRB said that the content of resolves 4 would result in a considerable amount of work for the IFRB; in addition, there was the question of whether such information meetings would be financially justifiable since the topic was the amendment of technical parameters not technical standards.

2.17 The delegate of China thought the text too vague since it failed to mention the purpose, or how comments would be treated and a decision made, or define the competence of such meetings. The delegate of the Federal Republic of Germany explained that the phrase had been proposed because administrations should be informed in advance of the comments received from other administrations in order to appraise the implications. The delegates of Mexico and Australia felt that the question was not one of competence but rather of participation and the consultative aspect.

A further version having been put forward by the delegate of India, it was agreed to discuss the proposed amendment at the next meeting of the Committee and to consider whether the Legal Adviser should be invited to give an opinion on the substance of resolves 4.

The meeting rose at 1200 hours.

The Secretary: M. AHMAD

The Chairman: R. BLOIS

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 143-E
19 February 1987
Original: English

COMMITTEE 4

Sixth Report of Working Group 4-A to Committee 4

DEFINITIONS

Working Group 4-A considers that the following definitions should be included in the Final Acts of the Conference. This information should be communicated to Committee 6.

1. Term relating to propagation

- Basic MUF: The highest frequency by which a radio wave can propagate between given terminals, on a specified occasion, by ionospheric refraction alone.

2. Terms relating to reliability

- Circuit reliability: Probability for a circuit that a specified performance is achieved at a single frequency.

- Reception reliability: Probability for a receiver that a specified performance is achieved by taking into account all transmitted frequencies.

- Broadcast reliability: Probability for a service area that a specified performance is achieved by taking into account all transmitted frequencies.

- Percentile: The X percentile (X%) value for a given set of values is defined by the following conditions:

  1) the X% value is a member of the set of values;

  2) the X% value is that value which is equal to or exceeded by at least X per cent of the members in the set;

  3) the X% value is the largest value satisfying conditions 1 and 2.

Note 1 - In the above terms circuit means a one-way transmission from one transmitter to one receiving location.

[Note 2 - The above terms are preceded by the word "basic" when the background is noise alone and by "overall" when the background is noise and interference.]

Note 3 - When the background is noise and interference, the above terms may relate either to the effects of a single interferer or to multiple interference from co-channel and adjacent-channel transmissions.

Note 4 - A given value of signal-to-noise ratio or signal-to-(noise and interference) ratio is the specified performance.

Note 5 - The above terms relate to one or more periods of time which shall be stated.

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3. Terms relating to field strength

- Minimum usable field strength (E_{min})[1]: Minimum value of the field strength necessary to permit a desired reception quality, under specified receiving conditions, in the presence of natural and man-made noise, but in the absence of interference from other transmitters.

- Usable field strength (E_u)[1]: Minimum value of the field strength necessary to permit a desired reception quality, under specified receiving conditions, in the presence of noise and interference, either in an existing situation or as determined by agreements or frequency plans.

4. Terms relating to the ratio of wanted and unwanted signals

- Audio-frequency (AF) signal-to-interference ratio: The ratio (expressed in dB) between the values of the voltage of the wanted signal and the voltage of the interference, measured under specified conditions[2], at the audio-frequency output of the receiver.

- Audio-frequency (AF) protection ratio: The agreed minimum value of the audio-frequency signal-to-interference ratio considered necessary to achieve a subjectively-defined reception quality.

- Radio-frequency (RF) wanted-to-interfering signal ratio: The ratio, expressed in dB, between the values of the radio-frequency voltage of the wanted signal and the interfering signal, measured at the input of the receiver under specified conditions[2].

- Radio-frequency (RF) protection ratio: The value of the radio-frequency wanted-to-interfering signal ratio that enables the audio-frequency protection ratio to be obtained at the output of the receiver under specified conditions[2].

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1 The terms "minimum usable field strength" and "usable field strength" refer to the specified field strength values which a wanted signal must have in order to provide the required reception quality.

In determining whether these requirements are met, the median value (50%) of a fading signal should be used.

2 The specified conditions include such diverse parameters as: spacing ΔF of the wanted and interfering carrier, emission characteristics (type of modulation, modulation depth, carrier-frequency tolerance, etc.), receiver input level, as well as the receiver characteristics (selectivity, susceptibility to cross-modulation, etc.).

- Relative radio-frequency protection ratio: The difference, expressed in dB, between the protection ratio when the carriers of the wanted and unwanted transmitters have a frequency difference of ΔF (Hz or kHz) and the protection ratio when the carriers of these transmitters have the same frequency.

5. Term relating to the service area

- Required service area (in HF broadcasting): The area within which an administration proposes to provide a broadcasting service.

L.W. BARCLAY
Chairman of Working Group 4-A

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 144-E
19 February 1987
Original: English

COMMITTEE 4

SEVENTH REPORT OF WORKING GROUP 4-A TO COMMITTEE 4

(See Document 122)

In response to the request by the Chairman of Committee 5 for information regarding protection ratios when high-stability transmitters are in use, Working Group 4-A considers that:

"There is no information available which would indicate that a quality of grade 3 could be obtained with a protection ratio of less than 17 dB when transmitters have very high stability. The existing values should be maintained until further quantified information becomes available. This is a suitable topic for future studies by the CCIR."

L.W. BARCLAY
Chairman of Working Group 4-A

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HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, **February-March 1987**

Document 145-E
19 February 1987
Original: English

Source: Document DT/127

COMMITTEE 5

NOTE BY THE CHAIRMAN OF COMMITTEE 4

TO THE CHAIRMAN OF COMMITTEE 5

The annexed text has been prepared by Committee 4. It is felt that the points considered are appropriate for assessing the performance of a Plan. Committee 5 is requested to consider the text and prepare it for inclusion in the planning process as deemed appropriate.

J. RUTKOWSKI
Chairman of Committee 4

Annex: 1

For reasons of economy, this document is printed in a limited number of copies. Participants are therefore kindly asked to bring their copies to the meeting since no others can be made available.

ANNEX

Performance assessment

In order to assess the performance of a requirement, the following values should be given for each 15 minute period, each hour, or for the duration of the requirement, as appropriate:

1) BBR - basic broadcast reliability at [X%] percentile of all test points;

2) percentage of test points for each frequency band where field strength is equal to or exceeds E_{min}, or (E_{min} - [Z]) where proportionally reduced protection applies;

[3) OBR* - overall broadcast reliability at [X%] percentile of all test points;]

4) SIR i) signal-to-interference value for each frequency band at [X%] percentile of test points where the field strength is equal to or exceeds E_{min}, or (E_{min} - [Z]) where proportionally reduced protection applies. [The test points which have been used in determining the signal to interference ratio should be indicated where possible**],

ii) percentage of test points for each frequency band where both the field strength is equal to or exceeds E_{min}, or (E_{min} - [Z]) where proportionally reduced protection applies, and the signal to interference ratio is equal to or exceeds [a specified value];

[5) F - number of frequency changes for each frequency band, associated with a requirement;]

6) Sp - extent of suspended periods associated with a requirement.

[* Overall reliability terms and, in particular, overall broadcasting reliability take into account the contributions of noise and interference to the reliability of a service in a particular, specified way. The majority of administrations which took part in the discussions consider that the impact of noise and interference should be indicated separately, and that overall reliability is an unnecessary concept. On the other hand, some administrations consider that overall reliability is a useful indicator and can be calculated easily and that values should continue to be calculated.]

[** The IFRB pointed out that the requirement to indicate the test points may add significantly to the computer memory required and to the volume of the reports.]

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS
ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 146-E
20 February 1987
Original: French

COMMITTEE 4

Vatican City State

PROPOSALS FOR THE WORK OF THE CONFERENCE

At meetings of short-wave broadcasters, complaints have always been voiced on the difficulties encountered by listeners as a result of the fact that many commercially available receivers fail to cover all the possible short-wave bands or do not display wavelength information precisely.

In order to reduce congestion in certain bands and to improve broadcasting and the use of the short-wave spectrum, the Delegation of the Vatican City State recommends that the HFBC Conference should draw the attention of manufacturers to the importance in future of providing commercially available broadcasting receivers capable of covering, as far as possible, all high frequency broadcasting bands and, if possible, having digital frequency displays.

Annex: 1

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ANNEX

Proposed draft Recommendation

Short-wave Receivers

The World Administrative Radio Conference for the Planning of the HF Bands Allocated to the Broadcasting Service (Geneva, 1987),

considering

a) that complaints are often voiced by short-wave broadcasters in connection with the difficulties experienced by listeners as a result of the fact that many commercially available receivers fail to cover all possible short-wave bands or have imprecise wavelength displays;

b) that to reduce congestion in certain bands and to achieve better spectrum utilization, the distribution of the short-wave broadcasting service should be promoted, even in the highest bands (21 and 26 MHz);

c) that the precise display of frequency information facilitates reception and as a result encourages short-wave listening on the part of the public,

recommends

that administrations should draw the attention of manufacturers to the need for future commercial broadcasting receivers to be able to cover, as far as possible, all HF broadcasting bands and, if possible, have digital frequency displays,

requests the Secretary-General

to bring the present Recommendation to the notice of the International Electrotechnical Commission (IEC).

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 147-E
20 February 1987
Original: English

Source: Documents 137, 141

COMMITTEE 4

EIGHTH AND LAST REPORT OF WORKING GROUP 4-A TO COMMITTEE 4

PROPAGATION PREDICTION METHOD

During the discussion in Working Groups 4-A and 4-A-5 on the propagation prediction method and the associated software, there were a number of questions relating to the availability to administrations of the software and its documentation. As a result of these questions, a member of the Board (Mr. Brooks) stated the following:

- the Board will include in its Technical Standards the documentation of the propagation prediction method implemented by the Board;
- the Board will make this software available to all administrations;
- the Board will prepare sufficient documentation for administrations to use this software and it will also be provided with the software;
- the Board, for its own purpose of software maintenance, will prepare a description of the software and this could be made available to administrations upon request;
- the Board cannot provide assistance to administrations in adapting the software to their own machines.

Annex 1 gives the text of a draft Recommendation [COM4/F] relating to the propagation prediction method to be used. The following note should accompany this Recommendation for the information of Committees 5 and 6.

Note - If the Conference decides to use an alternative procedure, such as a revision of Article 17, instead of planning, it may be appropriate to include words such as, for example, "from the time of entry into force of the Final Acts" instead of the words "in the post Conference period" in recommends 1.

Annex 2 is the text to be included in Document 136, section 3.3.

L.W. BARCLAY
Chairman of Working Group 4-A

Annexes: 2

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ANNEX 1

Draft

RECOMMENDATION [COM4/F]

Propagation Prediction Method to be Used for the [Planning] of the HF Bands Allocated to the Broadcasting Service

The World Administrative Radio Conference for the Planning of the HF Bands Allocated to the Broadcasting Service (Geneva, 1987),

considering

a) that the First Session of the Conference (Geneva, 1984) established a propagation prediction method to be used for the [planning] of the HF bands allocated to the broadcasting service;

b) the work by the CCIR during the intersessional period in improving some aspects of the adopted method;

c) that the IFRB has developed and implemented computer software* based on the propagation prediction method established by the First Session of the Conference (Geneva, 1984) and the further work by the CCIR and has used this for its intersessional work;

d) that the propagation prediction method and the associated computer software used by the IFRB is the starting basis for further improvements;

e) Recommendation [COM4/A] (Document 109) relating to Further Improvements to the Propagation Prediction Method to be Used for the Planning of the HF Bands Allocated to the Broadcasting Service,

recommends

1. that the propagation prediction method and the associated computer software to be used in the post Conference period shall be that implemented by the IFRB during the intersessional period;

2. that the IFRB prepare detailed documentation of the propagation prediction method, summarized in [Document 136, section 3.3], for inclusion in its Technical Standards;

3. that the procedures to be applied by the IFRB in the revision of relevant parts of its Technical Standards, as established in Resolution [COM6/1] (Document 112), be used for further improvements to this method.

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* Note - The most recent version of the computer software is available to administrations on request.

ANNEX 2

Statement to be included in section 3.3 of Document 136

SUMMARY OF THE PROPAGATION PREDICTION METHOD*

1. Introduction

The propagation prediction method, implemented by the IFRB and to be used in the post Conference period as a starting basis (Recommendation [COM4/F]), was established by the First Session. It is based on CCIR studies prior to the First Session, and on further studies by the CCIR of particular aspects of the method.

The method is used for the prediction of HF field strength for HF broadcasting purposes and is composed of three parts:

- for path lengths up to 7,000 km;
- for path lengths greater than 9,000 km;
- an interpolation procedure for path lengths between 7,000 and 9,000 km.

2. Ionospheric parameters

Values of the ionospheric parameters foF2, M(3 000)F2 and foE are obtained from the numerical maps (the Oslo coefficients) and the procedures set out in CCIR Report 340, at the locations of the control points required by the short and long range methods. From these parameters the basic MUFs for the required distances are obtained, again using the procedures of Report 340. Appropriate interpolations are made for the level of sunspot activity.

3. Distances up to 7,000 km

The short range method of prediction, based partly on CCIR Report 252-2, is used for path lengths up to 7,000 km. Calculations are also made by this method for path lengths between 7,000 and 9,000 km and the results are utilized in the interpolation procedure described later.

The method assumes great-circle propagation with reflection from the E-layer (for ranges up to 4,000 km) and from the F2-layer. The path is divided into a number of equal length hops, each less than 4,000 km, for F2-modes, and 2,000 km, for E-modes. The hops are assumed to have mirror reflections in the ionosphere at their mid points. The equivalent reflection height is taken as 110 km for E-modes, and is a variable, depending upon the values of the ionospheric parameters, for F2-modes.

For path lengths up to 4,000 km, screening of F2 propagation modes by the lower E-layer is applied when appropriate.

The central feature of the method is the prediction of the median field strength using the formula:

$$E_{ts} = 96.85 + P_t + G_t - 20 \log P' - L_i - L_m - L_g - L_h \ dB(\mu V/m).$$

---

* This summary of the propagation prediction method, implemented by the IFRB, is not intended to introduce any changes to the method.

P_t is the transmitter output power in dB relative to 1 kW and G_t is the isotropic antenna gain appropriate for the azimuth of the great circle path and the elevation angle computed for the path geometry and the number of hops being considered. P' is the virtual slant range in km, calculated along the ray paths. L_i, L_m, L_g and L_h are loss terms which account for the absorption loss (calculated for each hop and the results added), the "above the MUF" loss, the ground reflection loss and the auroral plus other signal losses, respectively. The numerical constant term includes, amongst other things, an allowance for those effects of sky-wave propagation not otherwise included in this simplified method.

Although for an isotropic antenna the predicted field strength would be greatest for propagation modes with the minimum number of hops, this is not necessarily the case for practical antennas. The calculation is repeated with progressively greater numbers of hops, taking account of the appropriate antenna gain in each case, until a maximum is found. So as to facilitate the calculation for the large number of cases considered by the IFRB, in the practical implementation field strength values have been pre-calculated and stored as tables for six F2-modes and six E-modes for the paths between all transmitter locations and all test points. During the consideration of each case the appropriate entries in these tables are referred to and the antenna gain factors applied.

The method selects the two strongest F2-modes (i.e. the modes with the highest field strengths) and, where appropriate, the strongest E-mode, and these values are combined by adding the signal powers together.

4. Distances greater than 9,000 km

For distances beyond 9,000 km, the method no longer uses geometric ray hops, hypothetical ray paths with a number of equal hops each less than 4,000 km are considered. Calculations are also made by this method for path lengths between 7,000 and 9,000 km and the results are utilized in the interpolation procedure described later.

In the method it is assumed that the field strength in the "transmission frequency range", i.e. between the lower frequency limit f_L and the upper frequency limit f_M, is determined by non-deviative absorption (near f_L) and deviative absorption (near f_M). The empirical fit to observations determines the shape of the curve between f_L and f_M as a function of the solar zenith angle, the path geometry etc. The overall median field strength is given by

$$E_{tl}=E_o\left[1-\frac{(f_M+f_H)^2}{(f_M+f_H)^2+(f_L+f_H)^2}\left(\frac{(f_L+f_H)^2}{(f+f_H)^2}+\frac{(f+f_H)^2}{(f_M+f_H)^2}\right)\right] \quad +P_t+G_{tl}+G_{ap}-32.5 \text{ dB}(\mu V/m)$$

$E_0 = 139.6 - 20 \log P'$, the free space field where P' is the slant range assuming that the height of the ionosphere is 300 km.

f is the frequency at which the prediction is made. f_M is the upper limit frequency; it is determined separately for the first and last hop of the path and the lower value is taken. $f_M = K.f_b$, where f_b is the basic MUF and K is a correction factor taking into account the diurnal variation and the absolute value of f_b; f_L is the lower frequency limit and is mainly dependent on the solar zenith angle; f_H is the gyro-frequency; P_t is the transmitter output power in dB relative to 1 kW; G_{tl} is the isotropic antenna gain, taken as the highest value in the range of vertical radiation angles from 0^o to 8^o at the

appropriate azimuth; and G_{ap} is the antipodal focussing gain, taking into account the increase in field strength at distances greater than 10,000 km. The numerical constant term includes, amongst other things, an allowance for those effects of sky-wave propagation not otherwise included in the method.

5. Distances between 7,000 and 9,000 km

In this distance range the field strengths E_{ts} and E_{tl} are determined by both of the above procedures and the resultant median field strength is obtained by linear interpolation, in decibels, as follows:

$$E_{ti} = E_{ts} + \frac{D - 7\,000}{2\,000} (E_{tl} - E_{ts}) \quad dB(\mu V/m),$$

where D is the path length in kilometres.

Note - The constant terms in the equations for E_{ts} and E_{tl} include the values of -7.3 dB and 3.9 dB, for the short and long range parts of the method, respectively, which were determined in CCIR Recommendation 621 following studies during the intersessional period.

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 148-E
20 February 1987
Original: French

COMMITTEE 5

Vatican City State

PROPOSAL FOR THE WORK OF THE CONFERENCE

Optimization of requirements and assignment of a second frequency

CVA/148/1 When an administration enters a range of possible powers and/or antennas in the form for a requirement, the IFRB is requested to optimize the frequency assignment as follows:

a) if the requirement is satisfied with a single frequency, the lowest possible power for the desired BBR should be used;

b) the best possible combination should be sought among the available powers and antennas for the processed requirement, in order to avoid assigning a second frequency if at all possible.

Reason:

To reduce interference and the number of frequencies used to serve the same area.

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HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS
ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 149-E
26 February 1986
Original: English

COMMITTEE 6

SUMMARY RECORD

OF THE

FOURTH MEETING OF COMMITTEE 6

(REGULATORY)

Friday, 20 February 1987, at 0900 hrs

Chairman: Mr. R. BLOIS (Brazil)

Subjects discussed:	Documents
1. Examination of the report of Working Group 6 ad hoc 2 (continued)	112, DL/14

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1. Examination of the report of Working Group 6 ad hoc 2 (continued)
(Documents 112, DL/14)

resolves 4 (continued)

1.1 The Chairman invited the Committee to consider the amended text (in Document DL/14) introduced by the delegate of India at the previous meeting.

1.2 The Chairman of the IFRB suggested that the final sentence be deleted.

1.3 The delegate of China proposed an alternative version which included a statement that if the Board disagreed with the majority of replies, it could apply the procedure in Resolution No. 35. The Chairman of the IFRB said it was not for the Board to have recourse to that Resolution. It could not challenge administrations.

1.4 The delegate of the United Kingdom proposed a less specific final sentence with no mention of the Board, which was further revised by the delegate of the United States of America following discussion and brief informal consultations.

1.5 After further discussion on an amendment by the Federal Republic of Germany, the Chairman said he took it that the Committee accepted the text contained in Document DL/14, with the words "consultative meeting of experts" retained and the term "information meeting" and the square brackets deleted, plus an additional sentence reading:

> "If a majority of replies received from administrations thereafter does not support the action proposed by the Board, the Board shall inform the administrations accordingly and provide an appropriate period for further comment before implementing the proposed changes;".

It was so agreed.

resolve 3 (resumed)

1.6 The Chairman reminded the Committee that, at the previous meeting, the delegate of Sweden had proposed that, at the end of the text, the term "into account" should be replaced by "into consideration".

Following a brief discussion in which the delegates of the Federal Republic of Germany, the United States of America, the United Kingdom, Algeria and Australia and the Chairman of the IFRB took part, it was agreed to retain the text as it stood in Document 112.

resolves 6

1.7 The delegates of Canada, India, Algeria, Kenya and the United States of America felt that resolves 6 could be deleted.

It was so agreed.

1.8 The Chairman, referring to the draft Resolution as a whole, drew attention to a number of square brackets which ought to be removed before the text was transmitted to the Editorial Committee.

1.9 The delegate of the United States of America, referring to the square brackets in considering a), b) and g) and in resolves 1 and 2, said that the word "parameters" should be retained throughout.

1.10 Following a brief discussion in which the delegates of the Federal Republic of Germany, Switzerland, China, Israel, Algeria and the United Kingdom took part, it was agreed to replace the square brackets and enclosed wording by the word "parameters" in those parts of the text.

It was also agreed, following a proposal by the delegate of Algeria, to add an asterisk to the title of the draft Resolution, together with a footnote, drawing attention to List B in Document 136; that inclusion would be subject to editorial amendment.

The draft Resolution, as amended, was approved and forwarded to the Editorial Committee.

The meeting rose at 1140 hours.

The Secretary: The Chairman:

M. AHMAD R. BLOIS

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS
ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 150-E
23 february 1987
Original : anglais
français
espagnol

LIST OF DOCUMENTS

(Documents 101 to 150)

N.o	Origin	Title	Destination
101	C.6	Summary Record of the Second Meeting of Committee 6	C.6
102	C.4	First series of texts from Committee 4 to the Editorial Committee	C.7
103	WG 2A	Second Report of the Working Group of Committee 2 (Credentials)	C.2
104	WG 4B	Fourth Report of Working Group 4B	C.4
105	WG 4B	Fifth Report of Working Group 4B	C.4
106 (Rev. 1)	C.4	Draft text for inclusion in the Final Acts - Draft Resolution [COM4/3]	C.4
107	WG 4A	Draft text for inclusion in the Final Acts - Draft Recommendation [COM4/D]	C.4
108	C.6	Note from the Chairman of Committee 6 to the Chairman of Committee 4	C.4
109 + Corr.1	C.7	B.1	PL
110	LBY	Proposal for the work of the Conference - Planning principles	C.5
111	C.5	Summary Record of the Fifth Meeting of Committee 5	C.5
112	Ad Hoc 6-2	Report by the Chairman of Working Group 6 Ad Hoc 2	C.6
113	C.6	First series of texts from Committee 6 to the Editorial Committee	C.7
114	C.6	First Report of Chairman of Committee 6	PL
115	WG 4B	Sixth Report of Working Group 4B	C.4
116	WG 4A	The provision of additional frequencies	C.4

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N.o	Origin	Title	Destination
117 + Corr.1	WG 4A	Reliability	C.4
118	WG 4A	Third Report of Working Group 4A to Committee 4	C.4
119	C.4	Proposed modification to the Radio Regulations related to the work of Committee 4	C.6
120	USA	Summary of results of the IFRB planning tests	C.5
121	C.4	Summary Record of the Fifth Meeting of Committee 4	C.4
122	C.5	Note by the Chairman of Committee 5 to the Chairman of Committee 4	C.4
123	HOL	Proposal relating to Agenda item 2.1.2	C.5
124	SG	Limit of expenditure laid down by the 1982 Nairobi Conference for WARC HFBC	C.3
125	SG	Situation of accounts of the Conference as at 10 February 1987	C.3
126	ALG	Proposal	C.5
127	WG 4A	Fourth Report of Working Group 4A to Committee 4	C.4
128	WG 5A	Note by the Chairman of Working Group 5A	C.5
129	C.4	Second series of texts from Committee 4 to the Editorial Committee	C.7
130	C.4	Third series of texts from Committee 4 to the Editorial Committee	C.7
131 + Corr.1	C.4	Proposed modifications to articles of the Radio Regulations concerning the use of the HF bands allocated to the broadcasting service related to the work of Committee 4	C.6
132	C.4	Note from the Chairman of Committee 4 to the Chairmen of Committees 5 and 6	C.5, C.6
133	PL	Minutes of the Sixth Plenary Meeting	PL

N.o	Origin	Title	Destination
134	WG 5A	Note by the Chairman of Working Group 5A	C.5
135	C.5	Note by the Chairman of Committee 5 - Terms of reference of Working Groups	C.5
136	WG 4A	Fifth Report of Working Group 4A to Committee 4 - Double-sideband system specification for the HF bands allocated to the broadcasting service	C.4
137	Ad Hoc 4A-5	Draft - Recommendation [COM4/F] - Propagation Prediction Method to be Used for the [Planning] of the HF Bands Allocated to the Broadcasting Service	WG 4A
138	C.7	B.2	PL
139	F, CAN	Proposed establishment of a Group of Experts	C.5, C.6
140	C.3	Summary Record of the Second Meeting of Committee 3	C.3
141	Ad Hoc 4A-5	Outline of the propagation prediction method	WG 4A
142	C.6	Summary Record of the Third Meeting of Committee 6	C.6
143	WG 4A	Sixth Report of Working Group 4A to Committee 4	C.4
144	WG 4A	Seventh Report of Working Group 4A to Committee 4	C.4
145	C.4	Note by the Chairman of Committee 4 to the Chairman of Committee 5	C.5
146	CVA	Proposals for the work of the Conference	C.4
147	WG 4A	Eighth and last Report of Working Group 4A to Committee 4 - Propagation prediction method	C.4
148	CVA	Proposal for the work of the Conference - Optimization of requirements and assignment of a second frequency	C.5
149	C.6	Summary Record of the Fourth Meeting of Committee 6	C.6
150	SG	List of documents (101 to 150)	-

HFBC (2) INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, **February-March 1987**

Document 151-E
24 February 1987
Original: English

COMMITTEE 4

SUMMARY RECORD

OF THE

SIXTH MEETING OF COMMITTEE 4

(TECHNICAL)

Thursday, 19 February 1987, at 1540 hrs

Chairman: Mr. J. RUTKOWSKI (People's Republic of Poland)

Subject discussed:	Documents
1. Reports of Working Group 4-A	127, DT/46, 136

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1. Reports of Working Group 4-A (Documents 127, DT/46 and 136)

Fourth report of Working Group 4-A (Documents 127 and DT/46)

1.1 The Chairman of Working Group 4-A said that it had been agreed to examine performance assessment in association with overall reliability, considered in Working Group 4-A ad hoc 2. After some discussion it had been decided that the square brackets around values 3) and 5) could not be removed, but that footnote * should be replaced by the draft Note in Document DT/46, with the insertion of the words "which took part in the discussions" after "administrations" in the fourth line of that text.

Document 127 was approved as amended.

Fifth report of Working Group 4-A (Documents 136 and DT/46)

1.2 The Chairman of Working Group 4-A said that Document 136 consisted of two lists, one of the planning and technical parameters which were not likely to be improved and the other of system planning and technical parameters which might be improved in the future as the result of further studies. With regard to the notes on page 1, he presumed that the amendment approved for footnote * in Document 127 would be incorporated in Note 2 to Document 136 and suggested that the words "(see Document 127)" should be inserted at the end of the second sentence.

1.3 The delegate of Syria said he considered that noise and interference should be regarded as an overall factor when a protection ratio below 17 dB was involved, particularly with respect to allocations of two or more frequencies.

1.4 The Chairman of Working Group 4-A said that that subject had not been discussed in the Working Group because the business of bodies of Committee 4 was not to determine any actual values, but to establish technical bases on which Committee 5 could proceed.

1.5 The delegate of Syria said that, since the First Session had adopted overall broadcasting reliability (OBR) as the main characteristic for quality testing, there seemed to be no reason for the Technical Committee not to take that concept into account.

1.6 The delegate of the USSR agreed with the previous speaker that replacement of the concept of OBR by that of overall reception reliability (ORR) or by some more general concept would make it very difficult to assess technical characteristics. The ORB parameter was not only useful, but necessary and the IFRB, with its wide experience, should have no difficulty in inserting it among the other parameters.

1.7 The Chairman of Working Group 4-A said that the text of Document DT/46 correctly summarized the discussions on the subject in Working Group 4-A and Working Group 4-A ad hoc 2. It should be borne in mind that it was for Committee 5 to decide on the best methods to be used for planning. Moreover, it was not surprising that the concept of ORR, invented at the First Session and since satisfactorily tested, was now regarded as preferable by a number of administrations.

1.8 The delegate of New Zealand said it would be a pity to discard the concept of OBR, which was the only parameter that included the two factors of interference and noise, without adopting any acceptable replacement. Committee 5 should be able to take the OBR parameter as one of the bases for plan assessment.

1.9 The delegate of Algeria, supported by the delegate of India, said that the note in Document DT/46, as amended, gave a fair account of the views expressed on the subject. The text should therefore be approved for referral to Committee 5, without reopening the long discussions that had already taken place.

1.10 The Chairman suggested that Note 2, as amended, should be forwarded to Committee 5, with which the final decision rested.

1.11 The delegate of Syria proposed the insertion of the words "which can be calculated easily" after "useful indicator" in the last line of the note. The delegate of the USSR supported that amendment.

1.12 The representative of the IFRB said that, in the final program for calculating OBR, which now included BBR and SI values, ICR had to be calculated first, followed by OCR and then by ORR. Accordingly, a considerable amount of computer time was involved.

1.13 The Chairman said that the computer time needed to calculate OBR had been taken into account during the discussions in Working Group 4-A and Working Group 4-A ad hoc 2. Nevertheless, the Committee might wish to incorporate the Syrian proposal in Note 2.

The Syrian amendment was approved.

1.14 In response to a comment by the Chairman of Working Group 4-A, the Chairman said that the Syrian amendment should also be embodied in footnote * to Document 127.

1.15 The delegate of France said that since the body of the text of Document 136 was bound to contain references to parameters that would be applicable to systems other than the double-sideband system, the overall title "Double-sideband system specification for the HF bands allocated to the broadcasting service" should perhaps be amended to reflect that point.

1.16 The Chairman of Working Group 4-A said that the text had been developed with reference to the double-sideband system only since the terms of reference of Working Group 4-A and its Sub-Group had been restricted to that subject. There would very probably be room at a later stage for amalgamation and readjustment of texts to take account of points applicable to both the double-sideband and single-sideband systems.

1.17 The Chairman reminded the Committee it still had to consider the corresponding texts for the single-sideband system. Until that had been done, he suggested that the present title should be retained and any consideration of amalgamation postponed.

It was so agreed.

Section 1.2 (Proportionally reduced protection)

With two editorial amendments indicated by the Chairman of Working Group 4-A, section 1.2 was approved.

Section 1.3 (Required service areas and test points)

1.18 The delegate of Syria considered that the text should specify that the service areas defined by the procedure set out in section 1.3 would not be used as the service areas for application of the HFBC Planning System, otherwise serious problems of incompatibility would arise.

1.19 The representative of the IFRB (Mr. Brooks) said that the purpose of the service areas defined by the procedure set out in section 1.3 was to provide input to the HFBC Planning System. When the stage of implementing the HFBC Planning System was reached, the usual rules for determining congestion and incompatibility in common geographic areas would be applied. In other words, any requirement found incompatible in part of a quadrant would be considered incompatible for the whole quadrant.

1.20 On the understanding that the definition of a required service area by a part of a quadrant specified by the set of test points would not be used by the IFRB in its application of the rules to solve incompatibility, the delegate of Syria withdrew his objection to section 1.3

Section 1.3 was approved.

Section 1.4 (Seasonal divisions of the year and representative months)

1.21 The Chairman of Working Group 4-A noted an editorial amendment to the text.

1.22 The delegate of Qatar proposed that a third column should be added to the table indicating the symbols of the seasons.

With those amendments, section 1.4 was approved.

Section 1.5 (Solar index values)

1.23 The representative of the IFRB (Mr. Brooks) suggested that the words "provided by the Director of the CCIR" should be deleted from the second paragraph. It was not usual to identify the source of information in that way in a document that constituted an international treaty.

With that amendment, section 1.5 was approved.

Section 1.6.1 (Calculation of basic circuit reliability)

1.24 The Chairman of Working Group 4-A indicated an editorial correction to Table [3-8]. Furthermore Note 2 to Table [3-8] had been placed in square brackets as it was a new note to that table. The wording, however, was similar to that for Note 2 iv) to Table [3-9].

1.25 The delegate of Canada proposed that the words "are equal" be added to the third line of Note 2 after "wanted field strengths" in order to align the wording with that of Note 2 iv) of Table [3-9].

With that amendment and removal of the square brackets around Note 2, section 1.6.1 was approved.

Section 1.6.2 (Calculation of [overall/interference] circuit reliability)

2.26 The Chairman of Working Group 4-A noted that, as elsewhere in the text, references to overall circuit reliability had been left in square brackets pending review by Committee 5. He indicated an editorial change to the last part of the second sentence of Note 1 to the table.

2.27 The delegate of Canada said that the words "for separation $\leq$ 20 kHz" in the second sentence of Note 1 to Table [3-9] were redundant and proposed their deletion.

It was so agreed.

2.28 In reply to a question from the delegate of Ghana, the Chairman of Working Group 4-A said that the equation given in step 3 of Table [3-9] was a simplified version of the equation that had appeared in earlier texts. The two versions of the equation were however mathematically identical.

In reply to a question from the representative of the IFRB, he said that the term "Note 1" appearing in the fourth line of Note 2 iv) to Table [3-9] referred to Note 1 of Table III of CCIR Report 266-6. The relevant part of Note 1, however, had now been reproduced as Note 2 i) to Table [3-9]. The term "Note 1" should therefore be replaced by "Note 2 i)".

That amendment was approved.

Section 1.6.2, as amended, was approved.

The meeting rose at 1705 hours.

The Secretary: The Chairman:

T. O'LEARY J. RUTKOWSKI

HFBC (2) INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, **February-March 1987**

Document 152-E
24 February 1987
Original: English

COMMITTEE 4

SUMMARY RECORD

OF THE

SEVENTH MEETING OF COMMITTEE 4

(TECHNICAL)

Friday, 20 February 1987, at 1050 hrs

Chairman: Mr. J. RUTKOWSKI (People's Republic of Poland)

Subjects discussed:		Documents
1.	Report of Working Group 4-A	136, 143, 144
2.	Antennas	106(Rev.1)
3.	Reliability	117 + Corr.1
4.	Additional frequencies	116, DL/10

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1. Report of Working Group 4-A (Documents 136, 143 and 144)

1.1 The Chairman of Working Group 4-A reported that his Working Group had held its final meeting earlier in the day and that its report was expected to be available by the afternoon.

1.2 The Chairman invited the Committee to resume its consideration of the fifth report of Working Group 4-A in Document 136.

Sub-section 1.6.5

1.3 The representative of the IFRB (Mr. Brooks) said that the third paragraph was not clear as drafted, and suggested that it be reworded on the following lines:

> "Section [1.7] specifies the manner in which the test points are identified for determining the broadcast reliability for the use of BBR ...".

1.4 The delegate of the United States of America, observing that section 1.7 determined additional frequencies on how test points were to be used, wondered whether the representative of the IFRB now proposed to change the meaning of the text.

1.5 The Chairman of Working Group 4-A said that section 1.7, and in particular sub-section 1.7.3 in its second paragraph, identified the points and then stated how to compute the BBR. The proposal made by the representative of the IFRB was therefore satisfactory.

It was decided, in the light of new wording subsequently agreed for sub-section 1.7, to delete the third paragraph.

Section 1.7

1.6 The Chairman of Working Group 4-A pointed out that Document DL/10, which would be considered later in the meeting, dealt with those paragraphs of sub-section 1.7.3 which were in square brackets and which would probably need to be replaced. Sub-section 1.7.3 should therefore be left in abeyance for the time being.

It was so agreed.

List B - section 3.1

1.7 The Chairman of Working Group 4-A pointed out that the values for sub-section 3.1.1 would be provided by Committee 5. Section 3.3 should be left in abeyance for the time being until the ad hoc Working Group provided a suitable text.

It was so agreed.

It was agreed to transmit Document 136 to the Editorial Committee on a provisional basis, in spite of the sections left in abeyance. A note would be added, reminding the Editorial Committee that the document was subject to decisions from Committee 6.

Sixth report of Working Group 4-A

1.8 The Chairman of Working Group 4-A said that Document 143 contained a list of definitions agreed in the Working Group; with one exception they were identical to those adopted at the First Session, although the Working Group had decided to eliminate a certain number. The definition for percentile was new, and had been included on account of the confusion which had arisen in respect of the way in which it was to be computed. Note 2 was in square brackets for reasons previously explained.

Document 143 was approved for transmission directly to the Editorial Committee.

Seventh report of Working Group 4-A

1.9 The Chairman of Working Group 4-A said the Working Group proposed that the second paragraph of Document 144 be transmitted to Committee 5 in response to its request for information regarding protection ratios when high-stability transmitters were in use.

1.10 The Chairman, in reply to a point raised by a representative of the IFRB on the different frequency tolerance values that could be used to obtain protection ratios (as indicated by his own tests, the recommendation to administrations in paragraph 2 of section 3.3.1 of the Report to Second Session, and in CCIR Report 794), said that after a lengthy discussion the Working Group had concluded that there was no evidence of any improvement in quality grade when the protection ratio was 17 dB or less.

1.11 The delegate of Algeria said that in his experience there was a definite improvement if the frequency tolerance was 0.1 Hz. If the representative of the IFRB could confirm that, a note might be inserted in the document accordingly. While agreeing with the Chairman that there was no input document that could give quantitative numbers, a document produced by the Delegation of Australia might perhaps be used as a reference document.

1.12 The delegate of Australia said that his Delegation was not proposing a reduction in that parameter, but if a decision were taken by the Conference to reduce it, the Australian Delegation would like to see other parameters tightened.

It was agreed at the suggestion of the delegate of India that the first sentence of the paragraph should read: "There is no quantified information available which would indicate that a quality of grade 3 could be obtained with a protection ratio of less than 17 dB when transmitters have very high stability of the order of 0.1 Hz."

Document 144, as amended, was approved.

2. Antennas (Document 106(Rev.1))

2.1 The delegate of Finland proposed that the square brackets around paragraph invites administrations 1 in the text of the revised draft Resolution in Document 106(Rev.1) should be removed and that the words "further invites administrations" should be inserted between that paragraph and the next, the text of the latter paragraph also remaining unchanged. The numbers 1 and 2 preceding the two paragraphs would thus become redundant and should be deleted.

2.2 The representative of the IFRB (Mr. Brooks) suggested that paragraph considering a) should be deleted and that a reference to Nos. 1001 and 1770 of the Radio Regulations should be added in square brackets to paragraph considering d), which already contained, also in square brackets, a reference to No. 1454. In response to a point raised by the delegate of the United States of America, he agreed that a reference to Resolution COM6/1 (Document 112) should also be included in considering b).

2.3 The delegate of the Netherlands proposed that a reference to section II of Document 118 should likewise be included in the paragraph "further invites administrations" and placed in square brackets.

Those proposals were accepted and Document 106(Rev.1), thus amended, was approved.

3. Reliability (Document 117 + Corr.1)

3.1 The Chairman of Working Group 4-A said that the text of Document 117 and its corrigendum were superseded by Document 136 as amended, which would be the only document on the subject under consideration to be communicated by Committee 4 to other committees.

Documents 117 and Corr.1 were noted.

4. Additional frequencies (Documents 116 and DL/10)

4.1 The Chairman of Working Group 4-A said that the text in Document DL/10 was proposed for insertion in Document 136 as 1.7.3, which the Committee had provisionally decided to leave in square brackets. The figure 3.8.3 preceding the heading should be amended to read "1.7.3" and the reference to paragraph 3.2.4.5 in footnote 1 should be 1.6.5.

4.2 The Chairman of Drafting Group 1 of Committee 4, introducing Document DL/10, said that the first paragraph was identical to that of section 3.8.3 of Document 116. The second paragraph contained minor changes designed to meet the view put forward at an earlier meeting that references to P% and R% should be avoided. The main substantive change was in the third paragraph, but all the wording used was to be found in the Report to the Second Session. Footnote 1 remained unchanged except for the reference to paragraph 1.6.5, as already indicated. In footnote 2, the reference to Figure 3-14 had been replaced by two equations drawn from page 75 of Document 8.

Replying to a query by the delegate of the United States of America, he said that the Drafting Group had considered it useful to retain a reference to Figure 3-14 in the third paragraph of the text.

Document DL/10 was approved for insertion in Document 136 on the understanding that the square brackets would be removed from paragraph 1.7.3 of that document.

4.3 In response to a suggestion by the Chairman of Committee 7, the Chairman said that a revised version of Document 136 incorporating all relevant texts from Documents 117, 116 and DL/10 would be issued shortly.

The meeting rose at 1210 hours.

The Secretary: The Chairman:

T. O'LEARY J. RUTKOWSKI

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS
ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Corrigendum 1 to
Document 153-E
30 April 1987
Original: English

COMMITTEE 4

SUMMARY RECORD

OF THE

EIGHTH MEETING OF COMMITTEE 4

(TECHNICAL)

Paragraphs 4.5 and 4.6

Reverse the order of the above two paragraphs.

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HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS
ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 153-E
25 February 1987
Original: English

COMMITTEE 4

SUMMARY RECORD

OF THE

EIGHTH AND LAST MEETING OF COMMITTEE 4

(TECHNICAL)

Friday, 20 February 1987, at 1435 hrs

Chairman: Mr. J. RUTKOWSKI (People's Republic of Poland)

Subjects discussed:		Documents
1.	Reports of Working Group 4-B	105, 115
2.	Eighth report of Working Group 4-A	147
3.	Note from the Chairman of Committee 5	122
4.	Reconsideration of Recommendation COM4/A	109
5.	Draft Recommendation on short-wave receivers	146
6.	Second series of texts from Committee 4 to the Editorial Committee	129
7.	Completion of the Committee's work	-

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1. Reports of Working Group 4-B (Documents 105, 115)

Fifth report of Working Group 4-B

1.1 The Chairman reminded the Committee that it had already approved the text of Resolution COM4/2, but still had to consider the annex thereto, which appeared on pages 3 and 4.

1.2 The delegate of Japan said that, since the objective of Resolution COM4/2 was to give a really clear picture of the transition from DSB to SSB working, the date for the cessation of DSB emissions should be set for the foreseeable future. Accordingly, although his Delegation understood the concern of many administrations, it would be in favour of an earlier date than the one given in paragraph 2 of the annex, perhaps the year 2005, or 2010 at the latest.

1.3 The delegate of Canada, drawing attention to resolves paragraph 2 of the Resolution, pointed out that the whole text would have no force unless a reasonable date was given in the annex. His Delegation was in favour of the year 2005, as proposed by Japan.

1.4 The delegate of Syria, referring to paragraph 1, said his Delegation could not agree that the transition period should start with immediate effect and proposed that the period should begin in 1995.

1.5 The Chairman observed that no such proposal had been made in any of the bodies that had discussed the matter at length. In any case, paragraph 1 merely stated the existing situation: nothing in the present Radio Regulations prohibited the use of SSB emissions, which had already been started by a number of administrations.

1.6 The delegate of Norway said that, in view of the congestion in the HF bands, it was indeed surprising that the transitional period was to start one third of a century after WARC-79 when the transition had first been proposed and when the congestion had been much less. His Administration had conducted a very successful experiment with SSB emissions, during which it had been found that the cost of the transition represented 1% to 2% of the total cost of transmitting equipment. Regrettably, interference had compelled his Administration to revert to DSB working, but it was hoped ultimately to transfer to SSB emissions, which ensured more stable transmission of better quality. His Delegation considered that it would be logical for the transition period to end in the year 2000, but could support the Japanese proposal for 2005.

1.7 The Chairman said that the annex should be considered paragraph by paragraph.

With regard to paragraph 1, he wished to place on record what he had said at the sixth Plenary Meeting in connection with Recommendation COM4/B. There seemed to be a profound misunderstanding of the economic implications of the transition from DSB to SSB working. He was absolutely convinced that it was in the best interests of every administration installing new transmitters to have them immediately equipped for both DSB and SSB working. As the Norwegian delegate had pointed out, and as it had been stated on many occasions during the Conference, the difference between the cost of equipment operating in the DSB mode only and that of transmitters capable of using both modes did not exceed 2% of the total cost of transmitting equipment. Energy economy was a further

argument in favour of two-mode transmitters, and many manufacturers were already offering various levels of power for such equipment. In fact, purchase of new transmitters capable of working in the DSB mode only would be to the economic disadvantage of countries deciding to do so, since transition to SSB emissions at the end of the stipulated period would then involve considerable expenditure.

1.8 The delegates of Yugoslavia and Algeria said that paragraphs 1 and 2 of the annex should be regarded as a single compromise package and could not be considered separately, since any new starting point for the transition period would entail a change in the date given in paragraph 2, which had been arrived at after much debate, with due consideration of the life of the equipments concerned. The delegate of Zimbabwe said he agreed that the two paragraphs were interconnected, but appreciated the argument that the introduction of transmitters without SSB capability would result in a waste of resources. His Delegation therefore supported paragraph 1 and could accept the date of 2015 in paragraph 2, provided it covered the life-span of the equipment concerned.

1.9 The representative of the IFRB (Mr. Brooks), pointed out that, since some administrations had already introduced SSB emissions, the effect of proposals to change the starting date of the transition period might be to prohibit the use of those emissions until the proposed starting date. Surely that could not be the intention of such proposals?

1.10 The delegate of the United Kingdom, speaking as the Chairman of Working Group 4-B ad hoc 3 said that paragraphs 1 and 2 were the result of a compromise of all the views expressed during the Group's debates. The date for the cessation of DSB emissions had been set in order to make it clear that there was a serious intention to effect the transition. The date of 31 December 2015 was a compromise between the proposed dates of the year 2000 and others far beyond 2020. He would suggest that that compromise was the only one that could reasonably be accepted by the Conference. The delegates of Yugoslavia, Zimbabwe, Senegal, Algeria, China, India and Ghana supported that statement.

1.11 The delegate of the USSR said it was hard to see how any definite date could be set at present for the cessation of DSB emissions, in view of the wide range of dates that had been proposed in the Committee's subsidiary bodies - from 2010 to 2045. The date in paragraph 2 was not justified in any way and really had no meaning. It might be better to adopt the more flexible approach of setting a range of dates, between 2000 and 2020. In any case, it should be made clear that the date was provisional.

He proposed that the opening words of paragraph 2 of the annex should be amended to read:

> "The provisional date by which all double-sideband emissions shall cease shall be ...".

The delegate of the Ukrainian SSR supported that proposal.

1.12 The delegate of Algeria said that, if that amendment were to be approved, he would be obliged to ask that resolves paragraph 2 of Resolution COM4/2 should be placed in square brackets.

1.13 After some further discussion, the delegate of the USSR withdrew his amendment, reserving his Delegation's right to return to the subject at a Plenary Meeting.

1.14 The delegate of the Netherlands expressed his Delegation's reservations concerning the date in paragraph 2 of the annex.

1.15 The delegate of Syria reserved his Delegation's right to revert to his proposal concerning paragraph 1 at a Plenary Meeting.

1.16 The Chairman invited the Committee to approve the annex to Resolution COM4/2 with the removal of the square brackets round the dates in paragraphs 2, 4, 5 and 6 and with some editorial amendments suggested by the Chairman of Working Group 4-B.

Document 105 was approved as amended.

Sixth report of Working Group 4-B (Document 115)

The Committee approved the conclusions set out in Document 115.

2. Eighth report of Working Group 4-A (Document 147)

2.1 The Chairman of Working Group 4-A, introducing Document 147, said that during the discussion in Working Groups 4-A and 4-A ad hoc 5 on the propagation prediction method and the associated software, a number of questions had been raised relating to the availability to administrations of the software and its documentation. As a result of those questions, Mr. Brooks had made the following statement:

- the Board would include in its Technical Standards the documentation on the propagation prediction method implemented by the Board;
- the Board would make that software available to all administrations;
- the Board would prepare sufficient documentation for administrations to use that software and it would also be provided with the software;
- the Board, for its own purpose of software maintenance, would prepare a description of the software and that could be made available to administrations upon request;
- the Board could not provide assistance to administrations in adapting the software to their own machines;

The Committee took note of the Board's statement.

Recommendation [COM4/F]

2.2 The Chairman drew attention to an editorial amendment to the title and the delegate of France drew attention to editorial corrections to paragraphs considering e) and recommends 2 and 3.

With those amendments and with the addition of the note for the information of Committees 5 and 6 given in the introductory part of Document 147, Recommendation [COM4/F] was approved.

Annex 2 (Summary of the propagation prediction method)

Approved.

2.3 The Chairman said that the work of Working Groups 4-A and 4-B had been completed. Following a suggestion by the delegate of France, he proposed that the Chairman of Committee 7 and the Chairmen of Working Groups 4-A and 4-B should meet to consider any necessary editorial alignments of the titles and terminology of the texts relating to DSB and SSB systems. Any alignments they proposed would appear in the texts to be submitted to the Plenary Meeting.

It was so agreed.

3. Note from the Chairman of Committee 5 (Document 122)

3.1 The Chairman of Committee 4 noted that the matter raised in Document 122 had been dealt with by Committee 4 at its previous meeting during its discussion of Document 144.

It was agreed that the reply to Committee 5 would be based on the conclusions of that discussion.

4. Reconsideration of Recommendation COM4/A (Document 109)

4.1 The Chairman recalled that a number of points of substance had been raised during discussion of Recommendation COM4/A in the Plenary; the text had therefore been referred back to the Committee for reconsideration. The IFRB statement earlier in the meeting (paragraph 2.1) on the software associated with the propagation prediction method covered by the Recommendation, had clarified some of the matters on which concern had been expressed. He indicated an editorial amendment to the title.

4.2 The delegate of France said that the word "further" was unnecessary in the title and proposed its deletion.

4.3 The delegate of Brazil reiterated the concern he had expressed in the Plenary about the use of the word "planning" in the title, and in paragraph requests the CCIR. The text of the Recommendation should be such that it would be applicable regardless of whether a Planning System or use of a revised Article 17 was decided upon.

4.4 The representative of the IFRB (Mr. Brooks) said that the concerns expressed by the various speakers might be met by amending the title to read:

> "Relating to improvements to the propagation prediction method to be used for the HF bands allocated exclusively to the broadcasting service."

It was so agreed.

4.5 The delegate of the Netherlands said that the word "further" in the first line of paragraph requests the CCIR was unnecessary and proposed its deletion.

4.6 The representative of the IFRB (Mr. Brooks) recalled that it had been decided in Plenary to replace the words "Recommendation COM5/1" by "the requests" in paragraph considering b).

With regard to Brazil's concern about that paragraph, he reminded the Committee that in the discussion in Plenary amended wording for the second half of that paragraph had been proposed as follows:

> "... and to recommend improvements in the method to be used in the future for the HF bands exclusively allocated to the broadcasting service."

A lengthy discussion ensued on the question of whether or not that amended wording implied that the improvements to be proposed by the CCIR were exclusively restricted to the propagation prediction method now before the Conference (Document 147, Annex 2). The delegate of India stated, with the support of the delegate of Algeria, that her main concern was that the studies requested of the CCIR should be for the purpose of improving the existing propagation prediction method and not for the purpose of developing some, as yet unknown, entirely new method. The delegate of the United Kingdom, supported by the delegates of the United States and the Federal Republic of Germany, expressed concern that whatever wording was adopted, it should not exclude the possibility of applying any new method that might be developed in the future by a CCIR Study Group in the course of its normal work.

4.7 In order to meet both those concerns and to take account of the rest of the discussion, the delegate of the United States, with the assistance of the delegates of the Federal Republic of Germany, the United Kingdom and Qatar, proposed the following amended text for the paragraph requests the CCIR:

> "to undertake studies of the HF propagation prediction method [adopted by this 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."

That text was approved.

Recommendation COM4/A, as amended, was approved.

5. Draft Recommendation on short-wave receivers (Document 146)

5.1 The Chairman drew attention to an editorial amendment to the title of the draft Recommendation.

5.2 The draft Recommendation was supported by the delegates of Canada, Brazil, the Netherlands and India.

5.3 The delegate of Canada, supported by the delegates of Brazil and the Netherlands, suggested further that the text should also recommend that future receivers be capable of receiving SSB transmissions.

5.4 The Chairman drew attention to the fact that SSB transmission was the subject of a separate Resolution, which covered the concern of the Canadian Delegation.

5.5 The delegate of Algeria, supporting the proposed draft Recommendation, suggested that the words "to be low-cost" be added after "broadcasting receivers" in the second line of the paragraph recommends.

It was so agreed.

5.6 The delegate of the Federal Republic of Germany questioned the applicability of the term "commercial" in the second line.

It was agreed to delete the word "commercial".

The draft Recommendation, as amended, was approved.

6. Second series of texts from Committee 4 to the Editorial Committee (Document 129)

6.1 The Chairman noted that, in accordance with earlier decisions, the words "HF Planning System" in the title of the final table should be placed in square brackets.

6.2 The Chairman of Committee 7 said that the Editorial Committee had noted that the wording of paragraph considering f) did not correspond to the title of Appendix [COM4/A] and suggested that it be amended to do so.

Those amendments were approved.

7. Completion of the work of the Committee

After the customary exchange of compliments, the Chairman declared the Committee's work completed.

The meeting rose at 1740 hours.

The Secretary: The Chairman:

T. O'LEARY J. RUTKOWSKI

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS
ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 154-E
20 February 1987
Original : English
French
Spanish

Origin : Documents 105, 106(Rev.1), 143

COMMITTEE 7

FOURTH SERIES OF TEXTS FROM COMMITTEE 4 TO THE EDITORIAL COMMITTEE

The texts mentioned in Documents 105, 106(Rev.1) and 143, slightly amended, are submitted to the Editorial Committee.

J. RUTKOWSKI
Chairman of Committee 4

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HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS
ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 155-E
20 February 1987
Original: English

COMMITTEE 7

SECOND SERIES OF TEXTS FROM COMMITTEE 6 TO THE EDITORIAL COMMITTEE

The text of Resolution [COM6/1] (HFBC-87) is hereby submitted to the Editorial Committee.

R. BLOIS
Chairman of Committee 6

Annex: 1

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ANNEX

Source: DT/33

Draft text for inclusion in the Final Acts

RESOLUTION [COM6/1] (HFBC-87)

Procedure to be Applied by the IFRB in the Revision of Relevant Parts of its Technical Standards Used for HF Broadcasting

The World Administrative Radio Conference for the Planning of the HF Bands Allocated to the Broadcasting Service (Geneva, 1987),

considering

a) that it has considered in detail the technical parameters used for HF broadcasting;

b) that the planning exercises carried out by the IFRB in the period between the two sessions of the Conference indicated that an improvement of some of the technical parameters such as the field strength prediction method and others may need to be implemented with some flexibility depending on the continuing actual implementation of plans and the results of technical studies by the CCIR;

c) that in accordance with No. 1001 of the Radio Regulations, among the functions of the Board is the development of its Technical Standards;

d) that in accordance with the provisions of No. 1454 of the Radio Regulations, the Technical Standards of the Board shall be based on the relevant provisions of the Radio Regulations and the Appendices thereto, the decisions of administrative conferences of the Union, as appropriate, the Recommendations of the CCIR, the state of the radio art and the development of new transmission techniques, account being taken of exceptional propagation conditions which may prevail in certain regions (for example, particularly pronounced ducting);

e) that in accordance with [No. 1770 of the Radio Regulations], the IFRB Technical Standards shall be based on the above as well as on the experience gained by the Board in applying the periodic planning process;

f) that, with respect to the Technical Standards, the CCIR could provide competent advice on technical matters;

g) the importance of active involvement of administrations in the process of changes in the technical parameters,

resolves

1. that following each CCIR Plenary Assembly the IFRB shall review its Technical Standards relating to the technical parameters of HF broadcasting in the light of the new CCIR Recommendations or modifications to existing CCIR Recommendations and shall circulate to all administrations the results of its review indicating the reasons for its proposed actions;

2. that whenever the IFRB considers it appropriate to review its Technical Standards relating to the technical parameters of HF broadcasting without departing from the decisions of this Conference, it shall circulate to all administrations the proposed changes and the reasons for them;

3. that before implementing any changes, the IFRB shall request administrations to give their comments on subjects referred to in resolves 1 and 2, within 4 months and the Board shall take them into account;

4. that the IFRB should circulate a summary of comments it received from the administrations along with the Board's views thereon, including the necessity or otherwise of organizing a consultative meeting of experts, before a final decision is taken. If a majority of replies received from administrations thereafter supports the action proposed by the Board, the Board shall proceed accordingly. If the majority of replies received from administrations does not support the action proposed by the Board, the Board shall inform the administrations accordingly and provide an appropriate period for further comments before implementing the proposed changes;

5. that on the subject referred to in resolves 1, and ensuing action under resolves 3 and 4, if the IFRB Technical Standards are not modified, the IFRB shall prepare a contribution to the CCIR indicating the parts of the CCIR Recommendation that were not included in the IFRB Technical Standards together with any information necessary for the reconsideration of the matter;

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS
ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 156-E
20 February 1987
Original : English
French
Spanish

Origin : Document 84(Rev.1)

COMMITTEE 7

FIFTH SERIES OF TEXTS FROM COMMITTEE 4 TO THE EDITORIAL COMMITTEE

The texts mentioned in Document 84(Rev.1), slightly amended, are submitted to the Editorial Committee.

J. RUTKOWSKI
Chairman of Committee 4

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HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS
ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Corrigendum 1 to
Document 157-E
21 February 1987
Original : English

COMMITTEE 5

Page 10, paragraph 4 of Annex 2 should read as follows :

4. the requirements file shall be published on microfiche at an appropriate date in such a way that administrations may use it for the application of resolves 5 below. As circumstances warrant and in response to individual requests by administrations, the published information shall also be available in computer readable form.

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HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 157-E
20 February 1987
Original: French

Source: DT/8, DT/9, DT/24(Rev.1), DT/31(Rev.2), DT/48, DT/49

COMMITTEE 5

FIRST REPORT OF WORKING GROUP 5-A

Introduction

The terms of reference of Working Group 5-A were to consider the Planning Method set out in the Report to the Second Session, having regard to the reports of the IFRB and taking into account the proposals made by administrations, with a view to making the necessary improvements and preparing, in the form of guidelines or flow charts, the decisions and procedures to be incorporated in the Radio Regulations.

The Working Group held more than 13 meetings and set up the following four Sub-Working Groups:

5-A-1 - Chairman: Mr. D. SAUVET-GOICHON

- Constitution of the requirements file

5-A-2 - Chairman: Dr. M.K. RAO

- Preset frequencies

5-A-3 - Chairman: Mr. K.G. MALCOLM

- Frequency continuity

5-A-4 - Chairman: Mr T. BOE

- Rules applicable for the processing of incompatible requirements.

Annex 1 hereto sets out the amendments and additions prepared by the Sub-Working Groups and adopted by Working Group 5-A. The structure of the text follows the order used in the Report of the First Session and will be reviewed by Committee 6.

Annex 2 contains draft Resolution [COM5/1].

J.F. ARNAUD
Chairman of Working Group 5-A

Annexes: 2

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ANNEX 1

Planning method

4.2.3.1 Step 1 - Requirements file

1. For the purposes of this Article, a file of the HF broadcasting requirements expected to be operational during the corresponding [seasons] shall be established. Each requirement listed in the file shall give the characteristics listed in Appendix 2* and indicate the [season(s)] in which the requirement will be used.

2. For the purposes of the HFBC Planning System, a requirement shall be defined as follows:

"A requirement indicated by an administration to provide a broadcasting service at specified periods of time to a specified reception area from a particular transmitting station".

[3. For the purposes of [Article 17], a requirement shall be defined as above with indication of the assigned frequency. In the application of [Article 17], when a requirement does not give the assigned frequency or the preferred band, the frequency to be assigned shall be recommended by the Board under No. [ ] of the Radio Regulations.]

4. Pursuant to Resolution [COM5/1], the Board shall take the necessary steps to establish the requirements file so that it can be used for the first seasonal [plans or schedules]. It shall be limited to the [first 4 seasons] after the entry into force of the Final Acts.

5. Any administration may notify the Board of any additions, modifications or deletions it wishes to make in its requirements in the Requirements File. Information specific to a particular season as indicated in Appendix 2 must reach the Board not more than [x] months or less than [12] months[1] before the beginning of the season in question.

However, modifications to this requirements file received up to nine months before the date of the season concerned shall be taken into account provided that they are considered by the Board to be complete.

---

* This new Appendix 2 will be included in the second report of Working Group 5-A.

[1] [The period may vary depending on whether the information is to be used for the HFBC Planning System or for Article 17.]

6. The Board shall verify that the information provided is complete and, in consultation with the administration concerned, shall make any necessary corrections. If, by the date for the start of processing of the requirements for a particular season, the information for a requirement is still incomplete despite the action taken by the Board and the administration, it shall be left out of account for the season in question.

7. The Board shall examine the requirements thus expressed without necessarily applying the HFBC Planning System in detail. This examination will serve where possible to identify apparent incompatibilities such as cases of two transmissions with the same preset frequency serving the same area.

8. The Board shall keep in the file for 5 years the history of the use of each requirement. No priority shall be derived from this history which is made mainly to keep a record of requirements confirmed but not used.

Note 1 to Committee 5

During the discussion on paragraph 8, it was suggested that information be published on requirements confirmed but not used and on unauthorized transmissions. Such information can only be obtained from monitoring. Committee 5 is requested to consider the guidelines to be conveyed to Committee 6 in this regard.

Note 2 to Committee 5

The processing of urgent additions or modifications notified to the IFRB after the date[s] given in [8] shall be considered under the HFBC Planning System and [Article 17] procedures.

4.2.3.2 Step 2 - Broadcast requirements for the season under consideration

The requirements appearing in the requirements file [9] months before the beginning of the [season] to be processed shall be used in drawing up the seasonal [plans] [schedules] without any priority being conferred by the date of revision of the requirements file. [One year] before the beginning of the [season] to be processed the Board shall advise the administrations of the solar index for the [season] to be processed and request them to confirm, by [9] months before the beginning of the [season] at the latest, the requirements which are to be used during that [season].

Proposed alternate text

[One year] before the beginning of the [season] to be processed the Board shall advise the administrations of the solar index for the [season] to be processed and request them to confirm, by [9] months before the beginning of the [season] at the latest, the requirements which are to be used during that [season].

These confirmed requirements shall be used in drawing up the seasonal [plans] [schedules] without any priority being conferred by the date of revision of the requirements file.

4.2.3.3 Step 3 - Propagation analysis and selection of the appropriate frequency band

1. The planning method will calculate for each requirement, for the season and for the different times, the optimum frequency band and identify the appropriate frequency band for each requirement at the different times, i.e. the best possible band from the standpoint of operating the service, taking into account operational limitations, equipment availability and limitations, and frequency use continuity.

2. If, at any time, the required basic broadcast reliability cannot be achieved with a single frequency band, a second frequency band shall be selected as long as the administration has indicated its ability to operate in two frequency bands simultaneously. / A third frequency could be selected under the same conditions if the required BBR cannot be achieved with two frequencies. /

4.2.3.4 Step 4 - Rules to be applied to broadcasting requirements in a given run

4.2.3.4.1 Optimization

The system must be optimized to ensure the maximum possible utilization of all available channels.

4.2.3.4.2 Preferred frequency

In accordance with the planning principles and without imposing constraints on planning, the following provisions shall be applied in the seasonal plans :

1) administrations may indicate the preferred frequency;

2) during the planning process, attempts shall be made to include the preferred frequency in the plan;

3) if this is impossible, attempts shall be made to select a frequency in the same band.

Otherwise the automated system shall be used to select the appropriate frequencies in such a way as to accommodate the maximum number of requirements, taking into account the constraints imposed by the technical characteristics of the equipment.

Note - A provision should be adopted to the effect that the propagation method is to be spelt out in the IFRB Technical Standards and Rules of Procedure, to which the provisions of RR 1002.1 and Resolution No. 35 apply.

4.2.3.4.3 Equipment constraints

The system shall take into account the technical constraints imposed by the equipment, namely :

4.2.3.4.3.1 Frequency

Alternative A

The Group recognized that the planned use of the HF bands presupposes the need for change of frequency from one season to another, if necessary, in order to optimize the System. It was, therefore, considered necessary to phase out equipment capable of working on only preset frequencies. [However, it was noted that periodic changes in frequency are incompatible with national usages in many countries where a fixed frequency or a set of fixed frequencies is employed by each of the licensees and any change in frequency would involve complex administrative procedures. This aspect may, therefore, be considered as a basic difference between national and international uses in such countries. In all such cases of national usage, the preset frequencies may have to be continued without stipulating any time limit for phasing out. The necessity to replace such equipment as early as possible may be reiterated.]

[Insofar as the international uses are concerned,] the Group agreed that the Conference should adopt appropriate provisions for phasing out the preset frequencies within a period of four years after the date of entry into force of the Final Acts of the Conference.

Note - The first set of square brackets have been introduced in the text, pending a decision on national and international services.

Alternative B

The Group recognized that the planned use of the HF bands presupposes the need for change of frequency from one season to another, if necessary, in order to optimize the System. It was, therefore, considered necessary to phase out equipment capable of working on only preset frequencies. The Group agreed that the Conference should adopt appropriate provisions for phasing out the preset frequencies within a period of four years after the date of entry into force of the Final Acts of the Conference. The Group also agreed that any low-power transmitter with a carrier power of [25 kW] or lower and employing an antenna which has a main lobe at an elevation angle of [15°] or higher, may continue to operate on the basis of one or more preset frequencies even after the date mentioned above. However, the necessity to replace such equipment as early as possible is reiterated.

Note - The square brackets have been introduced as the figures inside the brackets may require confirmation.

4.2.3.4.3.2 Frequency band

a) When an administration indicates that its facilities can operate only in a given frequency band, only frequencies from that band shall be included in the plan.

b) When an administration indicates a preferred frequency band, the system shall attempt to select a frequency from this band. If this is impossible, frequencies from the nearest appropriate band shall be tried. Otherwise the system will select frequencies from the appropriate band, taking into account the equipment constraints referred to in paragraph 4.2.3.4.3.1.

4.2.3.4.3.3 Power

a) When an administration indicates only a single power value due to equipment constraints, it shall be used in the planning process.

b) When an administration indicates several possible power values, the appropriate value shall be used to achieve the basic circuit reliability, and a single power value shall be determined for the duration of the emission.

4.2.3.4.3.4 Antenna

When an administration indicates that its antenna can operate only in a given frequency band, only frequencies from that band shall be included in the plan.

4.2.3.4.4 Limitation of frequency change within the HFBC Planning System

1. Introduction

Continuity in the use of a frequency is an important matter for both the broadcaster and the listener, it is a characteristic inherent in the broadcasting of a programme. In addition, limitations imposed by the technical characteristics of the means of transmission available to some administrations will impose mandatory requirements for frequency continuity. The desirable aim is that changes in frequency should be limited to those necessitated by changes in propagation conditions. The rules for applying frequency continuity are given in paragraph 4 below.

2. Definitions

2.1 Intra-seasonal

2.1.1 Type 1 continuity

Continuity of use of the same frequency within an hour or from one hour to another consecutive hour within a requirement.

2.1.2 Type 2 continuity

Continuity of use of the same frequency in the same season when passing from one requirement to another or one time block to another.

2.2 Inter-seasonal

2.2.1 Type 3 continuity

Continuity of use of the same frequency by the same requirement in two consecutive seasons.

2.2.2 Type 4 continuity

Continuity of use of the same frequency by the same requirement in two consecutive equinox seasons.

2.2.3 Type 5 continuity

Continuity of use of the same frequency by the same requirement in the same season of two consecutive years.

3. Relationship between frequency continuity and appropriate band(s)

3.1 For the case where a single frequency is sufficient to provide BBR equal to or greater than the agreed reference value, the appropriate band is to be established by the HFBC Planning System by taking account, amongst other things, of the rules set out in section 4 regarding the maintenance of the maximum frequency continuity within the limits of the agreed reference value for BBR [80]%.

However, an administration may choose extended frequency continuity at the expense of BBR and shall indicate the lower value of BBR to be used in this event. As, in this portion of the requirement, the BBR falls below the above-mentioned reference value the second and/or third frequencies are afforded only when the application of frequency continuity would not result in a number of additional frequencies greater than would be necessary with operation in the appropriate bands.

3.2 In the case where BBR obtainable by use of a single frequency is less than [80%] continuity of use of the first frequency or the single operating frequency will be provided within the lower limits of BBR indicated by the administration.

When the administration indicates that it has the capability to operate on more than one frequency the use of this lower value of BBR shall not lead to the use of a third frequency unless it is not possible to operate with two frequencies in any other combination of bands[1].

3.3 When the requirement under consideration is eligible to use a second or third frequency according to the procedures established in section 3.8.2 of the Report of the First Session, frequency continuity shall also be applied to the second (and third) frequency in the same manner as for the first frequency.

---

1 Reservation by SYR.

[3.4 When the type 2 continuity is requested (from one requirement to another), the HFBC Planning System shall identify the appropriate band separately for each of the requirements concerned. The frequency assigned to the first of these requirements, shall be assigned to another related requirement if it is in its appropriate band.]

4. Application of continuity

Continuity of types 1 and 2 is to be applied under the conditions set out in section 3 above.

4.1 Type 1 continuity shall be applied automatically to all requirements.

4.2 [Type 2 continuity shall be applied at the request of the administration. Provision of type 2 continuity will be mandatory if requested by the administration and that administration advises the constraints that necessitate the frequency continuity].

[4.2 Type 2 continuity shall be applied to the extent possible at the request of the administration, however, when the administration indicates [equipment constraints] [equipment constraint i.e. that the frequency of the equipment once selected cannot be readjusted in the band within the season] [the equipment constraints listed in ...] this continuity shall be applied automatically [following the method specified in 3.4 above.]

4.3 Continuity of types 3, 4 and 5 shall be applied to the extent possible when requested by the administration.

4.2.3.4.5 Rules for dealing with incompatable requirements

(To be included in the second report of Working Group 5-A.)

ANNEX 2

Draft

RESOLUTION [COM5/1]

Provisions Relating to the Initial Establishment of the Requirements File and the Preparation of the First Seasonal [Schedule] [Plan]

The World Administrative Radio Conference for the Planning of the HF Bands Allocated to the Broadcasting Service (Geneva, 1987),

considering

a) that it has adopted a planning method that uses a requirements file;

b) that a tentative requirements file established for planning exercises purposes pursuant to the decisions of the First Session contains only requirements up to the season March-April 1988;

c) that the Final Acts of the Conference will enter into force on ....;

d) that a new requirements file referred to in [...] needs to be established in advance so that it can be used for the first seasonal [schedule] [plan] to apply after the date on which the Final Acts of the Conference enter into force;

e) that, in establishing such a new file, some time might be needed to enable the IFRB to consult administrations with a view to ensuring that their requirements are in accordance with the decisions of the Conference, and to provide them with the results of this preliminary calculation referred to in [...],

resolves

1. that the IFRB shall request administrations to notify it, [two years] before the date of the first season below, of their requirements for the following seasons:

-
-
-
-

2. that, for this purpose, administrations shall use the forms drawn up by the IFRB on the basis of Appendix 2 to the Radio Regulations as revised by this Conference;

3. the Board shall examine the requirements thus expressed without necessarily applying the HFBC System in detail. This examination will serve where possible to identify apparent incompatibilities such as cases of two incompatible preset frequencies serving the same area;

4. the requirements file shall be published on microfiche at an appropriate date in such a way that administrations may use it for the application of resolves 5 below. As circumstances warrant and in response to individual requests by administrations, the published information shall also be available in computer printed form, machine readable form, film, microfiche or by other appropriate means;

5. [that, one year before the beginning of the first season in question, the Board shall inform administrations of the solar index for that season and request them to confirm the requirements for this season at least nine months before it starts.]

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, **February-March 1987**

Document 158-E
20 February 1987
Original: English

COMMITTEE 5

NOTE FROM THE CHAIRMAN OF COMMITTEE 4

TO THE CHAIRMAN OF COMMITTEE 5

In response to your request (Document 122) for information regarding protection ratios when high-stability transmitters are in use, Committee 4 considers that:

"There is no quantified information available which would indicate that a quality of grade 3 could be obtained with a protection ratio of less than 17 dB when transmitters have very high stability of the order of 0.1 Hz. The existing values should be maintained until further quantified information becomes available. This is a suitable topic for future studies by the CCIR."

J. RUTKOWSKI
Chairman of Committee 4

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HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, **February-March 1987**

Document 159-E
20 February 1987
Original: English

Source: Document 147

COMMITTEES 5 AND 6

NOTE FROM THE CHAIRMAN OF COMMITTEE 4 TO THE
CHAIRMEN OF COMMITTEES 5 AND 6

The annex gives the text of a Recommendation [COM4/F] relating to the propagation prediction method to be used. The following note should accompany this Recommendation for the information of Committees 5 and 6.

Note - If the Conference decides to use an alternative procedure, such as a revision of Article 17, instead of planning, it may be appropriate to include words such as, for example, "from the time of entry into force of the Final Acts" instead of the words "in the post Conference period" in recommends 1.

J. RUTKOWSKI
Chairman of Committee 4

Annex: 1

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ANNEX

RECOMMENDATION [COM4/F] (HFBC-2)

Propagation Prediction Method to be Used for the [Planning] of the HF Bands Allocated to the Broadcasting Service

The World Administrative Radio Conference for the Planning of the HF Bands Allocated to the Broadcasting Service (Geneva, 1987),

considering

a) that the First Session of the Conference (Geneva, 1984) established a propagation prediction method to be used for the [planning] of the HF bands allocated to the broadcasting service;

b) the work by the CCIR during the intersessional period in improving some aspects of the adopted method;

c) that the IFRB has developed and implemented computer software* based on the propagation prediction method established by the First Session of the Conference (Geneva, 1984) and the further work by the CCIR and has used this for its intersessional work;

d) that the propagation prediction method and the associated computer software used by the IFRB is the starting basis for further improvements;

e) Recommendation [COM4/A] relating to Further Improvements to the Propagation Prediction Method to be Used for the Planning of the HF Bands Allocated to the Broadcasting Service,

recommends

1. that the propagation prediction method and the associated computer software to be used in the post Conference period shall be that implemented by the IFRB during the intersessional period;

2. that the IFRB prepare detailed documentation of the propagation prediction method, summarized in [Document 136, section 3.3], for inclusion in its Technical Standards;

3. that the procedures to be applied by the IFRB in the revision of relevant parts of its Technical Standards, as established in Resolution [COM6/1], be used for further improvements to this method.

---

* Note - The most recent version of the computer software is available to administrations on request.

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, **February-March 1987**

Document 160-E
20 February 1987
Original: English

COMMITTEE 6

NOTE FROM THE CHAIRMAN OF COMMITTEE 4

TO THE CHAIRMAN OF COMMITTEE 6

1. Proposed modification to the Articles of the Radio Regulations concerning the use of the HF bands allocated to the broadcasting service related to the work of Committee 4

Committee 4 has considered the texts in Document DT/6 and proposes the following further modification to the Radio Regulations:

- Recommendation No. 501 - delete.

2. Technical parameters (see Document 108)

2.1 List I: Document 156

2.2 List II: Document 129.

J. RUTKOWSKI
Chairman of Committee 4

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HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS
ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Corrigendum 2 to
Document 161-E
23 February 1987
Original: English

COMMITTEES 5 AND 6

NOTE FROM THE CHAIRMAN OF COMMITTEE 4 TO THE
CHAIRMEN OF COMMITTEES 5 AND 6

1. Table [3-8] on page 4 of Document 161 should be replaced by the following table:

TABLE /3-8/

Parameters used to compute basic circuit reliability

STEP	PARAMETER	DESCRIPTION	SOURCE
(1)	$E_W(50)$ dB (μV/m)	Median field strength of wanted signal[1]	Prediction method (section 3.3.1)
(2)	$D_U(S)$ dB	Upper decile of slow fading signal (day-to-day)	(section 3.4.2) [2]
(3)	$D_L(S)$ dB	Lower decile of slow fading signal (day-to-day)	(section 3.4.2) [2]
(4)	$D_U(F)$ dB	Upper decile of fast fading signal (within the hour)	5 dB (section 3.4.1)
(5)	$D_L(F)$ dB	Lower decile of fast fading signal (within the hour)	-8 dB (section 3.4.1)
(6)	$D_U(E_W)$ dB	Upper decile of wanted signal	$\sqrt{D_U(S)^2 + D_U(F)^2}$
(7)	$D_L(E_W)$ dB	Lower decile of wanted signal	$\sqrt{D_L(S)^2 + D_L(F)^2}$
(8)	$E_W(10)$ dB (μV/m)	Wanted signal exceeded 10% of the time	$E_W + D_U(E_W)$
(9)	$E_W(90)$ dB (μV/m)	Wanted signal exceeded 90% of the time	$E_W - D_L(E_W)$
(10)	E_{min} dB (μV/m)	Minimum usable field strength	section 3.2
(11)	BCR	Basic circuit reliability	Figure /3-4/

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2. The penultimate line of Note 2 to Table [3-9] on page 8 of Document 161 should refer to "Note 2 i)" instead of "Note 2 a)".

J. RUTKOWSKI
Chairman of Committee 4

HFBC (2)

UNIÓN INTERNACIONAL DE TELECOMUNICACIONES
CAMR PARA LA PLANIFICACIÓN DE LAS BANDAS DE ONDAS DECAMÉTRICAS ATRIBUIDAS AL SERVICIO DE RADIODIFUSIÓN
SEGUNDA REUNIÓN, GINEBRA, **Febrero-Marzo de 1987**

Corrigéndum 1 al
Documento 161-S
23 de febrero de 1987
Original: inglés

COMISIONES 5 Y 6

NOTA DEL PRESIDENTE DE LA COMISION 4 A LOS
PRESIDENTES DE LAS COMISIONES 5 Y 6

La página 15 del Documento 161 debe reemplazarse por la página adjunta

J. RUTKOWSKI
Presidente de la Comisión 4

Este documento se imprime en un número limitado de ejemplares, por razones de economia. Se ruega por tanto, a los participantes que se sirvan llevar consigo a la reunión sus ejemplares, pues no se podrá disponer de otros adicionales.

1.6.5 Fiabilidad básica [global/interferencia] de radiodifusión

Para determinar la fiabilidad básica de radiodifusión se utilizan puntos de prueba en la zona de servicio requerida. La fiabilidad básica de radiodifusión es una extensión del concepto de fiabilidad básica de recepción a una zona, en lugar de un solo punto de recepción. En el Cuadro [3-12] se expone el método para calcular la fiabilidad básica de radiodifusión. En el paso (1), las fiabilidades básicas de recepción BRR (L_1), BRR (L_2), ... BRR (L_N) se calculan en cada punto de prueba L_1, L_2, ... L_N, conforme se indica en el Cuadro [3-10]. Estos valores se clasifican en el paso (2), y la fiabilidad básica de radiodifusión es el valor asociado a un percentil [X] de los puntos de prueba.

En la forma análoga, la fiabilidad [global/interferencia] de radiodifusión se calcula conforme se indica en el Cuadro [3-13] y corresponde al valor asociado a un percentil [X] de los puntos de prueba.

La fiabilidad de radiodifusión está asociada a la calidad de funcionamiento prevista de un servicio de radiodifusión en una hora dada. Para periodos más largos de una hora, los cálculos deben efectuarse en intervalos de una hora.

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 161-E
20 February 1987
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Source: Documents 136, 116, 117 + Corr.1, DL/10

COMMITTEES 5 AND 6

NOTE FROM THE CHAIRMAN OF COMMITTEE 4 TO THE
CHAIRMEN OF COMMITTEES 5 AND 6

The annexed text is submitted to Committees 5 and 6 for their consideration and appropriate action.

Notes for Committee 5

Note 1 - As regards proportionally reduced protection, during the intersessional work the IFRB has used a value of 5 dB for Z, but there are proposals for a value of 5 or 10 dB to be used. The decision as to the appropriate value of Z is not a technical matter.

Note 2 - Overall reliability terms and, in particular, overall broadcasting reliability take into account the contributions of noise and interference to the reliability of a service in a particular, specified way. The majority of administrations which took part in the discussions consider that the impact of noise and interference should be indicated separately (see Document 127), and that overall reliability is an unnecessary concept. On the other hand, some administrations consider that overall reliability is a useful indicator and can be calculated easily and that values should continue to be calculated.

Note for Committee 6

In compliance with the request of Committee 6 (Document 108), Committee 4 has made an indication of the type of technical parameters (List I or List II) with respect to the appended draft text for inclusion in the Final Acts. This text should be communicated to Committee 7 as soon as possible.

J. RUTKOWSKI
Chairman of Committee 4

Annex: 1

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ANNEX

Draft text for inclusion in the Final Acts

DOUBLE-SIDEBAND SYSTEM SPECIFICATION FOR THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE

LIST I – System planning and technical parameters which are not likely to be improved

1. System planning parameters

1.1 Channel spacing

The nominal spacing for double sideband (DSB) shall be 10 kHz. However the interleaved channels with a separation of 5 kHz may be used in accordance with the relative protection criteria.

1.2 Proportionally Reduced Protection (PRP)

PRP is a margin (M) by which the RF protection ratio to be applied at a test point is reduced under the following specified conditions:

1) the BBR < [80%], and

2) only one frequency band is given by the planning system, and

3) at the test point considered the field strength E_w is less than E_{min} and greater than or equal to $E_{min} - Z$[1].

In these conditions M is determined as: $M = E_{min} - E_w$.

In such cases the proportionally reduced protection ratio is used in the evaluation of S/I at the test point considered. For all the remaining points within the required service area, full protection as determined by the relevant protection ratio is given when $E_w \geq E_{min}$ and no protection is given when $E_w < E_{min} - Z$.

In cases where PRP is not applicable, full protection as determined by the relevant protection ratio is afforded when $E_w \geq E_{min}$ and no protection is afforded when $E_w < E_{min}$.

1.3 Required service areas and test points

1.3.1 In specifying the required service area reference shall be made to a combination of:

- CIRAF zones,
- quadrants of CIRAF zones,
- a part of a quadrant specified by the set of test points contained within that part.

1.3.2 Where it is necessary to specify a required service area which is smaller than an entire zone or quadrant, this may be done by specifying the boundaries of the area as two azimuths and two ranges from the transmitter location.

---

1 Z is defined in section [...].

1.3.3 The set of 911 test points listed in the IFRB Technical Standards shall be used to represent the CIRAF zones and quadrants for planning purposes.

Where a required service area is defined as set out in paragraph 1.3.2, and where such an area does not include a test point, the IFRB shall generate a new test point and include it within the Technical Standards. Such additions to the Technical Standards will be distributed to administrations (Nos. 1001 and 1001.1 of the Radio Regulations).

[1.4] Seasonal divisions of the year and representative months

The year shall be sub-divided into four seasons for propagation prediction purposes. These seasons are listed in Table [3-14]. When predictions are made for a single month to represent a season, the month selected shall be as indicated in the second column of the table.

TABLE [3-14]

Season	Representative month	Season symbol
November-February	January	D
March-April	April	M
May-August	July	J
September-October	October	S

1.5 Solar index values

The 12-month running mean sunspot number R_{12} shall be the solar index to be used for planning.

The [seasonal] plan shall be prepared in accordance with the values of R_{12} for the period. The lowest value of R_{12} predicted for any of the months in that [season] shall be used.

1.6 Reliability[1]

1.6.1 Calculation of basic circuit reliability (BCR)

The process for calculating basic circuit reliability is indicated in Table [3-8]. The median value of field strength for the wanted signal at step (1) is determined by the field strength prediction method. The upper and lower decile values (2) through (5) are also determined, taking account of long-term (day-to-day) and short-term (within the hour) fading. The combined upper and lower deciles of the wanted signal are then calculated in steps (6) and (7) in order to derive the signal levels exceeded for 10% and 90% of the time at steps (8) and (9).

[1] Abbreviations of the English terms are used in the formulas throughout the three languages in order to facilitate the practical implementation of the methods described in this section.

The wanted signal probability distribution, assumed to be log-normal, is illustrated in Figure /3-4/ which indicates the signal level (in decibels) versus the probability that the value of signal level is exceeded (plotted on a normal probability scale). This distribution is used to obtain the basic circuit reliability (11), which is the value of probability corresponding to the minimum usable field strength (10).

TABLE /3-8/

Parameters used to compute basic circuit reliability

STEP	PARAMETER	DESCRIPTION	SOURCE
(1)	$E_W(50)$ dB (μV/m)	Median field strength of wanted signal[1]	Prediction method (section 3.3.1)
(2)	$D_U(S)$ dB	Upper decile of slow fading signal (day-to-day)	(section 3.4.2)
(3)	$D_L(S)$ dB	Lower decile of slow fading signal (day-to-day)	(section 3.4.2)
(4)	$D_U(F)$ dB	Upper decile of fast fading signal (within the hour)	5 dB (section 3.4.1)[2]
(5)	$D_L(F)$ dB	Lower decile of fast fading signal (within the hour)	-8 dB (section 3.4.1)[2]
(6)	$D_U(E_W)$ dB	Upper decile of wanted signal	$\sqrt{D_U(S)^2 + D_U(F)^2}$
(7)	$D_L(E_W)$ dB	Lower decile of wanted signal	$\sqrt{D_L(S)^2 + D_L(F)^2}$
(8)	$E_W(10)$ dB (μV/m)	Wanted signal exceeded 10% of the time	$E_W + D_U(E_W)$
(9)	$E_W(90)$ dB (μV/m)	Wanted signal exceeded 90% of the time	$E_W - D_L(E_W)$
(10)	E_{min} dB (μV/m)	Minimum usable field strength	section 3.2
(11)	BCR	Basic circuit reliability	Figure /3-4/

Note 1 - In the calculation of BCR at the test points within the required service areas of synchronized transmitters, the field strength value to be used is calculated by the method of root sum square of the contributing field strengths in volts/metre.

Note 2 - For synchronized transmissions, the fading allowance associated with the predominant signal is to be used. For those conditions where the contributing wanted field strengths are equal and Note 1 of Table III of CCIR Report 266-6 applies to at least one of the paths, the values for geomagnetic latitudes $\geq 60°$ are used.

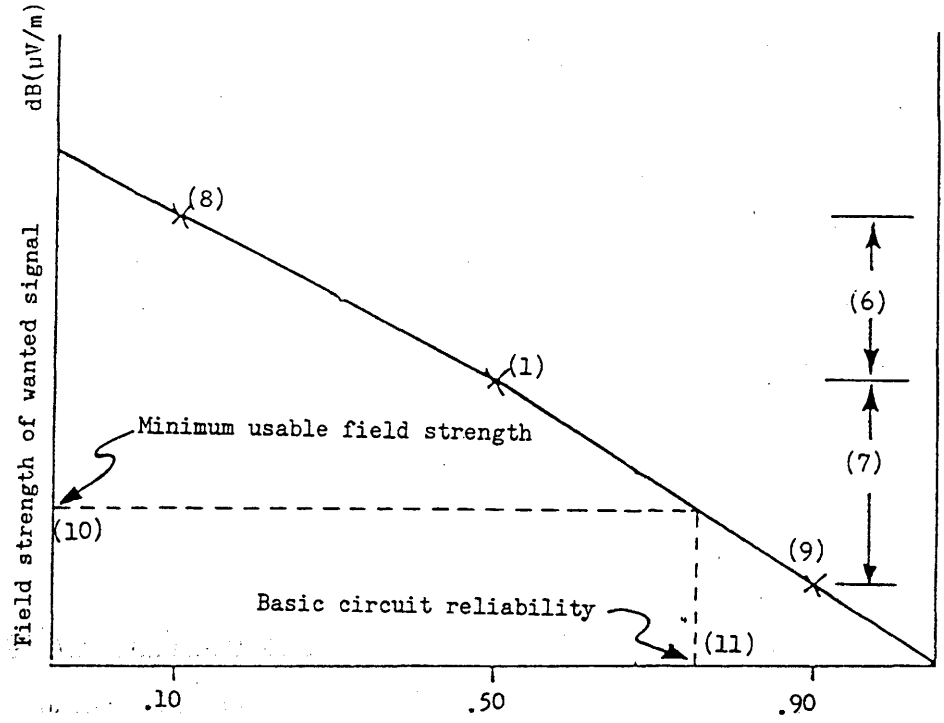


FIGURE [3-4]

Parameters used to compute basic circuit reliability

(Figures appearing in brackets refer to step numbers as shown in Table [3-8])

The basic circuit reliability is given by the expression:

$$BCR = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{Y} \exp(-\tau^2/2)\, d\tau$$

when $E_W \geq E_{min}$

$$Y = \frac{E_W - E_{min}}{\sigma_L}$$

$$\sigma_L = D_L(E_W)/1.282$$

when $E_W < E_{min}$

$$Y = \frac{E_W - E_{min}}{\sigma_U}$$

$$\sigma_U = D_U(E_W)/1.282$$

1.6.2 Calculation of [overall/interference] circuit reliability [(OCR) (ICR)]

The method is outlined in Table [3-9]. In step (1), the median wanted signal level is computed by the signal strength prediction method.

In step (2), the median field strength levels (E_i) of each interfering source are obtained from the prediction method. In step (3), for a single source of interference the predicted median field strength is used; for multiple sources of interference the median field strength is calculated as follows : the field strengths of the interfering signals E_i are listed in decreasing order. Successive r.s.s. additions of the field strengths E_i are computed, stopping when the difference between the resultant field strength and the next field strength is greater than 6 dB. In step (3), the resultant field strength I is taken as the last computed value.

The values of the wanted signal and interference determined in steps (1) and (3) are combined in step (4) to derive the median signal-to-interference ratio. The 10% and 90% fading allowances are included in steps (5) and (6) in order to derive the signal-to-interference ratio exceeded for 10% and 90% of the time in steps (7) and (8).

The probability distribution for the signal-to-interference ratio may now be determined as shown in Figure [3-5]. The ratios are presented in decibels on a linear scale versus the probability that the value of the signal-to-interference ratio is exceeded on a normal probability scale. In Figure [3-5], the value of probability corresponding to the required signal-to-interference ratio (9) is the circuit reliability in the presence of interference only (ICR). [The overall circuit reliability (OCR, step (12)) is the minimum value of either ICR (step (10)) or BCR (step (11)), whichever produces the lower value.]

The mathematical treatment of the calculation of ICR can be given in terms of the probability density distribution of the protection ratio. These functions are taken to be log normal, as is the resulting distribution of the signal-to-interference ratio.

The parameter ICR is given by the following expression :

$$ICR = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{Y} \exp(-\tau^2/2)\, d\tau$$

when for $E_W - I \geq RSI$

$$Y = \frac{E_W - I - RSI}{\sigma_L}$$

$$\sigma_L = D_L(SIR)/1.282$$

and for $E_W - I < RSI$

$$Y = \frac{E_W - I - RSI}{\sigma_U}$$

$$\sigma_U = D_U(SIR)/1.282$$

Values of the various parameters in the above expressions are found in the steps indicated below of Table [3-9].

E_W	step 1
I	step 3
$D_U(SIR)$	step 5
$D_L(SIR)$	step 6
RSI	step 9

TABLE /3-9/

Parameters used to compute overall circuit reliability

STEP	PARAMETER	DESCRIPTION	SOURCE
1	E_W dB (μV/m)	Median field strength of wanted signal	Prediction method (section 3.2.1)
2	E_i dB (μV/m)	Median field strength of interfering signals E_1, E_2,...E_n	Prediction method (section 3.2.1)
3	I dB (μV/m)	Resultant field strength of interference	$I=20\log_{10}\sqrt{\sum_{i=1}^{n}10^{\left(\frac{E_i+\alpha}{10}\right)}}$ 1)
4	SIR(50)dB	Median signal to interference ratio	$E_W - I$
5	D_U(SIR)dB	10% fading allowance	10 dB(<60°), 14 dB(≥60°) 2)
6	D_L(SIR)dB	90% fading allowance	10 dB(<60°), 14 dB(≥60°) 2)
7	SIR(10)dB	Subjective signal-to-interference ratio exceeded 10% of the time	SIR(50) + D_U(SIR)
8	SIR(90)dB	Subjective signal-to-interference ratio exceeded 90% of the time	SIR(50) - D_L(SIR)
9	RSI dB	Required RF protection ratio	/... dB/ 3)
10	ICR	Circuit reliability in presence of interference only (without noise)	See figure 3-5
11	BCR	Basic circuit reliability	See figure 3-4
12	OCR	Overall circuit reliability	Min(ICR, BCR)

Note 1 - α is the appropriate relative protection ratio corresponding to the carrier frequency separation between the wanted and each unwanted signal. α is given in section 3.1.3.

Note 2 - i) If any point on that part of the great circle which passes through the transmitter and the receiver and which lies between control points located 1,000 km from each end of the path reaches a corrected geomagnetic latitude of 60° or more, the values for ≥ 60° have to be used.

ii) The value of 14 dB applies for overall circuit reliabilities not exceeding 80%. In other cases the value of 10 dB applies.

iii) These values relate to the path of the wanted signal only.

iv) For synchronized transmissions, the fading allowance associated with the predominant wanted signal is to be used. For those conditions where the contributing wanted field strengths are equal and Note 2 a) applies to at least one of the paths, the value of 14 dB is to be used for D_U(SIR) and D_L(SIR).

Note 3 - In these calculations a single value of the co-channel protection ratio must be used.

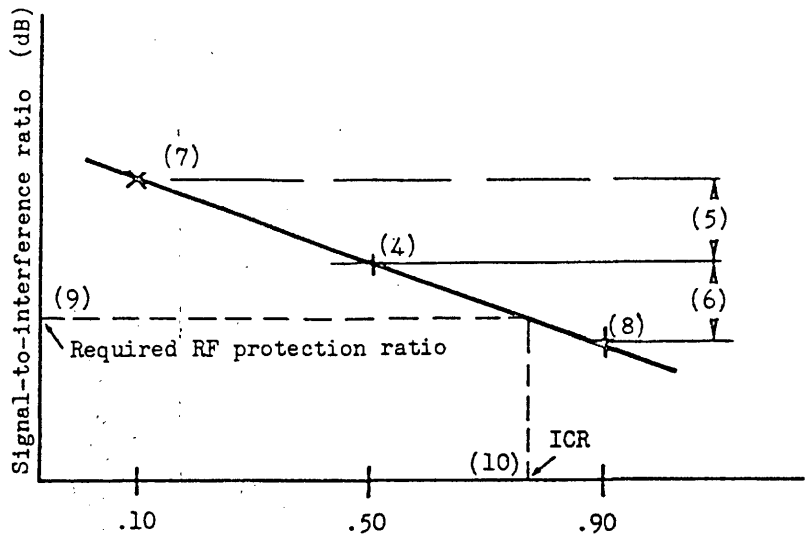


FIGURE [3-5]

Parameters used to compute overall circuit reliability

(Figures appearing in brackets refer to step numbers as shown in Table [3-9])

1.6.3 Basic reception reliability (BRR)

The method for computing basic reception reliability is outlined in Table [3-10]. With a single frequency, basic reception reliability (BRR) is the same as the basic circuit reliability (BCR) defined in the section 1.7.1.1. With multiple frequencies, the interdependence between propagation conditions at different frequencies leads to the computation method given in Table [3-10]. In steps (4) and (6), BCR (n) is the basic circuit reliability for frequency n, where n = F_1, F_2, etc. The basic reception reliability is obtained in step (2) for a single frequency, in step (4) for a set of two frequencies and in step (6) for a set of three frequencies.

1.6.4 Overall reception reliability (ORR)

The method for computing overall reception reliability is outlined in Table [3-11]. With a single frequency, overall reception reliability (ORR) is the same as the overall circuit reliability (OCR) defined in section 1.7.1.2 With multiple frequencies, the interdependence between propagation conditions at different frequencies leads to the computation method given in Table [3-11]. In steps (4) and (6), OCR (n) is the overall circuit reliability for frequency n, where n = F_1, F_2, etc. The overall reception reliability is obtained in step (2) for a single frequency, in step (4) for a set of two frequencies and in step (6) for a set of three frequencies.

TABLE [3-10]

Basic reception reliability

The following parameters are involved :

Single-frequency operation

Step	Parameter	Description	Source
(1)	BCR (F_1) %	Basic circuit reliability for frequency F_1	step 11, Table [3-8]
(2)	BRR (F_1) %	Basic reception reliability	BCR (F_1)

Two-frequency operation [1]

(3)	BCR (F_2) %	Basic circuit reliability for frequency F_2	step 11, Table [3-8]
(4)	BRR (F_1) (F_2) %	Basic reception reliability	$1-\prod_{n=F_1}^{F_2}(1-BCR(n))$

[1] The two frequencies F_1 and F_2 shall be situated in different frequency bands allocated to the HF broadcasting service.

TABLE [3-10] (continued)

Basic reception reliability

Three-frequency operation[1]

Step	Parameter	Description	Source
(5)	BCR (F_3) %	Basic circuit reliability for frequency F_3	Step 11, Table [3-8]
(6)	BRR (F_1)(F_2)(F_3) %	Basic reception reliability	$1-\prod_{n=F_1}^{F_3}(1-BCR(n))$

[1] The three frequencies F_1, F_2 and F_3 shall be situated in different frequency bands allocated to the HF broadcasting service.

TABLE [3-11]

Overall reception reliability

The following parameters are involved :

Single-frequency operation

Step	Parameter	Description	Source
(1)	OCR (F_1) %	Overall circuit reliability for frequency F_1	Step 12, Table [3-9]
(2)	ORR (F_1) %	Overall reception reliability	OCR (F_1)

Two-frequency operation [1]

(3)	OCR (F_2) %	Overall circuit reliability for frequency F_2	Step 12, Table [3-9]
(4)	ORR (F_1) (F_2) %	Overall reception reliability	$1-\prod_{n=F_1}^{F_2}(1-OCR(n))$

[1] The two frequencies F_1 and F_2 shall be situated in different frequency bands allocated to the HF broadcasting service.

TABLE [3-11] (continued)

Overall reception reliability

Three-frequency operation [1]

Step	Parameter	Description	Source
(5)	OCR (F_3) %	Overall circuit reliability for frequency F_3	Step 12, Table [3-9]
(6)	ORR (F_1) (F_2) (F_3) %	Overall reception reliability	$1-\prod_{n=F_1}^{F_3}(1-OCR(n))$

[1] The three frequencies F_1, F_2 and F_3 shall be situated in different frequency bands allocated to the HF broadcasting service.

1.6.5 Basic and [overall/interference] broadcast reliability

The determination of basic broadcast reliability involves the use of test points within the required service area. The basic broadcast reliability is an extension of the basic reception reliability concept to an area instead of a single reception point. The method for computing basic broadcast reliability is outlined in Table [3-12]. In step (1), the basic reception reliabilities BRR (L_1), BRR (L_2), --- BRR (L_N) are computed as described in Table [3-10] at each test point L_1, L_2 ---L_N. These values are ranked in step (2) and the basic broadcast reliability is the value associated with a percentile [X] of the test points.

Note that the test points used in determining broadcast reliability must be specified, e.g. see section [1.7] for the use of BBR in choosing additional frequency bands and section [Document 127] for the use of BBR [and OBR/LBR] in assessing the quality of an assignment.

Broadcast reliability is associated with the expected performance of a broadcast service at a given hour. For periods longer than an hour, computation at one-hour intervals is required.

TABLE 3-12

Basic broadcast reliability

The following parameters are involved :

Step	Parameter	Description	Source
(1)	BRR (L_1), BRR (L_2) --- BRR (L_N) %	Basic reception reliability at all test points considered in the required service area	Step (2), (4) or (6), as appropriate, from Table 3-10
(2)	BBR (X) %	Basic broadcast reliability associated with percentile [X]	Any percentile chosen from the values ranked from (1) of this Table

TABLE 3-13

Overall broadcast reliability

The following parameters are involved :

Step	Parameter	Description	Source
(1)	ORR (L_1), ORR (L_2) --- ORR (L_N) %	Overall reception reliability at all test points considered in the required service area	Step (2), (4) or (6), as appropriate, from Table 3-11
(2)	OBR (X) %	Overall broadcast reliability associated with percentile [X]	Any percentile chosen from the values ranked from (1) of this Table

Maximum number of frequencies required for broadcasting the same programme to the same zone

1.7.1 Introduction

Wherever possible, only one frequency should be used to broadcast a particular programme to a given reception area. In certain special circumstances, it may be found necessary to use more than one frequency per programme, i.e.:

- over certain paths, e.g. very long paths, those passing through the auroral zone, or paths over which the MUF is changing rapidly;
- areas where the depth of the area extending outwards from the transmitter is too great to be served by a single frequency;
- when highly directional antennas are used to maintain satisfactory signal-to-noise ratios, thereby limiting the geographical area covered by the station concerned.

The decision to use more than one frequency per programme should be made on the merits of the particular case concerned.

Use of synchronized transmitters should be encouraged whenever possible with a view to minimizing the need for additional frequencies.

1.7.2 Use of additional frequencies

The number of frequencies needed to achieve the specified level of basic broadcast reliability shall be determined by the method given below. If the calculated basic broadcast reliability for a single frequency does not reach the adopted value, it is necessary to consider whether the BBR could be improved by additional frequencies in separate bands and whether the improvement would justify the use of additional frequencies.

1.7.3 Determination of additional frequency bands

In cases where the BBR[1] for the first band, based on all test points in the required service area, is between 50% and 80%, an additional band shall be tested as follows.

Those test points whose basic circuit reliability BCR is less than or equal to the BBR are identified and only these points are used to determine the second band. For each band, the minimum value of BCR (BCR_{min}) at these points is determined and that band having the highest BCR_{min} value is selected. If more than one band has this value, the highest frequency band is selected. The two-band BBR, taking account of the BRR at all test points in the required service area is then computed and if it exceeds the limit specified in Figure 3-14[2] then the second band is permitted. In those special cases where the two-band BBR is less than 80% then a third band shall be tested as follows.

The BBR for each of the remaining bands is computed considering all test points in the required service area. Of these bands, that band having the highest BBR is selected as the third band. If more than one band has this value, the highest frequency band is selected. If the resulting three-band BBR taking account of the BRR at all test points exceeds the limit specified in Figure 3-14, the third band is permitted.

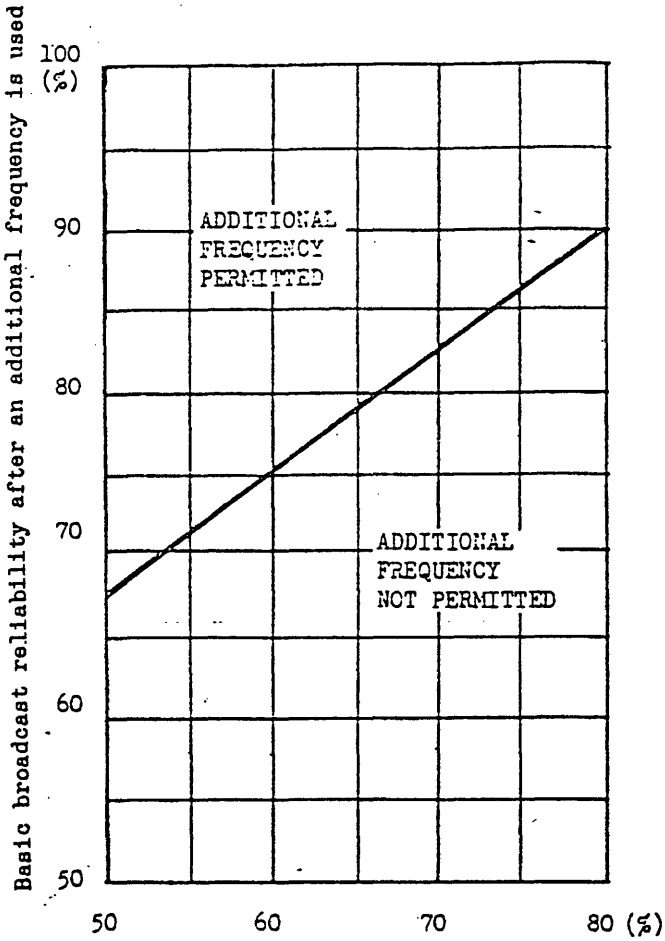
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1 For calculation of the basic broadcast reliability, see paragraph 1.6.5.

2 The contents of this figure can be expressed by the following equation:

BBR (after) > 30 + .75*BBR (before) additional frequency permitted

BBR (after) $\leq$ 30 + .75*BBR (before) additional frequency not permitted



Basic broadcast reliability before an additional frequency is to be used

FIGURE /3-14/

Limits for use of an additional frequency

2. Transmission characteristics

2.1 Nominal carrier frequencies

Carrier frequencies shall be integral multiples of 5 kHz.

2.2 Audio-frequency band

The upper limit of the audio-frequency band (-3 dB) of the transmitter shall not exceed 4.5 kHz and the lower limit shall be 150 Hz, with an attenuation of 6 dB per octave for frequencies lower than 150 Hz.

2.3 Modulation processing

If audio-frequency signal processing is used, the modulating signal shall retain a dynamic range of not less than 20 dB.

2.4 Necessary bandwidth

The necessary bandwidth shall not exceed 9 kHz.

LIST II - System planning and technical parameters which may be improved in the future as a result of further studies

3.1 RF protection ratios

/ 3.1.1 The co-channel protection ratio for unsynchronized transmissions shall be / to be developed /. /

3.1.2 The protection ratio for synchronized transmissions

The co-channel protection ratio between synchronized transmissions in the same network shall be:

Distance L between synchronized transmitters: km	Protection ratio dB
$L \leq 700$	0
$700 < L \leq 2{,}500$	4
$2{,}500 < L$	8

3.1.3 The relative rf protection ratios (α) for carrier frequency separations*, with reference to that for the co-channel case, shall be:

Δf	α
0 kHz	0 dB
$\pm$5 kHz	-3 dB
$\pm$10 kHz	-35 dB
$\pm$15 kHz	-49 dB
$\pm$20 kHz	-54 dB

3.2 Minimum usable field strength

The minimum usable field strength shall be determined by adding 34 dB to the greater of:

- the field strength due to atmospheric radio noise as contained in CCIR Report 322-2;
- 3.5 dB (μV/m), which is the intrinsic receiver noise level.

---

* Frequency separations, $\Delta f < -20$ kHz, as well as $\Delta f > +20$ kHz, need not be considered in planning.

3.3 Summary of the propagation prediction method* to be used to determine the sky-wave field strength for HF broadcast planning purposes.

3.3.1 Introduction

The propagation prediction method, implemented by the IFRB and to be used in the post Conference period as a starting basis (Recommendation [COM4/F]), was established by the First Session. It is based on CCIR studies prior to the First Session, and on further studies by the CCIR of particular aspects of the method.

The method is used for the prediction of HF field strength for HF broadcasting purposes and is composed of three parts:

- for path lengths up to 7,000 km;
- for path lengths greater than 9,000 km;
- an interpolation procedure for path lengths between 7,000 and 9,000 km.

3.3.2 Ionospheric parameters

Values of the ionospheric parameters foF2, M(3 000)F2 and foE are obtained from the numerical maps (the Oslo coefficients) and the procedures set out in CCIR Report 340, at the locations of the control points required by the short and long range methods. From these parameters the basic MUFs for the required distances are obtained, again using the procedures of Report 340. Appropriate interpolations are made for the level of sunspot activity.

3.3.3 Distances up to 7,000 km

The short range method of prediction, based partly on CCIR Report 252-2, is used for path lengths up to 7,000 km. Calculations are also made by this method for path lengths between 7,000 and 9,000 km and the results are utilized in the interpolation procedure described later.

The method assumes great-circle propagation with reflection from the E-layer (for ranges up to 4,000 km) and from the F2-layer. The path is divided into a number of equal length hops, each less than 4,000 km, for F2-modes, and 2,000 km, for E-modes. The hops are assumed to have mirror reflections in the ionosphere at their mid points. The equivalent reflection height is taken as 110 km for E-modes, and is a variable, depending upon the values of the ionospheric parameters, for F2-modes.

For path lengths up to 4,000 km, screening of F2 propagation modes by the lower E-layer is applied when appropriate.

The central feature of the method is the prediction of the median field strength using the formula:

$$E_{ts} = 96.85 + P_t + G_t - 20 \log P' - L_i - L_m - L_g - L_h \text{ dB}(\mu V/m).$$

---

* This summary of the propagation prediction method, implemented by the IFRB, is not intended to introduce any changes to the method.

P_t is the transmitter output power in dB relative to 1 kW and G_t is the isotropic antenna gain appropriate for the azimuth of the great circle path and the elevation angle computed for the path geometry and the number of hops being considered. P' is the virtual slant range in km, calculated along the ray paths. L_i, L_m, L_g and L_h are loss terms which account for the absorption loss (calculated for each hop and the results added), the "above the MUF" loss, the ground reflection loss and the auroral plus other signal losses, respectively. The numerical constant term includes, amongst other things, an allowance for those effects of sky-wave propagation not otherwise included in this simplified method.

Although for an isotropic antenna the predicted field strength would be greatest for propagation modes with the minimum number of hops, this is not necessarily the case for practical antennas. The calculation is repeated with progressively greater numbers of hops, taking account of the appropriate antenna gain in each case, until a maximum is found. So as to facilitate the calculation for the large number of cases considered by the IFRB, in the practical implementation field strength values have been pre-calculated and stored as tables for six F2-modes and six E-modes for the paths between all transmitter locations and all test points. During the consideration of each case the appropriate entries in these tables are referred to and the antenna gain factors applied.

The method selects the two strongest F2-modes (i.e. the modes with the highest field strengths) and, where appropriate, the strongest E-mode, and these values are combined by adding the signal powers together.

3.3.4 Distances greater than 9,000 km

For distances beyond 9,000 km, the method no longer uses geometric ray hops, hypothetical ray paths with a number of equal hops each less than 4,000 km are considered. Calculations are also made by this method for path lengths between 7,000 and 9,000 km and the results are utilized in the interpolation procedure described later.

In the method it is assumed that the field strength in the "transmission frequency range", i.e. between the lower frequency limit f_L and the upper frequency limit f_M, is determined by non-deviative absorption (near f_L) and deviative absorption (near f_M). The empirical fit to observations determines the shape of the curve between f_L and f_M as a function of the solar zenith angle, the path geometry etc. The overall median field strength is given by

$$E_{tl}=E_o\left[1-\frac{(f_M+f_H)^2}{(f_M+f_H)^2+(f_L+f_H)^2}\left(\frac{(f_L+f_H)^2}{(f+f_H)^2}+\frac{(f+f_H)^2}{(f_M+f_H)^2}\right)\right] \quad +P_t+G_{tl}+G_{ap}-32.5 \text{ dB}(\mu V/m)$$

E_0 = 139.6 - 20 log P', the free space field where P' is the slant range assuming that the height of the ionosphere is 300 km.

f is the frequency at which the prediction is made. f_M is the upper limit frequency; it is determined separately for the first and last hop of the path and the lower value is taken. $f_M = K.f_b$, where f_b is the basic MUF and K is a correction factor taking into account the diurnal variation and the absolute value of f_b; f_L is the lower frequency limit and is mainly dependent on the solar zenith angle; f_H is the gyro-frequency; P_t is the transmitter output power in dB relative to 1 kW; G_{tl} is the isotropic antenna gain, taken as the highest value in the range of vertical radiation angles from 0^o to 8^o at the appropriate

azimuth; and G_{ap} is the antipodal focussing gain, taking into account the increase in field strength at distances greater than 10,000 km. The numerical constant term includes, amongst other things, an allowance for those effects of sky-wave propagation not otherwise included in the method.

3.3.5 Distances between 7,000 and 9,000 km

In this distance range the field strengths E_{ts} and E_{tl} are determined by both of the above procedures and the resultant median field strength is obtained by linear interpolation, in decibels, as follows:

$$E_{ti} = E_{ts} + \frac{D - 7\,000}{2\,000} (E_{tl} - E_{ts}) \quad dB(\mu V/m),$$

where D is the path length in kilometres.

Note - The constant terms in the equations for E_{ts} and E_{tl} include the values of -7.3 dB and 3.9 dB, for the short and long range parts of the method, respectively, which were determined in CCIR Recommendation 621 following studies during the intersessional period.

3.4 Signal fading

3.4.1 Short-term (within the hour) fading

The upper-decile amplitude deviation from the median of a single signal is to be taken as 5 dB and the lower-decile deviation is to be taken as -8 dB.

3.4.2 Long-term (day-to-day) fading

The magnitude of the long-term fading, as determined by the ratio of the operating frequency to the basis MUF, is given in Table 3 of CCIR Report 266-6.

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS
ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 162-E
21 February 1987
Original : English
French
Spanish

Origin : Document 146

COMMITTEE 7

SIXTH AND LAST SERIES OF TEXTS FROM COMMITTEE 4 TO THE EDITORIAL COMMITTEE

The text mentioned in Document 146, slightly amended, is submitted to the Editorial Committee.

J. RUTKOWSKI
Chairman of Committee 4

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ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 163-E
21 February 1987

B.3

PLENARY MEETING

THIRD SERIES OF TEXTS SUBMITTED BY THE EDITORIAL COMMITTEE TO THE PLENARY MEETING

The following texts are submitted to the Plenary Meeting for first reading:

Source	Documents	Title
COM.4	105 (154)	Resolution COM4/2 (HFBC-87)
	106(Rev.1)(154)	Resolution COM4/3 (HFBC-87)

D. SAUVET-GOICHON
Chairman of Committee 7

Annex: 4 pages

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RESOLUTION COM4/1 (HFBC-87) NOT ALLOCATED

RESOLUTION COM4/2 (HFBC-87)

Transition from Double-Sideband Emissions to Single-Sideband Emissions in the HF Bands Allocated to the Broadcasting Service

The World Administrative Radio Conference for the Planning of the HF Bands Allocated to the Broadcasting Service (Geneva, 1987),

considering

a) that the HF bands allocated to the broadcasting service are severely congested;

b) that the level of congestion within these HF bands is increasing;

c) that the use of single-sideband (SSB) techniques will provide a much more efficient utilization of the frequency spectrum than double-sideband (DSB) techniques;

d) that SSB techniques enable reception quality to be improved;

e) that the lifetime of a transmitter is of the order of twenty years;

f) that the lifetime of a receiver is of the order of ten years;

g) that it is economically unattractive, using current technology, to convert existing conventional DSB transmitters to SSB operation;

h) Appendix [COM4/A (Document 84(Rev.1))] to the Radio Regulations concerning the single-sideband system specification for the HF bands allocated to the broadcasting service;

i) that the First Session of the Conference (Geneva, 1984), in the Report to the Second Session, dealt with the progressive introduction of SSB emissions;

j) that Recommendation COM4/B (HFBC-87) encourages the accelerated design and manufacture of SSB transmitters and receivers,

resolves

1. that the procedure in the annex to this Resolution shall be used for the purpose of ensuring an orderly transition from DSB to SSB emissions in the HF bands allocated to the broadcasting service;

2. that the final date for the cessation of DSB emissions specified in the annex to this Resolution shall be periodically reviewed by competent future world administrative radio conferences in the light of the latest available complete statistics on the world-wide distribution of SSB transmitters and synchronous demodulator receivers, and that at least one such review shall be carried out before the year 2000,

invites the Administrative Council of the ITU

to place, in conformity with resolves 2 above, the matter referred to in that paragraph as an additional item on the agendas of competent future world administrative radio conferences,

invites the CCIR

to compile and maintain the statistics referred to in resolves 2, to make these statistics available to interested administrations and to provide summaries thereof to the Administrative Council of the ITU for submission to the competent future world administrative radio conferences,

invites administrations

to assist the CCIR in its task by providing the relevant statistical data.

ANNEX TO RESOLUTION COM4/2 (HFBC-87)

Procedure for the Transition from Double-Sideband to Single-Sideband Emissions in the HF Bands Allocated to the Broadcasting Service

1. The immediate introduction of SSB emissions is encouraged, i.e., the transition period starts immediately.

2. **All DSB emissions shall cease not later than 31 December 2015, 2359 UTC (see also resolves 2 in the body of the Resolution).**

3. **SSB emissions shall comply with the characteristics** specified in Appendix [COM4/A (Document 84(Rev.1))] to the Radio Regulations.

4. Until 31 December 2015, 2359 UTC, SSB emissions intended for reception by DSB receivers with envelope demodulation, as well as by SSB receivers with synchronous demodulation, shall have a carrier reduction of 6 dB relative to peak envelope power.

5. After 31 December 2015, 2359 UTC, only SSB emissions with a carrier reduction of 12 dB relative to peak envelope power shall be used.

6. Until 31 December 2015, 2359 UTC, whenever an administration replaces its DSB emission by an SSB emission, it shall ensure that the level of interference is not greater than that caused by its original DSB emission (see also Appendix [COM4/A (Document 84(Rev.1))] to the Radio Regulations and Recommendation COM4/E (HFBC-87)).

RESOLUTION COM4/3 (HFBC-87)

Antennas to be Used for the Planning of the HF Bands Allocated to the Broadcasting Service

The World Administrative Radio Conference for the Planning of the HF Bands Allocated to the Broadcasting Service (Geneva, 1987),

considering

a) that the IFRB Technical Standards shall be developed according to Nos. 1001, 1454 and 1770 of the Radio Regulations (see Resolution COM6/1 (HFBC-87));

b) that the CCIR has published the Book of Antenna Diagrams (1984 Edition) and made available computer programs for HF antenna pattern calculations;

c) that administrations are developing improved antennas to be used for HF broadcasting;

d) that administrations may wish to use antenna types not included in the above-mentioned CCIR publication,

resolves

1. that the type of antenna most appropriate for the required service should be used;

2. that the use of antennas with a large number and size of side-lobes, e.g., rhombic antennas, should be avoided,

invites administrations

to take into account resolves 1 and 2 above,

further invites administrations

to provide the IFRB and the CCIR with the relevant data if they wish to use antenna types different from those included in the IFRB Technical Standards [Document 118, section II] and in the CCIR Book of HF Antenna Diagrams,

invites the CCIR

to continue to update the Book of HF Antenna Diagrams,

invites the IFRB

1. to base its Technical Standards for reference antenna types on the CCIR Book of Antenna Diagrams and information supplied by administrations;

2. to publish and maintain in its Technical Standards the set of antenna characteristics to be used for HF broadcasting.

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HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS
ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 164(Rev.1)-E
25 February 1987

R.1(Rev.1)

PLENARY MEETING

FIRST SERIES OF TEXTS SUBMITTED BY THE EDITORIAL COMMITTEE TO THE PLENARY MEETING

The following texts are submitted to the Plenary Meeting for second reading:

Source	Documents	Title
COM.7	109	Recommendation COM4/B (HFBC-87)

D. SAUVET-GOICHON
Chairman of Committee 7

Annex: 2 pages

For reasons of economy, this document is printed in a limited number of copies. Participants are therefore kindly asked to bring their copies to the meeting since no others can be made available.

PINK PAGES

RECOMMENDATION COM4/B (HFBC-87)

Introduction of Transmitters and Receivers Capable of Both Double Sideband (DSB) and Single Sideband (SSB) Modes of Operation

The World Administrative Radio Conference for the Planning of the HF Bands Allocated to the Broadcasting Service (Geneva, 1987),

considering

a) Resolution COM4/2 (HFBC-87) relating to the introduction of SSB* techniques;

b) that the First Session of the present Conference (Geneva, 1984), in its Report to the Second Session, dealt with the progressive introduction of SSB emissions;

c) that incentives clearly need to be provided to industry to manufacture receivers with synchronous demodulation, and appropriate transmitters;

d) Appendix [(Document 84(Rev.1))] to the Radio Regulations relating to the SSB system specification for the HF bands allocated to the broadcasting service,

considering further

e) that the introduction of SSB techniques can be accelerated by the appropriate transmitting equipment being more widely available in good time;

f) that time is necessary for manufacturers to produce equipment capable of working either in both modes, SSB* and DSB, or in the SSB* mode alone,

recommends to administrations

that new transmitters installed after 31 December 1990 should, as far as possible, be capable of working either in both modes, SSB* and DSB, or in the SSB* mode alone,

invites the CCIR

to complete its studies into receivers for SSB,

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* With the possibility of both a 6 dB and a 12 dB carrier reduction relative to peak envelope power.

PINK PAGES

invites administrations

to bring to the notice of the receiver manufacturers the most recent results of relevant CCIR studies as well as the information referred to in considering d) and to encourage them to start to produce, by 31 December 1990, low-cost receivers having synchronous demodulators capable of receiving both DSB and SSB* broadcasting emissions,

instructs the Secretary-General

to transmit this Recommendation to the International Electrotechnical Commission (IEC).

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* With the possibility of both a 6 dB and a 12 dB carrier reduction relative to peak envelope power.

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, **February-March 1987**

Document 165-E
21 February 1987
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COMMITTEE 5

REPORT OF WORKING GROUP 5-C TO COMMITTEE 5

Working Group 5-C had three meetings and, in accordance with its terms of reference contained in Document 135, drafted the guidelines for an improved Article 17.

Attached as Annex 1 are the guidelines. This annex consists of a flow chart together with the explanatory notes.

Based on the information provided by the Board, Annex 2 contains a provisional assessment of the time-scale for the preparation of the seasonal schedule.

The Working Group did not take into account the frequency bands to which the procedure may be applied, this being outside the Group's mandate (see terms of reference of Working Group 5-B, Document 135).

J.F. BROERE
Chairman of Working Group 5-C

Annexes: 2

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ANNEX 1

Guideline for a procedure for improved Article 17

1. Administrations submit requirements for entry in the requirements file and/or seasonal file.

2. The requirements file will be created on the basis of data communicated by the administrations relating to operational and projected broadcasting requirements. This file shall be established and updated as indicated in Document DT/48.

The file should accommodate requirements for re-establishment of a broadcasting facility temporarily suspended by national disasters or other calamitous events [see Document 16].

Administrations may include a permanent request for the Board to select frequencies. These requests may include the desire for frequency continuity.

3. The seasonal file contains requirements concerning one season and is created on the basis of confirmations received from administrations. An administration may, if it so wishes, submit an entire intended frequency schedule into the seasonal file.

There will be [two] [four] seasonal schedules per year. While confirming their requirements, administrations may modify them or add new requirements.

4. The IFRB calculates for each requirement the field strength at each test point of the required service area, the BBR in the service area and the appropriate bands. These calculations are carried out in accordance with the decisions of the Conference.

5. Is there a permanent request to the Board in the seasonal file for the Board to select the frequencies on behalf of the administrations?

6. The Board sends the results of the calculations (step 4) to those administrations that have not requested the Board on a permanent basis to select frequencies on their behalf. In addition, these results are sent to those administrations which, although having made the above request, would nevertheless like to have them. The results are sent to each administration concerning its own requirements only.

7. Does the administration, at this point, still wish to select the frequencies for its requirements?

8. The Board selects the frequencies on behalf of those administrations which have so indicated, taking into account any requests for frequency continuity.

9. Administrations may, at this point, communicate additional frequency requirements to the Board.

10. Taking the information referred to in step 6 into account, each administration will select the frequencies and prepare its intended frequency (transmission) schedule. The number of frequencies per requirement, however, in no case shall be higher than that identified by the IFRB using the calculation procedures adopted by the Conference.

11. The Board carries out propagation calculations for the additional requirements (step 9).

12. The IFRB identifies possible discrepancies in the frequency schedules submitted and determines whether the data submitted under steps 9 and 10 with respect to the number of frequencies are in accordance with the decisions of the Conference relating to the use of additional frequencies.

Note - There may be a need for provisions dealing with a situation where an administration notifies more frequencies per requirement than provided for by the Conference decisions.

13. Using the data made available from steps 8, 9 and 10 and considering the frequencies selected by administrations as pre-set frequencies, the IFRB will select frequencies for those administrations which did not indicate their own frequencies (see also step 8 above).

14. The Board publishes the draft seasonal schedule containing for each transmission:

- frequency;
- the notifying administration;
- identification number of the requirement in the requirements file;
- the transmitter site;
- the hours of operation, including specifics when not on a daily basis;
- the number of frequencies for the requirement;
- the required service area (CIRAF zones + quadrants);
- the transmitter power;
- antenna characteristics (type, azimuth of maximum radiation, gain).

Associated with the draft seasonal schedule, the Board will provide information on the frequency incompatibilities. For each intended service area, where there are incompatibilities, the Board will indicate the number of frequencies for every other administration transmitting to that service area.

15. Administrations will, either bilaterally or multilaterally, with the assistance of the IFRB if required, try to solve the remaining incompatibilities that may appear in the draft seasonal schedule. In this coordination, the administrations will take into consideration the principles stated in paragraph 4.1 of the Report to the Second Session.

16. Changes in transmission characteristics resulting from these consultations should immediately be notified to the IFRB.

17. Administrations may, at this point, submit new frequency requirements to the Board.

18. Taking into account information submitted under steps 16 and 17, the Board makes the compatibility analysis.

19. The Board publishes the seasonal schedules containing:

[- frequency;

- notifying administration;

- identification number of the requirement;

- transmitter site;

- the hours of operation;

- the required service area;

- the transmitter power;

- antenna characteristics.]

20. Start of the season.

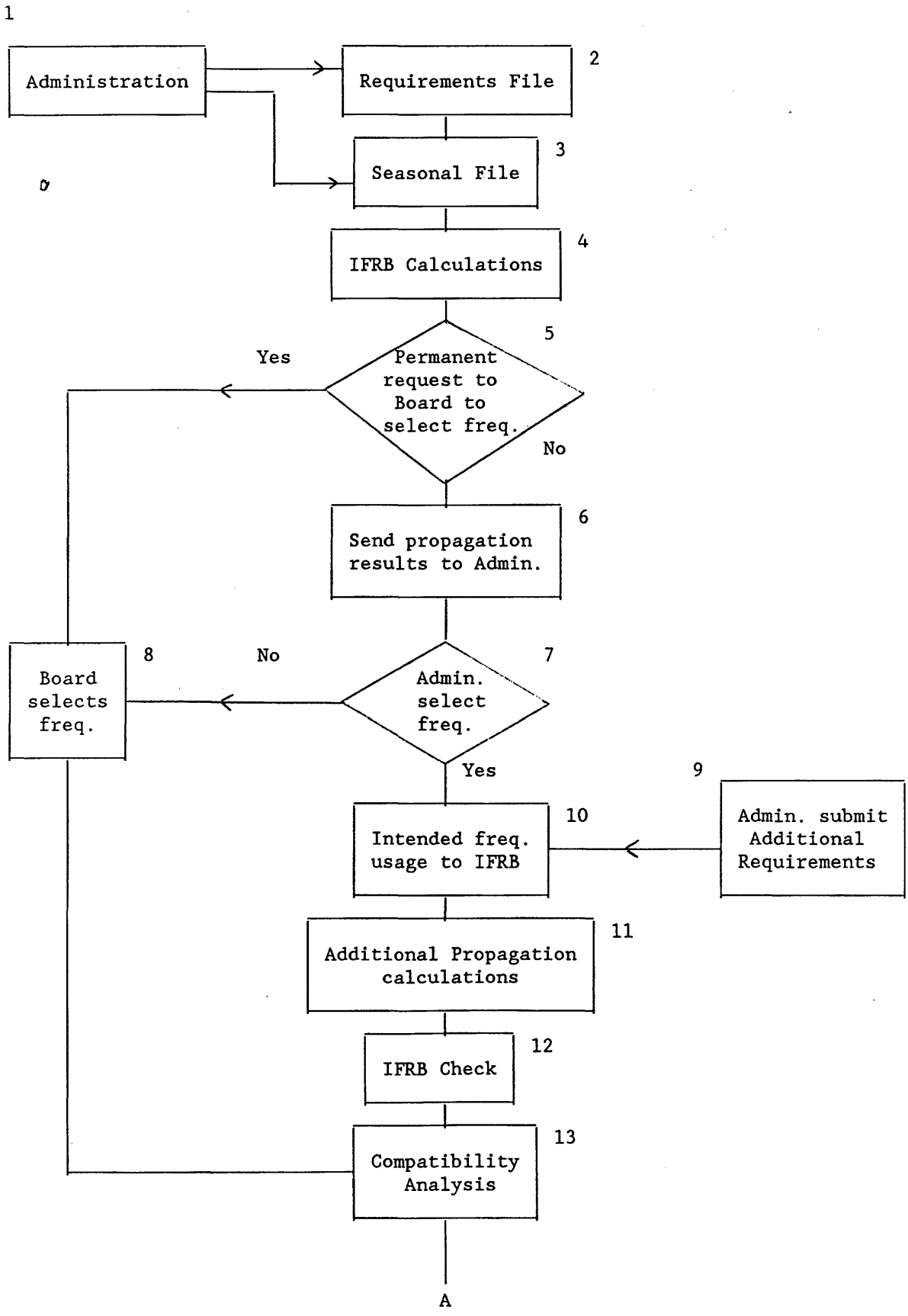
21. Modifications to the seasonal schedule after the start of the season are submitted to the Board.

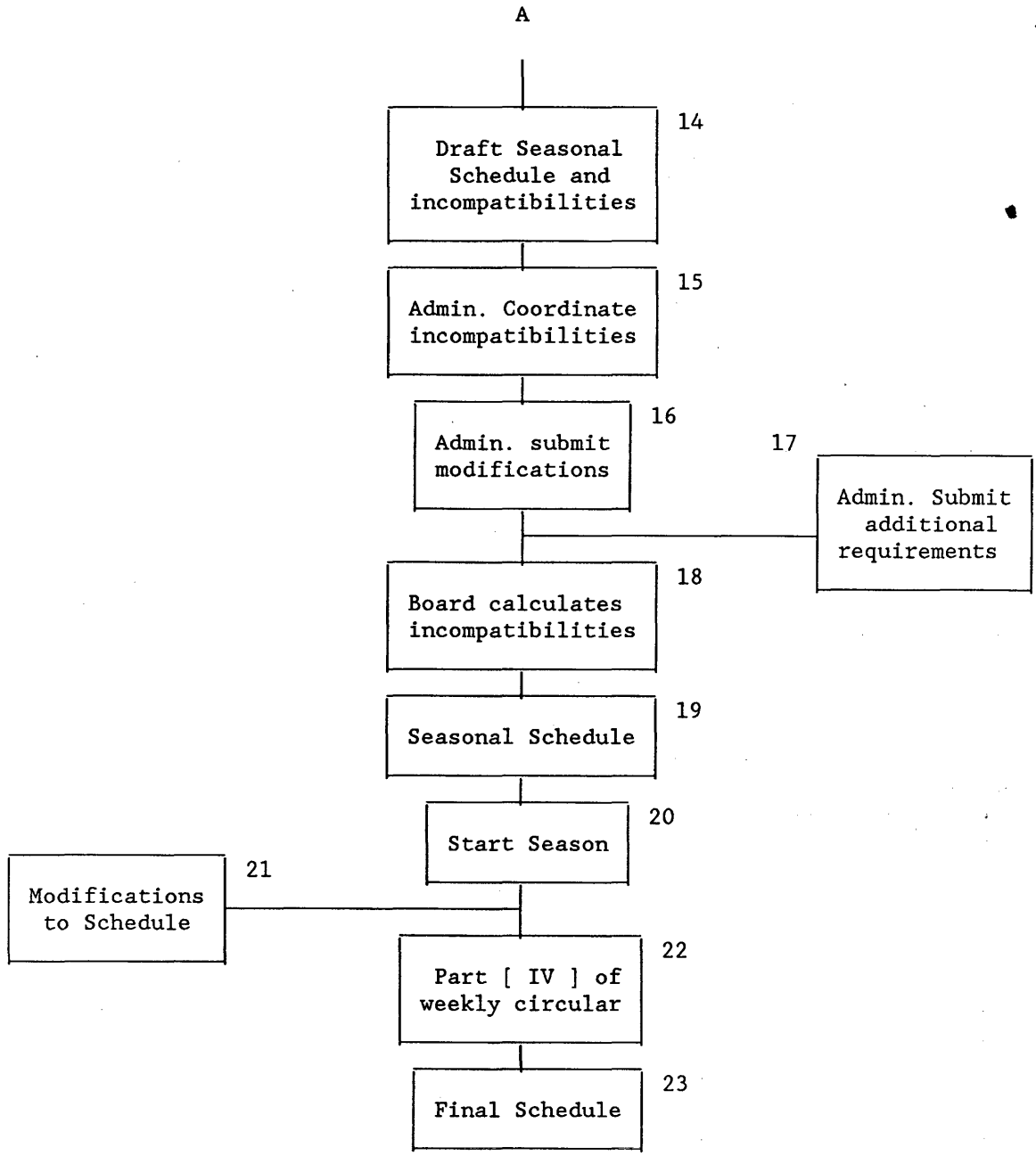
22. IFRB publishes the information received under step 21 in part IV of the Weekly Circular.

Note - Is there need for the Board to make compatibility analysis and publish the results with respect to the information reveived under step 21?

23. The final schedule is not needed to be published. However, the information on the frequency usage during the season may be made available upon request to an administration, on magnetic tape.

Note - There may be need for provisions similar to section IV of Article 17.


1
Administration
Requirements File
2
Seasonal File
3
IFRB Calculations
4
Permanent request to Board to select freq.
5
Yes
No
Send propagation results to Admin.
6
Board selects freq.
8
No
Admin. select freq.
7
Yes
9
Admin. submit Additional Requirements
Intended freq. usage to IFRB
10
Additional Propagation calculations
11
IFRB Check
12
Compatibility Analysis
13
A


A
Draft Seasonal Schedule and incompatibilities
14
Admin. Coordinate incompatibilities
15
Admin. submit modifications
16
17
Admin. Submit additional requirements
Board calculates incompatibilities
18
Seasonal Schedule
19
Start Season
20
Modifications to Schedule
21
Part [IV] of weekly circular
22
Final Schedule
23

ANNEX 2

Time-scale (Article 17 Rev.1)

Administrations submit frequency schedule and confirm requirements	(Box 3)	Start
Capture data and validation	(Box 4)	1 Month
Propagation Calculations	(Box 4)	2 Months
Board submits propagation results to Admin. - Administrations analyse and submit frequency requirements to Board	(Boxes 6 - 7)	[?]
Data capture and validation	(Box 10)	1/2 Month
IFRB Check and Compatibility Analysis	(Boxes 12, 13)	1 Month
Board publishes draft Seasonal Schedule	(Box 14)	1 Month
Draft Seasonal Schedule is sent to Admin. and analysed by Admin., Admin. coordinate frequencies and submit modifications to Board	(Boxes 15, 16)	[?]
Data capture, validation and compatibility analysis	(Box 18)	1/2 Month
Board publishes Seasonal Schedule	(Box 19)	1 Month
Start of season		2 Months
		9 + [?] Months

BLUE PAGES

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS
ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 166-E
23 February 1987

B.4

PLENARY MEETING

FOURTH SERIES OF TEXTS SUBMITTED BY THE EDITORIAL COMMITTEE TO THE PLENARY MEETING

The following texts are submitted to the Plenary Meeting for first reading:

Source	Documents	Title
COM.4	143 (154)	Definitions
COM.4	84(Rev.1) (156)	Appendix [COM4/A]
COM.4	146 (162)	Recommendation COM4/G

D. SAUVET-GOICHON
Chairman of Committee 7

Annex: 7 pages

For reasons of economy, this document is printed in a limited number of copies. Participants are therefore kindly asked to bring their copies to the meeting since no others can be made available.

DEFINITIONS

1. Term relating to propagation

- Basic MUF: The highest frequency at which a radio wave can propagate between given terminals, on a specified occasion, by ionospheric refraction alone.

2. Terms relating to reliability

- Circuit reliability: Probability for a circuit that a specified performance is achieved at a single frequency.

- Reception reliability: Probability for a receiver that a specified performance is achieved, taking into account all transmitted frequencies.

- Broadcast reliability: Probability for a service area that a specified performance is achieved, taking into account all transmitted frequencies.

- Percentile: The X percentile (X%) value for a given set of values is defined by the following conditions:

  1) the X% value is a member of the set of values;

  2) the X% value is that value which is equal to or exceeded by at least X per cent of the members in the set;

  3) the X% value is the largest value satisfying conditions 1 and 2.

Note 1 - In the above terms, circuit means a one-way transmission from one transmitter to one receiving location.

[Note 2 - The term "reliability" is qualified by the word "basic" when the background consists of noise alone and by "overall" when the background consists of both noise and interference.]

Note 3 - When the background consists of both noise and interference, the term "reliability" may relate either to the effects of a single interferer or to multiple interference from co-channel and adjacent-channel transmissions.

Note 4 - The specified performance is expressed by a given value of signal-to-noise ratio or signal-to-(noise and interference) ratio.

Note 5 - The term "reliability" relates to one or more periods of time, which shall be stated.

3. Terms relating to field strength

- Minimum usable field strength (E_{min})[1]: Minimum value of the field strength necessary to permit a desired reception quality, in specified receiving conditions, in the presence of natural and man-made noise, but in the absence of interference from other transmitters.

- Usable field strength (E_u)[1]: Minimum value of the field strength necessary to permit a desired reception quality, in specified receiving conditions, in the presence of noise and interference, either in an existing situation or as determined by agreements or frequency plans.

4. Terms relating to the ratio of wanted and unwanted signals

- Audio-frequency (AF) signal-to-interference ratio: The ratio (expressed in dB) between the values of the voltage of the wanted signal and the voltage of the interference, measured under specified conditions[2], at the audio-frequency output of the receiver.

- Audio-frequency (AF) protection ratio: The agreed minimum value of the audio-frequency signal-to-interference ratio considered necessary to achieve a subjectively defined reception quality.

- Radio-frequency (RF) wanted-to-interfering signal ratio: The ratio, expressed in dB, between the values of the radio-frequency voltage of the wanted signal and the interfering signal, measured at the receiver input under specified conditions[2].

- Radio-frequency (RF) protection ratio: The value of the radio-frequency wanted-to-interfering signal ratio that enables the audio-frequency protection ratio to be obtained at the receiver output under specified conditions[2].

---

1 The terms "minimum usable field strength" and "usable field strength" refer to the specified field strength values which a wanted signal must have in order to provide the required reception quality.

In determining whether these requirements are met, the median value (50%) of a fading signal should be used.

2 The specified conditions include such diverse parameters as: spacing ΔF of the wanted and interfering carrier, emission characteristics (type of modulation, modulation depth, carrier-frequency tolerance, etc.), receiver input level, as well as the receiver characteristics (selectivity, susceptibility to cross-modulation, etc.).

- Relative radio-frequency protection ratio: The difference, expressed in dB, between the protection ratio when the carriers of the wanted and unwanted emissions have a frequency difference of ΔF (Hz or kHz) and the protection ratio when the carriers of these emissions have the same frequency.

5. Term relating to the service area

- Required service area (in HF broadcasting): The area within which an administration proposes to provide a broadcasting service.

APPENDIX [COM4/A] TO THE RADIO REGULATIONS

Single-sideband system specification in the HF bands allocated to the broadcasting service

1. Planning parameters

1.1 Channel spacing

During the transition period (see Resolution COM4/2 (HFBC-87)), the channel spacing shall be 10 kHz. In the interest of spectrum conservation, during the transition period, it is also permissible to interleave SSB emissions midway between two adjacent DSB channels, i.e., with 5 kHz separation between carrier frequencies, provided that the interleaved emission is not to the same geographical area as either of the emissions between which it is interleaved.

After the end of the transition period the channel spacing and carrier frequency separation shall be 5 kHz.

1.2 Equivalent sideband power

When the carrier reduction relative to peak envelope power is 6 dB, an equivalent SSB emission is one giving the same audio-frequency signal-to-noise ratio at the receiver output as the corresponding DSB emission, when it is received by a DSB receiver with envelope detection. This is achieved when the sideband power of the SSB emission is 3 dB larger than the total sideband power of the DSB emission. (The peak envelope power of the equivalent SSB emission and the carrier power are the same as those of the DSB emission.)

1.3 RF protection ratio

For RF protection ratios to be applied for all relevant combinations of wanted and unwanted (interfering) double- and single-sideband emissions see Recommendation COM4/E (HFBC-87).

2. Transmission characteristics

2.1 Nominal carrier frequencies

Nominal carrier frequencies shall be integral multiples of 5 kHz.

2.2 Frequency tolerance

The carrier frequency tolerance shall be [± 10 Hz].

2.3 Audio-frequency band

The upper limit of the audio-frequency band (at -3 dB) of the transmitter shall not exceed 4.5 kHz with a further slope of attenuation of 35 dB/kHz and the lower limit shall be 150 Hz, lower frequencies being attenuated at a slope of 6 dB per octave.

2.4 Modulation processing

If audio-frequency signal processing is used, the dynamic range of the modulating signal shall be not less than 20 dB.

2.5 Necessary bandwidth

The necessary bandwidth shall not exceed 4.5 kHz.

2.6 Carrier reduction (relative to peak envelope power)

During the transition period, the carrier reduction shall be 6 dB to allow SSB emissions to be received by conventional DSB receivers with envelope detection without significant deterioration of the reception quality.

At the end of the transition period, the carrier reduction shall be 12 dB.

2.7 Sideband to be emitted

Only the upper sideband shall be used.

2.8 Attenuation of the unwanted sideband

The attenuation of the unwanted sideband (lower sideband) and of intermodulation products in that part of the emission spectrum shall be at least 35 dB relative to the wanted sideband signal level. However, since there is in practice a large difference between signal amplitudes in adjacent channels, a greater attenuation is recommended.

3. Characteristics of the reference receiver

The reference receiver has the main characteristics given below. For more detailed characteristics, see the relevant CCIR Recommendations.

3.1 Noise-limited sensitivity

The value of the noise-limited sensitivity is equal to or less than 40 dB(μV/m).

3.2 Demodulator and carrier acquisition

The reference receiver is equipped with a synchronous demodulator, using for the carrier acquisition a method whereby a carrier is regenerated by means of a suitable control loop which locks the receiver to the incoming carrier. The reference receiver should work as well with conventional DSB emissions as with SSB emissions having a carrier reduced to 6 or 12 dB below peak envelope power.

3.3 Overall selectivity

The reference receiver has an overall bandwidth (at -3 dB) of 4 kHz, with a slope of attenuation of 35 dB/kHz.

Note - Other combinations of bandwidth and slope of attenuation are possible, as given below, and will give the same relative RF protection ratio of about -27 dB at 5 kHz carrier difference.

Slope of attenuation	Overall bandwidth (at -3 dB)
25 dB/kHz	3 300 Hz
15 dB/kHz	2 700 Hz

RECOMMENDATION COM4/G (HFBC-87)

HF Broadcast Receivers

The World Administrative Radio Conference for the Planning of the HF Bands Allocated to the Broadcasting Service (Geneva, 1987),

considering

a) that a large number of receivers fail to cover all the HF bands allocated to the broadcasting service or have imprecise analogue displays for broadcasting frequencies (a subject of complaint by numerous HF broadcasters);

b) that to reduce congestion in certain bands and to improve spectrum utilization, the appropriate HF bands, including the highest bands (21 and 26 MHz), should be used;

c) that a precise display facilitates the location of broadcasting stations and hence encourages the public to listen to HF broadcasts,

recommends administrations

to draw the attention of manufacturers to this matter, to ensure that future low-cost broadcast receivers are equipped to cover all HF broadcasting bands and, if possible, to provide digital frequency display,

invites the Secretary-General

to communicate this Recommendation to the International Electrotechnical Commission (IEC).

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS
ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

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23 February 1987
Original: French

COMMITTEE 2

THIRD REPORT OF THE WORKING GROUP OF COMMITTEE 2 (CREDENTIALS)

The Working Group of Committee 2 held a third meeting on 23 February 1987. It examined the credentials of the following delegations :

(In French alphabetical order)

Algeria (People's Democratic Republic of)
Burkina Faso
Burundi (Republic of)
United Arab Emirates
Gabonese Republic
Jordan (Hashemite Kingdom of)
Monaco
Qatar (State of)
Rwandese Republic
Somali Democratic Republic
Swaziland (Kingdom of)
Tanzania (United Republic of)
Uruguay (Eastern Republic of)
Zimbabwe (Republic of)

a total of 14 delegations

These credentials are all in order.

S.K. CHEMAI
Chairman of Working Group C2-A

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HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 168-E
23 February 1987
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PLENARY MEETING

NOTE BY THE CHAIRMAN OF THE EDITORIAL COMMITTEE

The title of the Conference refers to the planning of the HF bands allocated to the broadcasting service, but agenda item 2.1.5 makes it clear that the revision of the relevant provisions of the Radio Regulations relates to the HF bands allocated exclusively to the broadcasting service.

It is therefore proposed that the Plenary Meeting adopt the following provisions governing the drafting of texts.

1. The preamble to the Final Acts should indicate that the Conference has confined its decisions to the bands allocated exclusively to broadcasting.

2. In the provisions of the Radio Regulations other than those of Article 17, any amendments made should indicate clearly that they only apply to the bands allocated exclusively to the broadcasting service.

3. The Resolutions and Recommendations of the Conference should, if necessary, include a "considering" indicating that they only apply to the bands allocated exclusively to the broadcasting service.

D. SAUVET-GOICHON
Chairman of Committee 7

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WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, **February-March 1987**

Document 169-E
23 February 1987
Original: French

COMMITTEE 5

REPORT OF THE CHAIRMAN OF WORKING GROUP 5-B TO COMMITTEE 5

Working Group 5-B held five meetings, at which it considered the subjects contained in its terms of reference, given in Document 135.

It considered Documents 11, 33, 35, 72, 73, 110, DT/50 and DT/60, and followed the directives laid down by the Chairman of Committee 5 in Document DT/41 and by the Chairman of the Conference at the sixth Plenary Meeting.

With regard to the first part of its terms of reference, seven compromise proposals were considered, as well as two possibilities, which consisted in applying the HFBC Planning System in the whole of the bands allocated to HF broadcasting and in coordinating all the requirements to be used for HF broadcasting.

The two possibilities were considered to fall within the scope of Committee 5.

Several delegations supported France's proposal in Document 33 for applying the HFBC Planning System, once it had been improved and approved in accordance with the decisions of the Conference, to the extensions of the bands allocated in 1979, which included 84 channels and represented 33% of the bands allocated preferentially to HF broadcasting. Consideration was also given to the introduction of a stage-by-stage procedure, which might lead eventually to the HFBC Planning System being applied to either part or all of the frequency bands.

The Working Group did not, however, reach a consensus regarding that proposal.

With regard to the second part of its terms of reference, the Working Group considered that it would have been difficult to establish beforehand the number of requirements to be planned, although it showed interest in the figure of 25 hours which, according to the method described in Document 33, each country might be able to obtain by applying the Planning System to the band extensions.

Several delegations also thought that it would be possible to satisfy a minimum number of requirements for each country by using the HFBC System, once it had been duly improved, at least in the less congested bands.

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Once again, however, the proposal failed to meet with a consensus.

No consensus was reached either on the proposal to set up a Drafting Group to prepare a text for submission to Committee 5 on the subjects considered by Working Group 5-B.

This report is therefore submitted by the Chairman of Working Group 5-B to Committee 5 for information.

C. TERZANI
Chairman of Working Group 5-B

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS
ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

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23 February 1987
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COMMITTEE 6

FIRST REPORT OF WORKING GROUP 6-A TO COMMITTEE 6

The Working Group recommends that the following text be communicated to Committee 7.

Modify Note 21) of Appendix 7 to read as follows:

"21) For the bands 4.0 - 5.9 MHz it is suggested that administrations avoid carrier frequency differences of a few hertz, which cause degradations similar to periodic fading. This could be avoided if the frequency tolerance were 0.1 Hz, a tolerance which would also be suitable for single-sideband emissions.

For the bands 5.9 - 29.7 MHz it is suggested that administrations avoid carrier frequency differences of a few hertz, which cause degradations similar to periodic fading. This could be avoided if the frequency tolerance were 0.1 Hz."

E. GEORGE
Chairman of Working Group 6-A

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HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
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Source: Document 129

COMMITTEE 6

SECOND REPORT OF WORKING GROUP 6-A

The annex contains a draft Recommendation relating to relative RF protection ratio values for the use of single-sideband systems in the HF bands allocated to the broadcasting service, for consideration by Committee 6.

In this context attention is drawn to the fact that a decision is needed regarding the use of the term "exclusively" in connection with the expression "HF bands allocated to the broadcasting service".

E. GEORGE
Chairman of Working Group 6-A

Annex: 1

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ANNEX

DRAFT

RECOMMENDATION [COM4/E]

Relative RF Protection Ratio Values for the Use of Single-Sideband Systems in the HF Bands Allocated to the Broadcasting Service

The World Administrative Radio Conference for the Planning of the HF Bands Allocated to the Broadcasting Service (Geneva, 1987),

considering

[a) that this Conference has adopted a method for the planning of HF bands allocated to the broadcasting service;]

b) that this method is based on the use of double-sideband emissions;

c) that the RF co-channel protection ratio is one of the basic planning parameters;

d) that this Conference has adopted Resolution [COM4/2] relating to the transition from double-sideband emissions to single-sideband emissions in the HF bands allocated to the broadcasting service and Recommendation [COM4/B] relating to the introduction of transmitters and receivers capable of both DSB and SSB modes of operation;

e) that the single-sideband system specification for HF broadcasting is contained in Appendix [COM4/A] to the Radio Regulations;

f) that, however, due to their provisional character, values for the relative RF protection ratio to be applied for all relevant combinations of wanted and unwanted double- and single-sideband emissions have not been included in the appendix mentioned in e) above;

g) that preliminary studies have shown that for the same reception quality assessment grade, single-sideband emissions may require a lower RF co-channel protection ratio;

h) Resolution [COM6/1] relating to the procedure to be applied by the IFRB in the revision of relevant parts of its Technical Standards used for HF broadcasting,

recommends

that, subject to the procedure to be applied by the IFRB in the revision of relevant parts of its Technical Standards used for HF broadcasting as given in Resolution [COM6/1], the values of relative RF protection ratio given in the annex to this Recommendation be used by the IFRB in its Technical Standards relating to single-sideband systems in the HF bands allocated to the broadcasting service,

requests the CCIR

to continue to study values of relative RF protection ratio for the different cases and frequency separations covered in the annex to this Recommendation,

invites administrations

to participate actively in these studies.

ANNEX TO RECOMMENDATION [COM4/E]

Relative values of RF protection ratio

1. The values of relative RF protection ratio given in the table should be used whenever single-sideband systems as specified in Appendix [COM4/A] to the Radio Regulations are involved in the planning of the HF bands allocated to the broadcasting service.

2. The values given are referred to the case of co-channel double-sideband wanted and unwanted signals for the same reception quality assessment grade (reference co-channel RF protection ratio).

3. For the reception of double-sideband and single-sideband (6 dB carrier reduction relative to peak envelope power) wanted signals, a conventional double-sideband receiver with envelope detection designed for a channel spacing of 10 kHz is assumed.

4. For the reception of a single-sideband (12 dB carrier reduction relative to peak envelope power) wanted signal the reference receiver as specified in Appendix [COM4/A], part B, section 3, to the Radio Regulations is assumed.

5. Single-sideband signals with 6 dB carrier reduction relative to peak envelope power assume equivalent sideband power as specified in Appendix (COM4/A), part B, section 1.2, to the Radio Regulations.

6. The figures for case 2 in the table below relate to a situation where the centre frequency of the intermediate frequency pass-band of the double-sideband receiver is tuned to the carrier frequency of the wanted single-sideband signal. If this is not the case the value for +5 kHz may increase to -1 dB.

Relative RF protection ratio values referenced to the co-channel RF protection ratio for the DSB wanted and DSB unwanted signals (dB)*

(For use in the HFBC Planning System)

	Wanted signal	Unwanted signal	Carrier frequency separation f unwanted-f wanted, Δf (kHz)								
			-20	-15	-10	-5	0	+5	+10	+15	+20
1	Double-sideband	Single-sideband (6 dB carrier reduction rel. to p.e.p.)	-51	-46	-32	+1	3	-2	-32	-46	-51
2	Single-sideband (6 dB carrier reduction rel. to p.e.p.)	Double-sideband	-54	-49	-35	-3	0	-3	-35	-49	-54
3	Single-sideband (6 dB carrier reduction rel. to p.e.p.)	Single-sideband (6 dB carrier reduction rel. to p.e.p.)	-51	-46	-32	+1	0	-2	-32	-46	-51
4	Single-sideband (12 dB carrier reduction rel. to p.e.p.)	Single-sideband (12 dB carrier reduction rel. to p.e.p.)	-57	-57	-57	-45	0	-20	-47	-52	-57

* Frequency separations Δf less than -20 kHz as well as Δf greater than 20 kHz need not be considered in planning.

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, **February-March 1987**

Document 171-E
23 February 1987
Original: English

Source: Document 129

COMMITTEE 6

SECOND REPORT OF WORKING GROUP 6-A

The annex contains a draft Recommendation relating to relative RF protection ratio values for the use of single-sideband systems in the HF bands allocated to the broadcasting service, for consideration by Committee 6.

In this context attention is drawn to the fact that a decision is needed regarding the use of the term "exclusively" in connection with the expression "HF bands allocated to the broadcasting service".

E. GEORGE
Chairman of Working Group 6-A

Annex: 1

For reasons of economy, this document is printed in a limited number of copies. Participants are therefore kindly asked to bring their copies to the meeting since no others can be made available.

ANNEX

DRAFT

RECOMMENDATION [COM6/A]

Relative RF Protection Ratio Values for the Use of Single-Sideband Systems in the HF Bands Allocated to the Broadcasting Service

The World Administrative Radio Conference for the Planning of the HF Bands Allocated to the Broadcasting Service (Geneva, 1987),

considering

a) that this Conference has adopted a method for the planning of HF bands allocated to the broadcasting service;

b) that this method is based on the use of double-sideband emissions;

c) that the RF co-channel protection ratio is one of the basic planning parameters;

d) that this Conference has adopted Resolution [COM4/2] relating to the transition from double-sideband emissions to single-sideband emissions in the HF bands allocated to the broadcasting service and Recommendation [COM4/B] relating to the introduction of transmitters and receivers capable of both DSB and SSB modes of operation;

e) that the single-sideband system specification for HF broadcasting is contained in Appendix [COM6/A] to the Radio Regulations;

f) that, however, due to their provisional character, values for the RF protection ratio to be applied for all relevant combinations of wanted and unwanted double- and single-sideband emissions have not been included in the appendix mentioned in e) above;

g) that preliminary studies have shown that for the same reception quality assessment grade, single-sideband emissions may require a lower RF co-channel protection ratio;

h) Resolution [COM6/1] relating to the procedure to be applied by the IFRB in the revision of relevant parts of its Technical Standards used for HF broadcasting,

recommends

that, subject to the procedure to be applied by the IFRB in the revision of relevant parts of its Technical Standards used for HF broadcasting as given in Resolution [COM6/1] the values of relative RF protection ratio given in the annex to this Recommendation be used by the IFRB in its Technical Standards relating to single-sideband systems in the HF bands allocated to the broadcasting service,

requests the CCIR

to continue to study values of relative RF protection ratio for the different cases and frequency separations covered in the annex to this Recommendation,

invites administrations

to participate actively in these studies.

ANNEX TO RECOMMENDATION [COM6/A]

Relative values of RF protection ratio

1. The values of relative RF protection ratio given in the table should be used whenever single-sideband systems as specified in Appendix [COM6/A] to the Radio Regulations are involved in the planning of the HF bands allocated to the broadcasting service.

2. The values given are referred to the case of co-channel double-sideband wanted and unwanted signals for the same reception quality assessment grade (reference co-channel RF protection ratio).

3. For the reception of double-sideband and single-sideband (6 dB carrier reduction relative to peak envelope power) wanted signals, a conventional double-sideband receiver with envelope detection designed for a channel spacing of 10 kHz is assumed.

4. For the reception of a single-sideband (12 dB carrier reduction relative to peak envelope power) wanted signal the reference receiver as specified in Appendix [COM6/A], part B, section 3, to the Radio Regulations is assumed.

5. Single-sideband signals with 6 dB carrier reduction relative to peak envelope power assume equivalent sideband power as specified in Appendix (COM6/A), part B, section 1.2, to the Radio Regulations.

6. The figures for case 2 in the table below relate to a situation where the centre frequency of the intermediate frequency pass-band of the double-sideband receiver is tuned to the carrier frequency of the wanted single-sideband signal. If this is not the case the value for +5 kHz may increase to -1 dB.

Relative RF protection ratio values referenced to the co-channel RF protection ratio for the DSB wanted and DSB unwanted signals (dB)*

(For use in the HFBC Planning System)

	Wanted signal	Unwanted signal	Carrier frequency separation f unwanted-f wanted, Δf (kHz)								
			-20	-15	-10	-5	0	+5	+10	+15	+20
1	Double-sideband	Single-sideband (6 dB carrier reduction rel. to p.e.p.)	-51	-46	-32	+1	3	-2	-32	-46	-51
2	Single-sideband (6 dB carrier reduction rel. to p.e.p.)	Double-sideband	-54	-49	-35	-3	0	-3	-35	-49	-54
3	Single-sideband (6 dB carrier reduction rel. to p.e.p.)	Single-sideband (6 dB carrier reduction rel. to p.e.p.)	-51	-46	-32	+1	0	-2	-32	-46	-51
4	Single-sideband (12 dB carrier reduction rel. to p.e.p.)	Single-sideband (12 dB carrier reduction rel. to p.e.p.)	-57	-57	-57	-45	0	-20	-47	-52	-57

* Frequency separations Δf less than -20 kHz as well as Δf greater than 20 kHz need not be considered in planning.

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 172(Rev.1)-E
24 February 1987
Original: English

Source: Document 159

COMMITTEE 6

THIRD REPORT OF WORKING GROUP 6-A

The annex contains a Recommendation relating to the propagation prediction method to be used for the [planning] of the HF bands allocated to the broadcasting service, for consideration in Committee 6.

Attention is drawn to the following note from the Chairman of Committee 4 with which he submitted the text of the Recommendation to Committees 5 and 6 (see Document 159).

"Note - If the Conference decides to use an alternative procedure, such as a revision of Article 17, intead of planning, it may be appropriate to include words such as, for example, "from the time of entry into force of the Final Acts" instead of the words "in the post Conference period" in recommends 1."

E. GEORGE
Chairman of Working Group 6-A

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RECOMMENDATION [COM4/F] (HFBC-2)

Propagation Prediction Method to be Used for the [Planning] of the HF Bands Allocated to the Broadcasting Service

The World Administrative Radio Conference for the Planning of the HF Bands Allocated to the Broadcasting Service (Geneva, 1987),

considering

a) that the First Session of the Conference (Geneva, 1984) established a propagation prediction method to be used for the [planning] of the HF bands allocated to the broadcasting service;

b) the work by the CCIR during the intersessional period in improving some aspects of the adopted method;

c) that the IFRB has developed and implemented computer software* based on the propagation prediction method established by the First Session of the Conference (Geneva, 1984) and the further work by the CCIR and has used this for its intersessional work;

d) that the propagation prediction method and the associated computer software used by the IFRB is the starting basis for further improvements;

e) Recommendation COM4/A relating to Further Improvements to the Propagation Prediction Method to be Used for the Planning of the HF Bands Allocated to the Broadcasting Service,

recommends

1. that the propagation prediction method and the associated computer software to be used in the post Conference period shall be that implemented by the IFRB during the intersessional period;

2. that the IFRB prepare detailed documentation of the propagation prediction method, summarized in the annex to this Recommendation for inclusion in its Technical Standards;

3. that the procedures to be applied by the IFRB in the revision of relevant parts of its Technical Standards, as established in Resolution COM6/1, be used for further improvements to this method.

---

* Note - The most recent version of the computer software is available to administrations on request.

ANNEX TO RECOMMENDATION [COM4/F]

**Summary of the propagation prediction method*
to be used to determine the sky-wave field strength
for HF broadcast planning purposes.**

1. Introduction

The propagation prediction method, implemented by the IFRB and to be used in the post-conference period as a starting basis was established by the First Session. It is based on CCIR studies prior to the First Session, and on further studies by the CCIR of particular aspects of the method.

The method is used for the prediction of HF field strength for HF broadcasting purposes and is composed of three parts:

- for path lengths up to 7,000 km;
- for path lengths greater than 9,000 km;
- an interpolation procedure for path lengths between 7,000 and 9,000 km.

2. Ionospheric parameters

Values of the ionospheric parameters foF2, M(3 000)F2 and foE are obtained from the numerical maps (the Oslo coefficients) and the procedures set out in CCIR Report 340, at the locations of the control points required by the short and long range methods. From these parameters the basic MUFs for the required distances are obtained, again using the procedures of Report 340. Appropriate interpolations are made for the level of sunspot activity.

3. Distances up to 7,000 km

The short range method of prediction, based partly on CCIR Report 252-2, is used for path lengths up to 7,000 km. Calculations are also made by this method for path lengths between 7,000 and 9,000 km and the results are utilized in the interpolation procedure described later.

The method assumes great-circle propagation with reflection from the E-layer (for ranges up to 4,000 km) and from the F2-layer. The path is divided into a number of equal length hops, each less than 4,000 km, for F2-modes, and 2,000 km, for E-modes. The hops are assumed to have mirror reflections in the ionosphere at their mid points. The equivalent reflection height is taken as 110 km for E-modes, and is a variable, depending upon the values of the ionospheric parameters, for F2-modes.

For path lengths up to 4,000 km, screening of F2 propagation modes by the lower E-layer is applied when appropriate.

The central feature of the method is the prediction of the median field strength using the formula:

$$E_{ts} = 96.85 + P_t + G_t - 20 \log P' - L_i - L_m - L_g - L_h \text{ dB}(\mu V/m).$$

---

* This summary of the propagation prediction method, implemented by the IFRB, is not intended to introduce any changes to the method.

P_t is the transmitter output power in dB relative to 1 kW and G_t is the isotropic antenna gain appropriate for the azimuth of the great circle path and the elevation angle computed for the path geometry and the number of hops being considered. P' is the virtual slant range in km, calculated along the ray paths. L_i, L_m, L_g and L_h are loss terms which account for the absorption loss (calculated for each hop and the results added), the "above the MUF" loss, the ground reflection loss and the auroral plus other signal losses, respectively. The numerical constant term includes, amongst other things, an allowance for those effects of sky-wave propagation not otherwise included in this simplified method.

Although for an isotropic antenna the predicted field strength would be greatest for propagation modes with the minimum number of hops, this is not necessarily the case for practical antennas. The calculation is repeated with progressively greater numbers of hops, taking account of the appropriate antenna gain in each case, until a maximum is found. So as to facilitate the calculation for the large number of cases considered by the IFRB, in the practical implementation field strength values have been pre-calculated and stored as tables for six F2-modes and six E-modes for the paths between all transmitter locations and all test points. During the consideration of each case the appropriate entries in these tables are referred to and the antenna gain factors applied.

The method selects the two strongest F2-modes (i.e. the modes with the highest field strengths) and, where appropriate, the strongest E-mode, and these values are combined by adding the signal powers together.

4. Distances greater than 9,000 km

For distances beyond 9,000 km, the method no longer uses geometric ray hops, hypothetical ray paths with a number of equal hops each less than 4,000 km are considered. Calculations are also made by this method for path lengths between 7,000 and 9,000 km and the results are utilized in the interpolation procedure described later.

In the method it is assumed that the field strength in the "transmission frequency range", i.e. between the lower frequency limit f_L and the upper frequency limit f_M, is determined by non-deviative absorption (near f_L) and deviative absorption (near f_M). The empirical fit to observations determines the shape of the curve between f_L and f_M as a function of the solar zenith angle, the path geometry etc. The overall median field strength is given by

$$E_u = E_o \left[1 - \frac{(f_M+f_H)^2}{(f_M+f_H)^2+(f_L+f_H)^2} \left(\frac{(f_L+f_H)^2}{(f+f_H)^2} + \frac{(f+f_H)^2}{(f_M+f_H)^2} \right) \right] + P_t + G_u + G_{ap} - 32.5 \text{ dB}(\mu V/m)$$

$E_o = 139.6 - 20 \log P'$, the free space field where P' is the slant range assuming that the height of the ionosphere is 300 km.

f is the frequency at which the prediction is made. f_M is the upper limit frequency; it is determined separately for the first and last hop of the path and the lower value is taken. $f_M = K \cdot f_b$, where f_b is the basic MUF and K is a correction factor taking into account the diurnal variation and the absolute value of f_b; f_L is the lower frequency limit and is mainly dependent on the solar zenith angle; f_H is the gyro-frequency; P_t is the transmitter output power in dB relative to 1 kW; G_{tl} is the isotropic antenna gain, taken as the highest value in the range of vertical radiation angles from 0^o to 8^o at the appropriate azimuth; and G_{ap} is the antipodal focussing gain, taking into account the increase in field strength at distances greater than 10,000 km. The numerical constant term includes, amongst other things, an allowance for those effects of sky-wave propagation not otherwise included in the method.

5. Distances between 7,000 and 9,000 km

In this distance range the field strengths E_{ts} and E_{tl} are determined by both of the above procedures and the resultant median field strength is obtained by linear interpolation, in decibels, as follows:

$$E_{ti} = E_{ts} + \frac{D - 7\,000}{2\,000} (E_{tl} - E_{ts}) \quad dB(\mu V/m),$$

where D is the path length in kilometres.

Note - The constant terms in the equations for E_{ts} and E_{tl} include the values of -7.3 dB and 3.9 dB, for the short and long range parts of the method, respectively, which were determined in CCIR Recommendation 621 following studies during the intersessional period.

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 172-E
23 February 1987
Original: English

Source: Document 159

COMMITTEE 6

THIRD REPORT OF WORKING GROUP 6-A

The annex contains a Recommendation relating to the propagation prediction method to be used for the / planning / of the HF bands allocated to the broadcasting service, for consideration in Committee 6.

Attention is drawn to the following note from the Chairman of Committee 4 with which he submitted the text of the Recommendation to Committees 5 and 6 (see Document 159).

"Note - If the Conference decides to use an alternative procedure, such as a revision of Article 17, instead of planning, it may be appropriate to include words such as, for example, "from the time of entry into force of the Final Acts" instead of the words "in the post Conference period" in recommends 1."

E. GEORGE
Chairman of Working Group 6-A

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RECOMMENDATION [COM6/B] (HFBC-2)

Propagation Prediction Method to be Used for the [Planning] of the HF Bands Allocated to the Broadcasting Service

The World Administrative Radio Conference for the Planning of the HF Bands Allocated to the Broadcasting Service (Geneva, 1987),

considering

a) that the First Session of the Conference (Geneva, 1984) established a propagation prediction method to be used for the [planning] of the HF bands allocated to the broadcasting service;

b) the work by the CCIR during the intersessional period in improving some aspects of the adopted method;

c) that the IFRB has developed and implemented computer software* based on the propagation prediction method established by the First Session of the Conference (Geneva, 1984) and the further work by the CCIR and has used this for its intersessional work;

d) that the propagation prediction method and the associated computer software used by the IFRB is the starting basis for further improvements;

e) Recommendation COM4/A relating to Further Improvements to the Propagation Prediction Method to be Used for the Planning of the HF Bands Allocated to the Broadcasting Service,

recommends

1. that the propagation prediction method and the associated computer software to be used in the post Conference period shall be that implemented by the IFRB during the intersessional period;

2. that the IFRB prepare detailed documentation of the propagation prediction method, summarized in the annex to this Recommendation, for inclusion in its Technical Standards;

3. that the procedures to be applied by the IFRB in the revision of relevant parts of its Technical Standards, as established in Resolution COM6/1, be used for further improvements to this method.

---

* Note - The most recent version of the computer software is available to administrations on request.

ANNEX TO RECOMMENDATION /COM6/B/

Summary of the propagation prediction method* to be used to determine the sky-wave field strength for HF broadcast planning purposes

1. Introduction

The propagation prediction method, implemented by the IFRB and to be used in the post-conference period as a starting basis, was established by the First Session. It is based on CCIR studies prior to the First Session, and on further studies by the CCIR of particular aspects of the method.

method is used for the prediction of HF field strength for HF broadcasting purposes and is composed of three parts:

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The method assumes great-circle propagation with reflection from the E-layer (for ranges up to 4,000 km) and from the F2-layer. The path is divided into a number of equal length hops, each less than 4,000 km, for F2-modes, and 2,000 km, for E-modes. The hops are assumed to have mirror reflections in the ionosphere at their mid points. The equivalent reflection height is taken as 110 km for E-modes, and is a variable, depending upon the values of the ionospheric parameters, for F2-modes.

For path lengths up to 4,000 km, screening of F2 propagation modes by the lower E-layer is applied when appropriate.

The central feature of the method is the prediction of the median field strength using the formula:

$$E_{ts} = 96.85 + P_t + G_t - 20 \log P' - L_i - L_m - L_g - L_h \text{ dB}(\mu V/m).$$

---

* This summary of the propagation prediction method, implemented by the IFRB, is not intended to introduce any changes to the method.

P_t is the transmitter output power in dB relative to 1 kW and G_t is the isotropic antenna gain appropriate for the azimuth of the great circle path and the elevation angle computed for the path geometry and the number of hops being considered. P' is the virtual slant range in km, calculated along the ray paths. L_i, L_m, L_g and L_h are loss terms which account for the absorption loss (calculated for each hop and the results added), the "above the MUF" loss, the ground reflection loss and the auroral plus other signal losses, respectively. The numerical constant term includes, amongst other things, an allowance for those effects of sky-wave propagation not otherwise included in this simplified method.

Although for an isotropic antenna the predicted field strength would be greatest for propagation modes with the minimum number of hops, this is not necessarily the case for practical antennas. The calculation is repeated with progressively greater numbers of hops, taking account of the appropriate antenna gain in each case, until a maximum is found. So as to facilitate the calculation for the large number of cases considered by the IFRB, in the practical implementation field strength values have been pre-calculated and stored as tables for six F2-modes and six E-modes for the paths between all transmitter locations and all test points. During the consideration of each case the appropriate entries in these tables are referred to and the antenna gain factors applied.

The method selects the two strongest F2-modes (i.e. the modes with the highest field strengths) and, where appropriate, the strongest E-mode, and these values are combined by adding the signal powers together.

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For distances beyond 9,000 km, the method no longer uses geometric ray hops, hypothetical ray paths with a number of equal hops each less than 4,000 km are considered. Calculations are also made by this method for path lengths between 7,000 and 9,000 km and the results are utilized in the interpolation procedure described later.

In the method it is assumed that the field strength in the "transmission frequency range", i.e. between the lower frequency limit f_L and the upper frequency limit f_M, is determined by non-deviative absorption (near f_L) and deviative absorption (near f_M). The empirical fit to observations determines the shape of the curve between f_L and f_M as a function of the solar zenith angle, the path geometry etc. The overall median field strength is given by

$$E_{tl}=E_o\left[1-\frac{(f_M+f_H)^2}{(f_M+f_H)^2+(f_L+f_H)^2}\left(\frac{(f_L+f_H)^2}{(f+f_H)^2}+\frac{(f+f_H)^2}{(f_M+f_H)^2}\right)\right] \quad +P_t+G_{tl}+G_{ap}-32.5 \text{ dB}(\mu V/m)$$

$E_o = 139.6 - 20 \log P'$, the free space field where P' is the slant range assuming that the height of the ionosphere is 300 km.

f is the frequency at which the prediction is made. f_M is the upper limit frequency; it is determined separately for the first and last hop of the path and the lower value is taken. $f_M = K \cdot f_b$, where f_b is the basic MUF and K is a correction factor taking into account the diurnal variation and the absolute value of f_b; f_L is the lower frequency limit and is mainly dependent on the solar zenith angle; f_H is the gyro-frequency; P_t is the transmitter output power in dB relative to 1 kW; G_{tl} is the isotropic antenna gain, taken as the highest value in the range of vertical radiation angles from 0^o to 8^o at the appropriate

azimuth; and G_{ap} is the antipodal focussing gain, taking into account the increase in field strength at distances greater than 10,000 km. The numerical constant term includes, amongst other things, an allowance for those effects of sky-wave propagation not otherwise included in the method.

5. Distances between 7,000 and 9,000 km

In this distance range the field strengths E_{ts} and E_{tl} are determined by both of the above procedures and the resultant median field strength is obtained by linear interpolation, in decibels, as follows:

$$E_{ti} = E_{ts} + \frac{D - 7\,000}{2\,000} (E_{tl} - E_{ts}) \quad dB(\mu V/m),$$

where D is the path length in kilometres.

Note - The constant terms in the equations for E_{ts} and E_{tl} include the values of -7.3 dB and 3.9 dB, for the short and long range parts of the method, respectively, which were determined in CCIR Recommendation 621 following studies during the intersessional period.

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, **February-March 1987**

Document 173-E
27 February 1987
Original: English

COMMITTEE 6

SUMMARY RECORD

OF THE

FIFTH MEETING OF COMMITTEE 6

(REGULATORY)

Monday, 23 February 1987, at 1400 hrs

Chairman: Mr. R. BLOIS (Brazil)

Subjects discussed:	Documents
1. Approval of the summary record of the second meeting	101
2. Consideration of the notes from the Chairman of Committee 4 and the establishment of a Working Group	131, 132, 159, 160 and 161
3. Organization of the future work of the Committee and the establishment of two Drafting Groups	

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1. Approval of the summary record of the second meeting (Document 101)

The summary record of the second meeting of the Committee was approved.

2. Consideration of the notes from the Chairman of Committee 4 and the establishment of a Working Group (Documents 131, 132, 159, 160 and 161)

2.1 The Chairman proposed that the Committee should take note of the five notes and proceed to establish a Working Group (Working Group 6-A) whose mandate would be to consider the documents coming from Committee 4 and suggest the action to be taken by Committee 6, and prepare texts of relevant parts thereof for inclusion in the Final Acts of the Conference. He suggested that such a Working Group might be chaired by Mr. George (Federal Republic of Germany). The delegate of the Netherlands supported the proposal.

It was so agreed.

3. Organization of the future work of the Committee and the establishment of two Drafting Groups

3.1 The Chairman proposed that two small Drafting Groups should be established, the mandate of the first Group to be to draft a revision of Article 17 of the Radio Regulations in the light of the guidelines that Committee 6 would receive from Committee 5, and the mandate of the second Group to be to draft the procedures relating to the HFBC Planning System in the light of the guidelines that Committee 6 would receive from Committee 5. Each Group would work in one language, although interpretation facilities would be available during normal meeting hours.

3.2 The delegate of China suggested that the mandate of the first Group should be "to draft a revision of the existing provisions of Article 17 ...". The delegate of India suggested that it should be "to draft regulatory provisions in the light of the guidelines provided by Committee 5 for improvement in the existing provisions of Article 17 of the Radio Regulations". The delegate of the United Kingdom suggested "to draft the procedures that shall apply in so far as those of the HFBC Planning System do not apply, in the light of guidelines from Committee 5", although he could also agree to the wording suggested by the delegate of India.

3.3 The delegate of China suggested that the mandate of the second Group should read "to draft the procedures relating to the implementation of the HFBC Planning System ...". The delegates of the Netherlands, the Federal Republic of Germany and Poland were of the opinion that such wording would reflect only part of the task to be carried out by the Drafting Group. The delegate of Poland suggested as a compromise solution "to draft the procedures relating to the HFBC Planning System and its implementation in the light of ...".

3.4 The Chairman invited the Committee to establish two Drafting Groups. The first Group, to be chaired by Mr. Broere (Netherlands), will have the terms of reference:

To draft regulatory provisions in the light of the guidance provided by Committee 5 for improvement in the existing provisions in Article 17 of the Radio Regulations.

The second Group, to be chaired by Mr. Challo (Kenya), will have the terms of reference:

To draft the procedure relating to the HFBC Planning System and its implementation in the light of the guidelines provided by Committee 5.

He invited the Committee to entrust him with the appointment of members of both Groups, bearing in mind the need to ensure an appropriate balance.

It was so agreed.

The meeting rose at 1445 hours.

The Secretary: The Chairman:

M. AHMAD R. BLOIS

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Corrigendum 1 to
Document 174-E
30 April 1987
Original: English

COMMITTEE 5

SUMMARY RECORD

OF THE

SIXTH MEETING OF COMMITTEE 5

(PLANNING METHOD AND ASSOCIATED PROCEDURES)

Correct the sentence between paragraphs 2.77 and 2.78 to read:

"The meeting was suspended at 2050 hours and resumed at 0900 hours on Tuesday, 24 February."

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HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS
ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 174-E
2 March 1987
Original: English

COMMITTEE 5

SUMMARY RECORD

OF THE

SIXTH MEETING OF COMMITTEE 5

(PLANNING METHOD AND ASSOCIATED PROCEDURES)

Monday, 23 February 1987, at 0900 and 1730 hrs and
Tuesday, 24 February 1987, at 0900, 1400 and 2050 hrs

Chairman: Mr. C.T. NDIONGUE (Senegal)

Subjects discussed:		Documents
1.	Notes by the Chairman of Committee 4	132, 145, 158, 159, 161
2.	Report of Working Group 5-C	165
3.	Documents assigned to Committee 5	120, 123, 126, 148, 139
4.	First report of Working Group 5-A	157 + Corr.1

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1. Notes by the Chairman of Committee 4 (Documents 132, 145, 158, 159 and 161)

1.1 Document 132

1.1.1 The Chairman of Committee 7 suggested that the Committee should propose the annex to Document 132 for inclusion in Appendix 2, which was at present in preparation.

It was so agreed.

1.2 Documents 145 and 161

At the Chairman's suggestion, it was agreed to consider those two documents together.

1.2.1 The Chairman of Committee 4 drew attention to the passages in square brackets. Paragraph 1.6.5 of Document 161 had been incorrectly copied from Document 136 and a corrigendum would be issued shortly.

1.2.2 The delegate of Syria, supported by the delegate of the USSR, proposed the removal of the square brackets from paragraph 3 of the annex to Document 145 on the grounds that OBR was the only available means of measuring overall broadcast reliability. The delegate of the United States agreed, remarking that noise and interference were not, in fact, differentiated in nature. Furthermore, the parameter had already been calculated as part of the HFBC Planning System and its retention would not involve any additional effort for the IFRB.

1.2.3 The delegate of Algeria, supported by the delegates of India and Pakistan, said that the use of OBR resulted in unnecessary overloading of the system while yielding a very insignificant result. It would be preferable to drop the concept altogether.

At the Chairman's suggestion it was agreed to defer consideration of Documents 145 and 161 to a later stage.

1.3 Document 158

The document was noted.

1.4 Document 159

1.4.1 The Chairman of Committee 4 said that the note on page 1 was intended to draw the attention of Committee 5 to the appropriateness of amending the wording of recommends 1 in the event that the Conference decided to continue with an improved version of Article 17 instead of adopting a Planning System.

1.4.2 The delegate of Algeria, supported by the delegates of Pakistan, Saudi Arabia, Mali and Oman, proposed the deletion of the note on page 1 on the grounds that it anticipated a decision yet to be taken by Committee 5 and was out of place in a communication from the Chairman to another Committee.

1.4.3 The Secretary-General said that, in the light of discussions which had taken place in Plenary, it might be useful to insert the word "exclusively" in the title and in considering a) of the Recommendation annexed to the document.

After a brief discussion it was agreed that a decision on the matter should be left to the Plenary and to remove the square brackets appearing in the Recommendation on the understanding that Committee 7 would align the text with that of other Conference documents.

2. Report of Working Group 5-C (Document 165)

2.1 The Chairman of Working Group 5-C, introducing the report, said that the Working Group had held three meetings, the last of which had been rather prolonged. The text and flowchart in Annex 1 to the report represented the guidelines for a procedure for an improved Article 17 drafted in accordance with the Working Group's terms of reference and Annex 2 contained a provisional assessment of the time-scale for the implementation of the revised Article. The square brackets in paragraph 19 had been inserted because that part of the text had not been drafted by the Working Group as a whole owing to lack of time but by himself as its Chairman with the assistance of the Secretariat.

2.2 The delegate of Pakistan proposed that in view of the considerable uncertainty as to the future planning likely to emerge from the Conference, and especially of the nature and number of proposals under consideration in Working Group 5-B, the whole of Document 165 should be placed in square brackets for the time being.

2.3 The delegate of Algeria said that page 1 of the report made no reference whatsoever to any of the concerns, suggestions or proposals submitted by his Administration during the work of the Working Group. The aim of his Delegation had not been to block the work of the Group but it had always said that if its proposals were not taken into account, it would reserve its right to revert to the issue later on. If a revised version of Document 165 could be issued containing a reference to the fact that he had raised concerns relating to Article 17 but that they had not been taken into account, then his Delegation would be prepared to take part in the ensuing discussion.

2.4 The Chairman of Working Group 5-C said that many concerns had been expressed in the course of the Working Group's long discussions. The feelings of the participants in the Group had been very diverse at the beginning, some considering that the Group should focus on a procedure based on the HFBC System, while others considered that there was nothing wrong with Article 17 as it was. As the work progressed, he had felt that slowly but surely the two extremes were coming together, although many concerns were still being expressed on both sides. An insertion in the notes on the line suggested might take care of the concerns of the Algerian Delegation.

2.5 The Chairman said that the Chairman of Working Group 5-C had followed a specific mandate and the Committee should continue along the same pre-set lines. He therefore invited the Committee to consider the proposal to place the entire document in square brackets and then proceed to a discussion of the report.

2.6 The delegate of Libya said that his Delegation wished to express its reservations in connection with Document 165, and reserved the right to revert to it later on, and to have it resubmitted at a meeting of the Committee after decisions had been taken on the work of Working Group 5-B.

2.7 The delegate of the USSR expressed his support for the document being discussed at the present meeting; Working Group 5-C had concluded its work and the Committee had a right to express its views thereon.

2.8 Speaking on a point of order, the delegate of Algeria said that the Delegations of Pakistan, Libya and the Soviet Union had made their views known and the rest of the Committee should now be allowed to express its views on the substance of the report, before considering it paragraph by paragraph.

2.9 The Chairman said that the Committee had to discuss the report in detail, since it had been produced in accordance with very specific terms of reference.

2.10 The delegate of China said that his Delegation shared the basic idea expressed by Pakistan. The Chairman of the Conference, at the sixth Plenary Meeting, had said the improvement of the existing provisions of Article 17 was a component part of the overall solution. That part could not therefore be decided by Committee 5 until it had the results of the other Working Groups and considered them all together. As a preliminary step, the Chairman might usefully clarify the nature and scope of Document 165.

At its first meeting, Working Group 5-C had had difficulty in interpreting the terms of reference as contained in Document 135 and the delegate of Yugoslavia had raised the point that Article 17 should also encompass provisions for the implementation of the HFBC Planning System. On the advice of the representative of the IFRB, the Chairman of Working Group 5-C had decided that those terms of reference should be interpreted as preparing guidelines for the improvement of the existing provisions of Article 17. He felt that that point should be clarified first of all.

2.11 Those views were supported by the delegate of Yugoslavia.

2.12 The delegate of Syria said that his Delegation was disappointed with the results, particularly with regard to the spirit of Article 17, and therefore supported the suggestion of Pakistan to postpone any decision on the document until it had been discussed with all the proposals concerning planning.

2.13 The delegate of Italy said that his Delegation agreed with the contents of Document 165, without prejudice to any subsequent modifications that might be made in the light of the results of the Conference in respect of planning.

2.14 That view was supported by the delegate of Belgium. There was, however, a procedural difficulty arising from the decisions of Committee 5 in respect of the terms of reference of its Working Groups. He therefore asked the Chairman to accept the fact that after discussing the results of Working Group 5-B, the Committee might have to change some of the results contained in Document 165.

2.15 The delegate of Tunisia said that his Delegation could not agree to the adoption of Document 165 before seeing the results of the work of Working Groups 5-A and 5-B and supported the suggestion by Pakistan to place the entire document in square brackets and defer its discussion to a later stage.

2.16 The delegate of India said that his Delegation had found it almost impossible to improve Article 17 in any substantial way without changing the Article entirely. It had therefore thought that the planning procedure would provide a solution and that Article 17, with a few cosmetic changes, could continue where essential. It had been disappointed that there had been no positive proposals for amendment, but had not wished to object to the establishment of Working Group 5-C. It had become evident in the Working Group that little could be done to improve Article 17 apart from a few minor changes, and the results of the work of Working Group 5-C had been based solely on the Netherlands Document 123, it being the only one to attempt to make amendments. His Delegation had nevertheless agreed to the amendments introduced by the Working Group on condition that they could be revised if necessary. The Indian Delegation still held the view that the document should be reconsidered and for the time being be placed in square brackets.

2.17 The delegate of the Islamic Republic of Iran supported the proposal to postpone consideration of the document. A major difficulty hampering the progress of the Committee was the fact that no-one appeared to know what the content of the frequently-mentioned compromise package was and would not know until the work of the other Working Groups was completed.

2.18 The Chairman of Committee 6 said that if Committee 5 were to link its discussions of Document 165 to the decisions of Working Group 5-B, Committee 6 would not be able to complete its work. It was his intention to set up Working Groups of Committee 6, at its meeting later in the day, to deal with matters arising from Document 165. He therefore urged the Committee to take a decision on that document at its present meeting.

2.19 The delegate of Brazil supported the Chairman's proposed approach. Whatever decisions were taken by the Conference, Article 17 would be needed for some time. It was Brazil's belief that Article 17 should be applied at least in the lower bands but at the present stage of the HFBC Planning System he could not see that as a possibility. His Delegation therefore felt that Document 165 should be considered and that a decision should be taken without any commitment as to the bands to which it would be applied so that at the end of the Conference administrations at least had a set of improved provisions for Article 17.

2.20 The delegate of Algeria said that Document 165 could not replace the present provisions of Article 17. The procedure for the utilization of the HF bands formed a coherent whole and Article 17 would be modified by the introduction of the HFBC System. There might be some special provisions during an interim period in order not to disrupt the service until the plan could be applied in all bands. Views had been expressed at the beginning of the work of Working Group 5-C about the title of Article 17 and the work of the Working Group. His Delegation had stated that all the work done in Working Group 5-C should be based on the principles approved by the First Session and contained in its report. Consequently all procedural provisions to replace Article 17 had to be based on those same principles. He therefore supported the view that the whole of the Article be placed in square brackets for the time being.

2.21 The delegate of Mali said that as Document 165 was only one element in the package defined in the Committee's Working Groups, the Committee should await the results of Working Groups 5-A and 5-B. He would therefore prefer to study the document and then have it placed in square brackets.

2.22 The delegate of the United States said that the terms of reference of the Working Groups had been debated at length and were very clear: they did not state that their work should wait until the other Working Groups had reported. It therefore seemed quite appropriate to consider Document 165, without prejudice to what the Conference or Committee 6 ultimately decided. His Delegation therefore supported the Chairman's suggestion with regard to proceedings, the views of the Chairman of Committee 6 that a decision should be taken in the course of the day and the speakers who had advocated that the document should be considered forthwith.

2.23 The delegate of Saudi Arabia, supporting the delegate of Pakistan, noted that none of the countries which had asked for the document to be postponed had criticized the document itself or the results of Working Group 5-C, but had felt that there had to be coordination between the various parts.

2.24 The Chairman of the Conference expressed concern about the progress of the Conference and reminded those who advocated that no decision should be taken at the present time that a decision in Committee was not a final decision of the

Conference. He therefore urged the Committee to discuss the document at its present meeting on the understanding that it was one of the elements of a total package. He recalled that at the sixth Plenary Meeting he had given some guidelines of the total package and an extract from the draft minutes of that meeting had now been distributed. The Conference now had to concentrate on finding the best solution for each component. One difficulty in dealing with the matter in Committee 5 was that one of the elements had been dealt with in Committee 4. However, every Delegation should try to contribute to producing the best text possible. He had been surprised that those delegates who were unsatisfied with the present Article 17 had not been very active in the Working Group. If it was not possible to achieve what was required in terms of the HFBC System, then Article 17 had to be improved; furthermore, as had been said, a conclusion was needed in Committee 5 to enable Committee 6 to proceed with its work.

2.25 The Chairman, emphasizing that the matter could be reviewed in Plenary, asked the Committee and particularly those participants who wished to defer the matter, to study the document in the light of the statements made by the Chairman of the Conference and of the Chairman of Committee 6. Only by working in that spirit could a package be pulled together from the various elements.

2.26 The delegate of Pakistan repeated that it was not possible to consider the details of the document without knowing what was in the package. If it was the wish of the Chairman of the Conference that the entire document be rediscussed in the Plenary, his Delegation reserved its right to revert to any detail of it.

2.27 Speaking on a point of order the delegate of Algeria asked whether the results of Working Group 5-C, which were intended as guidelines for Committee 6, would be discussed in Plenary before being submitted to Committee 6. If that were the case, his Delegation was prepared to support the position taken by Pakistan. Both the Chairman of Committee 5 and the Chairman of the Conference had recognized that the document could and should be discussed in Plenary in view of the comments already made. He therefore suggested that the document be discussed in the Committee but adopted in Plenary after which it should be transmitted to Committee 6 which would draft a text, taking all the elements into account.

2.28 The Chairman recalled that the approach had been for the Committee to agree to the general outlines of a package, but the work of Committee 6 had to be carried out on the basis of the guidelines supplied by Committee 5. When Committee 6 had concluded its work and the document had been sent to the Plenary, it would be the normal procedure for anyone wishing to do so to revert to it.

2.29 The Chairman of the Conference confirmed that procedure. It had not been his intention to imply that Document 165, possibly amended by Plenary, should be dealt with before it went to Committee 6. Rather, it should go first to Committee 6 which would incorporate it into suitable provisions for the establishment of a new Article 17. The Plenary would then consider the same material in a different form, and at that time, with all the elements of the package available, it should be possible to reach a solution.

2.30 The delegate of Libya said his Delegation reserved the right to revert to Document 165 at an appropriate time and have it scheduled on Committee 5's agenda following the Committee's decision with regard to the report to be produced by Working Group 5-B.

2.31 The delegate of Tunisia supported that approach, particularly since his Delegation had been unable to participate in the work of Working Group 5-C and there had been no time to study Document 165.

2.32 The delegate of Yugoslavia proposed that Document 165 could be considered with a view to sending some guidelines to Committee 6, but only as a part of the overall guidelines to be given relating to Article 17; in other words, Committee 6 would consider the matter once Committee 5 had also communicated to it in respect of the work of Working Groups 5-A and 5-B.

2.33 At the suggestion of the delegate of Algeria, the Chairman of Working Group 5-C, explaining the document, said that the purpose of the draft guideline given in Annex 1 was to incorporate, in an improved Article 17, as many elements as possible of the existing text whilst retaining the utmost possible flexibility. Steps 1 to 10 of the proposals involved additional items to Article 17. Steps 10 to 13 involved a check by the IFRB, which he felt to be essential and would differ from the current relevant provisions of Article 17 in that, although the basis of the proposed new procedure would remain consultative and administrations could still submit as many frequency requirements as they wished, they would no longer be able to do so without being subject to some enquiry. A further improvement would be that, from step 14 onwards, all administrations would be on an equal footing with regard to information as a starting point for negotiations in the consultative procedure. Steps 22 to 23 would embody what remained of the current provisions of Article 17.

2.34 The delegate of Algeria found it disquieting, that the new procedure, if accepted, would make it possible for the IFRB's efforts to be set at nought if even one administration refused to cooperate. Article 17, if amended along the lines proposed, would be the only text in the Radio Regulations which was not binding; his Delegation could not accept such a result.

Title

2.35 The delegate of China proposed that the title should be replaced by "Guidelines for the improvement of the existing provisions of Article 17 of the Radio Regulations" and that the first paragraph on page 1 of Document 165 should be amended accordingly. As he understood it, the original approach mooted in Working Group 5-C had been that the improvements to Article 17 should be two-fold, dealing with new provisions and improvements to existing ones. On the advice of the Chairman of the IFRB, however, Working Group 5-C had confined its task to the improvement of Article 17's existing provisions. He took it, therefore, that all Decisions adopted by the Conference relating to the implementation of the HF broadcasting system were to be included in the revised text of Article 17.

2.36 The proposal was supported by the delegates of the USSR, Yugoslavia and Australia.

It was so agreed.

Step 1

2.37 The delegate of Algeria said that the wording should be such as to make it mandatory for administrations to submit requirements for entry in the master file. In response to an observation by the delegate of the USSR, he said that the provision would be binding, of course, only on administrations which wished to use the bands concerned for broadcasting purposes.

2.38 The delegate of Brazil said that it was important to bear in mind also the decisions taken in Working Group 5-A; in that connection, he referred to the planning method outlined in Annex 1 to Document 157, in respect of the requirements file.

The delegate of Italy stressed that the Committee was simply discussing guidelines; it would be up to Committee 6 to consider the regulatory aspects.

2.39 The delegate of India suggested that item 1 could be amended so as to begin: "All requirements of administrations shall be submitted for entry ...".

2.40 The delegate of Pakistan said that he supported the proposal made by the delegate of Algeria but could also accept that made by the delegate of India.

2.41 The delegates of the United Kingdom and of Australia having objected to both proposals, the Chairman invited Delegations finding difficulties with the existing text to hold informal consultations.

The meeting was suspended at 1205 hours and resumed at 1730 hours.

2.42 The Chairman suggested that the text should be amended to read "Administrations using the HF bands allocated to the broadcasting service shall submit their rquirements for entry in the requirements file and/or seasonal file".

2.43 The delegate of the United Kingdom said that the basic question was really whether the file was to be a comprehensive document or a constricting one, operating two years ahead. If all delegates were agreed on the first interpretation, that idea could be conveyed to Committee 6. The Chairman of Working Group 5-C confirmed that the file was intended to be a comprehensive document and, in reply to a question by the delegate of Pakistan, said that the same definition of "requirement" could be used for the HFBC System and for the Article 17 procedure.

2.44 The delegate of Brazil said that the Indian amendment might be the most appropriate, with some additional references. Another alternative would be to delete step 1 altogether, since it added little to the guidelines.

2.45 The Chairman of the Conference said he was surprised that drafting questions were still being raised, when it had been made clear that the Committee's task was merely that of deciding whether the basic issues set out in the draft steps should be included in the guidelines, leaving their drafting to Committee 6.

Step 1, as amended by the Chairman, was approved.

Step 2

2.46 In response to a comment by the delegate of Algeria concerning the reference to Document DT/48 which in turn referred to the existing text of Appendix 2 to the Radio Regulations, the Chairman said he understood that the appendix would be modified in the light of the decisions of the Conference.

Step 2 was approved.

Step 3

2.47 The delegate of the USSR proposed that the square brackets round the word "four" in the second paragraph should be removed and that the word "two"

should be deleted. The delegates of Israel, Czechoslovakia, Norway, Canada and Japan supported that proposal.

2.48 The delegates of Qatar and Algeria said that the advantages and disadvantages of two or four seasonal schedules had not been thoroughly discussed. Equatorial countries could accept only one seasonal schedule a year, and surely other countries could manage with two, in view of the administrative, procedural and financial advantages involved. The Chairman of the IFRB said that the Board did not anticipate any difficulty in continuing its present practice of publishing four seasonal schedules per year.

Step 3 was approved as amended.

Step 4

2.49 The delegate of Belgium proposed the insertion of a new second sentence, reading "The IFRB evaluates the expected congestion using the GIR concepts". The delegates of Syria and Algeria supported that proposal.

2.50 The representative of the IFRB (Mr. Brooks) explained that the calculations at step 4 were carried out on the basis of individual requirements, whereas calculations relating to congestion were performed at a later stage: interaction of requirements could therefore not be taken into account in connection with step 4.

2.51 The delegate of Belgium withdrew his proposal in the light of that explanation.

Step 4 was approved.

Step 5

2.52 The Chairman of Working Group 5-C said that the word "permanent" should be deleted from the text, to show that administrations could at any time request the IFRB to select frequencies on their behalf.

Step 5 was approved as amended.

Step 6

2.53 The delegate of Syria, supported by the delegate of Mexico, proposed that the text should merely state that "The Board sends to all administrations the results (Step 4) concerning their requirements".

Step 6 was approved as amended.

2.54 The delegate of Senegal pointed out that the word "permanent" should be deleted from the third paragraph of step 2 as a consequence of the amendments just approved.

Steps 7 and 8

Approved.

Step 9

2.55 The Chairman of Working Group 5-C suggested that the word "frequency" should be deleted from the first line and that the phrase "indicating their frequencies" should be added at the end of the text.

2.56 The delegate of Papua New Guinea observed that the text did not cover the case of administrations which had additional requirements but wished the IFRB to assign their frequencies for them. Perhaps if a line were drawn from box 9 to box 8 in the flow-chart, it might be made clear that there was an option for the Board or for the administration itself to select the frequencies. The delegate of Libya agreed that that situation should be taken into account.

2.57 The representative of the IFRB (Mr. Brooks) said that all the possible nuances could not be covered in the flow-chart and suggested that it would be enough simply to delete the word "frequency" from the text as it stood. The delegates of Papua New Guinea, Brazil and Kenya and the Chairman of Working Group 5-C said they could accept that solution.

2.58 The delegate of the United States said he still thought that some reference to the possibility of frequency selection by the Board should appear in the text of step 9, perhaps by adding the phrase "indicating their frequencies if they so desire" at the end.

2.59 The delegate of Algeria, supported by the delegate of Mauritania, considered that the content of step 9 was in fact covered by step 3. Moreover, the words "at this point" in step 9 were meaningless in view of the fact that that step did not appear in the time-scale in Annex 2. The delegate of the United Kingdom said he could not agree that step 3 covered the problem, since a time interval of several months elapsed between steps 3 and 9. The representative of the IFRB (Mr. Brooks) said that the time limit set for each season by which administrations had to submit frequency requirements to the Board, under the fourth item of the time-scale in Annex 2, also applied to the submission of additional requirements under step 9.

2.60 The delegate of Botswana said that in cases where the IFRB selected frequencies on behalf of administrations (step 8), compliance with a request for frequency continuity might produce a greater number of frequencies than that permitted by step 10, thus necessitating a selection among those frequencies between step 8 and step 13. He was concerned that no consultation mechanism had been provided in such a case to enable the administrations concerned to inform the Board of their preferences in order to ensure that the frequencies selected for them lay in the bands that gave them the best frequency continuity. Provision should therefore be made in the guidelines, perhaps as a step 9b, for such consultation. The representative of the IFRB (Mr. Brooks) reminded the Committee that the sequence of procedures was the same regardless of whether administrations selected their own frequencies (step 5) or asked the Board to do it for them (step 7): both steps led directly to step 13 (compatibility analysis) without an intermediate selection step.

2.61 The Chairman said that the point raised by the delegate of Botswana would in in fact be more suitably included in the procedures covered by steps 15 and 16 since introduction of a choice at an earlier point would in fact reduce the possibilities open to an administration.

Step 9 as amended by Mr. Brooks and the delegate of the United States was approved.

Step 10

2.62 The delegate of the USSR proposed that the words "in no case shall" be replaced by "shall not" in order to make the wording less peremptory towards administrations.

2.63 The delegate of Mexico proposed, in order to make the full procedure perfectly clear, that the words "and send it to the Board" be included at the end of the first sentence.

With those amendments, step 10 was approved.

2.64 The delegate of Mexico said that in view of the restriction set out in the second sentence and in order to avoid unnecessary work under step 11, it might be more appropriate to make the last part of step 12, from "determines ..." and the note appearing under step 12, a new step 10b. The representative of the IFRB (Mr. Brooks), supported by the delegate of Italy, thought it would be preferable for that text to remain under step 12. Because of the additional requirements submitted under step 9, the Board would not have all the information it needed to determine how many frequencies any requirement was entitled to until after it had completed the calculations in step 11.

Step 11

2.65 The delegate of Algeria proposed that the word "fréquences" in the French text should be amended to "besoins", in order to align it with the English version.

2.66 The delegate of Qatar proposed that the word "predicted" be added after "propagation" in order to conform to the term "propagation prediction method" adopted by Committee 4.

2.67 The delegate of Saudi Arabia proposed that in conformity with the text of step 4, the sentence "These calculations are carried out in accordance with the decisions of the Conference" should be added at the end of step 11.

Step 11 was approved with the above amendments.

Step 12

2.68 The delegate of the United Kingdom, on a point raised by the delegate of Libya, said that the action to be taken should discrepancies appear as a result of step 12 was a point of substance to be dealt with by Committee 5. Committee 6 could only draft the provisions covered by the Note on the basis of guidelines provided to it by Committee 5.

2.69 That view was supported by the delegate of India.

2.70 The delegate of Libya, supported by the delegate of Algeria, considered that the Board should be given instructions to eliminate any discrepancies it identified.

2.71 The Chairman said that if that was the view of the Committee, a sentence could perhaps be added stating that if any administration had submitted a number of frequencies per requirement in excess of those identified by the Board, the Board would reduce that number to reasonable proportions. The delegate of Italy added that any such instruction would have to contain provisions to ensure that it was the least favourable frequencies of those requirements that were eliminated first.

2.72 The delegate of Mexico, supported by the delegates of Canada, India and the USSR, said that there could be no question of the Board being asked to give ultimatums to administrations. It would be more correct in cases where it was found that an administration had submitted a higher number of frequencies than those decided by the Conference that the anomaly should be corrected in consultation with the administration concerned.

2.73 The Chairman of the IFRB noted that a distinction should be made between possible discrepancies in the frequency schedule and the question of incompatibilities, which would have to be solved by administrations after they had been identified by the Board.

2.74 The delegate of Senegal said that provisions would still be required to enable the Board to solve incompatibilities between two administrations.

2.75 The delegate of Pakistan, supported by the delegate of Syria, said the matter under discussion was the crux of the problem presented by the whole document, which in his view was totally impractical and should be dropped.

2.76 The delegate of Botswana said that part of the difficulty arose because the problem of national and international requirements had not been properly addressed by the Conference. It was perhaps time for that subject to be considered.

2.77 The delegate of Libya considered that the Board should be authorized to exclude frequencies in excess of requirements, but only after consultation with the administration concerned had failed to solve the problem.

The meeting was suspended at 1050 hours and resumed at 0900 hours on Tuesday, 24 February.

2.78 The Chairman appealed to all delegations, in view of the short time left and the incalculable adverse consequences which the Conference's failure would entail, to confine themselves strictly to matters of substance and to avoid unnecessary wrangling.

2.79 The delegate of Canada, referring to the text suggested by the Chairman to replace the note in paragraph 12, suggested the addition of the words "in consultation with the administrations" between the words "the IFRB" and "will reduce". The delegate of the USSR supported that amendment.

2.80 Replying to a query by the delegate of Iraq, the Chairman said that the word "proportions" in the proposed text meant the number of frequencies per requirement as established by IFRB calculations.

It was agreed to add the following sentence:

"If an administration notifies more frequencies per requirement than is provided for by the Conference decisions, the IFRB in consultation with the administrations, will reduce that number to the proportions indicated."

Step 12 was approved, as amended.

Step 13

Approved, with re-insertion of the words "and undertake the compatibility analysis" which had been omitted in error.

Step 14

2.81 The delegate of China suggested that the words in brackets in the seventh indent should be replaced by a reference to section 1.3 of Document 161 and those in the ninth indent by a reference to Document 132. Referring to the paragraph as a whole, he remarked that the detailed elaboration of regulatory

provisions might be left to the discretion of Committee 6, thus avoiding a lengthy discussion in Committee 5.

The Chairman of Working Group 5-C endorsed the Chinese amendments to indents 7 and 9, which were adopted.

2.82 The delegate of Brazil proposed the deletion of the second sentence of the second sub-paragraph. A lengthy discussion on that subject had taken place in Working Group 5-C and he had understood that the sentence was to be omitted in view of the reference to the principles stated in paragraph 4.1 of the Report to the Second Session included in the second sentence of step 15. The usefulness of the information to be provided was doubtful, the additional burden of work upon the Board would be considerable and, above all, the implication that any national service should have to make room for other national services was not acceptable. The delegates of the United Kingdom, Paraguay and the United States supported the proposal. The delegate of Canada also favoured the deletion of the sentence, pointing out that the information would already be available to administrations under the provisions of the first sub-paragraph of paragraph 14.

2.83 The delegates of Kenya and Tanzania opposed the deletion of the sentence, stressing the usefulness of the information to be provided. The delegates of Spain and Austria also considered that the sentence should be maintained, possibly in an amended form. The delegate of Algeria also favoured the maintenance of the sentence, which constituted an essential improvement of the Article 17 procedure, but suggested that in addition to indicating the number of frequencies the Board should also be required to identify all administrations which had submitted minimum requirements that should be guaranteed.

2.84 The Chairman pointed out that the sentence did not imply that any administration had to yield any of its frequencies to another; its only purpose was to facilitate discussion between administrations.

2.85 The delegate of the Islamic Republic of Iran said that the consensus to retain the sentence reached in Working Group 5-C had been based on the point just made by the Chairman. He agreed with the delegate of Algeria that the sentence constituted a valuable improvement to Article 17 and strongly objected to its proposed deletion. The delegates of Turkey, Colombia and Saudi Arabia also spoke in favour of maintaining the sentence, as did the delegate of Sweden on the grounds just given by the Chairman.

2.86 The Chairman wondered whether the problem might be solved by inserting the words "at the request of an administration" at an appropriate point in the sentence.

2.87 After further discussion in which the delegates of Brazil, Italy, Algeria, Zimbabwe, Cameroon, Ghana, Libya, Singapore and the USSR took part, the Chairman suggested that the second sentence of the second sub-paragraph should read as follows:

> "In addition, the Board will provide all other information deemed necessary by the administrations."

2.88 The delegate of Libya said that the sentence would not be adequate unless it spelled out the type of information required.

2.89 The Chairman of the Conference, noting that the solution suggested by the Chairman appeared to be acceptable to almost all delegations, strongly urged that no further proposals should be submitted. If an agreed text were not

referred to Committee 6 as soon as possible, there was a grave risk that no improvement of Article 17 would emerge from the Conference. In making that appeal he was not intending to prevent any delegation from making a point but only calling for a spirit of compromise on the part of all.

2.90 The delegate of Libya noted that explanation and said that he would be prepared to accept the wording proposed by the Chairman with the addition of the words "in a timely manner".

It was agreed that the second sentence of the second sub-paragraph of paragraph 14 should read as follows:

> "In addition, the Board will provide in a timely manner all information deemed necessary by administrations."

Step 15

2.91 The delegate of Algeria said that as he saw it, the aim of the procedure outlined in step 15 was to have a seasonal schedule acceptable to the entire community. He agreed that there should be coordination between administrations, taking into account the principles stated in paragraph 4.1 of the Report to the Second Session. His concern however was the extent to which a minimum number of requirements could be guaranteed. If the Committee could agree on the substance of that issue, a solution could be reached in Committee 6 on the individual provisions. However, if there was no other way, the phrase "in order to guarantee to each country a minimum number of requirements with the quality of service adopted by the Conference" should be added at the end of the last sentence.

2.92 The delegates of Burkina Faso, Mali, Niger, Saudi Arabia and the United Arab Emirates supported that proposal.

2.93 The delegate of the USSR observed that paragraph 4.1 of the Report to the Second Session contained a list of all the principles. The Algerian Delegation was now proposing that just one of those principles be selected. In the view of his Delegation, the text as it stood was more complete and clearly and properly described the situation. His Delegation therefore opposed the Algerian proposal and supported the text as it stood.

2.94 The delegates of Bulgaria, Poland and the German Democratic Republic took the same view.

2.95 The delegate of Cameroon said that it was difficult to know what was meant by a minimum number of requirements. Document 120 indicated that a large number of countries were using the HF bands for their national requirements, most of which had been suspended, and the quality of service was mediocre for the remainder. In spite of the difficulties a definite concept had to be taken into account and he therefore supported the Algerian proposal.

2.96 The Chairman recalled the discussion in Working Group 5-C when it had been decided that all the principles of paragraph 4.1 of the Report to the Second Session should be taken into account. If Committee 5 wished to facilitate its work, it would agree to take all those principles into account in the same way and keep the text as it stood, leaving it to Committee 6 to see how best the principles could be dealt with.

2.97 The delegate of Syria suggested that the words "in accordance with the criteria of this Conference" be added to the words proposed by Algeria. The delegate of Pakistan said that his Delegation had maintained from the beginning of the discussion that Document 165 would not in any way improve the present law

of the jungle. However, Algeria's proposed amendment provided some hope of real improvement and could be supported.

2.98 The delegates of Iraq, Libya and Tunisia supported the amendments by Algeria and Syria, and the views of Pakistan. It was well known that even bilateral coordination was very difficult and something needed to be added to help those administrations which could not coordinate and have to leave it to the IFRB to do so on their behalf.

2.99 The Chairman, noting objections to the Algerian proposal on the part of the delegations of the Federal Republic of Germany, France, the Netherlands, Portugal, the USSR, the United Kingdom and the United States, suggested under No. 490 of the Convention, that step 15, with the Algerian amendment, should be left in square brackets, to speed up the work of the Committee.

2.100 The delegate of the United Kingdom, speaking on a point of order, asked whether the subsequent discussion on the matter would be held in Committee 5 or 6 or the Plenary Meeting. The Chairman said that it would be taken up in the Plenary.

2.101 The delegate of Kenya said that his Delegation considered that the text should be returned to Committee 5 once Committee 6 had dealt with it so that Committee 5 could discuss the feasibility of guaranteeing a minimum number of requirements.

2.102 The Chairman of Working Group 5-C said that step 15 had been achieved after long debate and should therefore be retained. It was not possible in the consultancy procedure to get any guarantee for a minimum number of requirements.

2.103 The delegate of Syria suggested that there should be a special section in Article 17 to indicate the importance of guaranteeing a minimum number of requirements and Committee 6 should be given instructions accordingly.

2.104 The delegate of the United Kingdom recalled the Chairman's suggestion that step 15 be placed in square brackets, transmitted to Committee 6 and then solved in the Plenary. Subsequent speakers had then implied that Committee 6 would produce texts, also placed in square brackets, but such a procedure was not possible because it followed, from the Chairman's earlier ruling, that if a text were submitted in square brackets to Committee 6, that Committee would not touch it at all.

2.105 The delegate of Algeria stressed the need to allow the discussion to run its course in Committee 5 rather than being reopened in the Plenary. A number of assurances had been given that Article 17 would be improved and in particular would guarantee a minimum number of requirements particularly for small users. That principle had not been questioned even by those not in favour of his proposal. Paragraph 4.1 of the Report to the Second Session had been invoked to say that his proposed amendment was already covered, but in view of the strong feeling in the Conference that a guarantee of a minimum number of requirements should be provided, that guarantee should be specified in the text.

2.106 The delegates of the People's Democratic Republic of Yemen, Libya, Albania, Afghanistan, Bangladesh, Turkey, Qatar, Malta and Saudi Arabia supported those views.

2.107 The delegate of India also supported the views of the delegate of Algeria. However, in order to meet the concerns of those administrations who felt that many points in paragraph 4.1 of the Report to the Second Session need

not be repeated, he suggested that reference be made to sub-paragraph 4.1.1 and then that Algeria's proposal be included.

2.108 The delegate of Israel said that his Delegation saw no point in adding anything to the text of step 15.

2.109 The delegate of Kenya said that if Committee 6 was not going to touch the text in square brackets, his Delegation would prefer step 15 to be adopted as it stood because it was a compromise text achieved after lengthy discussion in the Working Group.

2.110 The delegate of the United States expressed his support for step 15 as it stood. While his Administration adhered to principles relating to equal access, it did not believe that it was possible to guarantee that an equal number of requirements could be satisfied for all countries. The delegate of the Federal Republic of Germany was in favour of retaining step 15 as it stood. The Committee must bear in mind that it was seeking to arrive at a package solution and that any overloading of the elements of such a package could be counterproductive. The delegate of Brazil said that in view of the need to avoid the risk of suspension of regulations, his Delegation was also in favour of retaining step 15 as it stood.

2.111 The delegate of Botswana said he understood that step 15 was intended to ensure that Committee 6 took those principles set down in sub-paragraphs 4.1.1 - 4.1.2.9 into consideration. The concerns expressed by some speakers were covered by those sub-paragraphs and he therefore urged the Committee to retain step 15 as it stood and allow Committee 6 to develop the appropriate wording. The delegates of Japan and the Philippines agreed that all the relevant principles were stated in paragraph 4.1 and supported retention of step 15 as it stood.

2.112 The Chairman proposed that the second sentence of step 15 should be amended to read: "In this coordination, the administrations will take into consideration the following principles: ...", to be followed by an enumeration of the principles stated in paragraph 4.1.

2.113 The delegates of Algeria, Libya and Tunisia objected to that proposal.

2.114 The delegate of Algeria said that as very restrictive interpretations had been placed on the sub-paragraphs in question, a simple enumeration of the principles would be insufficient; what was required was special emphasis on the need to guarantee minimum requirements for all.

2.115 The delegate of Saudi Arabia said that while he had no objection to enumerating all the principles, it must be recognized that in previous meetings a great deal of time had been spent in discussing the specific question of minimum requirements.

2.116 The delegate of Canada thought that the discussion was premature until all the features of the HFBC Planning System and of improved Article 17 were known. He therefore suggested that, in addition to the Chairman's proposal, the summary record should reflect the Committee's intention to revert to the matter following completion of the remainder of its work.

2.117 The Chairman pointed out that it was important to bear in mind that the current discussion was only one element for inclusion in a package solution. He therefore suggested that it be noted that a large majority had expressed views on the matter and that the Committee reserved the right to give further consideration to Article 17 when the package as a whole was put forward for consideration.

2.118 The delegate of Algeria stressed the need to examine each part of any package proposal since all elements must be appropriately incorporated.

2.119 In reply to a request from the delegate of Syria for clarification on whether and where Committee 6 would be able to spell out the principles contained in the sub-paragraphs of paragraph 4.1, the Chairman of Committee 6 confirmed that the Committee would carry out whatever was required of it within the terms of its mandate.

2.120 The delegate of the United States urged the meeting to avoid confusion between planning and coordination: it was planning procedure which was the focus of the present discussion. The maintenance of step 15 as it stood would be consistent with the views of his own and some seven or eight other administrations at least.

The meeting was suspended at 1205 hours and resumed at 1400 hours.

2.121 The Chairman said that in order to dispel the prevailing climate of suspicion he wished to make it absolutely clear that it was not and had never been his intention to allow any part of the compromise package outlined in Document DT/41 to be overlooked. The need to guarantee all countries a minimum service with satisfactory protection was included in the package and would be taken into account like all its other constituent parts. On that understanding, he suggested that step 15 should be approved without change and that a reservation relating to the paragraph should be included in his note transmitting the guidelines to the Chairman of Committee 6.

2.122 The delegate of Algeria proposed, as a more realistic solution, that the amendment moved by him earlier in the meeting and widely supported should be added to the text of step 15 and that the Chairman's note to Committee 6 should refer to the reservations of those countries which had opposed the amendment.

2.123 The delegates of Syria, Tunisia, Libya and Saudi Arabia supported that proposal.

2.124 The delegate of Cameroon said that although he remained dissatisfied with the present text of step 15 he was prepared to support the Chairman's proposal in a spirit of compromise. The delegates of the USSR, Kenya, the Federal Republic of Germany, the German Democratic Republic, Bulgaria, Japan, Italy, Paraguay, Brazil, France, Portugal and Botswana expressed support of the Chairman's proposal. The delegate of Côte d'Ivoire also supported the Chairman but remarked that since the problem was one of priorities between principles established at the First Session, it was in any case for Committee 6 to resolve it.

2.125 The delegate of the United States also supported the Chairman's proposal, stressing that delegations would have ample opportunity to discuss the details of the problem at a later stage.

2.126 In response to a query by the delegate of Algeria, the Chairman said that in his note to the Chairman of Committee 6 he proposed to mention the long discussion which had taken place and to state that Committee 5 reserved the right to revert to step 15 at a later stage.

2.127 In response to a further point raised by the delegate of Algeria, the Secretary-General said that reservations in regard to the work of a Committee which had adopted decisions were matters for the Plenary. Committee 6 had to respect and apply the guidelines of Committee 5. The course of action proposed by the Chairman was an unusual one, but if some guidelines were subject to some

general reservation by this Committee, then the matter could be followed up by an appropriate reference to Committee 6 in view of the unusual circumstances of the Conference and the intention to proceed with a package solution.

2.128 The Chairman of Committee 6 said that, as he understood the situation, Committee 6 was to confine itself to establishing the relevant regulations regarding step 15 as it stood and refrain from discussing the principles involved. If at a later stage of the Conference Committee 5 decided to reopen the issue of principle, the text prepared by Committee 6 in connection with step 15 of Document 165 might have to be changed accordingly.

2.129 The Chairman said that that understanding was correct. In transmitting the document to Committee 6, Committee 5 would indicate that work on step 15 was not yet concluded. When Committee 6 completed its work on the document, it should not forward it to the Plenary but leave it in abeyance pending the receipt of a further note from Committee 5.

Step 15 was approved on that understanding.

Step 16

Approved.

Steps 17, 18, and 19

2.130 The delegate of Italy said that, at that stage of the procedure, new frequency requirements might create incompatibilities which would endanger the success of the procedure as a whole. He therefore proposed the addition of the following sentence: "These requirements will be included in the seasonal schedule only if they do not give rise to incompatibilities."

A lengthy discussion ensued on the principle of whether the procedure under consideration could stipulate that the requirements referred to in step 17 would be included in the seasonal schedule only if they did not give rise to incompatibility.

2.131 The principle was supported by the delegates of Italy, Algeria, India, Libya and Syria on the grounds that additional requirements submitted at the late stage in the process represented by step 17, if they were new requirements and not readjustments to take account of incompatibilities revealed by the analysis in step 13, could not reasonably be admitted if they caused interference to the draft seasonal schedule existing at that point.

2.132 The principle was opposed by the delegates of Australia, the Netherlands, France, the Federal Republic of Germany, Japan, Papua New Guinea, Brazil and the United Kingdom on the grounds that the procedure under consideration was essentially a consultative process. Not scheduling an incompatible frequency by denying it entry to the seasonal schedule would not prevent a station from broadcasting on it. The process would therefore only work on a voluntary basis through agreement and consultation among administrations. Furthermore, the HF broadcasting service was a dynamic entity, it could not be planned in detail many months in advance since numerous changes would occur in the course of a year as a result of natural phenomena. The way therefore had to be left open for additional requirements to be submitted at step 17 to take account of such natural changes.

2.133 The delegate of the United States, supported by the delegates of Japan and the United Kingdom, said they could at most agree to a compromise wording

added to step 17 to the effect that administrations submitting requirements at that time could take account of requirements published in the draft schedule mentioned in step 14.

2.134 The Chairman, noting the fundamental and apprently irreconcilible divergences of opinion in the Committee on the subject, which would affect the substance of steps 17, 18, 19 and 21, proposed that discussion on the matter be suspended and that his note to Committee 6 should indicate Committee 5's failure to reach agreement on those steps and the fact that it reserved the right to revert to the substance of those steps at a later stage.

It was so agreed.

2.135 With regard to the wording of step 17, the delegate of Libya considered that, in conformity with the additional wording approved for step 9, an additional sentence should be added reading:

> "If the frequencies are not indicated by the administrations, they may, if those administrations still so desire, be selected by the Board."

2.136 The Chairman proposed that the words "indicating their frquencies if they so desire" be added at the end of the sentence in step 17.

It was so agreed.

2.137 In reply to the delegate of Botswana, the representative of the IFRB (Mr. Brooks) explained that in the case of frequencies selected by the Board at the request of administrations, the compatibility analysis associated with steps 16-18 would, like that associated with steps 8-13, be carried out on a frequency selected by the Board, not on a group of frequencies open to final selection by the administration concerned.

2.138 With regard to the wording of step 18, the delegate of Qatar, supported by the delegate of Turkey, proposed that, in conformity with the wording added to step 13, the word "compatibility" be replaced by "incompatibility". He further proposed the addition of a phrase at the end of the sentence to read as follows:

> "... and forward recommendations to administrations with a view to solving the incompatibilities as far as practicable."

2.139 The delegate of India supported that proposal. He considered that the proposed wording should also be added at the end of step 13, but agreed to a request from the Chairman not to press the point in view of the difficulties the Committee had encountered in agreeing to the wording of steps 13 and 14.

2.140 The Chairman of the IFRB, supported by the delegate of the USSR, said that in considering Qatar's amendment it would have to be understood that the words "as far as practicable" indicated that the Board's room for action on the matter was very limited. The resolution of incompatibilities was a matter for negotiation by administrations among themselves.

2.141 The delegate of Qatar said that while that might be true in the very congested bands, it should not be forgotten that there were less congested HF bands in which the Board could help administrations to coordinate their requirements.

On that understanding, the amended wording proposed by Qatar was approved.

Step 20

Approved.

Step 21

2.142 The delegate of Algeria said that the IFRB should only take modifications into account if they did not lead to any incompatibility. The delegates of the United Kingdom and the United States objected to that proposal.

Step 22 and note

2.143 The delegate of Algeria asked whether the question contained in the note implied that the conditions of step 21 would be likely to cause interference. A relevant box in the flow-chart might be included for an incompatibility analysis. Updated information received under step 21 might be published in the IFRB Weekly Circular.

2.144 In reply to a question from the delegate of Botswana, the Chairman of the IFRB said that a decision to delete the note and have the IFRB carry out an incompatibility analysis and publish the results would certainly mean additional work but as it would occur after the start of the season it would not affect the time-scale outlined in Annex 2 of Document 165.

2.145 The Chairman took it that the Committee had no objections to deletion of the note and the inclusion in step 22 of a statement to the effect that the Board would make an incompatibility analysis and publish the results with respect to information received under step 21.

It was so agreed and step 22 was approved, as amended.

Step 23 and note

2.146 In response to a request from the delegate of Mali to have the words "or microfiche" included after "magnetic tape" at the end of step 23, the representative of the IFRB (Mr. Berrada) explained that the addition of the words would mean that there would be a contradiction between the beginning and end of paragraph 23.

2.147 The delegate of Qatar drew attention to the need for an editorial amendment to eliminate the apparent contradiction in steps 21 and 23 to establish a clear distinction between the seasonal and final schedules. The Chairman confirmed that the matter was for the consideration of Committee 6.

2.148 The Secretary-General drew attention to the need for serious reflection and clarification in relation to terminology and the placing of step 23 in the context of Annual High Frequency Broadcasting Frequency List and Definitive Lists after each season which were already in publication. It would be useful to establish the exact purpose of step 23. The delegate of Algeria agreed that it would be useful to administrations to establish whether provisions similar to section IV of Article 17 might be needed. If they were not, it might be possible to make savings in that area.

Step 23 was approved unchanged, subject to deletion of the note.

2.149 The representative of the IFRB (Mr. Berrada) pointed out that Working Groups 5-A and 5-C had both considered the question of publication and reached the conclusion that it was unnecessary. Registration of requirements would, however, be maintained by the IFRB for a period of five years and they could be

consulted by administrations. In response to a request for clarification from the delegate of Pakistan, he said that publication had for some time been on microfiches for purely economic reasons but they could be copied on paper by the administrations using proper equipment.

Flow-chart (Annex 1)

2.150 Following a comment from the delegate of Algeria concerning the need to bring the flow-chart into line with the modified text of the guidelines, the Chairman took it that the Committee would leave it to the Secretariat to carry out that task.

It was so agreed.

Time-scale (Annex 2)

2.151 The Chairman of Working Group 5-C said that Annex 2 had been attached to Document 165, at the request of one administration, for information purposes only.

Concluding remarks on Document 165

2.152 The delegate of Italy reserved the right of his Delegation concerning this procedure and to revert to it when it will be submitted to other Committees.

2.153 The delegate of Algeria drew attention to the concessions made by his own and other delegations throughout the discussion. The Committee had avoided being split into north and south camps over step 18 but he was nonetheless left with the feeling that those who over-used the frequency spectrum were showing little will to bring about change and to share with others, an attitude which was to be regretted in the light of desires to introduce justice and equity into the system.

2.154 The delegate of Libya reserved his Delegation's right to revert to the matter, as Document 165 formed only one element in a package solution and might require subsequent revision in the light of discussions on other elements. He proposed that the document should be transmitted to Committee 6 with a note to the effect that Committee 5 reserved its right to revert to the document at a later stage.

2.155 The delegate of Pakistan said that it was well-known that existing Article 17 failed to provide satisfaction for most broadcasters, particularly those with fewer resources. Where the law of the jungle prevailed, improvements might be made to make pathways in that jungle but they could not ensure greater safety. Delegations were attending the Conference to draw up a plan for the engineered use of the spectrum; Article 17 could be considered only for those parts of the spectrum where planning could not be completed at the present stage. His Delegation had made a proposal in Working Group 5-B in the hope that a decision would be taken on terms of reference prior to the adoption of the contingency of using suspended requirements, only to be sadly disappointed. It therefore expressed its reservation concerning the whole of Article 17, in its existing and proposed clauses, until such time as decisions at the overall level were taken.

2.156 The delegate of India also expressed disappointment at the outcome of discussions on Article 17. He pointed to the flow-chart as an example of wasted effort and unnecessary complexity. His Delegation considered the proposed, so-called improved Article 17 as a step backwards.

2.157 The delegate of the United Kingdom expressed reservations on the matter until such time as it would become possible to see clearly how long procedures would take and what costs would be involved.

2.158 The delegate of Botswana said that following the discussion on Document 165 he still remained optimistic. Steps 1-10 of the flow-chart were clear and involved no extra cost to the Board as the information required would be extracted from the proposed plan. He regarded improvements in steps 9, 17 and 21 as positive, bearing in mind that the texts contained in the boxes were of necessity concise and unaccompanied by detail. It was his understanding that improved Article 17 was intended as a text to cover an interim period and as such was one interlocking piece of a puzzle, for whose completion he retained hopes.

2.159 The Chairman, summing up, said that questions of substance which had been the subject of discussion for many years had been raised in the context of steps 15, 17, 18, 19 and 21, which would therefore, be placed in square brackets when the guidelines were transmitted to Committee 6, in order to indicate that Committee 5 had been unable to reach agreement on those texts and reserved the right to revert to them. Consideration of Document 165 was to be regarded as being only one part of an overall strategy to seek compromise and arrive at an overall solution. At no time would it be possible to adopt one part of the strategy unless consensus was reached concerning the package.

It was so agreed.

The meeting was suspended at 1715 hours and resumed at 2050 hours.

3. Documents assigned to Committee 5 (Documents 120, 123, 126, 148, 139)

3.1 Document 120

3.1.1 The delegate of the United States introduced the document, emphasizing his Delegation's serious concern at the results of the trial plans and drawing special attention to the plan requirement hour distribution for all administrations, given on page 11, which indicated serious deficiencies in the planning method.

3.1.2 In reply to the delegate of Algeria, the Chairman said that, as an exceptional measure, he would allow questions to be asked briefly concerning the documents presented.

3.1.3 In reply to questions by the delegates of Algeria, the United Kingdom, Tunisia, India, Kenya, Pakistan and the Federal Republic of Germany, the representative of the IFRB (Mr. Berrada) said that, of the 63 administrations which had submitted no requirements for the planning exercises, 30 usually submitted requirements under Article 17 and 33 did not. The IFRB had not conducted the same analysis as the United States because a distinction had had to be made between the number of requirements and the number of frequencies determined for the system. As it had been explained during the presentation, a comparative analysis between the D85 results under the Article 17 procedure and the HFBC System was impossible because the requirements were presented in different ways, and the Board had wished to avoid approximate interpretations.

With regard to a comparison between requirements expressed under Article 17 and those under the intersessional work, for the season D85 the figure for Article 17 was about 26,000 frequency hours and about 28,300 frequency hours for intersessional work. Details concerning out-of-band operations were given in Document 26, from which it would be seen that the figures for the monitoring programmes conducted under Resolution PLEN/2 of the First Session were 233 stations operating out-of-band for the first programme, 512 for the second and 1,016 for the third. The number of ITU Member administrations which had not submitted requirements for the tentative schedule under Article 17 was 127. Finally, an analysis could be made of the many possible reasons why administrations with large and small requirements showed such low S/I values.

3.1.4 The delegate of the United States added that, although there were indeed practical obstacles to an analytical comparison between the results under the HFBC System and the Article 17 procedure, it could be said on balance that the results of the trial plans were less satisfactory than those that could be obtained with the Article 17 procedure, which ensured continuity because of the absence of suspension problems and provided for greater equitability.

The Committee took note of Document 120.

3.2 Document 123

3.2.1 The delegate of the Netherlands introduced the document, pointing out that it had already been dealt with in Working Group 5-C.

The Committee took note of Document 123.

3.3 Document 126

The delegate of Algeria said that the proposal was designed to clarify the power requirements for the new system and to make them more mandatory, since it was in the interests of all administrations not to engage in a race for transmitter power.

3.3.1 The delegate of the Federal Republic of Germany, supported by the delegates of Japan and the USSR, said he assumed that the proposal was intended to be implemented at some future date, since transmitters currently in use were not capable of the adjustments involved, although some equipment with that capacity was beginning to be introduced. The delegate of the United Kingdom observed, in connection with paragraph c), that it was not for the IFRB to advise administrations not to exceed the power values determined, since such a provision already appeared in the Radio Regulations.

3.3.2 The delegate of Algeria said that his Delegation had deliberately set no date for the implementation of the proposal, pending the introduction of more modern transmitters; the date might perhaps be that of the entry into force of the Final Acts of the Conference. The main object of the proposal was to bring some discipline with regard to the power used under the planning method. The delegate of India said that the ideas in the proposal were useful and could probably be applied when the technology became available.

The Committee took note of Document 126.

3.4 Document 148

3.4.1 The delegate of the Vatican City State introduced the document, the purpose of which was to call upon the technical facilities of the IFRB to assist administrations not having such facilities to optimize their requirements and to avoid second frequency assignments.

3.4.2 The delegates of Italy and Tunisia asked what effect the application of the proposed procedure would have on the HFBC System and whether it was practically feasible.

3.4.3 The representative of the IFRB (Mr. Berrada) said that the Board would have no difficulty in deducing the minimum power value referred to in paragraph a), but could apply the procedure set out in paragraph b) only in the case of a transmitter associated with a group of antennas which could not be used on any other transmitter. The system could be slightly modified to identify the two or three antennas notified for each transmitter. On the other hand, requirements for several transmitters and several antennas created combinations which the Board could not consider, since they pertained to operational conditions to be regulated at the administration level.

3.4.4 The delegate of the Vatican City State said that Mr. Berrada's statement concerning paragraph a) represented a step forward in the matter.

The Committee took note of Document 148.

3.5 Document 139

3.5.1 The delegate of France introduced the document on behalf of her Delegation and that of Canada, pointing out that it was essential to set up machinery, in the form of a Group of Experts, to assist the IFRB with its post-conference work on incorporating the modifications to the new system adopted by the Conference.

3.5.2 The delegate of Algeria asked whether the establishment of the proposed Group of Experts was in conformity with the Convention and how the IFRB thought it could work with such a Group.

3.5.3 The Secretary-General said that the IFRB had raised the legal issues with him and they are being examined. Meanwhile the Legal Adviser had given him the verbal opinion that nothing in the Convention inhibited the Conference from establishing the procedure in question, on the understanding that the necessary interaction would be maintained between the Conference and the Administrative Council and that the Group of Experts were not to issue any instructions to the permanent organs of the Union.

3.5.4 The Chairman of the IFRB said that the draft Resolution in the document and the proposed terms of reference of the Group of Experts seemed to suggest that the Group would in fact give instructions to the Board, in which case the Resolution would not be valid. There had been no difficulty in the past for the Board to work with various Groups, provided their function was purely advisory. Another problem that arose was that of the representative nature of a small Group: it must be borne in mind that the Board was responsible to all Members of the Union.

3.5.5 The delegate of the United Kingdom supported the opinion expressed by the Secretary-General. A number of Expert Groups, some of them working with the IFRB, had been established by the Administrative Council and had operated very successfully.

3.5.6 The delegate of Canada confirmed that statement. With regard to the membership of the proposed Group, the 19 to 21 Members suggested in the draft Resolution would provide for representation of all the Regions. Moreover, the Administrative Council, which would approve the financing of the Group, would no doubt ensure a fair distribution between developing and developed countries. The Chairman of the IFRB agreed that the Board had benefited by the assistance of a number of Expert Groups. His only concern was that the function of the proposed Group should be purely advisory and that there should be no question of it giving instructions to the IFRB.

3.5.7 The delegates of Cameroon and Mexico considered that all aspects of the document should be discussed in greater detail, perhaps in an ad hoc Working Group, and asked for some clarifications concerning the term of office of the Expert Group.

3.5.8 The delegate of France agreed that the document should be examined in greater detail and, with regard to the term of office of the Group as set out in resolves paragraph 2 of the Resolution, said that the question would in any case be reviewed by the Plenipotentiary Conference.

The Committee took note of Document 139.

4. First report of Working Group 5-A (Document 157 + Corr.1)

4.1 The Chairman of Working Group 5-A said that the Working Group had held 16 meetings and, after referring some of the most controversial points to four Sub-Groups, had agreed on practically the whole text of the report. The square brackets that still remained had been placed round points undecided because of lack of information from other Groups, points on which consensus had not been reached and points which the Group had considered to lie beyond its terms of reference.

4.2 The Chairman invited the Committee to consider the report paragraph by paragraph.

Paragraph 1

Approved with removal of square brackets.

Paragraph 2

Approved.

Paragraph 3

4.3 The delegate of Pakistan pointed out that, when he had asked in connection with Document 165 whether the definition of "requirement" would be different for the HFBC System and for the Article 17 procedure, he had been told by the Chairman of Working Group 5-C that the definition would be the same in both cases. He therefore proposed that paragraph 3 should be deleted.

4.4 The delegate of France supported that proposal and suggested that as a consequence the words "and the Article 17 procedure" should be inserted after "HFBC Planning System" in paragraph 2. The delegates of India, Brazil, Tunisia and the Islamic Republic of Iran supported the Pakistani and French proposal.

4.5 In response to a comment by the delegate of Iraq, the Secretary General said that, since no title had yet been decided upon for the improved Article 17 procedure, the reference should be placed in square brackets for the time being.

4.6 The delegate of the United Kingdom said that he could not agree to the proposed deletion, since it was important to retain the reference to indication of assigned frequencies. The delegates of the USSR, the Federal Republic of Germany and the United States endorsed that view.

4.7 The delegate of Pakistan pointed out that all the necessary references to frequency assignments already appeared in Document 165. Moreover, if the definitions of "requirements" were to be different for the HFBC System and the Article 17 procedure, two separate files would be required.

After some further discussion, it was decided to delete paragraph 3 and to insert the wording proposed by France in square brackets in paragraph 2.

4.8 The delegate of the United Kingdom reserved his Delegation's position concerning that decision.

Paragraph 4

4.9 The delegate of the USSR suggested that a date should be specified for the action described in the first sentence and said that his Delegation could not agree with the second sentence, which implied that the HFBC System would be brought into operation upon the entry into force of the Final Acts of the Conference. He therefore proposed that the paragraph should be placed in square brackets.

It was so decided.

Paragraph 5

4.10 The delegate of France, supported by the delegate of Brazil, proposed that the letter "x" in square brackets should be replaced by the figure "18" and that the square brackets should be removed.

4.11 The representative of the IFRB (Mr. Berrada) said that the square brackets round the figure "12" could not be removed until the duration of the three consultation periods in the time-scale in Annex 2 to Document 165 was finally established.

Paragraph 5 was approved as amended.

Paragraphs 6, 7 and 8

Approved.

Note 1 to Committee 5

4.12 In response to a request for clarification by the delegate of Algeria, the representative of the IFRB (Mr. Berrada) said that it was very difficult to identify requirements which were communicated to the Board and entered in the file but remained unused, since even if monitoring stations did not indicate the presence of a signal, that did not necessarily mean that the requirement was unused. The Board could only obtain the necessary information with the full cooperation of all administrations in the monitoring system, and it was for Committee 5 to decide on the monitoring required and its application to the HFBC System.

Note 1 was approved.

Note 2 to Committee 3

4.13 In reply to a question by the delegate of China, the representative of the IFRB (Mr. Berrada) explained that, since it had been decided during the current session to take account of additional requirements, the problem now before the Committee was to decide how to deal with such requirements under the HFBC System.

4.14 The delegate of China suggested that the Note should be placed in square brackets.

4.15 The Chairman said that he was obliged to close the meeting in view of the late hour.

The meeting rose at 2355 hours.

The Secretary: The Chairman:

M. GIROUX C.T. NDIONGUE

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, **February-March 1987**

Corrigendum 1 to
Document 175-E
30 April 1987
Original: English

PLENARY MEETING

MINUTES

OF THE

SEVENTH PLENARY MEETING

Paragraph 1.4.3

Amend the ninth line to read:

"was now in its fourth week ..."

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HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 175-E
5 March 1987
Original: English

PLENARY MEETING

MINUTES

OF THE

SEVENTH PLENARY MEETING

Tuesday, 24 February 1987, at 1745 hrs

Chairman: Mr. K. BJÖRNSJÖ (Sweden)

Subjects discussed:		Documents
1.	Oral reports by Chairmen of Committees	168
2.	First series of texts submitted by the Editorial Committee for first reading (Series B.1)	109(Corr.1)
3.	Second series of texts submitted by the Editorial Committee for first reading (Series B.2)	138
4.	Third series of texts submitted by the Editorial Committee for first reading (Series B.3)	163
5.	Fourth series of texts submitted by the Editorial Committee for first reading (Series B.4)	166
6.	First series of texts submitted by the Editorial Committee for second reading (Series R.1)	164
7.	Statement by the delegate of Colombia	-

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1. Oral reports by Chairmen of Committees

1.1 Committee 2

1.1.1 The Chairman of Committee 2 said that the Working Group had held its third meeting on 23 February, the report of which appeared in Document 167: 14 credentials had been examined and found in good order.

1.2 Committee 3

1.2.1 The Chairman of Committee 3 said he had nothing to report for the moment. The Chairman took it that as soon as decisions had been taken on various elements of the package solution Committee 3 would estimate the cost in accordance with the provisions of the Convention.

1.3 Committee 4

1.3.1 The Chairman of Committee 4 said that the work of the Committee had been virtually completed on Friday, 20 February. A number of documents had been passed through to the Editorial Committee and would be submitted to the Plenary for approval; some of them were of a regulatory character and had been addressed to Committee 6 and some containing planning elements had been sent to Committee 5. The results of the work of Committee 4 would therefore be reflected in the output from the other Committees.

1.4 Committee 5

1.4.1 The Chairman of Committee 5 recalled that the Committee had set up Working Groups 5-A, 5-B, 5-C and 5-D with very precise terms of reference. At the present stage, the work in 5-B had finished and an oral report on it would be presented at the next meeting of Committee 5. The work of 5-C was also finished and its texts had been examined that day in the Committee: despite a number of reservations, he thought that Committee 6 would be able to work on them. Working Group 5-D was scheduled to meet soon after the current Plenary Meeting to examine a draft Resolution concerning extension of bands.

1.4.2 The delegate of the Netherlands wished to express his Delegation's disappointment and concern in relation with the report of Working Group 5-C as amended in Committee 5. Since that report was largely based on Document 123 contributed by the Netherlands, his Delegation felt it was necessary to indicate once more what had been behind its proposal. The aim was to arrive at a simplified interim procedure for use prior to the introduction of complete planning of the HF broadcasting bands. That thought was based on the fact that, whatever the outcome of the Conference regarding the time frame for the introduction of the Planning System, an interim procedure would be necessary for a shorter or longer period. The First Session of the Conference had made it obvious that the existing Article 17 procedure did not satisfy many administrations. Therefore, in Document 123 a procedure was proposed which, compared to that of Article 17, was simpler for administrations to use. At the same time it included some of the advantages of the proposed planning algorithm.

The Netherlands Delegation sincerely regretted that as a result of the discussion in Committee 5, a so-called improved Article 17 procedure had been developed which was exactly the opposite of what it had aimed for, namely simplicity and an easier way to obtain seasonal HFBC plans. In the Delegation's view the so-called improved Article 17 procedure had become more complicated, more expensive and more time consuming than they had anticipated.

1.4.3 The delegate of Thailand recalled the discussions the previous day in Committee 5 when the Chairman of the Conference had intervened to urge delegations to restrict themselves to substance. Most delegations were now wondering whether the Conference could possible finish as planned on 6 March. He for one hoped that the unsatisfactory situation which had prevailed during the final stages (and extension) of WARC ORB-85 would not recur. The Chairman of Committee 5 had said that in view of the precarious financial position it would be extremely difficult for the ITU to arrange a Third Session. The Conference was not in its fourth week and it was still not possible to see the shape of a Plan. He would therefore like to echo the appeal to delegations not to re-open discussions at Committee level and to make every effort to speed up progress.

1.4.4 The Chairman of Committee 5 in clarification said he had not spoken of the eventuality of a Third Session, but had simply said that in view of the huge amounts already spent it would be difficult to envisage another HFBC Conference.

1.4.5 The Chairman endorsed the comments by the delegate of Thailand.

1.5 Committee 6

1.5.1 The Chairman of Committee 6 said that the Committee had held three meetings since the previous Plenary. It had adopted Resolution COM6/A (on the procedures to be applied by the IFRB in revising the relevant parts of its Technical Standards used for HF broadcasting) which had been submitted to the Editorial Committee in Document 155. Committee 6 had also established a Working Group (chaired by Mr. George, Federal Republic of Germany) to consider documents from Committee 4 and suggest the action to be taken on them and to prepare texts for inclusion in the Final Acts.

The Group had held three meetings and had already submitted five reports. Committee 6 had also set up two Drafting Groups, one (chaired by Mr. Broere, Netherlands) to draft regulatory provisions for improvement in the existing provisions of Article 17, the other (chaired by Mr. Challo, Kenya) to draft procedures relating to HFBC Planning Systems and their implementation - both working on guidelines from Committee 5. He hoped that the second Drafting Group could start work immediately, on the basis of a document from Committee 5 which was already under preparation.

1.5.2 The delegate of Algeria noted the intent to deal with the substance of Document 165 from Working Group 5-C. He thought the document should be finalized and accompanied by an introductory text and be distributed to delegates in advance to ensure that the work would be productive.

1.5.3 The Chairman of Committee 6 thought that it was essential to make a start on that task, although of course the final decision would be taken by the Committee itself and not by the Drafting Groups. The Chairman endorsed that statement especially since the Drafting Group would no doubt have to hold several meetings.

1.5.4 The delegate of Tanzania said he had the same concern as the delegate of Algeria. The discussions on Document 165 had been lengthy and he doubted whether the Chairman of Committee 5 could produce a text for discussion by Committee 6 that evening.

1.5.5 The Secretary-General said that from a procedural point of view, a text with a covering note from the Chairman of Committee 5 would be available within two hours.

1.6 Committee 7

1.6.1 The Chairman of the Editorial Committee expressed the Committee's regret that it was not able to process more documents. However, he prepared Document 168 with a note concerning the provision which should govern the drafting of texts related to the bands exclusively allocated to the broadcasting service.

1.6.2 The Secretary-General said the document seemed to meet the concerns expressed by himself and Mr. Berrada. Some minor changes were required such as insertion of "high frequency (HF)" wherever appropriate.

With that amendment, Document 168 was approved

2. First series of texts submitted by the Editorial Committee for first reading (Series B.1) (Corrigendum 1 to Document 109)

Recommendation COM4/A

2.1 The Chairman of the Editorial Committee said that considering c) should read: "c) that recent additional studies by administrations since then had indicated ...".

In the light of the decision taken on Document 168, the word "exclusively" would be inserted in the title of the above draft Recommendation, and throughout all texts wherever appropriate.

2.2 Replying to a query by the delegate of Zimbabwe, the Secretary-General said that the square brackets in the paragraph "invites the CCIR" should be retained until the document was submitted for second reading.

Draft Recommendation COM4/A was approved, as amended.

The first series of texts submitted by the Editorial Committee was approved, as amended, on first reading.

3. Second series of texts submitted by the Editorial Committee for first reading (Series B.2) (Document 138)

Resolution No. 641 (Rev. HFBC-87)

3.1 The delegate of Mexico, supported by the delegate of Paraguay, said that the Spanish version of the resolves paragraph should be aligned to the English, to make it more forceful. It was so agreed.

3.2 The delegate of Pakistan recalled his Delegation's reservation on the Resolution in the Final Acts of WARC-79 and said that that same reservation would stand until such time as the situation in the lower bands were changed.

The meeting took note of that reservation.

3.3 Following discussion on the wording of considering b) and a proposal to delete it, the Chairman of Committee 6 said the matter had not been raised in his Committee and he could see no reason for any confusion.

3.4 The delegate of the USSR wondered whether the revised version of the Resolution was required at all. It was not customary to write into every Resolution the fact that it should be brought to the attention of administrations. That view was shared by the delegate of the German Democratic Republic.

3.5 The delegate of Switzerland, on the other hand, thought the additional paragraphs "urges the administrations ..." and "instructs the Secretary-General ..." might be useful to those administrations which needed some help in conforming to the Radio Regulations. That view was endorsed by the delegates of Tanzania, Papua New Guinea and Norway.

3.6 In the light of that statement the Chairman asked whether there was any strong objection to retaining the revised version of the Resolution. The delegate of the USSR said that although he was convinced that his view was correct, he would not insist on his proposal for deletion.

Resolution No. 614 (Rev. HFBC-87) was approved, subject to alignment of the Spanish text.

Recommendation COM4/D

3.7 The Chairman of the Editorial Committee said that in all three language versions, considering b) should be completed by adding the full title of Recommendation No. 503. The delegate of Papua New Guinea said that the same should be done for the reference to the CCIR Recommendation. It was so agreed.

The Recommendation was approved, as amended.

Recommendation COM4/E

3.8 The Chairman of the Editorial Committee said that Committee 7 had received the text at the same time as it had been passed to Committee 6, so it had deferred its examination until that latter Committee had considered it.

The second series of texts submitted by the Editorial Committee (Series B.2) was approved, as amended, on first reading, with the exception of Recommendation COM4/E.

4. Third series of texts submitted by the Editorial Committee for first reading (Series B.3) (Document 163)

Resolution COM4/2

4.1 The delegate of Honduras pointed out that the Spanish text of considering c) should be corrected; the Chairman of the Editorial Committee took note of that point.

Annex to Resolution COM4/2

4.2 The delegate of the USSR said that the First Session of the Conference had established a 20-year period for transition from DSB to SSB techniques. His Delegation had stated in Committee 4 that it would be reasonable to reduce that period in order to make it possible in practice to increase the capacity of the HF bands. Unfortunately, however, the Resolution under consideration re-established the end of the transitional period at 2015. His Delegation hoped that future competent WARCs would set a nearer date.

4.3 The delegate of the Netherlands said that his Delegation had entered a reservation on the subject in Committee 4. It considered that a date around 2004 would be more suitable because technical developments were likely to be much more rapid than the ability of the ITU to provide the relevant provisions. At the same time, his Delegation would not press the matter any further.

4.4 The delegate of Paraguay also recalled his Delegation's proposal with respect to the date and found the date very far ahead.

4.5 The delegate of Syria asked whether paragraph 3 meant that channel spacing would still be 10 kHz both in the Plan and under Article 17. He was concerned that interference to DSB emissions was bound to occur.

4.6 The Chairman of Committee 4 said that a text on the subject had been transmitted to Committee 6, after being discussed at length from the technical point of view at Working Group and Committee level. He wished to state for the record that during the transitional period the provisional channel spacing was exactly the same as had been adopted at the First Session. Nor was there any change in the interleaving adopted for DSB.

4.7 The delegate of Syria said he would accept the annex, provided the matter was discussed again in connection with Recommendation COM4/A.

4.8 The Chairman invited the delegate of Syria to have private discussions with the Chairman of Committee 4.

Resolution COM4/2 was approved, as amended.

Resolution COM4/3

4.9 The representative of the IFRB (Mr. Berrada) said that the reference to 1770 in considering a) should be in square brackets.

Draft Resolution COM4/3 was approved, as amended.

4.10 The Chairman of Committee 7 said that the text in square brackets under "further invites administrations ..." should be deleted.

The third series of texts submitted by the Editorial Committee was approved, as amended, on first reading.

5. Fourth series of texts submitted by the Editorial Committee for first reading (Series B.4) (Document 166)

5.1 The Chairman of the Editorial Committee making a general comment said that his Committee was starting to have difficulties because the structure of the Final Acts was not yet known. He was aware of course that the question was very delicate because of the general situation of the Conference.

Definitions

5.2 The Chairman of Committee 4 informed the Chairman of the Editorial Committee that the square brackets could not yet be removed fron Note 2 in section 2 since no decision was yet forthcoming from Committee 5 regarding overall reliability.

5.3 In connection with the definition of radio-frequency (RF) protection ratio in section 4, the Chairman of the IFRB said that the wording differed from that of the existing definition of RF protection ratio in Article 1, Note 4, of the Radio Regulations. If there were no great differences, perhaps the two definitions should be aligned.

5.4 The Secretary-General said that that was an instance of the need to give consideration to where the provisions on definitions were to appear within the reprinted Radio Regulations.

5.5 The Chairman said that a decision on that should be taken as soon as possible. For the time being, however, the definitions could perhaps be considered as forming a part of an appendix to the Radio Regulations. It was premature to take a final decision but he would raise the point in the Steering Committee so that it could be discussed at the following Plenary Meeting.

5.6 The Chairman of Committee 4 said he knew of no particular reason for having a different definition, so he suggested that the one given in Document 166 be put in square brackets until the point had been dealt with by Committee 6. The delegate of Finland said that the same treatment should be given to the definition of relative radio-frequency protection ratio. It was so agreed.

5.7 The delegate of Algeria pointed out that the definitions were to conform to those appearing in the Report of the First Session.

5.8 The delegate of India sought clarification on a matter of principle. The definitions being considered related specifically to the HF bands allocated exclusively to broadcasting and obviously would not apply to other services. It was his understanding that if such definitions were included in the Radio Regulations, it would be necessary to ensure that they were not in contradiction with another Article. He did not think that different definitions were inappropriate provided it was made clear that they applied to one particular service.

The section on Definitions was approved, with the two definitions concerned placed in square brackets.

Recommendation COM4/G

Approved, subject to replacement of "invites the Secretary-General" by "instructs the Secretary-General".

The fourth series of texts submitted by the Editorial Committee was approved, as amended on first reading with the exception of Appendix [COM4/A] for which consideration was deferred.

6. First series of texts submitted by the Editorial Committee for second reading (Series R.1) (Document 164)

Recommendation COM4/B

6.1 The delegate of Canada said that the text of considering c) was not that approved by Committee 4. He therefore suggested that it be placed in square brackets, to be reconsidered by the Editorial Committee.

6.2 The Chairman of the Editorial Committee said that many delegates had suggested changes of form and he would therefore submit a revised version for consideration at the next Plenary Meeting.

It was so agreed.

7. Statement by the delegate of Colombia

Being convinced of the soundness of the planning principles established at the First Session of the World Administrative Radio Conference for the Planning of the HF Bands Allocated to the Broadcasting Service, the Colombian Delegation came to the Second Session prepared to assist in ensuring that the work carried out would meet the various needs of the participating countries. For this reason, it welcomed the call for the satisfactory planning of the HF bands allocated to the broadcasting service.

Since three-and-a-half weeks have passed since the opening of this Second Session and no specific solutions have been proposed for easing the existing situation in the HF bands (indeed, extremely divergent views have been expressed despite the efforts condensed in the agreement package as an overall compromise solution), we note with concern that at the present juncture in the discussions there has still been no definition of the consideration that should be given to national broadcasting requirements that operate without causing any interference, in conformity with the current Radio Regulations.

Since a decision has been deferred on this matter, to which our Delegation attaches such importance, despite our repeated requests during this Second Session, the Colombian Administration, given the limited time left, feels compelled to appeal to the Conference to settle the question urgently. The national service was in fact defined at the First Session as an HF broadcasting use for purposes of national coverage when the transmitting station and its associated required service area are both located within the territory of the same country.

The Conference should also consider what was established in the summary of conclusions in the IFRB report concerning the results of the planning exercises, and the emphasis given by the Chairman of the Conference to the main differences between the national service and the international service.

Lastly, while we are in favour of planning, we note that a planning system which disregards the differences between national and international HF broadcasting services will be unacceptable to those administrations which operate national broadcasting services in those bands.

Accordingly, our Administration cannot accept that requirements operated for our national broadcasting service and within our territory should be suspended or reduced in number, that their transmission time should be curtailed or that there should be any reduction in the level of quality needed to ensure an adequate service within our own frontiers, for the benefit of international emissions since, at the present time, the national broadcasting service is an irreplaceable tool for education, development and the consolidation of our national identity.

As to our transmissions for the international service, we consider that a minimum number of requirements should be met, as some delegations have proposed.

Colombia thus reaffirms its desire for and spirit of cooperation as expressed at the beginning of this Conference, on the basis of the premises and terms of this statement.

The meeting rose at 2000 hours.

The Secretary-General: The Chairman:

R.E. BUTLER K. BJÖRNSJÖ

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS
ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 176-E
24 February 1987
Original: English

COMMITTEE 6

NOTE FROM THE CHAIRMAN OF COMMITTEE 4

TO THE CHAIRMAN OF COMMITTEE 6

Proposed modification to the Articles of the Radio Regulations concerning the use of the HF bands allocated to the broadcasting service related to the work of Committee 4.

Modify Note 15) of Appendix 7 to read as follows:

"15) For A3E transmitters with carrier power of 10 kW or less the tolerance is 20 parts in 10^6, 15 parts in 10^6 and 10 parts in 10^6 in the bands 1 606.5 (1 605 Region 2) - 4 000 kHz, 4 - 5.95 MHz and 5.95 - 29.7 MHz respectively."

J. RUTKOWSKI
Chairman of Committee 4

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HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 177-E
24 February 1987
Original: English

Source: Document 165

COMMITTEE 6

NOTE FROM THE CHAIRMAN OF COMMITTEE 5

TO THE CHAIRMAN OF COMMITTEE 6

The attached annex contains guidelines for the improvement of the existing provisions of Article 17 of the Radio Regulations and is submitted to Committee 6.

As regards points 15, 17, 18, 19 and 21, Committee 5 was not able to reach agreement on these texts despite a protracted discussion. Committee 5 therefore reserves the possibility of reverting to these points at a later stage. Committee 6 will have to put square brackets around any text developed on the basis of the guidelines set forth in the above-mentioned points.

C.T. NDIONGUE
Chairman of Committee 5

Annex: 1

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ANNEX

Guidelines for the improvement of existing provisions of Article 17 of the Radio Regulations

1. Administrations using the HF bands allocated to the broadcasting service shall submit their requirements for entry in the requirements file and/or seasonal file.

2. The requirements file will be created on the basis of data communicated by the administrations relating to operational and projected broadcasting requirements. This file shall be established and updated as indicated in Document DT/48.

The file should accommodate requirements for re-establishment of a broadcasting facility temporarily suspended by national disasters or other calamitous events [see Document 16].

Administrations may include a request for the Board to select frequencies. These requests may include the desire for frequency continuity.

3. The seasonal file contains requirements concerning one season and is created on the basis of confirmations received from administrations. An administration may, if it so wishes, submit an entire intended frequency schedule into the seasonal file.

There will be four seasonal schedules per year. While confirming their requirements, administrations may modify them or add new requirements.

4. The IFRB calculates for each requirement the field strength at each test point of the required service area, the BBR in the service area and the appropriate bands. These calculations are carried out in accordance with the decisions of the Conference.

5. The Board sends to all administrations the results (step 4) concerning their requirements.

6. Is there a request to the Board in the seasonal file for the Board to select the frequencies on behalf of the administrations?

7. Does the administration, at this point, still wish to select the frequencies for its requirements?

8. The Board selects the frequencies on behalf of those administrations which have so indicated, taking into account any requests for frequency continuity.

9. Administrations may, at this point, communicate additional requirements to the Board. If the frequencies are not indicated by the administrations, they may be selected by the Board.

10. Taking the information referred to in step 6 into account, each administration will select the frequencies, prepare its intended frequency (transmission) schedule and send it to the IFRB. The number of frequencies per requirement, however, shall not be higher than that identified by the IFRB using the calculation procedures adopted by the Conference.

11. The Board carries out propagation prediction calculations for the additional requirements (step 9). These calculations will be carried out in accordance with the decisions of the Conference.

12. The IFRB identifies possible discrepancies in the frequency schedules submitted and determines whether the data submitted under steps 9 and 10 with respect to the number of frequencies are in accordance with the decisions of the Conference relating to the use of additional frequencies.

If an administration notifies more frequencies per requirement than the number calculated in accordance with the decisions of the Conference, the IFRB shall, in consultation with the administrations, reduce the number of frequencies.

13. Using the data made available from steps 8, 9 and 10 and considering the frequencies selected by administrations as pre-set frequencies, the IFRB will select frequencies for those administrations which did not indicate their own frequencies (see also step 8 above) and undertake the incompatibility analysis.

14. The Board publishes the draft seasonal schedule containing for each transmission:

- frequency;
- the notifying administration;
- identification number of the requirement in the requirements file;
- the transmitter site;
- the hours of operation, including specifics when not on a daily basis;
- the number of frequencies for the requirement;
- the required service area (see Document 161, paragraph 1.3);
- the transmitter power;
- antenna characteristics (see annex to Document 132).

Associated with the draft seasonal schedule, the Board will provide information on the frequency incompatibilities. In addition, the Board will provide, in a timely manner and on request, all other information deemed necessary by an administration.

[15. Administrations will, either bilaterally or multilaterally, with the assistance of the IFRB if required, try to solve the remaining incompatibilities that may appear in the draft seasonal schedule. In this coordination, the administrations will take into consideration the principles stated in paragraph 4.1 of the Report to the Second Session.]

16. Changes in transmission characteristics resulting from these consultations should immediately be notified to the IFRB.

[17. Administrations may, at this point, submit new additional requirements to the Board, indicating their frequencies if they so desire.]

[18. Taking into account information submitted under steps 16 and 17, the Board makes the compatibility analysis.]

[19. The Board publishes the seasonal schedules containing:

[- frequency;

- notifying administration;

- identification number of the requirement;

- transmitter site;

- the hours of operation;

- the required service area;

- the transmitter power;

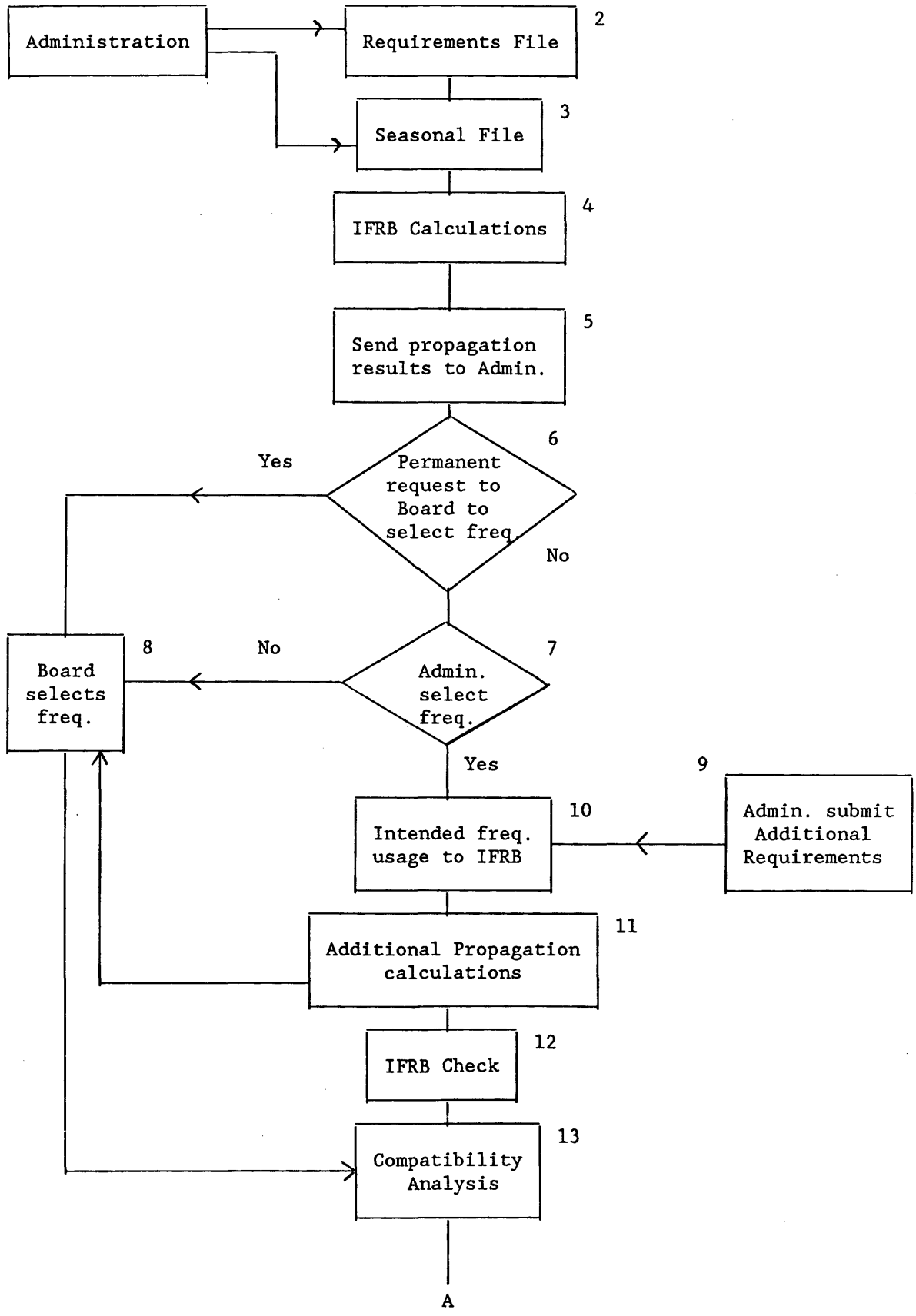
- antenna characteristics.]]

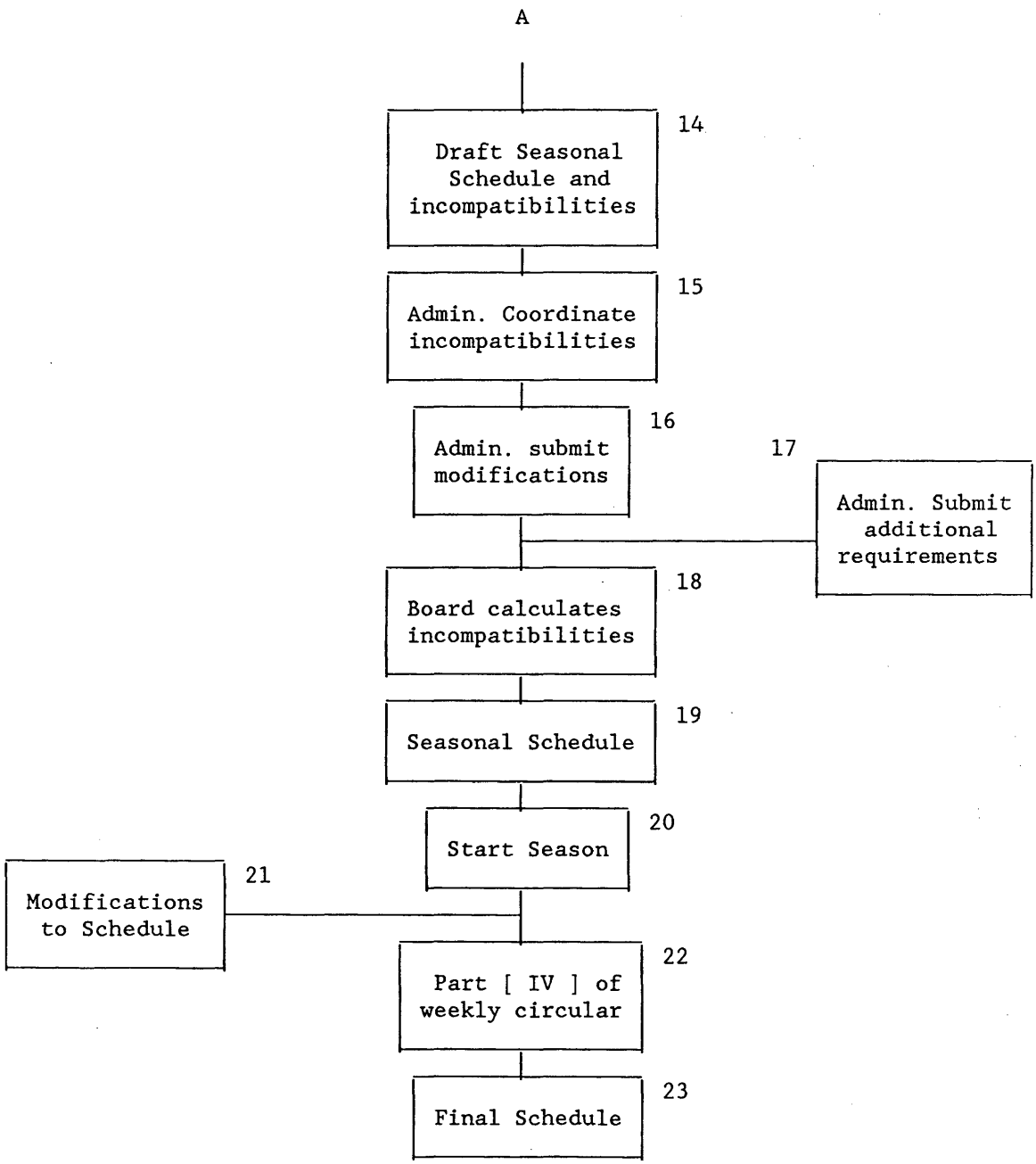
20. Start of the season.

[21. Modifications to the seasonal schedule after the start of the season are submitted to the Board.]

22. IFRB publishes the information received under step 21 in part IV of the Weekly Circular. The Board will make an incompatibility analysis and publish the results with respect to the information received under step 21.

23. The final schedule is not needed to be published. However, the information on the frequency usage during the season may be made available upon request to an administration, on magnetic tape.


1
Administration
Requirements File
2
Seasonal File
3
IFRB Calculations
4
Send propagation results to Admin.
5
Permanent request to Board to select freq.
6
Yes
No
Board selects freq.
8
No
Admin. select freq.
7
Yes
9
Admin. submit Additional Requirements
Intended freq. usage to IFRB
10
Additional Propagation calculations
11
IFRB Check
12
Compatibility Analysis
13
A


A
Draft Seasonal Schedule and incompatibilities
14
Admin. Coordinate incompatibilities
15
Admin. submit modifications
16
17
Admin. Submit additional requirements
Board calculates incompatibilities
18
Seasonal Schedule
19
Start Season
20
Modifications to Schedule
21
Part [IV] of weekly circular
22
Final Schedule
23

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS
ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 178-E
24 February 1987
Original: English

COMMITTEE 6

Note by the Chairman of Committee 6

TERMS OF REFERENCE OF WORKING GROUPS

Terms of reference of Working Group 6-A

To consider documents from Committee 4 and suggest the action to be taken by Committee 6 and prepare texts of relevant parts thereof for inclusion in the Final Acts of the Conference.

Terms of reference of Drafting Group 6-1

To draft regulatory provisions in the light of the guidance provided by Committee 5 for improvement in the existing provisions in Article 17 of the Radio Regulations.

Terms of reference of Drafting Group 6-2

To draft the procedure relating to the HFBC Planning System and its implementation in the light of the guidelines provided by Committee 5.

R. BLOIS
Chairman of Committee 6

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HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, **February-March 1987**

Document 179-E
24 February 1987
Original: English

Source: Document DT/61

COMMITTEE 6

FOURTH REPORT OF WORKING GROUP 6-A

1. The annex contains a draft appendix to the Radio Regulations containing the double-sideband and single-sideband system specifications in the HF bands allocated to the broadcasting service, for consideration in Committee 6.

2. The removal of the square brackets appearing in the text requires decisions to be taken in Committee 5.

3. Concerning Z in square brackets in Part C, section 5, it is assumed that Z will later be replaced by a figure to be determined by Committee 5.

4. The following request should be communicated to Committee 7:

Figure C-3 should be redrafted such that the straight line goes through the following points:

BBR (after)	67.5	75	90
BBR (before)	50	60	80

E. GEORGE
Chairman of Working Group 6-A

Annex: 1

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ANNEX

Draft texts for inclusion in the Final Acts

APPENDIX [COM4/A] TO THE RADIO REGULATIONS

Double-Sideband and Single-Sideband System Specifications in the HF Bands Allocated to the Broadcasting Service

PART A

Double-sideband system

1. Channel spacing

The nominal spacing for double-sideband (DSB) shall be 10 kHz. However, the interleaved channels with a separation of 5 kHz may be used in accordance with the relative protection criteria.

2. Transmission characteristics

2.1 Nominal carrier frequencies

Nominal carrier frequencies shall be integral multiples of 5 kHz.

2.2 Audio-frequency band

The upper limit of the audio-frequency band (at -3 dB) of the transmitter shall not exceed 4.5 kHz and the lower limit shall be 150 Hz with lower frequencies attenuated at a slope of 6 dB per octave.

2.3 Modulation processing

If audio-frequency signal processing is used, the dynamic range of the modulating signal shall be not less than 20 dB.

2.4 Necessary bandwidth

The necessary bandwidth shall not exceed 9 kHz.

PART B

Single-sideband system

1. System planning parameters

1.1 Channel spacing

During the transition period [(see Resolution COM4/2)], the channel spacing shall be 10 kHz. In the interest of spectrum conservation, during the transition period, it is also permissible to interleave SSB emissions midway between two adjacent DSB channels, i.e., with 5 kHz separation between carrier frequencies, provided that the interleaved emission is not to the same geographical area as either of the emissions between which it is interleaved.

After the end of the transition period the channel spacing and carrier frequency separation shall be 5 kHz.

1.2 Equivalent sideband power

When the carrier reduction relative to peak envelope power is 6 dB, an equivalent SSB emission is one giving the same audio-frequency signal-to-noise ratio at the receiver output as the corresponding DSB emission, when it is received by a DSB receiver with envelope detection. This is achieved when the sideband power of the SSB emission is 3 dB larger than the total sideband power of the DSB emission. (The peak envelope power of the equivalent SSB emission as well as the carrier power are the same as that of the DSB emission.)

2. Transmission characteristics

2.1 Nominal carrier frequencies

Nominal carrier frequencies shall be integral multiples of 5 kHz.

2.2 Frequency tolerance

The frequency tolerance shall be ±10 Hz.

2.3 Audio-frequency band

The upper limit of the audio-frequency band (at -3 dB) of the transmitter shall not exceed 4.5 kHz with a further slope of attenuation of 35 dB/kHz and the lower limit shall be 150 Hz with lower frequencies attenuated at a slope of 6 dB per octave.

2.4 Modulation processing

If audio-frequency signal processing is used, the dynamic range of the modulating signal shall be not less than 20 dB.

2.5 Necessary bandwidth

The necessary bandwidth shall not exceed 4.5 kHz.

2.6 Carrier reduction (relative to peak envelope power)

During the transition period the carrier reduction shall be 6 dB to allow SSB emissions to be received by conventional DSB receivers with envelope detection without significant deterioration of the reception quality.

At the end of the transition period, the carrier reduction shall be 12 dB.

2.7 Sideband to be emitted

Only the upper sideband shall be used.

2.8 Suppression of the unwanted sideband

The suppression of the unwanted sideband (lower sideband) and of intermodulation products in that part of the emission spectrum shall be at least 35 dB relative to the wanted sideband signal level. However, since there is in practice a large difference between signal amplitudes in adjacent channels, a greater attenuation is recommended.

3. Characteristics of the reference receiver

The reference receiver has the main characteristics as given below. For more detailed characteristics see the relevant CCIR Recommendations.

3.1 Noise limited sensitivity

The value of the noise limited sensitivity is equal to or less than 40 dB(μV/m).

3.2 Demodulator and carrier acquisition

The reference receiver is equipped with a synchronous demodulator, using for the carrier acquisition a method whereby a carrier is regenerated by means of a suitable control loop which locks the receiver to the incoming carrier. The reference receiver should work as well with conventional DSB emissions as with SSB emissions having a carrier reduced to 6 or 12 dB below peak envelope power.

3.3 Overall selectivity

The reference receiver has an overall bandwidth (at -3 dB) of 4 kHz, with a slope of attenuation of 35 dB/kHz.

Note - Other combinations of bandwidth and slope of attenuation are possible, as given below, and will give the same relative RF protection ratio of about -27 dB at 5 kHz carrier difference.

Slope of attenuation	Overall bandwidth (-3 dB)
25 dB/kHz	3 300 Hz
15 dB/kHz	2 700 Hz

PART C

System planning parameters applicable to
double-sideband and single-sideband systems

1. Required service areas and test points

1.1 In specifying the required service area reference shall be made to a combination of:

- CIRAF zones,
- quadrants of CIRAF zones,
- a part of a quadrant specified by the set of test points contained within that part.

1.2 Where it is necessary to specify a required service area which is smaller than an entire zone or quadrant, this may be done by specifying the boundaries of the area as two azimuths and two ranges from the transmitter location.

1.3 The set of 911 test points listed in the IFRB Technical Standards shall be used to represent the CIRAF zones and quadrants for planning purposes.

Where a required service area is defined as set out in paragraph 1.2, and where such an area does not include a test point, the IFRB shall generate a new test point and include it within the Technical Standards. Such additions to the Technical Standards will be distributed to administrations (Nos. 1001 and 1001.1 of the Radio Regulations).

2. Seasonal divisions of the year and representative months

The year shall be sub-divided into four seasons for propagation prediction purposes. These seasons are listed in Table C-1. When predictions are made for a single month to represent a season, the month selected shall be as indicated in the second column of the table.

TABLE C-1

Season	Representative month	Season symbol
November-February	January	D
March-April	April	M
May-August	July	J
September-October	October	S

3. Solar index values

The 12-month running mean sunspot number R_{12} shall be the solar index to be used for planning.

The [seasonal] plan shall be prepared in accordance with the values of R_{12} for the period. The lowest value of R_{12} predicted for any of the months in that [season] shall be used.

4. Reliability[1]

4.1 Calculation of basic circuit reliability (BCR)

The process for calculating basic circuit reliability is indicated in Table C-2. The median value of field strength for the wanted signal at step (1) is determined by the field strength prediction method. The upper and lower decile values (2) through (5) are also determined, taking account of long-term (day-to-day) and short-term (within the hour) fading. The combined upper and lower deciles of the wanted signal are then calculated in steps (6) and (7) in order to derive the signal levels exceeded for 10% and 90% of the time at steps (8) and (9).

The wanted signal probability distribution, assumed to be log-normal, is illustrated in Figure C-1 which indicates the signal level (in decibels) versus the probability that the value of signal level is exceeded (plotted on a normal probability scale). This distribution is used to obtain the basic circuit reliability (11), which is the value of probability corresponding to the minimum usable field strength (10).

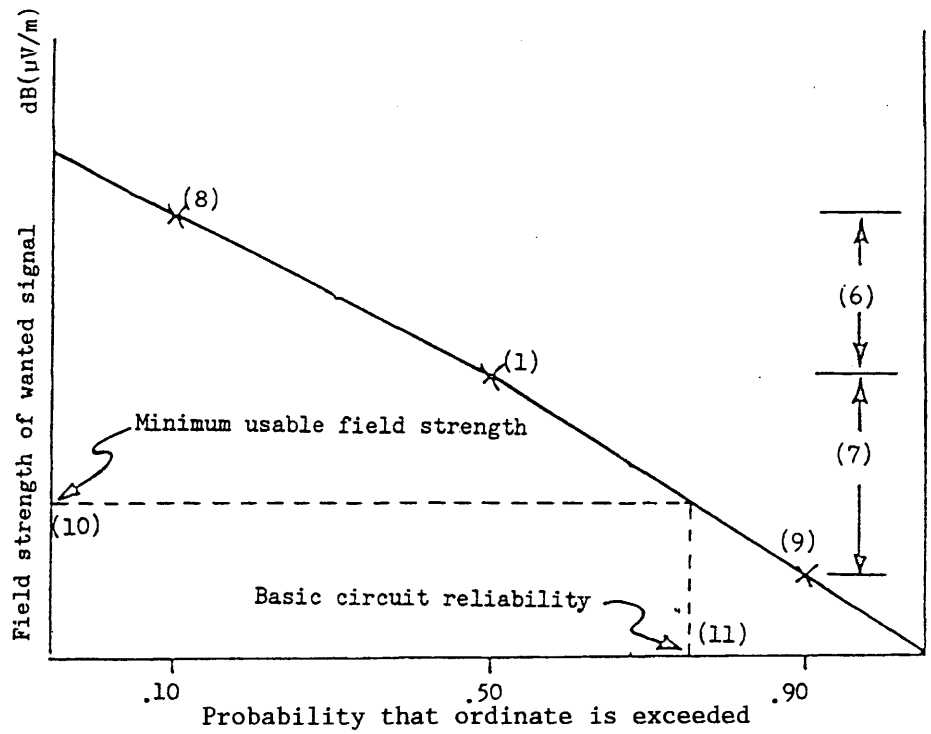


FIGURE C-1

Parameters used to compute basic circuit reliability

(Figures appearing in brackets refer to step numbers as shown in Table C-2.)

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1 Abbreviations of the English terms are used in the formulae throughout the three languages in order to facilitate the practical implementation of the methods described in this section.

TABLE C-2

Parameters used to compute basic circuit reliability

STEP	PARAMETER	DESCRIPTION	SOURCE
(1)	$E_W(50)$ dB (μV/m)	Median field strength of wanted signal[1]	IFRB Technical Standards
(2)	$D_U(S)$ dB	Upper decile of slow fading signal (day-to-day)	IFRB Technical Standards
(3)	$D_L(S)$ dB	Lower decile of slow fading signal (day-to-day)	IFRB Technical Standards
(4)	$D_U(F)$ dB	Upper decile of fast fading signal (within the hour)	IFRB Technical Standards
(5)	$D_L(F)$ dB	Lower decile of fast fading signal (within the hour)	IFRB Technical Standards
(6)	$D_U(E_W)$ dB	Upper decile of wanted signal	$\sqrt{D_U(S)^2 + D_U(F)^2}$
(7)	$D_L(E_W)$ dB	Lower decile of wanted signal	$\sqrt{D_L(S)^2 + D_L(F)^2}$
(8)	$E_W(10)$ dB (μV/m)	Wanted signal exceeded 10% of the time	$E_W + D_U(E_W)$
(9)	$E_W(90)$ dB (μV/m)	Wanted signal exceeded 90% of the time	$E_W - D_L(E_W)$
(10)	E_{min} dB (μV/m)	Minimum usable field strength	IFRB Technical Standards
(11)	BCR	Basic circuit reliability	Expression (1), Figure C-1

Note 1 - In the calculation of BCR at the test points within the required service areas of synchronized transmitters, the field strength value to be used is calculated by the method of root sum square of the contributing field strengths in volts/metre.

The basic circuit reliability is given by the expression:

$$BCR = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{Y} \exp(-\tau^2/2)\, d\tau \qquad (1)$$

when $E_W \geq E_{min}$

$$Y = \frac{E_W - E_{min}}{\sigma_L}$$

$$\sigma_L = D_L(E_W)/1.282$$

when $E_W < E_{min}$

$$Y = \frac{E_W - E_{min}}{\sigma_U}$$

$$\sigma_U = D_U(E_W)/1.282$$

4.2 Calculation of [overall/interference] circuit reliability [(OCR) (ICR)]

The method is outlined in Table C-3. In step (1), the median wanted signal level is computed by the signal strength prediction method.

In step (2), the median field strength levels (E_i) of each interfering source are obtained from the prediction method. In step (3), for a single source of interference the predicted median field strength is used; for multiple sources of interference the median field strength is calculated as follows: the field strengths of the interfering signals E_i are listed in decreasing order. Successive r.s.s. additions of the field strengths E_i are computed, stopping when the difference between the resultant field strength and the next field strength is greater than 6 dB. In step (3), the resultant field strength I is taken as the last computed value.

The values of the wanted signal and interference determined in steps (1) and (3) are combined in step (4) to derive the median signal-to-interference ratio. The 10% and 90% fading allowances are included in steps (5) and (6) in order to derive the signal-to-interference ratio exceeded for 10% and 90% of the time in steps (7) and (8).

The probability distribution for the signal-to-interference ratio may now be determined as shown in Figure C-2. The ratios are presented in decibels on a linear scale versus the probability that the value of the signal-to-interference ratio is exceeded on a normal probability scale. In Figure C-2, the value of probability corresponding to the required signal-to-interference ratio (9) is the circuit reliability in the presence of interference only (ICR). [The overall circuit reliability (OCR, step (12)) is the minimum value of either ICR (step (10)) or BCR (step (11)), whichever produces the lower value.]

The mathematical treatment of the calculation of ICR can be given in terms of the probability density distribution of the protection ratio. These functions are taken to be log normal, as is the resulting distribution of the signal-to-interference ratio.

The parameter ICR is given by the following expression:

$$ICR = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{Y} \exp(-\tau^2/2)\, d\tau \qquad (2)$$

when for $E_W - I \geq RSI$

$$Y = \frac{E_W - I - RSI}{\sigma_L}$$

$$\sigma_L = D_L(SIR)/1.282$$

and for $E_W - I < RSI$

$$Y = \frac{E_W - I - RSI}{\sigma_U}$$

$$\sigma_U = D_U(SIR)/1.282$$

Values of the various parameters in the above expressions are found in steps indicated below, Table C-3.

E_W step (1)

I step (3)

$D_U(SIR)$ step (5)

$D_L(SIR)$ step (6)

RSI step (9)

TABLE C-3

Parameters used to compute overall circuit reliability

STEP	PARAMETER	DESCRIPTION	SOURCE
(1)	E_W dB (μV/m)	Median field strength of wanted signal	IFRB Technical Standards
(2)	E_i dB (μV/m)	Median field strength of interfering signals $E_1, E_2, \ldots E_n$	IFRB Technical Standards
(3)	I dB (μV/m)	Resultant field strength of interference	$I=20 \log_{10}\sqrt{\sum_{i=1}^{n} 10^{\left(\frac{E_i+\alpha}{10}\right)}}$ 1)
(4)	SIR(50)dB	Median signal to interference ratio	$E_W - I$
(5)	D_U(SIR)dB	10% fading allowance	10 dB(<60°), 14 dB(≥60°) 2)
(6)	D_L(SIR)dB	90% fading allowance	10 dB(<60°), 14 dB(≥60°) 2)
(7)	SIR(10)dB	Subjective signal-to-interference ratio exceeded 10% of the time	SIR(50) + D_U(SIR)
(8)	SIR(90)dB	Subjective signal-to-interference ratio exceeded 90% of the time	SIR(50) - D_L(SIR)
(9)	RSI dB	Required RF protection ratio 3)	IFRB Technical Standards
(10)	ICR	Circuit reliability in presence of interference only (without noise)	Expression (2), Figure C-2
(11)	BCR	Basic circuit reliability	Expression (1), Figure C-1
(12)	OCR	Overall circuit reliability	Min(ICR, BCR)

Note 1 - α is the appropriate relative protection ratio corresponding to the carrier frequency separation between the wanted and each unwanted signal.

Note 2 - i) If any point on that part of the great circle which passes through the transmitter and the receiver and which lies between control points located 1,000 km from each end of the path reaches a corrected geomagnetic latitude of 60° or more, the values for ≥60° have to be used.

ii) The value of 14 dB applies for overall circuit reliabilities not exceeding 80%. In other cases the value of 10 dB applies.

iii) These values relate to the path of the wanted signal only.

iv) For synchronized transmissions, the fading allowance associated with the predominant wanted signal is to be used. For those conditions where the contributing wanted field strengths are equal and Note 2 i) applies to at least one of the paths, the value of 14 dB is to be used for D_U(SIR) and D_L(SIR).

Note 3 - In these calculations a single value of the co-channel protection ratio must be used.

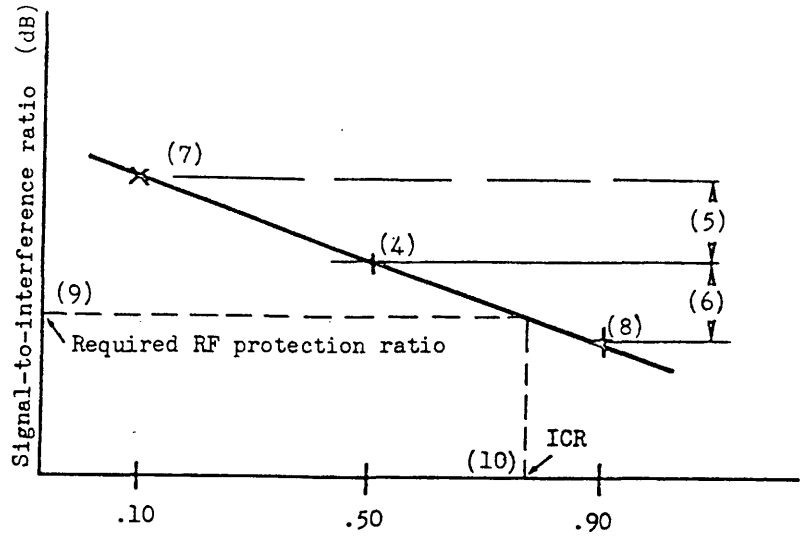


FIGURE C-2

Parameters used to compute overall circuit reliability

(Figures appearing in brackets refer to step numbers as shown in Table C-3.)

4.3 Basic reception reliability (BRR)

The method for computing basic reception reliability is outlined in Table C-4. With a single frequency, basic reception reliability (BRR) is the same as the basic circuit reliability (BCR) defined in section 1.7.1.1. With multiple frequencies, the interdependence between propagation conditions at different frequencies leads to the computation method given in Table C-4. In steps (4) and (6), BCR (n) is the basic circuit reliability for frequency n, where n = F_1, F_2, etc. The basic reception reliability is obtained in step (2) for a single frequency, in step (4) for a set of two frequencies and in step (6) for a set of three frequencies.

4.4 Overall reception reliability (ORR)

The method for computing overall reception reliability is outlined in Table C-5. With a single frequency, overall reception reliability (ORR) is the same as the overall circuit reliability (OCR) defined in section 1.7.1.2. With multiple frequencies, the interdependence between propagation conditions at different frequencies leads to the computation method given in Table C-5. In steps (4) and (6), OCR (n) is the overall circuit reliability for frequency n, where n = F_1, F_2, etc. The overall reception reliability is obtained in step (2) for a single frequency, in step (4) for a set of two frequencies and in step (6) for a set of three frequencies.

TABLE C-4

Basic reception reliability

The following parameters are involved :

Single-frequency operation

Step	Parameter	Description	Source
(1)	BCR (F_1) %	Basic circuit reliability for frequency F_1	step 11, Table C-2
(2)	BRR (F_1) %	Basic reception reliability	BCR (F_1)

Two-frequency operation [1]

(3)	BCR (F_2) %	Basic circuit reliability for frequency F_2	step 11, Table C-2
(4)	BRR (F_1) (F_2) %	Basic reception reliability	$1-\prod_{n=F_1}^{F_2}(1-BCR(n))$

[1] The two frequencies F_1 and F_2 shall be situated in different HF bands allocated to the broadcasting service.

TABLE C-4 (continued)

Basic reception reliability

Three-frequency operation[1]

Step	Parameter	Description	Source
(5)	BCR (F_3) %	Basic circuit reliability for frequency F_3	Step 11, Table C-2
(6)	BRR (F_1)(F_2)(F_3) %	Basic reception reliability	$1-\prod_{n=F_1}^{F_3}(1-BCR(n))$

[1] The three frequencies F_1, F_2 and F_3 shall be situated in different HF bands allocated to the broadcasting service.

TABLE C-5

Overall reception reliability

The following parameters are involved :

Single-frequency operation

Step	Parameter	Description	Source
(1)	OCR (F_1) %	Overall circuit reliability for frequency F_1	Step 12, Table C-3
(2)	ORR (F_1) %	Overall reception reliability	OCR (F_1)

Two-frequency operation [1]

(3)	OCR (F_2) %	Overall circuit reliability for frequency F_2	Step 12, Table C-3
(4)	ORR (F_1) (F_2) %	Overall reception reliability	$1-\prod_{n=F_1}^{F_2}(1-OCR(n))$

[1] The two frequencies F_1 and F_2 shall be situated in different HF bands allocated to the broadcasting service.

TABLE C-5 (continued)

Overall reception reliability

Three-frequency operation [1]

Step	Parameter	Description	Source
(5)	OCR (F_3) %	Overall circuit reliability for frequency F_3	Step 12, Table C-3
(6)	ORR (F_1) (F_2) (F_3) %	Overall reception reliability	$1-\prod_{n=F_1}^{F_3}(1-OCR(n))$

1 The three frequencies F_1, F_2 and F_3 shall be situated in different HF bands allocated to the broadcasting service.

4.5 Basic and [overall/interference] broadcast reliability

The determination of basic broadcast reliability involves the use of test points within the required service area. The basic broadcast reliability is an extension of the basic reception reliability concept to an area instead of a single reception point. The method for computing basic broadcast reliability is outlined in Table C-6. In step (1), the basic reception reliabilities BRR (L_1), BRR (L_2), --- BRR (L_N) are computed as described in Table C-4 at each test point L_1, L_2 --- L_N. These values are ranked in step (2) and the basic broadcast reliability is the value associated with a percentile [X] of the test points.

In a similar way, the [overall/interference] broadcast reliability is computed as described in Table C-7 and it is the value associated with a percentile [X] of the test points.

Broadcast reliability is associated with the expected performance of a broadcast service at a given hour. For periods longer than an hour, computation at one-hour intervals is required.

5. Proportionally Reduced Protection (PRP)

PRP is a margin (M) by which the RF protection ratio to be applied at a test point is reduced under the following specified conditions:

1) the BBR < [80%], and

2) only one frequency band is given by the planning system, and

3) at the test point considered the field strength E_w is less than E_{min} and greater than or equal to E_{min} - [Z].

In these conditions M is determined as: $M = E_{min} - E_w$.

In such cases the proportionally reduced protection ratio is used in the evaluation of S/I at the test point considered. For all the remaining points within the required service area, full protection as determined by the relevant protection ratio is given when $E_w \geq E_{min}$ and no protection is given when $E_w < E_{min}$ - [Z].

In cases where PRP is not applicable, full protection as determined by the relevant protection ratio is afforded when $E_w \geq E_{min}$ and no protection is afforded when $E_w < E_{min}$.

6. Maximum number of frequencies required for broadcasting the same programme to the same zone

6.1 Introduction

Wherever possible, only one frequency should be used to broadcast a particular programme to a given reception area. In certain special circumstances, it may be found necessary to use more than one frequency per programme, i.e.:

- over certain paths, e.g. very long paths, those passing through the auroral zone, or paths over which the MUF is changing rapidly;

TABLE C-6

Basic broadcast reliability

The following parameters are involved :

Step	Parameter	Description	Source
(1)	BRR (L_1), BRR (L_2) --- BRR (L_N) %	Basic reception reliability at all test points considered in the required service area	Step (2), (4) or (6), as appropriate, from Table C-4
(2)	BBR (X) %	Basic broadcast reliability associated with percentile [X]	Any percentile chosen from the values ranked from (1) of this Table

TABLE C-7

Overall broadcast reliability

The following parameters are involved :

Step	Parameter	Description	Source
(1)	ORR (L_1), ORR (L_2) --- ORR (L_N) %	Overall reception reliability at all test points considered in the required service area	Step (2), (4) or (6), as appropriate, from Table C-5
(2)	OBR (X) %	Overall broadcast reliability associated with percentile [X]	Any percentile chosen from the values ranked from (1) of this Table

- areas where the depth of the area extending outwards from the transmitter is too great to be served by a single frequency;

- when highly directional antennas are used to maintain satisfactory signal-to-noise ratios, thereby limiting the geographical area covered by the station concerned.

The decision to use more than one frequency per programme should be made on the merits of the particular case concerned.

Use of synchronized transmitters should be encouraged whenever possible with a view to minimizing the need for additional frequencies.

6.2 Use of additional frequencies

The number of frequencies needed to achieve the specified level of basic broadcast reliability shall be determined by the method given below. If the calculated basic broadcast reliability for a single frequency does not reach the adopted value, it is necessary to consider whether the BBR could be improved by additional frequencies in separate bands and whether the improvement would justify the use of additional frequencies.

6.3 Determination of additional frequency bands

In cases where the BBR[1] for the first band, based on all test points in the required service area, is between 50% and 80%, an additional band shall be tested as follows.

Those test points whose basic circuit reliability BCR is less than or equal to the BBR are identified and only these points are used to determine the second band. For each band, the minimum value of BCR (BCR_{min}) at these points is determined and that band having the highest BCR_{min} value is selected. If more than one band has this value, the highest frequency band is selected. The two-band BBR, taking account of the BRR at all test points in the required service area is then computed and if it exceeds the limit specified in Figure 3-14[2] then the second band is permitted. In those special cases where the two-band BBR is less than 80% then a third band shall be tested as follows.

The BBR for each of the remaining bands is computed considering all test points in the required service area. Of these bands, that band having the highest BBR is selected as the third band. If more than one band has this value the highest frequency band is selected. If the resulting three-band BBR taking account of the BRR at all test points exceeds the limit specified in Figure C-3, the third band is permitted.

---

1 For calculation of the basic broadcast reliability, see paragraph 4.5.

2 The contents of this figure can be expressed by the following equation:

BBR (after) > 30 + .75*BBR (before) additional frequency permitted
BBR (after) $\leq$ 30 + .75*BBR (before) additional frequency not permitted.

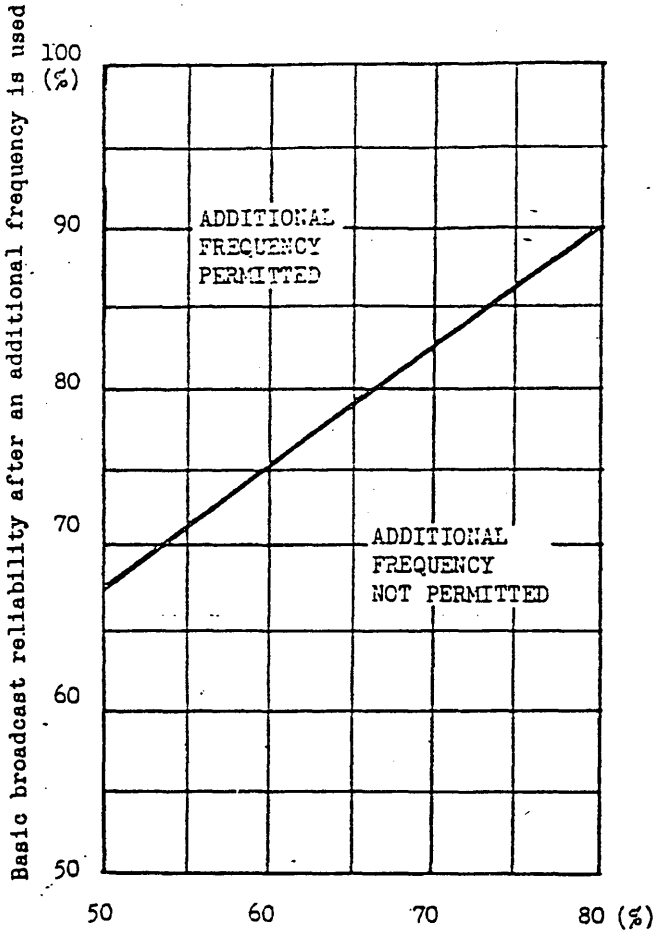


FIGURE C-3

Limits for use of an additional frequency

HFBC (2) INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, **February-March 1987**

Document 180-E
24 February 1987
Original: English

COMMITTEE 6

FIFTH REPORT OF WORKING GROUP 6-A

The annex contains a draft Recommendation relating to the system planning parameters for the use of double-sideband systems in the HF bands allocated to the broadcasting service, for consideration by Committee 6.

The Delegation of Algeria has reserved the right to come back to the annex to the Recommendation, section 2, on the value of 34 dB.

E. GEORGE
Chairman of Working Group 6-A

Annex: 1

For reasons of economy, this document is printed in a limited number of copies. Participants are therefore kindly asked to bring their copies to the meeting since no others can be made available.

ANNEX

DRAFT

RECOMMENDATION [COM6/C]

Relating to the System Planning Parameters for the Use of Double-Sideband Systems in the HF Bands Allocated to the Broadcasting Service

The World Administrative Radio Conference for the Planning of the HF Bands Allocated to the Broadcasting Service (Geneva, 1987),

considering

a) that this Conference has considered in detail the system planning and technical parameters used for HF broadcasting;

b) that certain double-sideband system parameters for HF broadcasting are contained in Appendix [COM4/A] to the Radio Regulations;

c) that the RF protection ratio, minimum usable field strength and signal fading allowance are basic planning parameters which may be improved in the future as a result of further studies;

d) that this Conference has adopted Resolution [COM6/1] relating to the procedure to be applied by the IFRB in the revision of relevant parts of its Technical Standards used for HF broadcasting,

recommends

that, subject to the procedure to be applied by the IFRB in the revision of relevant parts of its Technical Standards used for HF broadcasting given in Resolution [COM6/1], the values of system planning parameters given in the annex to this Recommendation be used by the IFRB in its Technical Standards relating to double-sideband systems in the HF bands allocated to the broadcasting service,

requests the CCIR

to continue to study values of the parameters contained in the annex to this Recommendation,

invites administrations

to participate actively in these studies.

ANNEX TO RECOMMENDATION [COM6/C]

System Planning Parameters

1. Radio-frequency protection ratios

1.1 Protection ratio for unsynchronized transmissions

[The co-channel protection ratio for unsynchronized transmissions should be ...] [to be developed by Committee 5].

1.2 Protection ratio for synchronized transmissions

The co-channel protection ratio between synchronized transmissions in the same network should be:

Distance L between synchronized transmitters: km	Protection ratio dB
$L \leq 700$	0
$700 < L \leq 2{,}500$	4
$2{,}500 < L$	8

1.3 Relative radio-frequency protection ratios

The relative RF protection ratios (α) for carrier frequency separations*, with reference to that for the co-channel case, should be:

Δf	α
0 kHz	0 dB
$\pm$5 kHz	-3 dB
$\pm$10 kHz	-35 dB
$\pm$15 kHz	-49 dB
$\pm$20 kHz	-54 dB

* Frequency separations, $\Delta f < -20$ kHz, as well as $\Delta f > +20$ kHz, need not be considered in planning.

2. Minimum usable field strength

The minimum usable field strength should be determined by adding 34 dB to the greater of:

- the field strength due to atmospheric radio noise as contained in CCIR Report 322-2;

- 3.5 dB (μV/m), which is the intrinsic receiver noise level.

3. Signal fading allowance

3.1 Short-term (within the hour) fading

The upper-decile amplitude deviation from the median of a single signal is to be taken as 5 dB and the lower-decile deviation is to be taken as -8 dB.

3.2 Long-term (day-to-day) fading

The magnitude of the long-term fading, as determined by the ratio of the operating frequency to the basic MUF, is given in Table III of CCIR Report 266-6.

For synchronized transmissions, the fading allowance associated with the predominant signal should be used. For those conditions where the contributing wanted field strengths are equal and Note 1 of Table III of CCIR Report 266-6 applies to at least one of the paths, the values for geomagnetic latitudes $\geq 60^{o}$ should be used.

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS
ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

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COMMITTEE 6

SIXTH REPORT OF WORKING GROUP 6-A

1. Working Group 6-A has considered item 1 of Document 131. In conformity with the proposal of Committee 4 it therefore recommends the deletion of the present section III (Symbols for type of antenna) of Appendix 2. The information contained in this section seems to be superfluous in view of draft Resolution COM4/3 (Document 163) relating to antennas to be used for the planning of the HF bands allocated to the broadcasting service, in which the IFRB is invited to base its Technical Standards for reference antenna types on the CCIR Book of Antenna Diagrams and information supplied by administrations. However, attention is drawn to the fact that, depending on decisions still to be taken in Committee 5, e.g. on Document 132 relating to information concerning antenna characteristics to be provided by administrations when submitting requirements, a further modification of Appendix 2 might be required. As regards this latter document, Working Group 6-A is of the opinion that it cannot take any action on it.

2. Working Group 6-A has considered item 1 of Document 160. In conformity with the proposal of Committee 4 it therefore recommends the deletion of Recommendation No. 501 (WARC-79).

E. GEORGE
Chairman of Working Group 6-A

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HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

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24 February 1987
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COMMITTEE 5

SECOND REPORT OF WORKING GROUP 5-A TO COMMITTEE 5

This second report contains the text prepared by Sub-Group 5-A-4 (Rules for dealing with incompatibilities) and an attempt to identify the differences between national and international requirements.

J.F. ARNAUD
Chairman of Working Group 5-A

Annexes: 4

For reasons of economy, this document is printed in a limited number of copies. Participants are therefore kindly asked to bring their copies to the meeting since no others can be made available.

ANNEX 1

Rules for dealing with incompatibilities

Following the selection of the appropriate band for each requirement, the Planning System will attempt to resolve the congestion cases that may arise in an hour block, band and unit of service area by applying the process illustrated in flowcharts A and B. [For the purposes of the application of Rules N1 to N4, the unit of service area is a quadrant as indicated in the annex to Appendix 2].

Step 1 The selection of the appropriate band is undertaken for each requirement by considering in particular the need to ensure frequency continuity (see chapter on frequency continuity).

Step 2 For each hour and band, the evaluation of congestion is made using the concept of GIR (see [Document 8]) and using to start with a total co-channel protection ratio of 33 dB. If there is no congestion, all requirements are placed in a "file of resolved requirements" (see step 9). If, however, there is congestion, step 3 is applied.

Step 3 Rule N0 is applied and the total co-channel protection ratio is lowered in steps from 33 dB to [17 dB] until congestion is resolved, in which case requirements are placed in a "file of resolved requirements" (see step 9). If congestion still persists at the level of [17 dB], step 4 is applied.

Step 4 Rule N1 is applied as described in [Document 8] and all suspended requirements are placed in a file of temporarily suspended requirements (see step 10). If Rule N1 fails to resolve the case of congestion, step 5 is applied to the remaining requirements. If Rule N1 resolves the congestion case, all remaining requirements are placed in the "file of resolved requirements" (see step 9).

Step 5 Rule N2 is applied as described in [Document 8] and all suspended requirements are placed in a file of temporarily suspended requirements (see step 10). If Rule N2 fails to resolve the case of congestion, step 6 is applied to the remaining requirements. If Rule N2 resolves the congestion case, all remaining requirements are placed in the "file of resolved requirements" (see step 9).

Step 6 Rule N3 is applied as described in [Document 8] and all suspended requirements are placed in a file of temporarily suspended requirements (see step 10). If Rule N3 fails to resolve the case of congestion, step 7 is applied to the remaining requirements. If Rule N3 resolves the congestion case, all remaining requirements are placed in the "file of resolved requirements" (see step 9).

Step 7 Rule N4 is applied as described in [Document 8] if, and only if, the band under consideration is not the band of the requirement with the highest BBR and all suspended requirements are placed in a file of temporarily suspended requirements (see step 10). If Rule N4 fails to resolve the case of congestion, step 8 is applied to the remaining requirements. If Rule N4 resolves the congestion case, all remaining requirements are placed in the "file of resolved requirements" (see step 9).

Step 8 Rule N5 is applied and the co-channel protection ratio is lowered in steps from [17 dB] to the value which permits resolution of the congestion case. No suspensions are made in the application of this rule, consequently the requirements remaining after the application of Rule N4 remain the same.

Step 9 All requirements which, as a result of the previous steps, have not been suspended, have been placed in a "file of resolved requirements". This file contains, therefore, all the requirements which will always enter in the "Tentative Plan" (see step 16). This will be the case of requirements with a protection ratio less than 17 dB. However some of them will be the subject of consultation with administrations before their entry in this file.

Step 10 This file of temporarily suspended requirements contains all requirements which have been suspended as a result of the application of suspension Rules N1, N2, N3, N4 and which are then placed in the "file of requirements to be reviewed" (see step 11).

Step 11 All requirements which have been suspended may be modified by the administrations concerned, as indicated in step 12.

Step 12 At the end of the first run, the administrations having a requirement in the "file of requirements to be reviewed" shall be consulted and requested to consider a review of their requirements for a possible:

- suppression, or
- reduction of their period of transmission, or
- reduction of their power, or
- reduction of their service area, or
- any other modification that would not cause a drastic change in the planning configuration or, result in suspension of any requirement included in the "file of resolved requirements" or result in any of these requirements being adversely affected.

Step 13 As a result of the consultation process described in step 12, whose function shall not exceed [45] days, all requirements which have been modified as well as all other requirements contained in the "file of requirements to be reviewed" which have not been modified by the administration, are subjected to step 15.

Step 14 During the production of a seasonal plan, all requirements communicated to the IFRB after the initial deadline for submission or confirmation of requirements will be subjected to step 15.

Step 15 All requirements contained in the files described in steps 13 and 14 are processed with a view to inserting them in the "Tentative Plan". During this second run, steps 1 to 8 are applied to all requirements; however, none of the requirements contained in the "file of resolved requirements" may be suspended. A requirement in the "file of resolved requirements" will be considered to be adversely affected if, because of the insertion of any other requirement, its protection ratio being greater than 17 dB is lowered to a value less than 17 dB, or if its protection ratio being less than 17 dB is lowered to a smaller value.

In this case, it would not be possible to insert the requirement under consideration [in which case this requirement would be placed in the "file of requirements that cannot be reinserted" (see step 17)].

In an attempt to satisfy as many as possible of the requirements to be inserted, the following process is applied:

1. frequency continuity will be attempted to the extent possible;

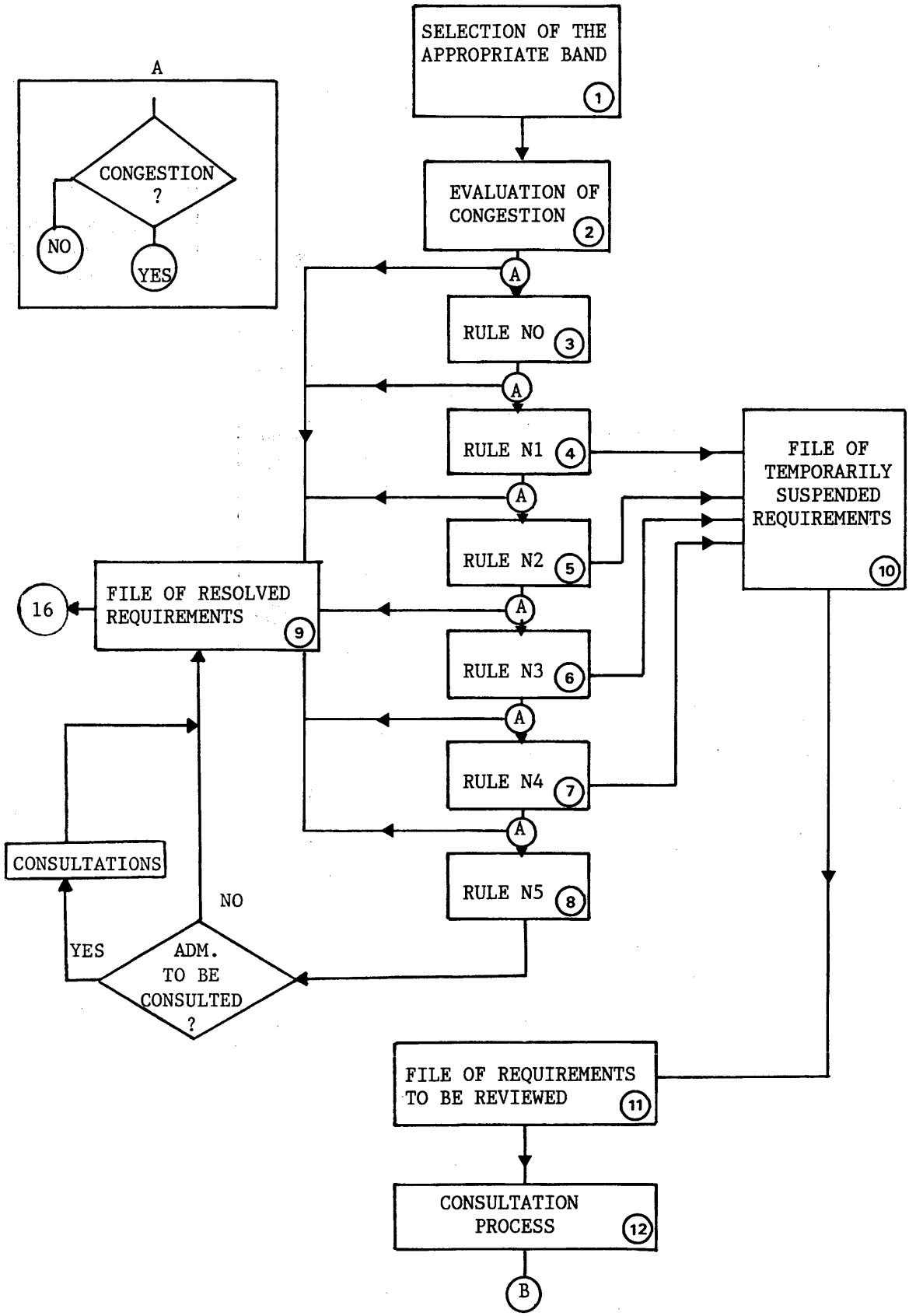
2. if frequency continuity cannot be achieved, an attempt will be made to insert the requirement in another of its usable bands.

Step 16 As a result of the process described in step 15, [as many requirements as possible are satisfied and] a "Tentative Plan" is produced.

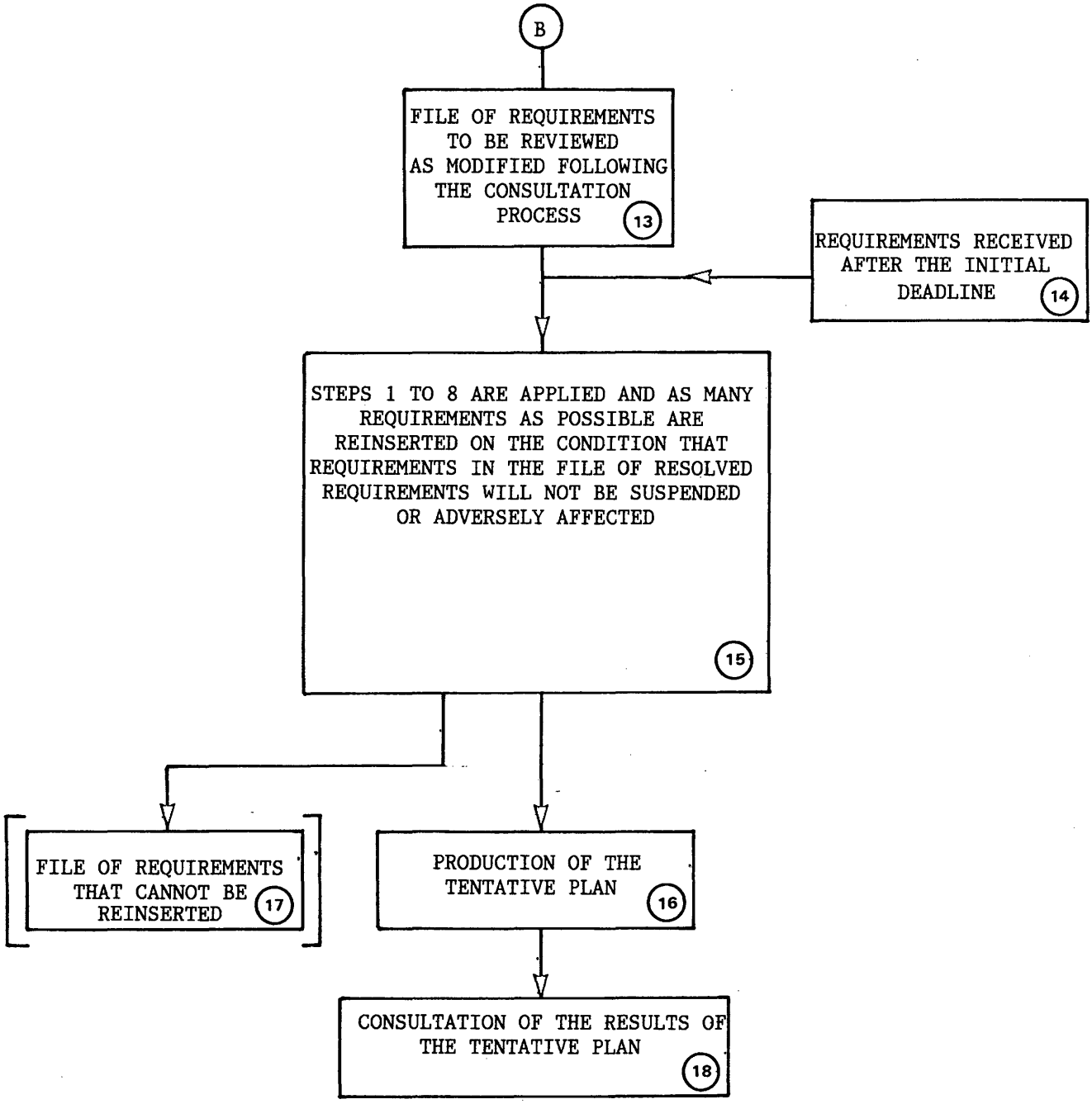
[Step 17 All requirements which could not be inserted after the application of step 15 are placed in a "file of requirements that cannot be inserted".]

Step 18 Administrations who so wish may request the Board to select alternative frequencies for their requirements. The Board shall attempt to select alternative frequencies without affecting the requirements appearing in the Plan. If the Board receives no comment from administrations following the publication of the tentative Plan, it shall consider that the frequencies indicated in the seasonal plan will be assigned by administrations to their stations.

[Note - Suspension Rules N1, N2 and N3 shall not apply to national requirements.]


SELECTION OF THE APPROPRIATE BAND
1
EVALUATION OF CONGESTION
2
A
CONGESTION ?
NO
YES
RULE NO
3
RULE N1
4
RULE N2
5
RULE N3
6
RULE N4
7
RULE N5
8
FILE OF TEMPORARILY SUSPENDED REQUIREMENTS
10
FILE OF RESOLVED REQUIREMENTS
9
16
CONSULTATIONS
NO
YES
ADM. TO BE CONSULTED ?
FILE OF REQUIREMENTS TO BE REVIEWED
11
CONSULTATION PROCESS
12
B

FLOWCHART A


B
FILE OF REQUIREMENTS TO BE REVIEWED AS MODIFIED FOLLOWING THE CONSULTATION PROCESS 13
REQUIREMENTS RECEIVED AFTER THE INITIAL DEADLINE 14
STEPS 1 TO 8 ARE APPLIED AND AS MANY REQUIREMENTS AS POSSIBLE ARE REINSERTED ON THE CONDITION THAT REQUIREMENTS IN THE FILE OF RESOLVED REQUIREMENTS WILL NOT BE SUSPENDED OR ADVERSELY AFFECTED 15
FILE OF REQUIREMENTS THAT CANNOT BE REINSERTED 17
PRODUCTION OF THE TENTATIVE PLAN 16
CONSULTATION OF THE RESULTS OF THE TENTATIVE PLAN 18

FLOWCHART B

ANNEX 2

History of the question of national and international broadcasting in HF bands allocated to the broadcasting service

The frequency allocations to broadcasting in the HF bands were considered by the Radio Communications Conference (Atlantic City, 1947). the Conference, in examining the broadcasting requirements, decided that separate allocations were necessary in the "Tropical Zone" where, because of the high atmospheric noise level and propagation, it was not possible to provide, economically, a more satisfactory service by using low, medium or very high frequencies for internal national use; many administrations at this Conference considered that national services should be developed in these bands. However, the examination of the uses of the HF bands allocated to broadcasting (other than the "tropical bands" was referred to the International High Frequency Broadcasting Conference (Atlantic City, 1947).

The second Plenary Meeting of the International High Frequency Broadcasting Conference (Atlantic City, 1947) adopted an agenda where item 4 was given as:

"Examination of the categories of broadcasting services on high frequencies of which the needs have to be satisfied in the bands of frequencies allocated to broadcasting by the Radio Communications Conference of Atlantic City and the different types and orders of priority to be considered" (Document 46).

This work was entrusted to Committee 13, which reported on 20 September 1947 (Document 128) as follows:

"C. Point 4 of the Agenda

Examination of the categories of broadcasting services on high frequencies and the orders of priority to be considered.

a) The Committee believes that it is not possible to set up actual priorities at this time". The position was adopted with the following:

"In order to aid the planning committee, which will prepare a draft assignment plan, it is recommended that the various countries indicate in Form 4 the precedence and order of importance which they apply to their requirements.".

In the Report (Final) of the International High Frequency Broadcasting Conference (Atlantic City, 1947) the following is given:

"D. Categories of Services and Priorities

(1) It is not possible to establish at this time an order of priorities

(2) In order to aid the Planning Committee, it is recommended that countries indicate, on form 4, the procedure and order of importance which they attach to their requirements.".

The question of priorities and classification was referred to the High Frequency Broadcasting Conference (Mexico City, 1948) and again, although there was considerable discussion on both aspects, no agreement was reached (Documents 448 and 589).

There appears to have been no attempt at later conferences to address either the question of priorities or the question of classification.

ANNEX 3

National/international HFBC

After a statement made by the Board as a response to a question posed by the United Kingdom Delegation (see Annex 4), reference was made to paragraph 4.1.2.2 of the Report to the Second Session (Planning principles).

The term "domestic" was suggested to be more exact than the term "national".

It was suggested that, in the limited time available, delegations should try to identify the differences between national and international HFBC.

Some speakers pointed out what they considered to be the differences between national and international broadcasting services:

national HFBC:

- lower power,
- different service area within national borders,
- longer transmission time,
- special antennas,
- different interference considerations,
- need to cover national rural areas,
- lower bands,
- special need for continuity,
- suspension rules shall not apply.

Others questioned if it is required to consider any difference between national and international HFBC.

Reference was made to RR 954 with regard to the use of certain frequency bands to be used, especially for HFBC long distance operation.

No conclusion was drawn since the matter is also under consideration in another Group. We suggest this matter be transferred to Committee 5.

Footnote on page 69 of the Report to the Second Session:

"An HF broadcasting use is considered as being for purposes of national coverage when the transmitting station and its associated required service area are both located within the territory of the same country. (There is a need for this note to appear in the Final Acts of the Conference.)"

ANNEX 4

Syria raised the question of the definition of the basic unit of service area to be used when applying the Rules N1, N2 and N3.

The following text is proposed by Syria:

"In the application of suspension Rules N1, N2 and N3, the unit of service area for solving incompatibilities should be one quadrant of a CIRAF zone.

If, following the application of these Rules, a minimum of one requirement per administration is not satisfied with a protection ratio of at least 17 dB, the system will retry with a unit of service area equal to one CIRAF zone."

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Corrigendum 1 to
Document 183-E
30 April 1987
Original: English

COMMITTEE 5

SUMMARY RECORD

OF THE

SEVENTH MEETING OF COMMITTEE 5

(PLANNING METHOD AND ASSOCIATED PROCEDURES)

Paragraph 1.4

Replace the last sentence by the following:

"His Delegation was of the view that due account needed to be taken of those possibilities."

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HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS
ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 183-E
2 March 1987
Original: English

COMMITTEE 5

SUMMARY RECORD

OF THE

SEVENTH MEETING OF COMMITTEE 5

(PLANNING METHOD AND ASSOCIATED PROCEDURE)

Wednesday, 25 February 1987, at 1400 hrs

Chairman: Mr. C.T. NDIONGUE (Senegal)

Subjects discussed:	Documents
1. First report of Working Group 5-A (continued)	157 + Corr.1

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1. First report of Working Group 5-A (continued) (Document 157 + Corr.1)

Annex 1 (continued)

Note 1 to Committee 5

1.1 The Chairman of the IFRB said that the purpose of the note was to draw the attention of Committee 5 to the fact that in introducing a planning method there was a need for guidelines governing requirements confirmed but not used and unauthorized transmissions which affected the Plan and consequently its efficiency. The Chairman, having suggested that a note might be sent to Committee 6 inviting that Committee to produce a Resolution on the subject, explained that a Resolution was only used for matters of a transitory nature. What was needed in the present case was a provision to be incorporated into the System. Under Article 17, a certain percentage of transmissions confirmed not used was known to exist. Unauthorized transmissions would not normally come from Members of the Union which were assumed to apply the rules, but were generally found to come from non-Union Members. There should therefore be provisions instructing the Board to avoid assigning the same frequency to an ITU Member. In either case the matter could only be settled by a monitoring programme in which administrations would participate. Possibly, a new Article in the Regulations on monitoring should be considered.

1.2 The delegate of India pointed out that there was already a system of monitoring HFBC bands and others with a view to providing informaion for the IFRB for appropriate use; suitable provisions could therefore be included in the Article to cover the monitoring of HFBC bands for both purposes.

1.3 The delegate of Finland observed that since unauthorized transmissions might come from a non-Member country which had itself authorized the transmission but was not bound either by the Convention or Radio Regulations, little could be done in such cases.

1.4 The delegate of Australia said that while there was a good deal of merit in Mr. Berrada's suggestion, there had been errors in the past resulting from monitoring exercises, as his country had discovered when it had been reported as operating out-of-band, as indicated in Document 26. Other countries had doubtless experienced other mistakes. His Delegation was of the view that a Resolution could not be built on human error.

1.5 The representative of the IFRB (Mr. Berrada) said that Document 26 was the result of three monitoring campaigns over a restricted period and errors could certainly occur with such restricted monitoring. However, in the case of a regular monitoring programme such as that introduced when the present Article 17 was first applied, broadcasters knew when transmissions were made repeatedly by non-Members and could inform the Board accordingly. As the Board would be well-informed by administrations about such transmissions, it might be useful to introduce a provision stating that the Planning System would take such information into account, but that protection would not be assured to such transmissions. In the case of requirements confirmed but not used, any information provided would have to be carefully considered by the Board, and the best solution might be to include a provision instructing the IFRB to ask the administrations concerned whether they wished to retain the requirement in the requirements file.

1.6 The delegate of Botswana said that his Delegation would wish to add to that instruction that where an administration gave no justifiable reason for not using a confirmed requirement, it should be allocated to another administration.

1.7 The delegate of Kenya said that in the light of Australia's example of a clear error in monitoring activities, it might be necessary to review Article 20 and also provide assistance where necessary to ensure that monitoring stations were standardized in their ability to provide accurate information so that such errors would not recur.

1.8 The Chairman of the IFRB said that information was provided solely by administrations and the Board was required to publish it. As in any reporting system there would be isolated reports which were not necessarily valid. In the reports prepared by the Board (Documents 9 and 26), in response to Resolutions passed by the First Session, the Board had carried out two specific exercises: it had published information from administrations on the position of stations. In Australia's case an interfering out-of-band signal in Australia had been reported which disappeared when the Board examined the bearings given by a large number of administrations. Article 20 provided the basis of the international monitoring system and its stations provided information to the Board which was published in regular and special monitoring programmes. It should however be borne in mind that even with the most sophisticated equipment errors could happen, but that did not destroy the validity of the international monitoring system.

1.9 The Secretary-General, on the subject of Article 20, said that WARC-79 had decided to make it clear that information could only be provided by Member States or by centres duly authorized by administrations, thereby removing some of the earlier flexibility. On the subject of transmissions by non-Members of the Union, he said that the problem was not so much caused by non-Members as such, but by illegal stations operating in national territories or nearby waters. With the Members of the Union now numbering 162 and shortly to increase, the question of non-Members hardly arose.

1.10 The delegate of Singapore supported the views of Australia and Kenya. Special emphasis should be placed on monitoring and on sending information to the Board. His country had experienced a situation similar to that of Australia and after thorough investigation had discovered that the reports were without foundation. In the first place, therefore, there should be some way of verifying the accuracy of the information being submitted to the Board before publication.

1.11 The representative of the IFRB (Mr. Berrada) replied that the Board was very careful in dealing with information received from monitoring stations and only published the results of any given transmission when it occurred in reports from a number of different stations. However, such information was more important to the Board in its studies, and the Board was particularly careful before taking any decisions in that connection.

1.12 The delegate of Senegal said that his Delegation considered that monitoring programmes should be set up on a regular and permanent basis. The delegate of Israel expressed sympathy with that suggestion. In his country's experience, such monitoring would be extremely helpful. The Chairman of the IFRB said that there were regular monitoring programmes. The important factor was that any programmes that were initiated had to give value for money. In addition, reports produced by the IFRB on such programmes were wasted unless administrative conferences took action on them.

1.13 The Chairman proposed that the Committee submit the following guidelines to Committee 6: that under Article 20, administrations should continue to supply the IFRB with information; that in cases of transmissions by non-Members of the Union, provisions should be drafted requesting the IFRB to give them no protection and not to assign the same frequency to a Member of the Union. As far as requirements confirmed but not used were concerned, provisions should be drafted requesting the IFRB to ask the administrations concerned whether or not a frequency was still required. In the latter case, the IFRB should be allowed to use the frequency for other purposes.

It was so agreed.

Note 2 to Committee 5

1.14 Following interventions by the delegates of Algeria, and China and by the representative of the IFRB (Mr. Berrada), Note 2 was amended to read as follows:

> "The processing of additions or modifications notified to the IFRB after the date given in 5 shall be considered in the light of the results of the work of Working Group 5-B.".

Step 2 - Broadcast requirements for the season under consideration

1.15 The Chairman of Working Group 5-A invited the Committee to consider the alternate text proposed for paragraph 4.2.3.2 as being the more logical of the two. All square brackets around the words "season" and "plans" could be deleted, but the rest should be maintained.

1.16 The representative of the IFRB (Mr. Berrada) said that the periods of one year and nine months specified in the text had only been suggested to provide an idea of the time-scale involved. If the Conference incorporated them as fixed dates, administrations might lose the benefit of possible planning improvements. The best solution could be to substitute for the draft as it stood a formulation based on Article 17 of the Radio Regulations, No. 1749, which allowed a greater degree of flexibility.

It was so agreed.

Step 3 - Propagation analysis and selection of the appropriate frequency band

1.17 The representative of the IFRB said that the reference to "the optimum frequency band" in paragraph 4.2.3.3.1 should be deleted since that concept was not used in the HFBC Planning System. The alternative concept of "the appropriate frequency band" was used in the System and, since it too required definition, the IFRB would prepare a suitable text if the Committee so wished.

1.18 Following interventions by the delegates of Algeria, Israel, Pakistan and Spain, paragraph 4.2.3.3.1 was amended, pending receipt of the IFRB definition of "the appropriate frequency band", to read:

> "The planning method will calculate for each requirement, for the season and for the different times, the appropriate frequency band.".

1.19 The delegate of Algeria, supported by the delegate of Syria, suggested that the final sentence of paragraph 4.2.3.3.2, contained in square brackets, be deleted.

1.20 The delegate of Canada, supported by the delegates of Norway and Finland, thought that the sentence should be retained and the square brackets deleted so as to allow countries exposed to the vagaries of ionospheric propagation at high latitudes the possibility of selecting a third frequency band when necessary. He hoped that the Committee would recall such countries' particular situation whenever the point recurred.

1.21 The delegate of Syria said that if the sentence was retained, reference should also be made to the passage in paragraph 3.8.1 of the Report to the Second Session of the Conference concerning very long paths through auroral zones or rapidly changing MUF.

Following informal consultations, it was agreed to delete the square brackets from the final sentence and otherwise retain paragraph 4.2.3.2.2 as it stood.

Step 4 - Rules to be applied to broadcasting requirements in a given run

It was agreed to delete the note to paragraph 4.2.3.4.2, on which action had already been taken by Committee 6.

1.22 The Chairman of Working Group 5-A said that two alternative texts were given for paragraph 4.2.3.4.3.1 because no agreement had been reached in the Sub-Group on the question of preset frequencies, which hampered planning. Alternative A was based on a distinction between national and international services, whereas B distinguished between high-power and low-power transmitters.

Several delegates expressed their preference for Alternative A, some of them recommending deletion of the square brackets and/or the text therein, whereas others favoured Alternative B.

Following the reference by the delegate of the USSR to the corresponding section of the Report to the Second Session, and the intervention of the representative of the IFRB, the Chairman asked if the Committee could agree to insert the text of paragraph 4.2.3.4.3.1 of the Report to the Second Session.

It was so agreed.

1.23 The delegate of Algeria requested consideration of his Administration's proposal relating to paragraph 4.2.3.4.3.3 (Power). Alternatively, the Committee could perhaps send a note to Committee 6 with a view to having that proposal put in the relevant part of the text. It contained an indent c), which should perhaps include a date by which the IFRB should advise an administration that it must not exceed the power value determined.

1.24 The delegate of Sweden said that discussion of that proposal would be more appropriate when Committee 5 came to discuss Working Group 5-A's second report.

It was agreed to defer consideration of the proposal since the document concerned (Document 126) was not before the meeting.

It was agreed to delete the square brackets around "80%" in paragraphs 4.2.3.4.4.3.1 and 4.2.3.4.4.3.2.

1.25 The delegate of Syria said that he maintained the reservation recorded by his Delegation in respect of paragraph 4.2.3.4.4.3.2 unless the text could be amended to reflect the conditions under which a third frequency would be permitted, in order to take account of the special circumstances recognized in paragraph 3.8.1 of the Report to the Second Session.

The Committee took note of that reservation.

The meeting rose at 1705 hours.

The Secretary: The Chairman:

M. GIROUX C.T. NDIONGUE

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS
ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 184-E
3 March 1987
Original: English

COMMITTEE 6

SUMMARY RECORD

OF THE

SIXTH MEETING OF COMMITTEE 6

(REGULATORY)

Wednesday, 25 February 1987, at 1735 hrs

Chairman: Mr. R. BLOIS (Brazil)

Subjects discussed:		Documents
1.	First report of Working Group 6-A	170
2.	Second report of Working Group 6-A	171(Rev.1)
3.	Third report of Working Group 6-A	172(Rev.1)
4.	Fourth report of Working Group 6-A	179
5.	Fifth report of Working Group 6-A	180
6.	Sixth report of Working Group 6-A	181

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1. First report of Working Group 6-A (Document 170)

1.1 The Chairman of Working Group 6-A introduced the first report of Working Group 6-A (Document 170) drawing attention to the figure 5.9 MHz which should read 5.95 MHz in both paragraphs.

1.2 The delegate of Japan said that if that change was accepted it would also be necessary to change the figure 29.7 MHz since in Article 8 of the Radio Regulations there was no frequency above 26.1 MHz allocated to broadcasting in HF bands. He thought it would be preferable to keep the text as it stood.

1.3 The Chairman of Committee 4 said it appeared to him that there was some inconsistency between the modification to Note 21) in Document 170, the modification to Note 15) in Document 176, and Document 179, section 2.2. which said that the frequency tolerance should be $\pm$10 Hz. He suggested that the problem might be reconsidered by an ad hoc Working Group of Committee 4.

1.4 The delegate of the United Kingdom said that he saw no inconsistency between the documents. The reference to a frequency tolerance of 10 Hz was contained in the main table of Appendix 7, and footnote 21) merely added a warning that frequency differences of a few hertz could lead to degradation similar to periodic fading. It was a suggestion that in some cases administrations might do better than 10 Hz. Hence it added to the basic recommendation in Appendix 7 but did not contradict it.

1.5 The delegates of the Federal Republic of Germany and Brazil endorsed the view that no inconsistency was involved.

1.6 The Chairman of Committee 4 said that he could agree with the United Kingdom interpretation and would not insist on the point, but he thought that the question of Note 15) (Document 176) should also be looked into.

1.7 The Chairman of Working Group 6-A said that, as he saw it, Note 15) (Document 176) was correct and raised no problems. The only point for consideration was that mentioned by the Japanese delegate, as to whether the upper limit should be 29.7 MHz or 26.1 MHz.

1.8 After further discussion of the point by the delegates of France, the USSR and the United Kingdom, the Chairman of Committee 4 and the Chairman of Working Group 6-A, it was decided that Document 170 should be referred back to Committee 4 for further consideration and subsequent resubmission to Committee 6.

2. Second report of Working Group 6-A (Document 171(Rev.1))

2.1 The Chairman of Working Group 6-A, introducing the second report of Working Group 6-A, said that there were two groups of technical parameters, the first group, which was not subject to change, would be incorporated in an appendix to the Radio Regulations, the second, to which the relative RF protection ratio value belonged, was subject to change in the light of future developments. Hence, that second group was dealt with in a Recommendation. There was also a Resolution, already adopted by Committee 6, which gave the mechanism for ensuring that the IFRB Technical Standards always contained the updated values.

The decision taken on the word "exclusively" to be associated with the HFBC bands, at the previous day's Plenary Meeting, would necessitate minor changes to the title of the draft Recommendation COM4/E; the square brackets could not yet be removed.

2.2 The representative of the IFRB (Mr. Brooks) said he thought the table in the annex to the Recommendation had broader applicability than merely to the HFBC Planning System. He therefore proposed that in paragraph 1 of the annex to Recommendation (COM4/E), the words "involved in the planning of the HF bands allocated to the broadcasting service" should be replaced by "involved in the use of the HF bands.", and that the phrase "(For use in the HFBC Planning System)" above the associated table on page 4 should be deleted.

2.3 The delegate of the United States said that when the table had been discussed in Working Group 4-B, serious concern had been expressed as to whether the values in it were actually relative radio frequency protection ratios. The intention of the Working Group therefore had been to use the words exactly as given in the document in order to make it clear that in all cases the values given in the table referred to the case of DSB v. DSB and it was only on that understanding that the values in the table had been agreed upon. He would therefore prefer to keep the table exactly as it as, adding that the table had been worked out in consultation with the IFRB staff to ensure that there was no inconsistency between the values in the table and the HF Planning System.

2.4 Following a lengthy discussion on various editorial proposals, the Chairman suggested that the text of paragraph 1 of the annex to draft Recommendation COM4/E be amended to read: "... involved in the use of the HF bands allocated to the broadcasting service" and the word "used" be placed in square brackets, that the sub-title of the associated table should read: "(For use in the HF bands allocated to the broadcasting service)", also in square brackets, and that the text be passed forthwith to the Editorial Committee.

It was so agreed.

3. Third report of Working Group 6-A (Document 172(Rev.1))

3.1 The Chairman of Working Group 6-A introduced the Working Group's third report, the annex to which contained draft Recommendation [COM4/F]. Since the propagation prediction method was a parameter subject to change, it was the subject of a Recommendation and not laid down in an appendix to the Radio Regulations. The text of the main body of the Recommendation as received from Committee 4 remained unchanged, but a Note from the Chairman of that Committee had been added in the Report.

3.2 After discussion on proposed drafting amendments, it was agreed to delete the square brackets around "planning" in considering a), to include as alternatives the expressions "from the time of entry into force of the Final Acts" and "in the post-conference period", also in square brackets in recommends 1, to add square brackets around the word "Planning" in the title of the annex and to delete the Note from the Report.

Document 172 was approved as amended.

4. Fourth report of Working Group 6-A (Document 179)

4.1 The Chairman of Working Group 6-A introduced the Working Group's fourth report, which contained a new draft appendix to the Radio Regulations. The appendix was in three parts: Part A dealt with the DSB system, Part B with the SSB system and Part C with the system planning parameters applicable to DSB and SSB systems. The question of separate appendices for each part had been discussed but merit was found in having a single appendix.

Committee 4 had already prepared a draft appendix covering the SSB system which was now Part B of the composite appendix. The appendix contained all those parameters which were not subject to change. The original intention had been to make cross-references to the Recommendation but it had been considered that that would make the values contained in the Recommendation fixed and inflexible. A paragraph 1.3 dealing with protection ratio values had also been deleted for the same reasons.

Some square brackets remained in the text, pending decisions by Committee 5. A number of editorial amendments were also required and would be transmitted to the Editorial Committee.

4.2 The Chairman of Committee 4 said that the decision to dispense with cross-references would create unnecessary difficulties for administrations. He wondered whether the view that a reference in an appendix automatically made a recommendation mandatory was only the Board's interpretation; there did not appear to be a provision in the Convention to that effect.

4.3 The Chairman of Working Group 6-A said that of the two lists drawn up by Committee 4 the parameters in the first list were to be incorporated in an appendix, which had mandatory force, and those in the second list in Recommendations can be modified in accordance with the agreed procedure.

4.4 The representative of the IFRB (Mr. Brooks) said that although the legal interpretation given by Mr. Berrada at an earlier meeting was not specifically spelt out in the Convention, it corresponded to a legal opinion obtained at a previous conference. The IFRB would have to extract from the Radio Regulations - be it an appendix or a Recommendation - the information needed in order to develop the technical standards it would use in applying the totality of the system. The technical standards would then be made available to administrations in the usual way.

At the suggestion of the Chairman of Committee 4, it was agreed after some discussion to place paragraph 2.2 of Part B in square brackets pending a decision concerning a footnote to Appendix 7.

Document 179, as amended in the discussion and subject to further amendments of an editorial nature, was approved.

5. Fifth report of Working Group 6-A (Document 180)

5.1 The Chairman of Working Group 6-A introduced the report in Document 180 containing draft Recommendation [COM6/C].

5.2 The delegate of Algeria withdrew the reservation concerning the annex to the Recommendation.

5.3 The delegate of France said that the editorial point he had raised in connection with Documents 179 and 171(Rev.1) also applied to the title of the Recommendation in the annex.

5.4 The delegate of Brazil asked whether the Recommendation would be applicable if the Conference decided to adopt the procedure based on a revised version of Article 17. The representative of the IFRB (Mr. Brooks) said that No. 1754 of present Article 17 referred to the development of the Board's Technical Standards. If a similar provision were included in the revised version of the Article, there should be no difficulty in applying the Recommendation.

Document 180, as amended, was approved for transmission to the Editorial Committee.

6. Sixth report of Working Group 6-A (Document 181)

6.1 The Chairman of Working Group 6-A introduced the report contained in Document 181.

6.2 The Chairman, referring to paragraph 2 of the report, recalled the decision taken at a previous meeting to the effect that at the end of its work the Committee would produce a Resolution listing all Recommendations and Resolutions which the Conference was to abrogate. Recommendation No. 501 (WARC-79) would be included in that Resolution.

The sixth report of Working Group 6-A was approved.

The meeting rose at 2040 hours.

The Secretary: The Chairman:

M. AHMAD R. BLOIS

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, **February-March 1987**

Document 185-E
25 February 1987
Original: French

BUDGET CONTROL
COMMITTEE

Note by the Secretary-General

SITUATION OF THE CONFERENCE ACCOUNTS AS AT 23 FEBRUARY 1987

I herewith submit for consideration by the Budget Control Committee, an estimate of Conference expenditure as at 23 February 1987.

The figures show a margin of 64,000 Swiss francs in relation to the budget as approved by the Administrative Council, adjusted to take account of changes in the common system of salaries and allowances.

R.E. BUTLER
Secretary-General

Annex: 1

For reasons of economy, this document is printed in a limited number of copies. Participants are therefore kindly asked to bring their copies to the meeting since no others can be made available.

ANNEX 1

Situation of accounts for WARC HFBC (1987) as at 23 February 1987

Heading	Budget approved by AC	Budget adjusted on 01.02.87	Expenditure at 23.02.87 actual	committed	estimated total
col.	1	2	3	4	5
	thousands of Swiss francs				
Subheads II-IV - Work of the Conference					
Subhead II - Staff costs					
423.11 Salaries and related exp.	1326	1195	45	1110	1155
423.38 Recruit. travel costs	81	81	6	52	58
423.41 Insurance	35	35	7	35	42
	1442	1311	58	1197	1255
Subhead III - Premises and equipment costs					
433.61 Premises, furniture, machines	40	40	0	39	39
433.62 Document production	60	60	0	69	69
433.63 Office supplies & costs	50	50	3	33	36
433.64 PTT	50	50	25	23	48
433.65 Technical installations	4	4	0	4	4
433.69 Sundry & unforeseen	10	10	1	9	10
	214	214	29	177	206
Subhead IV - Other expenditure					
443.00 Final Acts of the Conference	54	54	0	54	54
Subhead VI - Post-Conference work					
461.11 Salaries & related exp.	103				0
461.12 Supernumerary staff	120	225	82	143	225
461.41 Insurance	20				0
461.50 Computer facilities	217	217	1	216	217
461.61 Premises, furniture, machines	40	40	4	36	40
	500	482	87	395	482
TOTAL SECTION 11.4	2210	2061	174	1823	1997
UNUSED CREDITS					64

Col. 2: Budget including additional credits to take account of changes in the common system of the United Nations and its specialized agencies.

PINK PAGES

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS
ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 186-E
25 February 1987

R.2

PLENARY MEETING

SECOND SERIES OF TEXTS SUBMITTED BY THE EDITORIAL COMMITTEE TO THE PLENARY MEETING

The following texts are submitted to the Plenary Meeting for second reading:

Source	Documents	Title
COM.7	138 (B.2)	Resolution No. 641 (Rev. HFBC-87)
	163 (B.3)	Resolution COM4/2 (HFBC-87)
		Resolution COM4/3 (HFBC-87)
	Corr.1 to 109 (B.1)	Recommendation COM4/A (HFBC-87)
	138 (B.2)	Recommendation COM4/D (HFBC-87)
	166 (B.4)	Recommendation COM4/G (HFBC-87)

D. SAUVET-GOICHON
Chairman of Committee 7

Annex: 8 pages

For reasons of economy, this document is printed in a limited number of copies. Participants are therefore kindly asked to bring their copies to the meeting since no others can be made available.

PINK PAGES

RESOLUTION No. 641 (Rev. HFBC-87)

Use of the Frequency Band
7 000 - 7 100 kHz

The World Administrative Radio Conference for the Planning of the HF Bands Allocated to the Broadcasting Service (Geneva, 1987),

considering

a) that the sharing of frequency bands by the amateur and broadcasting services is undesirable and should be avoided;

b) that it is desirable to have world-wide exclusive allocations for these services in Band 7;

c) that the band 7 000 - 7 100 kHz is allocated on a world-wide basis exclusively to the amateur service,

resolves

that the broadcasting service shall be prohibited in the band 7 000 - 7 100 kHz and that the broadcasting stations operating on frequencies in this band shall cease such operation,

urges

the administrations responsible for the broadcasting stations operating on frequencies in the band 7 000 - 7 100 kHz to take the necessary steps to ensure that such operation ceases immediately,

instructs the Secretary-General

to bring this Resolution to the attention of administrations.

PINK PAGES

RESOLUTION COM4/1 (HFBC-87) NOT ALLOCATED

RESOLUTION COM4/2 (HFBC-87)

Transition from Double-Sideband (DSB) to Single-Sideband (SSB) Emissions in the HF Bands Allocated Exclusively to the Broadcasting Service

The World Administrative Radio Conference for the Planning of the HF Bands Allocated to the Broadcasting Service (Geneva, 1987),

considering

a) that the HF bands allocated exclusively to the broadcasting service are severely congested;

b) that the level of congestion within these HF bands is increasing;

c) that SSB techniques will provide a much more efficient utilization of the frequency spectrum than DSB techniques;

d) that SSB techniques enable reception quality to be improved;

e) that the lifetime of a transmitter is of the order of twenty years;

f) that the lifetime of a receiver is of the order of ten years;

g) that it is economically unattractive, using current technology, to convert existing conventional DSB transmitters to SSB operation;

h) Appendix [COM4/A (Document 84(Rev.1))] to the Radio Regulations concerning the SSB system specification for the HF bands allocated exclusively to the broadcasting service;

i) that the First Session of the Conference (Geneva, 1984), in its Report to the Second Session, dealt with the progressive introduction of SSB emissions;

j) that Recommendation COM4/B (HFBC-87) encourages the accelerated design and manufacture of SSB transmitters and receivers,

PINK PAGES

resolves

1. that the procedure in the annex to this Resolution shall be used for the purpose of ensuring an orderly transition from DSB to SSB emissions in the HF bands allocated exclusively to the broadcasting service;

2. that the final date for the cessation of DSB emissions specified in the annex to this Resolution shall be periodically reviewed by competent future world administrative radio conferences in the light of the latest available complete statistics on the world-wide distribution of SSB transmitters and synchronous demodulator receivers, and that at least one such review shall be carried out before the year 2000,

invites the Administrative Council

to place, in conformity with resolves 2 above, the matter referred to in that paragraph as an additional item on the agendas of competent future world administrative radio conferences,

invites the CCIR

to compile and maintain the statistics referred to in resolves 2, to make these statistics available to interested administrations and to provide summaries thereof to the Administrative Council of the ITU for submission to the competent future world administrative radio conferences,

invites administrations

to assist the CCIR in its task by providing the relevant statistical data.

ANNEX TO RESOLUTION COM4/2 (HFBC-87)

Procedure for the Transition from Double-Sideband (DSB) to Single-Sideband (SSB) Emissions in the HF Bands Allocated Exclusively to the Broadcasting Service

1. The immediate introduction of SSB emissions is encouraged, i.e., the transition period starts immediately.

2. All DSB emissions shall cease not later than 31 December 2015, 2359 UTC (see also resolves 2 in the body of the Resolution).

3. SSB emissions shall comply with the characteristics specified in Appendix [COM4/A (Document 84(Rev.1))] to the Radio Regulations.

4. Until 31 December 2015, 2359 UTC, SSB emissions intended for reception by DSB receivers with envelope demodulation, as well as by SSB receivers with synchronous demodulation, shall have a carrier reduction of 6 dB relative to peak envelope power.

PINK PAGES

5. After 31 December 2015, 2359 UTC, only SSB emissions with a carrier reduction of 12 dB relative to peak envelope power shall be used.

6. Until 31 December 2015, 2359 UTC, whenever an administration replaces its DSB emission by an SSB emission, it shall ensure that the level of interference is not greater than that caused by its original DSB emission (see also Appendix [COM4/A (Document 84(Rev.1))] to the Radio Regulations and Recommendation COM4/E (HFBC-87)).

PINK PAGES

RESOLUTION COM4/3 (HFBC-87)

Antennas to be Used for the Planning of the HF Bands Allocated Exclusively to the Broadcasting Service

The World Administrative Radio Conference for the Planning of the HF Bands Allocated to the Broadcasting Service (Geneva, 1987),

considering

a) that the IFRB Technical Standards shall be developed according to Nos. 1001, 1454 and [1770] of the Radio Regulations (see Resolution COM6/1 (HFBC-87));

b) that the CCIR has published the Book of Antenna Diagrams (1984 Edition) and made available computer programs for HF antenna pattern calculations;

c) that administrations are developing improved antennas to be used for HF broadcasting;

d) that administrations may wish to use antenna types not included in the above-mentioned CCIR publication,

resolves

1. that the type of antenna most appropriate for the required service should be used;

2. that the use of antennas with a large number and size of side-lobes, e.g., rhombic antennas, should be avoided,

invites administrations

to take into account resolves 1 and 2 above,

further invites administrations

to provide the IFRB and the CCIR with the relevant data if they wish to use antenna types different from those included in the IFRB Technical Standards and in the CCIR Book of HF Antenna Diagrams,

invites the CCIR

to continue to update the Book of HF Antenna Diagrams,

invites the IFRB

1. to base its Technical Standards for reference antenna types on the CCIR Book of Antenna Diagrams and information supplied by administrations;

2. to publish and maintain in its Technical Standards the set of antenna characteristics to be used for HF broadcasting.

PINK PAGES

RECOMMENDATION COM4/A (HFBC-87)

Improvements to the Propagation Prediction Method to be Used for the HF Bands Allocated Exclusively to the Broadcasting Service

The World Administrative Radio Conference for the Planning of the HF Bands Allocated to the Broadcasting Service (Geneva, 1987),

considering

a) that the First Session of the Conference (Geneva, 1984) adopted a method for the prediction of HF field strength which was based upon studies by the CCIR;

b) that during the intersessional period the CCIR undertook further studies in accordance with the request of the First Session of the Conference;

c) that recent additional studies by administrations have indicated that further improvements in the method are required;

d) that the possibility of further improvement will depend, in part, on the collection and analysis of additional data of field strength measurements,

invites the CCIR

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,

invites administrations

1. to conduct HF field strength measurement programmes;

2. to contribute data, in a form suitable for study, to the CCIR.

PINK PAGES

RECOMMENDATION COM4/C NOT ALLOCATED

RECOMMENDATION COM4/D (HFBC-87)

Use of Synchronized Transmitters in the HF Bands Allocated Exclusively to the Broadcasting Service

The World Administrative Radio Conference for the Planning of the HF Bands Allocated to the Broadcasting Service (Geneva, 1987),

considering

a) that the use of synchronized transmitters, where technically appropriate, is an efficient means of economizing frequency spectrum;

b) Recommendation No. 503 of the World Administrative Radio Conference (Geneva, 1979), relating to HF broadcasting;

c) that, where the path location is unfavourable, a Doppler frequency difference greater than 0.1 Hz may occur at certain hours of the day;

d) CCIR Recommendation 205-2 relating to synchronized transmitters in HF broadcasting,

recognizing

that further studies are needed on the use of synchronized transmitters for broadcasting in the HF bands,

invites the CCIR

to accelerate the studies defined in its Study Programme 44L/10 with a view to making comprehensive Recommendations on this subject.

PINK PAGES

RECOMMENDATION COM4/G (HFBC-87)

HF Broadcast Receivers

The World Administrative Radio Conference for the Planning of the HF Bands Allocated to the Broadcasting Service (Geneva, 1987),

considering

a) that a large number of receivers fail to tune over all the HF bands allocated exclusively to the broadcasting service or have imprecise analogue displays for broadcasting frequencies (a subject of complaint by numerous HF broadcasters);

b) that to reduce congestion in certain bands and to improve spectrum utilization, the appropriate HF bands, including the highest bands (21 and 26 MHz), should be used;

c) that a precise frequency display facilitates the tuning of receivers and so encourages the public to listen to HF broadcasts,

recommends administrations

to draw the attention of manufacturers to this matter, to ensure that future low-cost broadcast receivers are equipped to cover all HF broadcasting bands and, if possible, to provide digital frequency display,

instructs the Secretary-General

to communicate this Recommendation to the International Electrotechnical Commission (IEC).

BLUE PAGES

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 187(Rev.1)-E
4 March 1987

B.5(Rev.1)

PLENARY MEETING

FIFTH SERIES OF TEXTS SUBMITTED BY THE EDITORIAL COMMITTEE TO THE PLENARY MEETING

The following texts are submitted to the Plenary Meeting for first reading:

Source	Documents	Title
COM.6	155 DT/69	Resolution COM6/1 (HFBC-87)

D. SAUVET-GOICHON
Chairman of Committee 7

Annex: 2 pages

For reasons of economy, this document is printed in a limited number of copies. Participants are therefore kindly asked to bring their copies to the meeting since no others can be made available.

RESOLUTION COM6/1 (HFBC-87)

Procedure to be Applied by the IFRB in the Revision of the Relevant Parts of its Technical Standards Used in the HF Bands Allocated Exclusively to the Broadcasting Service

The World Administrative Radio Conference for the Planning of the HF Bands Allocated to the Broadcasting Service (Geneva, 1987),

considering

a) that it has examined in detail the technical parameters used in the HF bands allocated exclusively to the broadcasting service;

b) that the planning exercises conducted by the IFRB in the intersessional period indicated that some of the technical parameters, such as those used in the propagation prediction method, may need to be improved, and applied with some flexibility, depending on the results of the actual regular implementation of plans and the technical studies carried out by the CCIR;

c) that, under No. 1001 of the Radio Regulations, the functions of the Board include the development of its Technical Standards;

d) that, under No. 1454 of the Radio Regulations, the Technical Standards of the IFRB shall be based, inter alia, on:

- the relevant provisions of the Radio Regulations and the Appendices thereto,
- the decisions of administrative conferences of the Union, as appropriate,
- the Recommendations of the CCIR,
- the state of the radio art,
- the development of new transmission techniques,

taking into account exceptional propagation conditions which may prevail in certain regions ...;

e) that, in accordance with No. [1770] of the Radio Regulations, the Technical Standards of the IFRB shall be based on the items listed in paragraph d) above as well as on the experience gained by the Board in applying the provisions of Article 17 of the Radio Regulations;

f) that, with respect to the Technical Standards of the IFRB, the CCIR could provide competent advice on technical matters;

g) the importance of the active involvement of administrations in the process of revising the technical parameters,

resolves

1. that, following each CCIR Plenary Assembly, the IFRB shall review its Technical Standards relating to the technical parameters of HF broadcasting in the light of new or modified CCIR Recommendations, and shall circulate to all administrations the results of its review, indicating the reasons for its proposed actions;

2. that, whenever the IFRB considers it appropriate to review its Technical Standards relating to the technical parameters of HF broadcasting without departing from the decisions of this Conference, it shall circulate to all administrations the proposed changes and the reasons for them;

3. that, before implementing any changes, the IFRB shall request administrations to provide their comments on the subjects referred to in resolves 1 and 2 within 4 months, and shall take them into account, unless it would be impractical to do so;

4. that the IFRB shall circulate a summary of comments received from administrations together with the Board's views thereon, indicating whether a meeting of experts is necessary or not, before a final decision is taken. If a significant number of replies subsequently received from administrations concerning such a meeting supports the action proposed by the Board, it shall proceed accordingly. If not, the Board shall inform the administrations accordingly and allow an appropriate period for further comments before implementing the proposed changes;

5. that if, on the subject referred to in point 1 above and following the action mentioned in points 3 and 4 above, the Technical Standards of the IFRB are not modified, the IFRB shall prepare a contribution to the CCIR indicating the parts of the CCIR Recommendation that were not included in the IFRB Technical Standards, together with any information required for further study of the matter.

BLUE PAGES

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, **February-March 1987**

Document 187-E
25 February 1987

B.5

PLENARY MEETING

FIFTH SERIES OF TEXTS SUBMITTED BY THE EDITORIAL COMMITTEE TO THE PLENARY MEETING

The following texts are submitted to the Plenary Meeting for first reading:

Source	Documents	Title
COM.6	155	Resolution COM6/1 (HFBC-87)

D. SAUVET-GOICHON
Chairman of Committee 7

Annex: 2 pages

For reasons of economy, this document is printed in a limited number of copies. Participants are therefore kindly asked to bring their copies to the meeting since no others can be made available.

RESOLUTION COM6/1 (HFBC-87)

Procedure to be Applied by the IFRB in the Revision of Relevant Parts of its Technical Standards Used for HF Broadcasting

The World Administrative Radio Conference for the Planning of the HF Bands Allocated to the Broadcasting Service (Geneva, 1987),

considering

a) that it has examined in detail the technical parameters used for HF broadcasting;

b) that the planning exercises conducted by the IFRB in the intersessional period indicated that some of the technical parameters, such as the field strength prediction method, may need to be improved, and applied with some flexibility, depending on the results of the actual regular implementation of plans and the technical studies carried out by the CCIR;

c) that under No. 1001 of the Radio Regulations, the functions of the Board include the development of its Technical Standards;

d) that under No. 1454 of the Radio Regulations, the Technical Standards of the IFRB shall be based on:

- the relevant provisions of the Radio Regulations and the Appendices thereto,
- the decisions of administrative conferences of the Union, as appropriate,
- the Recommendations of the CCIR,
- the state of the radio art,
- the development of new transmission techniques,

taking into account exceptional propagation conditions which may prevail in certain regions (for example, particularly pronounced ducting);

e) that in accordance with [No. 1770 of the Radio Regulations], the Technical Standards of the IFRB shall be based on the above as well as on the experience gained by the Board in applying the periodic planning process;

f) that, with respect to the Technical Standards of the IFRB, the CCIR could provide competent advice on technical matters;

g) the importance of the active involvement of administrations in the process of revising the technical parameters,

resolves

1. that, following each CCIR Plenary Assembly, the IFRB shall review its Technical Standards relating to the technical parameters of HF broadcasting in the light of new or modified CCIR Recommendations, and shall circulate to all administrations the results of its review, indicating the reasons for its proposed actions;

2. that, whenever the IFRB considers it appropriate to review its Technical Standards relating to the technical parameters of HF broadcasting without departing from the decisions of this Conference, it shall circulate to all administrations the proposed changes and the reasons for them;

3. that, before implementing any changes, the IFRB shall request administrations to provide their comments on the subjects referred to in resolves 1 and 2 within 4 months, and shall take them into account;

4. that the IFRB shall circulate a summary of comments received from administrations together with the Board's views thereon, indicating whether a consultative meeting of experts is necessary or not, before a final decision is taken. If a majority of replies subsequently received from administrations supports the action proposed by the Board, it shall proceed accordingly. If not, the Board shall inform the administrations accordingly and allow an appropriate period for further comments before implementing the proposed changes;

5. that if, on the subject referred to in resolves 1 and ensuing action under resolves 3 and 4, the IFRB Technical Standards are not modified, the IFRB shall prepare a contribution to the CCIR indicating the parts of the CCIR Recommendation that were not included in the IFRB Technical Standards, together with any information required for reconsideration of the matter.

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, **February-March 1987**

Document 188-E
25 February 1987
Original: English

COMMITTEE 5

REPORT OF WORKING GROUP 5-D TO COMMITTEE 5

1. To carry out the task identified in the terms of reference contained in Document 135, the Working Group held two meetings to prepare and adopt the attached Recommendation.

2. While the Recommendation was approved by consensus, the Delegations of Argentina and the Islamic Republic of Iran reserved their position.

3. In the discussions in the Working Group, it was agreed that the use of the words "extending" and "extension" implied both widening of existing HF bands allocated exclusively to the broadcasting service as well as allocating new bands to that service.

E.D. DuCHARME
Chairman of Working Group 5-D

Annex: 1

For reasons of economy, this document is printed in a limited number of copies. Participants are therefore kindly asked to bring their copies to the meeting since no others can be made available.

ANNEX

DRAFT

RECOMMENDATION [COM5/A] (HFBC-87)

Relating to the Possibility of Extending the Frequency Bands Allocated to HF Broadcasting at a Future Competent World Administrative Radio Conference

The World Administrative Radio Conference for the Planning of the HF Bands Allocated to the Broadcasting Service (Geneva, 1987),

considering

a) Resolution No. 508 of the WARC (Geneva, 1979) inviting the Administrative Council to convene a conference in two sessions with a view to the planning of the HF bands allocated to the broadcasting service;

b) the Report of the First Session to the Second Session of the Conference;

c) Administrative Council Resolution No. 912 containing the agenda of the Second Session of the WARC for the Planning of the HF Bands Allocated to the Broadcasting Service (HFBC(2));

d) the results of the planning exercises carried out by the IFRB during the period between the two sessions of this Conference;

e) that this Conference, to achieve more efficient use of the HF bands allocated exclusively to the broadcasting service, has adopted measures such as [improved planning provisions and] the use of single-sideband techniques but has concluded that these measures may be insufficient to meet the current and future needs of HF broadcasting,

recognizing

that a possible extension of the spectrum allocated for HF broadcasting would have an impact on other radio services operating in accordance with the Table of Frequency Allocations contained in Article 8 of the Radio Regulations,

recommends to the Administrative Council

to take the necessary steps to request the Plenipotentiary Conference (Nice, 1989) to consider whether or not to hold a WARC which should include in its agenda the possibility of extending the HF spectrum allocated to the broadcasting service,

instructs the Secretary-General

to bring this Recommendation to the attention of all administrations and of the 42nd session of the Administrative Council, 1987.

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS
ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 189-E
25 February 1987
Original: English

COMMITTEE 5

THIRD AND FINAL REPORT OF WORKING GROUP 5-A TO COMMITTEE 5

This report comprises the directives for the preparation of Appendix 2. Working Group 5-A was not able to examine it, and it is submitted for consideration by Committee 5.

J.F. ARNAUD
Chairman of Working Group 5-A

Annexes: 2

For reasons of economy, this document is printed in a limited number of copies. Participants are therefore kindly asked to bring their copies to the meeting since no others can be made available.

ANNEX 1

Guidelines for the establishment of Appendix 2

Information Relating to the Broadcasting Service in the Exclusive HFBC Bands

1. Notifying administration.

2. Name of transmitting station.

3. Symbol of the country or geographical area in which the transmitting station is located.

4. Geographical coordinates of the transmitting station

When two transmitting stations are almost co-located, the administration shall indicate, as far as possible, the same coordinates.

5. Service areas

5.1 In specifying the required service area, reference shall be made to a combination of:

- CIRAF zones,
- quadrants of CIRAF zones,
- a part of a quadrant specified by the set of test points contained within that part.

5.2 Where it is necessary to specify a required service area which is smaller than an entire zone or quadrant, this may be done by specifying the boundaries of the area as two azimuths and two ranges from the transmitter location.

5.3 The set of test points listed in the IFRB Technical Standards shall be used to represent the CIRAF zones and quadrants for planning purposes.

Where a required service area is defined as set out in paragraph [2], and where such an area does not include a test point, the IFRB shall generate a new test point and include it within the Technical Standards. Such additions to the Technical Standards will be distributed to administrations (Nos. 1001 and 1001.1 of the Radio Regulations).

Note - This document covers only the part of Appendix 2 relating to data to be entered in the requirements file.

6. Season

7. Hours of operation (UTC)

7.1 Indication on legal clock time changes.

7.2 Specifies when not on a daily basis.

7.3 Indication on temporary interruption of broadcasting facilities.

8. Transmitting antenna characteristics (see Annex 2).

9. Transmitter power (dBW)

- range of power capabilities.

10. Type of modulation.

10.1 Indicate if the transmitter can operate with two modes (DSB, SSB).

11. Frequency.

11.1 Assigned frequencies [under Article 17].

11.2 Preset frequencies.

11.3 Preferred frequency (in kHz).

11.4 Preferred frequency band (in MHz).

11.5 Number of frequencies that can be used simultaneously.

11.6 Requested types of frequency continuity.

Note - The requirements file shall permit inclusion of information on all the types of frequency continuity as defined in [paragraph 4.2.3.4.4 of Document 157].

11.7 Indication on the use of synchronized transmitters.

12. Equipment limitations.

13. [Lowest value of BBR to be used for the requirements of ...] (see paragraph 3, Document 157).

14. Indication if consultations are required when the S/I ratio is less than 17 dB.

[15. Nature of requirement (national or international)].

ANNEX 2

Information concerning antenna characteristics should be provided by administrations when submitting requirements

a) For all types of antennas:

1. Type

(When appropriate, reference should be made to the corresponding antenna type appearing in the set of antenna patterns in the IFRB Technical Standards.) (See Resolution COM4/3.)

2. Azimuth of maximum radiation

In degrees from true North in clockwise direction.

3. Maximum gain (isotropic, G_i, dB)

(If different from that associated with the relevant pattern in the reference antenna set.)

4. Covered frequency band(s), in MHz (lowest and highest frequency bands for multi-band antennas, or the band for single band antennas)

b) In addition to the above parameters, for horizontal dipole arrays:

5. Type of radiator (end-fed or centre-fed dipole elements)

6. Type of reflector (tuned dipoles or aperiodic screen)

c) In addition to the above parameters, for multi-band horizontal dipole arrays:

7. Design frequency, in MHz

(If not indicated, the design frequency will be assumed as the arithmetic mean of the centre frequencies of the lowest and highest frequency bands covered by the antenna.)

d) In addition to the above parameters, for slewed horizontal dipole arrays:

8. Azimuth of the normal to the plane of the radiating elements

In degrees from true North in clockwise direction.

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS
ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

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25 February 1987
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COMMITTEE 3

Note from the Chairman of Committee 4
to the Chairman of Committee 3

In estimating the budgetary impact on the ITU concerning on-going and future HFBC work it may be stated that, in as far as the results of Committee 4 are concerned, the following additional expenses are foreseen:

- studies that the CCIR will be requested to carry out (Recommendations [COM4/A], [COM4/B], [COM4/D], [COM4/E] and Resolution [COM4/3]).

- modifications and additions to the existing software used in the present HFBC Planning System (propagation antennas, protection ratios, SSB, interleaving, requirement forms, etc.).

J. RUTKOWSKI
Chairman of Committee 4

For reasons of economy, this document is printed in a limited number of copies. Participants are therefore kindly asked to bring their copies to the meeting since no others can be made available.

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, **February-March 1987**

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COMMITTEE 3

Note from the Chairman of Committee 3

PRELIMINARY RESOURCE ESTIMATES FOR THE IMMEDIATE POST CONFERENCE WORK TO BE CARRIED OUT BY THE IFRB

I enclose herewith the revised estimates which I have received today from the Chairman of the IFRB on the above subject.

M.K. RAO
Chairman of Committee 3

Enclosure

For reasons of economy, this document is printed in a limited number of copies. Participants are therefore kindly asked to bring their copies to the meeting since no others can be made available.

**PRELIMINARY RESOURCE ESTIMATES
FOR THE IMMEDIATE POST CONFERENCE WORK
TO BE CARRIED OUT BY THE IFRB**

1. INTRODUCTION

On the basis of the latest discussions held in various committees as well as on the basis of the "decisions" so far taken by the Conference, the Board has revised the preliminary resource estimates which are based on a new single scenario; the estimates are given in the Annex. An accurate assessment of the decisions of the Conference, can only be made, after a detailed study by the Board, after the Conference. The results of such a study will be communicated to the 42nd Session of the Administrative Council.

To carry on the software development work given in the Annex, a minimal periof of 2 1/2 years is necessary. Additional time periods will be required to:

i) allow the Board to undertake a detailed study of the decisions of this Conference;

ii) carry out the extensive tests of the integrated system once the software has been completed.

2. SCENARIO: COMBINATION OF THE IMPROVED HFBC PLANNING SYSTEM AND THE IMPROVED ARTICLE 17 PROCEDURE INTO A SINGLE INTEGRATED SYSTEM

The assumption is made that a combined HFBC Planning System/Article 17 represents the decision of the Conference as it would result from Documents DT/65, DT/67 and DT/68. The simplifications introduced permit the reduction of the required total effort. For this new integrated system to be developed the tasks listed below need to be executed. It should be noted that because of the introduction of the consultation phases, which were not present in the previous version of the HFBC Planning System, as well as the need to develop a system for implementation, it is of paramount importance to design the integrated system, with operational aspects in mind.

3. TASKS

The list of tasks given below is to be interpreted simply as an inventory of the different items that need to considered. These item are interlinked to the extent that the introduction or modifications of one of them has repercussions in all others. As an example, the addition of one or more test points will mean that virtually all the modules are affected and require change. Moreover the dimensions of the arrays in the various modules need to take into account the amount of available main computer memory. The introduction of new test points may lead to the total redesign of the modules (eg: GIR, frequency assignment) which require a large amount of main memory.

It should be also be understood that some of the tasks which are required such as frequency continuity of type 3, 4, 5 will necessitate a totally new approach to the design and operation of the integrated system.

3.1 Aspects that will require modifications of software up to, and including, the selection of appropriate band

a) Addition of new test points;

b) Antenna patterns (slewed, multiband, tropical and any other type);

c) Field strength calculations using the middle of the band in the planned portions, and the actual frequency in the coordinated portions;

d) Linked requirements (type 2 continuity);

e) Synchronized requirements;

f) Mandatory application of type 1 frequency continuity;

g) Application of frequency continuity of types 3, 4, 5, to the extent practicable;

h) New method for computation of BBR (second and third bands);

i) Use of a different value of Z for PRP;

j) Definition of appropriate band.

3.2 Aspects that will require modifications of software after the selection of appropriate band

a) Addition of test points;

b) Congestion and transfer rules;

c) Frequency assignment method;

d) Linked requirements;

e) Synchronized requirements;

f) Application of continuity of all types;

g) Calculation of S/I;

h) Software for performance assessment;

i) Linking the two procedures (Improved HFBC Planning System/Improved Article 17).

3.3 Other aspects

a) Operation of a requirement on one or more days in a week;

b) Impact of SSB on GIR, S/I, Frequency assignment (SSB-SSB, SSB-DSB, DSB-SSB).

3.4 Studies (engineering/software/operational)

a) frequency continuity;

b) synchronized requirements;

c) conversion of new antenna patterns into the reference set;

d) optimization of the GIR method;

e) optimization of the frequency assignment;

f) hour by hour processing versus 24 hours processing;

g) change of modules because of memory limitations;

h) further optimization of modules;

i) extremely large number of magnetic tapes, files;

j) linking of all modules, operational optimization of entire system;

k) implementation of the partition of the bands between the planned portions and the coordinated portions.

3.5 Work resulting from consultation process

- requirement to send propagation results to administrations leads to the development of special modules, publication, etc.;
- selection of frequencies by the administration requires separate modules, including a separate data capture module;
- submission of additional requirements or modifications before the publication of the tentative plan/schedule, requires separate modules;
- processing of additions and modifications after the publication of the final plan/schedule, including the selection of frequencies at this stage requires separate modules.

3.6 Design of reports/forms, documentation

- design of new form and corresponding software for data capture and validation system;
- documentation of all modules and particularly development and documentation of a stand alone field strength prediction program incorporating new antennas, E_{min}, BCR, appropriate band.

- design of new output layouts and corresponding software;
- revision of IFRB technical standards (eg: SSB);
- preparation for and participation in information meetings;
- statistical reports.

3.7 Administrative support

- circular-letters;
- correspondence;
- documentation of software;
- information meetings;
- new version of planning system/Article 17 improved;
- publication of output reports/microfiche, etc.;
- [- requirements for the application of the current Article 17?;]
- requirements for tests purposes.

4. SCOPE OF RESOURCE ESTIMATES

The preliminary resource estimates given in the Annex will be reviewed and submitted to the 42nd Session of the Administrative Council. They pertain only to the design, software development, testing of modules and testing of the integrated system with a requirements file, documentation and administrative support and do not reflect any recurrent yearly expenditure associated with the operation of the procedures that may be adopted.

The expenditures associated with office space, supplies and computer support/facilities, as given in Document 209, will need to be revised by the Secretary General, in the light of the estimates contained in the Annex.

The estimates do not include any expenditures associated with information meetings that may be held in Geneva.

5. EFFORT DEPLOYED DURING THE INTERSESSIONAL PERIOD (1984-1987)

In order to design, develop and test the HFBC Planning System during the intersessional period the resources directly involved in the HFBC Team were the following:

5.1 Software development

- 7 persons for a total of 228 m/m (IFRB staff);
- 6 persons for a total of 25 m/m (help provided by administrations);

Subtotal..... 253 m/m

Overtime..... 6 m/m

Total..... 259 m/m

Time..... **21 m/years**

5.2 Administrative support

- data capture ..... 24 m/m
- information meetings.. 4 m/m
- other administrative.. 48 m/m
  support (circular-
  letters, Planning
  System, etc.

  Total..... 76 m/m

3 m/years

ANNEX

PRELIMINARY ESTIMATES ON THE COMBINED
IMPROVED HFBC PLANNING SYSTEM/IMPROVED ARTICLE 17
(based on Documents DT/65, DT/67 and DT/68)
(Minimum Calendar Time of 2 1/2 years)

ITEM	SOFTWARE DEVELOPMENT (m/m)	DOCUMENTATION (m/m)
- Requirements file	10	2 (design of new form)
- Propagation	6	6
- New antenna patterns	3	3
- Usable bands	3	
- Reliabilities	3	
- Appropriate band (Frequency continuity)	9	
- Assessment of congestion and transfer rules	9	
- Frequency assignment (Frequency continuity)	9	
- Modifications and new requirements	9	
- OBR/SI	6	
- Final Plan schedule/ Tentative Plan schedule	6	
- Overall redesign	18	
- Testing (all modules)	12	
- Special problems (Synchronized, linked requirements, multiband antennas)	9	
- Other modules (Statistical reports)	12	
- Administrative support		30
- Other administrative activities (Drafting of reports, publications, presentations at information meetings, circular-letters etc.)		18
- Technical standards		18
- Data capture*)	6	
- Operational resources for the testing and running of the integrated system with the requirements file	30	
SUB TOTALS	**160 m/m 13 m/years**	**77 m/m 7 m/years**
TOTAL	**237 m/m or 20 m/years**	
Computer facilities**		

*) Additional resources if needed will be provided within house resources.

**) To be provided by the Secretary General.

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS
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SECOND SESSION, GENEVA, February-March 1987

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COMMITTEE 3

Note from the Chairman

PRELIMINARY RESOURCE ESTIMATES FOR THE IMMEDIATE POST CONFERENCE WORK TO BE CARRIED OUT BY THE IFRB

I enclose herewith a copy of the letter which I received today from the Chairman of the IFRB on the above subject.

M.K. RAO
Chairman of Committee 3

Enclosure

For reasons of economy, this document is printed in a limited number of copies. Participants are therefore kindly asked to bring their copies to the meeting since no others can be made available.

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Genève, le
Place des Nations

25th February 1987

Dr. M.K. RAO
Chairman, Committee 3
WARC-HFBC(2)

Ref.15(HFBC)/o.0506/87

Dear Dr Rao,

In response to your letter of 9 February 1987 I enclose herewith a document prepared by the IFRB giving the preliminary resource estimates for the immediate post-conference work to be carried out by the IFRB.

I hope the document can be considered at the next meeting of your Committee.

Yours sincerely,

W.H. Bellchambers
Chairman

Prière d'adresser toute correspondance officielle à
Please address all official correspondence to
Toda correspondencia oficial debe dirigirse a

Monsieur le Président de l'I.F.R.B.
The Chairman of the I.F.R.B.
Señor Presidente de la I.F.R.B.
Union internationale des télécommunications
1211 GENEVE 20
Suisse - Switzerland - Suiza

PRELIMINARY RESOURCE ESTIMATES FOR THE IMMEDIATE POST CONFERENCE WORK TO BE CARRIED OUT BY THE IFRB

1. INTRODUCTION

On the basis of the discussions held in various committees as well as on the basis of the "decisions" so far taken by the Conference, the Board has developed three scenarios for which preliminary resource estimates are given in Annexes 1, 2 and 3. An accurate assessment of the decisions of the Conference, can only be made, after a detailed study by the Board, in the post Conference period. The results of such a study will be communicated to the next meeting of the Administrative Council.

2. SCENARIOS

The three scenarios that may be considered are the following:

2.1 Scenario 1: Improved HFBC Planning System only

The assumption is made that only an improved version of the HFBC Planning System will be applied to all or part of the HF bands exclusively allocated to the Broadcasting Service (see Annex 1). Article 17 is not modified even for an interim application.

2.2 Scenario 2: Improved Article 17 Procedure only

The assumption is made that only an improved version of the Article 17 procedure will be applied by incorporating in the existing procedure many of the elements of the HFBC Planning (see Annex 2).

2.3 Scenario 3: Both procedures

Under this scenario it is assumed that both an improved HFBC Planning System as well as an improved Article 17, are applied simultaneously or consecutively (see Annex 3).

3. SCOPE OF RESOURCE ESTIMATES

The resource estimates given in the annexes pertain only to design, software development, testing, documentation and administrative support. They do not reflect any recurrent yearly expenditure associated with the operation of the procedures that may be adopted.

Not included in the estimates, are the expenditures associated with office space and supplies.

Estimates pertaining to the computing facilities and computer department support staff that may be required as a function of the decisions of the Conference, will be provided by the Secretary General.

ANNEX 1

PRELIMINARY ESTIMATES ON MODIFICATIONS
TO THE HFBC SYSTEM

(Minimum Calendar Time of 2 1/2 years)

ITEM	SOFTWARE DEVELOPMENT (m/m)	DOCUMENTATION (m/m)
- Requirements file	10	2 (design of new form)
- Propagation	6	6
- New antenna patterns	3	3
- Usable bands	3	
- Reliabilities	3	
- Appropriate band (Frequency continuity)	9	
- Congestion and rules (Possible introduction of SSB)	9	
- Frequency assignment (Frequency continuity)	9	
- Reinsertions	9	
- OBR/SI	6	
- Final Plan/Tentative Plan	6	
- Overall redesign	18	
- Testing (all modules)	12	
- Special problems (Synchronized, linked requirements, multiband antennas)	9	
- Other modules (Statistical reports)	12	
- Administrative support		30
- Other admnistrative activities (Drafting of reports, publications, presentations at information meetings, circular-letters etc.)		18
- Technical standards		18
- Data capture*)	6	
SUB TOTALS	**130 m/m**	**77 m/m**
TOTAL	**207 m/m or ≈ 17 m/years**	
Computer facilities**		

*) Additional resources if needed will be provided within house resources.

**) To be provided by the Secretary General.

ANNEX 2

PRELIMINARY ESTIMATES ON THE ESTABLISHMENT OF A NEW COORDINATION PROCEDURE

(Minimum Calendar Time of 2 1/2 years)

ITEM	SOFTWARE DEVELOPMENT (m/m)	DOCUMENTATION (m/m)
- File notifications	10	2 (design of new form)
- Propagation	6	6
- New antenna patterns	3	3
- Usable bands	3	
- Reliabilities	3	
- Appropriate band (Frequency continuity)	9	
- Assessment of congestion	9	
- Frequency assignment (Frequency continuity)	9	
- Modifications and new requirements	9	
- OBR/SI	6	
- Final Schedule/Tentative Schedule	6	
- Overall design	18	
- Testing (all modules)	12	
- Special problems (Synchronized, linked requirements, multiband antennas)	9	
- Other modules (Statistical reports)	12	
- Administrative support		30
- Other admnistrative activities (Drafting of reports, publications, presentations at information meetings, circular-letters etc.)		18
- Technical standards		18
- Data capture*)	6	
SUB TOTALS	130 m/m	77 m/m
TOTAL	207 m/m or ≈ 17 m/years	
Computer facilities**)		

*) Additional resources if needed will be provided within house resources.

**) To be provided by the Secretary General.

ANNEX 3

PRELIMINARY ESTIMATES BASED ON THE USE OF BOTH PROCEDURES

(Minimum Calendar Time*)

ITEM	SOFTWARE DEVELOPMENT (m/m)	DOCUMENTATION (m/m)
- Requirements File/ File of Notifications	12	3
- Propagation	6	6
- New antenna patterns	3	3
- Usable bands	3	
- Reliabilities	3	
- Appropriate band (Frequency continuity)	12	
- Assessment of congestion and application of suspension rules	12	
- Frequency assignment (Frequency continuity)	12	
- Treatment of reinsertions and modifications or new requirements	12	
- OBR/SI	6	
- Final, Tentative schedules and plans	9	
- Overall design	30	
- Testing	24	
- Special problems	10	
- Other modules (Statistical reports)	15	
- Administrative support		60
- Other admnistrative activities		30
- Technical standards/ documentation		36
- Data capture	12	
SUB TOTALS	**181 m/m**	**138 m/m**
TOTAL	**319 m/m or ≈ 26 m/years**	
Computer facilities**		

*) Subject to further clarification by the Conference.

**) To be provided by the Secretary General.

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, **February-March 1987**

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COMMITTEE 6

NOTE FROM THE CHAIRMAN OF COMMITTEE 5

TO THE CHAIRMAN OF COMMITTEE 6

The attached annex contains the first series of texts of the planning method and is submitted to Committee 6.

C.T. NDIONGUE
Chairman of Committee 5

Annex: 1

For reasons of economy, this document is printed in a limited number of copies. Participants are therefore kindly asked to bring their copies to the meeting since no others can be made available.

ANNEX

Planning method

4.2.3.1 Step 1 - Requirements file

1. For the purposes of this Article, a file of the HF broadcasting requirements expected to be operational during the corresponding seasons shall be established. Each requirement listed in the file shall give the characteristics listed in Appendix 2 and indicate the seasons in which the requirement will be used.

2. For the purposes of the HFBC Planning System [Article 17], a requirement shall be defined as follows:

"A requirement indicated by an administration to provide a broadcasting service at specified periods of time to a specified reception area from a particular transmitting station".

[3. Pursuant to Resolution [COM5/1], the Board shall take the necessary steps to establish the requirements file so that it can be used for the first seasonal [plans or schedules]. It shall be limited to the [first 4 seasons] after the entry into force of the Final Acts.]

4. Any administration may notify the Board of any additions, modifications or deletions it wishes to make in its requirements in the Requirements File. Information specific to a particular season as indicated in Appendix 2 must reach the Board not more than [18] months nor less than [12] months[1] before the beginning of the season in question.

However, modifications to this requirements file received up to nine months before the date of the season concerned shall be taken into account provided that they are considered by the Board to be complete.

5. The Board shall verify that the information provided is complete and, in consultation with the administration concerned, shall make any necessary corrections. If, by the date for the start of processing of the requirements for a particular season, the information for a requirement is still incomplete despite the action taken by the Board and the administration, it shall be left out of account for the season in question.

6. The Board shall examine the requirements thus expressed without necessarily applying the HFBC Planning System in detail. This examination will serve where possible to identify obvious incompatibilities such as cases of two transmissions with the same preset frequency serving the same area.

7. The Board shall keep in the file for 5 years the history of the use of each requirement. No priority shall be derived from this history which is made mainly to keep a record of requirements confirmed but not used.

---

[1] [The period may vary depending on whether the information is to be used for the HFBC Planning System or for Article 17.]

8. Guidelines concerning information on unauthorized transmissions:

- the Planning System shall provide no protection to unauthorized transmissions;

- the IFRB will avoid choosing such frequencies when requested by administrations to propose frequencies.

Guidelines concerning information on requirements confirmed but not used:

- the IFRB will consult the administrations concerned to enquire on the necessity to keep these requirements in the file.

Note 1 to Committee 6

The processing of urgent additions or modifications notified to the IFRB after the dates given in [5] shall be considered under the HFBC Planning System procedures.

4.2.3.2 Step 2 - Broadcast requirements for the season under consideration

[One year] before the beginning of the [season] to be processed the Board shall advise the administrations of the solar index for the [season] to be processed and request them to confirm, by [9] months before the beginning of the [season] at the latest, the requirements which are to be used during that [season].

These confirmed requirements shall be used in drawing up the seasonal [plans] [schedules] without any priority being conferred by the date of revision of the requirements file.

Note 2 to Committee 6

This text was adopted with the understanding that Committee 6 will revise it in the spirit of Provision 1749 of the Radio Regulations.

4.2.3.3 Step 3 - Propagation analysis and selection of the appropriate frequency band

1. The planning method will calculate for each requirement, for the season and for the different times, the appropriate frequency band. The appropriate band for a requirement is the band which will ensure the continuity of use of the same frequency during the longest possible period of operation, with the best possible values of BBR, taking account of propagation conditions, operational limitations and equipment availability and limitations.

2. If, at any time, the required basic broadcast reliability cannot be achieved with a single frequency band, a second frequency band shall be selected as long as the administration has indicated its ability to operate in two frequency bands simultaneously. A third frequency could be selected under the same conditions if the required BBR cannot be achieved with two frequencies.

4.2.3.4 Step 4 - Rules to be applied to broadcasting requirements in a given run

4.2.3.4.1 Optimization

The system must be optimized to ensure the maximum possible utilization of all available channels.

4.2.3.4.2 Preferred frequency

In accordance with the planning principles and without imposing constraints on planning, the following provisions shall be applied in the seasonal plans:

1) administrations may indicate the preferred frequency;

2) during the planning process, attempts shall be made to include the preferred frequency in the plan;

3) if this is impossible, attempts shall be made to select a frequency in the same band.

Otherwise, the automated system shall be used to select the appropriate frequencies in such a way as to accommodate the maximum number of requirements, taking into account the constraints imposed by the technical characteristics of the equipment.

4.2.3.4.3 Equipment constraints

The system shall take into account the technical constraints imposed by the equipment, namely:

4.2.3.4.3.1 Frequency

a) When an administration indicates that its facilities can operate only on a limited number of fixed specified frequencies, the process in steps 5, 6 and 7 shall be applied to one of these frequencies; should the final step result in an incompatibility, the adjustment process (step 10) shall try another of these frequencies. The plan shall contain that frequency among this limited number of frequencies which has the least degree of incompatibility.

b) If two such broadcasting requirements indicate the same frequency which, after analysis, results in an incompatibility, the case is referred to the administration(s) concerned.

4.2.3.4.3.2 Frequency band

a) When an administration indicates that its facilities can operate only in a given frequency band, only frequencies from that band shall be included in the plan.

b) When an administration indicates a preferred frequency band, the system shall attempt to select a frequency from this band. If this is impossible, frequencies from the nearest appropriate band shall be tried. Otherwise the system will select frequencies from the appropriate band, taking into account the equipment constraints referred to in paragraph 4.2.3.4.3.1.

4.2.3.4.3.3 Power

a) When an administration indicates only a single power value due to equipment constraints, it shall be used in the planning process.

b) When an administration indicates several possible power values, the appropriate value shall be used to achieve the basic circuit reliability, and a single power value shall be determined for the duration of the emission.

4.2.3.4.3.4 Antenna

When an administration indicates that its antenna can operate only in a given frequency band, only frequencies from that band shall be included in the plan.

4.2.3.4.4 Limitation of frequency change within the HFBC Planning System

1. Introduction

Continuity in the use of a frequency is an important matter for both the broadcaster and the listener, it is a characteristic inherent in the broadcasting of a programme. In addition, limitations imposed by the technical characteristics of the means of transmission available to some administrations will impose mandatory requirements for frequency continuity. The desirable aim is that changes in frequency should be limited to those necessitated by changes in propagation conditions. The rules for applying frequency continuity are given in paragraph 4 below.

2. Definitions

2.1 Intra-seasonal

2.1.1 Type 1 continuity

Continuity of use of the same frequency within an hour or from one hour to another consecutive hour within a requirement.

2.1.2 Type 2 continuity

Continuity of use of the same frequency in the same season when passing from one requirement to another or one time block to another.

2.2 Inter-seasonal

2.2.1 Type 3 continuity

Continuity of use of the same frequency by the same requirement in two consecutive seasons.

2.2.2 Type 4 continuity

Continuity of use of the same frequency by the same requirement in two consecutive equinox seasons.

2.2.3 Type 5 continuity

Continuity of use of the same frequency by the same requirement in the same season of two consecutive years.

3. Relationship between frequency continuity and appropriate band(s)

3.1 For the case where a single frequency is sufficient to provide BBR equal to or greater than the agreed reference value, the appropriate band is to be established by the HFBC Planning System by taking account, amongst other things, of the rules set out in section 4 regarding the maintenance of the maximum frequency continuity within the limits of the agreed reference value for BBR 80%.

However, an administration may choose extended frequency continuity at the expense of BBR and shall indicate the lower value of BBR to be used in this event. As, in this portion of the requirement, the BBR falls below the above-mentioned reference value the second and/or third frequencies are afforded only when the application of frequency continuity would not result in a number of additional frequencies greater than would be necessary with operation in the appropriate bands.

3.2 In the case where BBR obtainable by use of a single frequency is less than 80% continuity of use of the first frequency or the single operating frequency will be provided within the lower limits of BBR indicated by the administration.

When the administration indicates that it has the capability to operate on more than one frequency the use of this lower value of BBR shall not lead to the use of a third frequency.

3.3 When the requirement under consideration is eligible to use a second or third frequency according to the procedures established in section 3.8.2 of the Report of the First Session, frequency continuity shall also be applied to the second (and third) frequency in the same manner as for the first frequency.

3.4 When the type 2 continuity is requested (from one requirement to another), the HFBC Planning System shall identify the appropriate band separately for each of the requirements concerned. The frequency assigned to the first of these requirements, shall be assigned to another related requirement if it is in its appropriate band.

4. Application of continuity

4.1 Type 1 continuity shall be applied automatically to all requirements under the conditions set out in section 3 above.

4.2 At the request of an administration, type 2 continuity shall be applied when this corresponds to equipment constraints. However, in other cases, type 2 continuity could be applied to the extent possible. Paragraph 3.4 above applies to type 2 continuity.

4.3 Continuity of types 3, 4 and 5 shall be applied to the extent possible when requested by the administration.

4.2.3.4.5 Rules for dealing with incompatable requirements

(To be included in the second report of Working Group 5-A.)

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

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COMMITTEE 5

Republic of Côte d'Ivoire

PROPOSAL FOR FUTURE WORK

Having followed with interest the discussions that have taken place since the Conference opened and endorsed the compromise solution for a) improving Article 17 so that it can be applicable over a transitional period yet to be determined and, b), improving the HFBC System developed by the IFRB to allow, insofar as possible, for the principles adopted at the First Session, the Delegation of Côte d'Ivoire has taken cognizance of Document 182 and considers that the System described therein could be improved to guarantee to each administration that at least one of its requirements can be met at the quality of reception value [17 dB] adopted by the Conference. It therefore proposes the following system:

CTI/193/1.

step 1 [The same as in Document 182.]

step 2 [The same as in Document 182.]

step 3 [The same as in Document 182.]

step 4 [The same as in Document 182.]

step 5 [The same as in Document 182.]

step 6 [The same as in Document 182.]

step 7 [The same as in Document 182.] Incompatible requirements to be kept in an incompatible requirements file.

step 8: The IFRB would consult administrations whose requirements are still incompatible following the application of Rules N1-N4 and request them to reconsider their requirements for a possible:

- suppression, or
- reduction of the period of transmission, or
- reduction of their power, or
- reduction of their service area, or
- any other modification that would not cause a drastic change in the configuration of the present system, or result in the suspension of any requirement included in the "file of resolved requirements" or result in any of these requirements being adversely affected.

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step 9: Following the consultation process described in step 7, which should last not more than 45 days, all incompatible requirements whether - modified or not - would be reintroduced into the System for review of the congestion. If the congestion persists, step 10 would be applied.

step 10: In this step, requirements that have by then been resolved would be sorted to reveal the number of requirements resolved per administration and administrations would be classified according to the number of requirements resolved. Step 11 would then be applied.

step 11: A Rule N5 would be applied in this step; it consists of checking whether one of the requirements of the administration having the smallest number of requirements resolved is included in the file of incompatible requirements: if it is, requirements that are incompatible with it would be provisionally suspended; if it is not, the case of the administration having the next smallest number of requirements resolved would be considered, and so forth until the congestion is resolved.

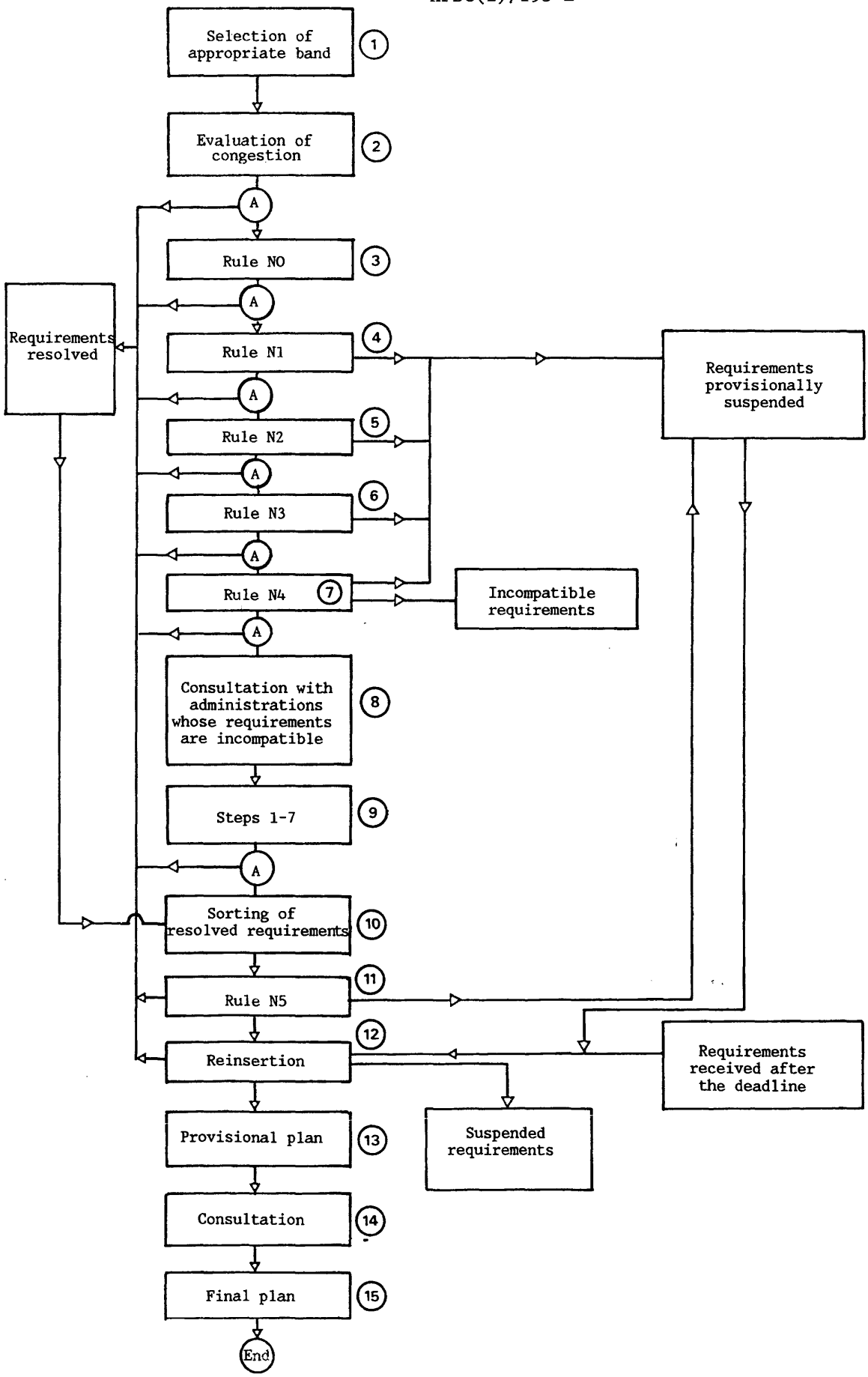
step 12: In this step an attempt would be made to reinsert the requirements provisionally suspended in the preceding steps and those received after the deadline, without unfavourably affecting the requirements already resolved. A provisional plan would then be established in the next step.

step 13: Establishment of a provisional plan following the reinsertion process (step 12).

step 14: [The same as step 18 in Document 182.]

step 15: Preparation of the final plan.

A flowchart of the different steps described above is annexed hereto.


Selection of appropriate band
1
Evaluation of congestion
2
A
Rule NO
3
A
Requirements resolved
Rule N1
4
Requirements provisionally suspended
A
Rule N2
5
A
Rule N3
6
A
Rule N4
7
Incompatible requirements
A
Consultation with administrations whose requirements are incompatible
8
Steps 1-7
9
A
Sorting of resolved requirements
10
Rule N5
11
Reinsertion
12
Requirements received after the deadline
Suspended requirements
Provisional plan
13
Consultation
14
Final plan
15
End

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 194-E
26 February 1987
Original : English
French
Spanish

Origin : Documents 171(Rev.1), 172(Rev.1), 179, 180

COMMITTEE 7

THIRD SERIES OF TEXTS FROM COMMITTEE 6 TO THE EDITORIAL COMMITTEE

The texts mentioned in Documents 171(Rev.1), 172(Rev.1), 179 and 180, slightly amended, are submitted to the Editorial Committee.

R. BLOIS
Chairman of Committee 6

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HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, **February-March 1987**

Corrigendum 1 to
Document 195-E
30 April 1987
Original: English

COMMITTEE 3

SUMMARY RECORD

OF THE

THIRD MEETING OF COMMITTEE 3

(BUDGET CONTROL)

Paragraph 5.1.4

Insert the word "direct" before "cost" in the second line.

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HFBC (2) INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 195-E
3 March 1987
Original: English

COMMITTEE 3

SUMMARY RECORD

OF THE

THIRD MEETING OF COMMITTEE 3

(BUDGET CONTROL)

Thursday, 26 February 1987, at 0900 hrs

Chairman: Dr. M.K. RAO (India)

Subjects discussed:		Documents
1.	Adoption of the agenda	-
2.	Approval of the summary record of the second meeting of Committee 3	140
3.	Position of the Conference accounts at 23 February 1987	185
4.	Draft report of Committee 3 to the Plenary	DT/63
5.	Other business:	
5.1	Financial implications of decisions taken by the Conference	191
5.2	Future meeting of Committee 3	-

For reasons of economy, this document is printed in a limited number of copies. Participants are therefore kindly asked to bring their copies to the meeting since no others can be made available.

1. Adoption of the agenda

1.1 The delegate of the United States of America having asked whether Document 191 (Preliminary resource estimates for the immediate post-conference work to be carried out by the IFRB) was to be added to the agenda of the meeting, the delegate of Algeria said that he objected to that suggestion, since the document had only just been distributed and delegations would require time to examine it closely and discuss its contents with the IFRB. That objection was endorsed by the delegate of Libya.

1.2 The delegate of the United States of America said that, without taking a final decision, it might be useful at the present stage for delegates to be given an opportunity to put questions to the IFRB. the delegate of the United Kingdom also thought that was a good solution, since his Delegation would wish to study the document in depth.

1.3 The delegate of Algeria said that although he could not agree to add the document to the official agenda, it might be presented under "Other business".

1.4 The Chairman suggested that the document be introduced, giving participants an opportunity to ask for clarifications. It would not however be open to discussion until the following meeting of the Committee.

1.5 That proposal was supported by the delegates of India and Japan.

It was so agreed.

2. Approval of the summary record of the second meeting of Committee 3 (Document 140)

2.1 The delegate of the United Kingdom said that, without wishing to amend the text of the summary record, he would like to record that in the course of the Committee's second meeting he had drawn particular attention to that part of Resolution No. 48 relating to the duty of the Conference to arrange all of its decisions with cost implications in an order of priority.

The summary record of the second meeting was approved, as amended (see Corrigendum 1 to Document 140).

3. Position of the Conference accounts at 23 February 1987 (Document 185)

3.1 The delegate of the United Kingdom asked, in view of the possibility of extending the Conference until Saturday, 7 March, at which point in time the credits would be exhausted.

3.2 The Deputy Secretary-General said that the figures had been calculated based on a finishing date of Friday, 6 March: no estimate of the cost of extending the Conference for one or even two days could be provided for the moment but the Chief of the Finance Department would produce updated estimates during the coming weekend.

The Committee took note of Document 185.

4. Draft report of Committee 3 to the Plenary (Document DT/63)

4.1 The Chairman introduced the draft in Document DT/63 saying that the report would be updated the following week to take account of all the inputs available at that time: editorial amendments would be dealt with by the Secretariat.

4.2 The delegate of the United Kingdom, referring to paragraph 1, felt that the phrase "expressed the view that the organization and the arrangements ... were entirely satisfactory" should be strengthened to reflect the fact that, as was customary at ITU conferences, the organizational aspects of the Conference were first-rate.

Referring to paragraph 7, on additional expenditure for implementation of the Conference's decisions, he took it that those decisions would have to be divided into two groups: those regarded as immediate post-conference expenditure (thus coming within the limit set in Additional Protocol I - of which he understood there remained a sum of 879,400 Swiss francs) and the others, regarded as ongoing costs. It was with regard to the latter that the question of priorities arose.

It was obvious that several of the decisions towards which the Conference seemed to be proceeding would have enormous cost implications and the Conference could not assume that the Administrative Council or the Plenipotentiary Conference would approve the funds for all, or even any, of them. He assured the Administrative Council would sift them out, which made it very important to have a list of priorities established by the present Conference.

Another problem was that of the "package" that was being discussed. If all its elements were regarded as indivisible, then no priorities were required because there would be a total sum which the Administrative Council would accept or not, on cost grounds. But if there were any doubts about such a package, then it was time to verify the intention of the Conference in the Steering Committee.

4.3 The Deputy Secretary-General referred to the final paragraph of the draft report which mentioned certain decisions to be taken by the Second Session. At the moment, however, in the very unusual circumstances in which the Conference found itself, it was difficult to know exactly what would be regarded as post-conference work in the strict sense of the term. However, it was clearly the Conference itself which determined priorities.

4.4 The delegate of the United States of America drew attention to paragraph 7.1.3 which referred to a "summary of the significance and benefit to the Union of financing the implementation of the Conference decisions" and asked in which body such a summary would be prepared.

4.5 The delegate of Canada said that the Conference must be mindful of the fact that the Plenipotentiary Conference was the forum at which the matter would be ultimately decided. Committee 3 would receive a recommendation from Committee 5 with respect to the holding of a future WARC to pursue the matter, so the report from Committee 3 would form part of a larger ongoing series of events concerning the HF broadcasting service. The Committee therefore, when producing its texts, should bear in mind that the next major decision would be taken by the Plenipotentiary Conference in 1989.

4.6 The delegate of the United Kingdom agreed with the previous speaker. If the present Conference was the last of its series, then work on software development, for instance, would come under the heading of post-conference expenditure (as part of the application and running of the system), but if it were to be associated with a subsequent conference, then it would come under Additional Protocol I for that later conference, which would not be decided until 1989. Some way of separating out the two must be found so that they could be presented appropriately in the Committee's report to the Plenary, but he

admitted that it was difficult to do so until the Conference had moved a step forward towards a conclusion.

4.7 The delegate of the United States of America observed that the 1987 session of the Administrative Council would be faced with some immediate post-conference costs which exceeded the ceiling in Additional Protocol I and possibly with the necessity of consulting administrations.

4.8 The delegate of Algeria said it was clear that both priorities and the question of the possible significance of implementation of the decisions were matters to be addressed to the Plenary Meeting so that all delegations could express their views. He stressed that the idea of priority had much wider connotations than merely the financial aspect. He was optimistic that the Conference would reach a conclusion which did not leave the Administrative Council in difficulties. The fact that the Plenipotentiary Conference was scheduled to be held in 1989 should not prevent the Administrative Council or the present Conference from consulting all administrations.

The Committee took note of the above comments and approved the report, as amended in paragraph 1.

5. Other business

5.1 Financial implications of decisions taken by the Conference (Document 191)

5.1.1 In accordance with the decision taken at the beginning of the meeting, the Chairman drew attention to Document 191 which would be introduced for information only, unless delegates wished to put specific questions to the IFRB.

5.1.2 The Chairman of the IFRB said that the document had been prepared in response to the request addressed by the Chairman of Committee 3 to the Chairmen of Committees and to organs of the ITU, and in particular the IFRB. He emphasized that the estimates were only very preliminary ones based on decisions taken up to about 23 February, since when others had been adopted which would also have some impact. He further stressed that the estimates related solely to immediate post-conference work which would be borne by the budget of the present Conference. No estimates for either office space or computer facilities had been included.

The figures were based on the assumption that the Second Session would conclude with Final Acts and the Board had not considered any possible situation in which such Final Acts were not produced.

As set out in the document, three scenarios had been envisaged: application of an improved planning system only; application of an improved Article 17 procedure; and some combination of the two in the form of a package deal. It would be seen that the resources for the first two scenarios were roughly the same but that the third was less than the sum of the other two. The staff costs in the document were based on maintaining the HFBC team at present engaged until the end of June 1987; the cost would be much higher if new staff had to be recruited and trained.

5.1.3 The Deputy Secretary-General also stressed the other costs which were not yet included in the document. He hoped that as it was, the document would assist the Committee and the Conference in general in their reflections on the consequences of the decisions being taken.

5.1.4 In reply to the delegate of the United Kingdom, the Secretary of the Committee explained that the cost of one man/year for a P.4 official (column 1) was roughly 120,000 Swiss francs and for a General Service category official (column 2), roughly 66,000 Swiss francs.

5.1.5 The delegate of the United States of America said he appreciated that it had not been possible to produce anything other than very approximate estimates and that decisions with financial implications were still being taken. He asked whether he could take it that computer and office costs (not included in Document 191) would be the only categories of expenditure which would be added between the end of the Second Session and the 1987 session of the Administrative Council.

5.1.6 The Chairman of the IFRB said it was impossible at the present stage to say that there would be no other costs since other matters which would be charged to the Conference budget were still being discussed, such as informal or information meetings, the setting up of a Group of Experts, etc. Correspondence alone would represent a considerable cost increase.

5.1.7 The delegate of Japan quoted No. 627 of the Nairobi Convention which stipulated that proposals with financial implications should not result in expenses beyond the credits which the Administrative Council was empowered to authorize. Even though the Plenipotentiary Conference in 1989 would take a final decision, it was a fact that the budgets for 1988 and 1989 would be adopted at the Administrative Council sessions in 1987 and 1988 respectively. He would therefore appreciate it if the General Secretariat and the IFRB could prepare a document explaining the relationship between Additional Protocol I and the estimated costs for 1988 and 1989.

5.1.8 The Deputy Secretary-General said that Annex 3 of Document DT/63 provided a reply to these points. He doubted whether at the present stage any further detail could be provided.

5.1.9 The delegate of the United States of America supported the request made by the delegate of Japan since it would be most helpful to the Conference to receive an information document setting out the expenditure which would exceed the Additional Protocol I limits. At the moment it appeared as if those limits might be exceeded by several million Swiss francs.

5.1.10 The Chairman asked the Secretariat to prepare such an information document for the next meeting of the Committee.

5.2 Future meeting of Committee 3

5.2.1 The Chairman, acting on suggestions by the Chairman of the IFRB and the Deputy Secretary-General, said that he would try to arrange the following meeting of the Committee for Monday, 2 March, for an entire three-hour session, followed, if necessary, by a fifth meeting later in the week.

The meeting rose at 1015 hours.

The Secretary: The Chairman:

R. PRELAZ M.K. RAO

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS
ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 196-E
2 March 1987
Original: English

COMMITTEE 5

SUMMARY RECORD

OF THE

EIGHTH MEETING OF COMMITTEE 5

(PLANNING METHOD AND ASSOCIATED PROCEDURE)

Wednesday, 25 February 1987, at 1730 hrs

Chairman: Mr. C.T. NDIONGUE (Senegal)

Subjects discussed:	Documents
1. First report of Working Group 5-A (continued)	157 + Corr.1, 128, 134
2. Second report of Working Group 5-A	182

For reasons of economy, this document is printed in a limited number of copies. Participants are therefore kindly asked to bring their copies to the meeting since no others can be made available.

1. First report of Working Group 5-A (continued) (Documents 157 and Corr.1, 128 and 134)

1.1 The delegate of Syria proposed that the second paragraph of 4.2.3.4.4.3.2 end after "... third frequency". The delegates of Algeria and Iraq supported that proposal and it was so agreed.

Paragraphs 4.1 and 4.2

1.2 After several delegations had expressed a preference for one or the other of the two variants of paragraph 4.2, the Chairman said that the wording problem might be resolved if the Committee could determine what was intended by "constraints" and whether any constraints other than those of equipment were to be included. The delegate of Algeria pointed out that the first sentence of the first variant left the door open for requests for type 2 continuity whereas the second variant specified that type 2 continuity would be applied to the extent possible.

1.3 The Chairman proposed a new version of 4.2 as follows:

"At the request of an administration, type 2 continuity shall be applied when this corresponds to equipment constraints. However, in other cases, type 2 continuity should be applied to the extent possible."

and the Chairman of the IFRB proposed to add a further sentence reading: "Paragraph 3.4 above applies to type 2 continuity", and as a consequence to delete the first sentence of section 4 and add "under the conditions set out in section 3 above" at the end of paragraph 4.1.

It was so agreed.

Paragraph 4.3

1.4 The delegate of Papua New Guinea, referring to the special requirements of national systems for continuity of types 3, 4 and 5, suggested that the words "to the extent possible" should be removed or at least placed in square brackets but after the delegates of Iraq and Pakistan said that the national/international situation might be better evoked elsewhere he withdrew his proposal.

Draft Resolution [COM5/1]

1.5 The representative of the IFRB (Mr. Berrada), referring to the title and specifically to the words in square brackets, said that "Schedule" would restrict the Resolution to Article 17, whereas "Plan" would restrict it to the HFBC System. He suggested therefore that the square brackets should remain for the time being.

considering a)

1.6 The representative of the IFRB (Mr. Berrada), observing that the paragraph referred only to the planning method, suggested that a better balance might be obtained by amending the text to "... planning method and modified Article 17, both using a requirements file.". The delegates of the Côte d'Ivoire and Italy said that their understanding was that improved Article 17 should be used only during an interim period. The Chairman suggested that the words might be placed in square brackets for the time being.

It was so agreed.

resolves 1

1.7 The delegate of Austria pointed out that in the second line the word "date" should read "start". The representative of the IFRB (Mr. Berrada) suggested that "two years" should remain in square brackets until the time period for the seasonal schedule had been established.

resolves 3

1.8 The delegate of Austria said that to bring the text into line with what had been agreed for paragraph 4.2.3.1.7, resolves 3 should be amended to read: "... obvious incompatibilities such as cases of two transmissions with the same preset frequency serving the same area.".

It was so agreed.

resolves 5

1.9 The Chairman observed that the periods "one year" and "nine months" should remain in square brackets for the same reasons as those given for resolves 1.

2. Second report of Working Group 5-A (Document 182)

2.1 The Chairman of Working Group 5-A, introducing the report, pointed out that several amendments had been made on the basis of discussions on the text prepared by Sub-Group 5-A-4. In particular, Flowchart A had been amended to give administrations the option of consultation before the requirement passed on to the file of resolved requirements. The appropriate changes had also been made in the text of Annex 1. He drew attention also to Annex 3 which contained an attempt to identify the differences between national and international requirements and Annex 4 containing the question raised by Syria relating to definition of the basic service area to be used when applying the Rules N, N2 and N3. Other changes concerned only the form, not the substance.

Annex 1

Introductory paragraph

2.2 The delegate of Singapore considered that use of a quadrant of a CIRAF Zone as the unit of service was a disadvantage to national broadcasters and therefore suggested that the entire text placed in square brackets should be deleted. It was his understanding that in the original incompatibility study the unit used was one whole CIRAF Zone. The representative of the IFRB (Mr. Berrada) said that the study and the software developed were based on a quadrant.

2.3 The delegate of Brazil pointed out that if an entire CIRAF Zone were used as a unit of service area, much more harm would be caused to national services than if just a quadrant were used. Moreover, he could see that if the service area were smaller than a quadrant, the Board would have difficulty in using, say, a sector, which would vary from service area to service area. He therefore proposed deletion of the square brackets.

It was so agreed and it was also agreed, at the suggestion of the Syrian delegate to insert the words "of a CIRAF Zone" after "quadrant".

Step 3

2.4 The representative of the IFRB (Mr. Berrada) drew attention to Document 180 and pointed out that if the figure of 17 dB were not included in the Regulations it would be necessary to find a formula for it. He therefore suggested that it be retained until a solution to the matter were found.

2.5 The delegate of Algeria thought that the figure 17 dB should not be included in the Technical Standards but used as a planning figure.

2.6 The Chairman drew attention to paragraph 1.1 of the annex to draft Recommendation [COM6/C] which stated that the co-channel protection ratio for unsynchronized transmissions was to be developed by Committee 5. In that light, it was for the Committee to decide whether to retain the figure in Document 182.

2.7 The delegate of Brazil had no objection to retaining the figure 17 dB but understood that it might be wiser to make a reference to, say, grade 3 in the quality. The delegate of Austria had some doubts as to the validity of saying that 17 dB related to quality 3 so was against the adoption of any such wording.

2.8 The Chairman suggested that the matter be left in abeyance pending discussions in Committee 6: if the value were changed, the terms to use could then be considered.

It was so agreed.

Step 8

2.9 The delegate of Austria wondered why the word "total" (present in Document DT/51) had been deleted from the first line of the text; the Chairman of Committee 5 said that it was not clear what the word had been intended to convey.

2.10 The delegate of Brazil replying to the delegate of Côte d'Ivoire said that Step 8 merely verified the resulting ratio and gave the impression that protection ratios would continue to be lowered until requirements were met. The representative of the IFRB (Mr. Berrada) added that it was necessary to move by steps to determine the lowest protection ratio needed to resolve congestion. Once that ratio was known, the pattern could be established for laying down frequencies. He advocated retention of Step 8 as set out in the document.

2.11 The delegate of Côte d'Ivoire said those explanations seemed to imply that frequencies would be assigned even where there was congestion. He had wanted to include the figure of 17 dB so that all countries could operate without interference. He proposed that the Step be deleted.

2.12 That proposal was seconded by the delegates of Burkina Faso and Rwanda.

However, in the light of several objections, it was agreed to retain the text as it stood.

2.13 The delegate of the Côte d'Ivoire considered, in the interests of simple equity, that the Conference ought to decide that each administration should have at least one resolved requirement with the agreed protection ratio (at present provisionally 17 dB). Steps to ensure that should be taken before examination of the file of suspended requirements (Step 10), at the consultation stage foreseen between Steps 8 and 9, which to that end should follow a

consultation procedure similar to that in Step 12, taking into account both the file of resolved requirements (Step 9) and the requirements with a protection ratio less than 17 dB (Step 8). The consultation procedure at present between Steps 8 and 9 appeared to serve solely as a channel for automatic entry of requirements with a protection ratio less than 17 dB into the resolved requirements file, regardless of whether the administrations concerned had been consulted or not and regardless of whether such administrations had any requirements at all with a protection ratio of at least 17 dB.

2.14 The delegate of Brazil, while agreeing with the point made by the previous speaker, said it was perhaps impossible at the present late stage of the Conference to rework the results of what had been a long and arduous discussion. Some of the Côte d'Ivoire's concerns could perhaps be met by allowing requirements with a protection ratio less than 17 dB to be entered on the file of requirements to be reviewed (Step 11), should administrations so wish after the consultation procedure between Steps 8 and 9.

2.15 In the light of that comment, the Chairman proposed that the words "before their entry in this file" at the end of Step 9 be replaced by "before their entry in the file of resolved requirements or the file of requirements to be reviewed".

2.16 The representative of the IFRB (Mr. Berrada) recalled that the original intention had been for the output from Step 8 to be automatically entered in the file of resolved requirements (Step 9). Some administrations had then expressed a wish for consultation at that stage. However, unless the administration concerned decided during that consultation to suppress the requirements concerned or to modify them so that they could enter the file of resolved requirements at an earlier stage, such requirements would still automatically be entered in Step 9. The whole process for resolving incompatibilities was a complex one and he did not advise making it possible, following consultation with administrations, to route requirements directly from Step 8 to Step 11. Requirements following that route might not gain reinsertion to the file of resolved requirements (Step 13) because they were then incompatible with equivalent requirements that had passed directly from Step 8 to Step 9.

2.17 The delegate of the Côte d'Ivoire said that if it was not possible to consider his proposal at the present time, he reserved the right to return to it at a later meeting.

2.18 The delegate of Algeria said that the point made by the Côte d'Ivoire, with whose views he sympathized, indicated an important flaw in the whole process for dealing with incompatibilities.

Step 13

It was agreed to remove the square brackets and align the English text with the French ("function" to be replaced by "duration" in the second line).

Step 15

2.19 The delegate of the USSR said that the procedure set out in Step 12 would ensure that there were no requirements that could not be reinserted. He therefore proposed that the last sentence of the first paragraph in Step 15 be deleted.

2.20 The representative of the IFRB (Mr. Berrada) drew attention to the fact that requirements on which none of the five actions provided in Step 12 was taken could not be reinserted. Acceptance of the USSR proposal would therefore leave the Board with no instructions as to what to do with such requirements.

2.21 In the light of the IFRB's explanation, the delegates of Syria, Pakistan, Brazil, Iraq, and the Islamic Republic of Iran opposed the USSR proposal. The delegate of Syria considered that frequencies that could not be reinserted should be suspended, while the delegates of Pakistan and Brazil expressed the view that requirements that could not be reinserted should be subjected to the provisions of Article 17. The delegate of Brazil further added that if mandatory suspension was made a provision of both the HFBC Planning System and Article 17 it would destroy any possibility of compromise. Such a provision should belong to Article 17 only.

2.22 In the light of those objections, the delegate of the USSR withdrew his proposal.

Step 16

It was agreed to remove the square brackets.

Step 17

2.23 The delegate of the United States said that in the light of the discussion that had taken place on Step 15, the fate of the file of requirements that could not be inserted would have to be made quite clear before Step 17 could be adopted. The Chairman said the earlier discussion indicated a trend of opinion for making such requirements subject to the provisions of Article 17. The delegate of the United States said he could accept that provided that the whole procedure for resolving incompatibilities (Annex 1 of Document 182) was reviewed in the context of an improved, tested and approved package comprising a Planning System and an improved Article 17.

2.24 The delegate of Algeria, noting the demands made by certain delegations on a number of occasions for an improved Planning System, said he reserved the right to comment on such statements in Plenary.

The meeting rose at 2030 hours.

The Secretary: The Chairman:

M. GIROUX C.T. NDIONGUE

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Corrigendum 1 to
Document 197-E
30 April 1987
Original: French

COMMITTEE 5

SUMMARY RECORD

OF THE

NINTH MEETING OF COMMITTEE 5

(PLANNING METHOD AND ASSOCIATED PROCEDURES)

Paragraph 3.10

Replace by the following:

"The delegate of Algeria said he could support that idea, provided that such a text and the one under discussion were connected with each other and considered together."

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HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS
ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 197-E
5 March 1987
Original: English

COMMITTEE 5

SUMMARY RECORD

OF THE

NINTH MEETING OF COMMITTEE 5

(PLANNING METHOD AND ASSOCIATED PROCEDURE)

Thursday, 26 February 1987, at 0905 hrs and at 1410 hrs

Chairman: Mr. C.T. NDIONGUE (Senegal)

Subjects discussed:		Documents
1.	Second report of Working Group 5-A	182, 134
2.	Third and last report of Working Group 5-A	189
3.	Report of Working Group 5-D	188
4.	Oral report by the Chairman of Working Group 5-D	
5.	Consideration of the procedure (strategy and programme) for future work up to the introduction of the Plans	DT/59, DT/41, 133

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1. Second report of Working Group 5-A (continued) (Documents 182 and 134)

Document 182

Step 17 (continued)

1.1 The Chairman asked the delegate of the United States whether he maintained his reservation to step 17.

1.2 The delegate of the United States said that his Delegation's reservation to that text remained valid.

Step 17, with the square brackets removed, was approved subject to that reservation.

Step 18

Approved.

Note

1.3 The delegate of Côte d'Ivoire asked at what point in the system differentiation would be made between national and international requirements. The delegate of Brazil observed that that point might be covered by item 15, Nature of requirement (national or international), in Annex 1 to Document 189.

1.4 The delegate of the USSR, supported by the delegates of Switzerland and Bulgaria, proposed that the note should be deleted.

1.5 The delegate of Tanzania, supported by the delegates of Zimbabwe, Pakistan and Colombia, proposed that the square brackets around the note should be removed.

1.6 The delegate of Algeria, supported by the delegates of Iraq, Senegal and Kenya, proposed that the note should be kept in square brackets.

It was so agreed.

1.7 The delegate of Belgium proposed that the text of proposal 2 in Document 134, with the deletion of the word "equal", should be added as a second note. The delegate of Switzerland supported that proposal.

1.8 The delegate of Iraq considered that the word "equal" should remain in the text.

It was agreed to add the note proposed by Belgium in square brackets and to place square brackets around the word "equal".

Flowcharts A and B

Approved with editorial amendments to flowchart B.

1.9 The delegate of the United Kingdom, observing that the wording of the annexes to Document 182 resembled that of an information document rather than the formal language used in the Radio Regulations, asked in what form the material would ultimately appear. In particular, he wished to know how Annex 1, which referred to Document 8 with respect to such matters as the GIR concept and the suspension rules, would be incorporated in the Final Acts.

1.10 The delegate of the USSR associated himself with those questions, the replies to which would determine his Delegation's attitude to certain controversial points in Annex 3.

1.11 The representative of the IFRB (Mr. Berrada) said that the Board had analyzed Documents 157 and 182 to see what parts of the texts should appear in the Radio Regulations and in what form, on the principle that the number of provisions to be inserted in the Regulations should be limited to the necessary minimum, in order to facilitate their application. It was thus suggested to insert about a dozen fundamental provisions on HFBC planning in the new Article 17 and to place all the detailed provisions relating to planning in a single appendix. The contents of Annex 1 to Document 182 would be condensed into a limited number of provisions of that appendix, giving a definition of GIR and four or five paragraphs summarizing all the planning stages in the document. That approach was due to the Board's interpretation of the structure expressed in Committees 5 and 6 and of the structure of Documents 157 and 182, which were really intended to provide delegations with the maximum amount of information to enable them to understand all the concepts and to take the appropriate decisions. Annex 2 had been requested by Working Group 5-A and Committee 5 could simply note it without forwarding it to the Plenary; Annex 3 might be considered by Committee 5 or by the Plenary, but should not be inserted in the Radio Regulations.

1.12 The delegate of the United Kingdom said that Mr. Berrada's answer to his question illustrated the fact that the Conference was headed on a dangerous course. The idea that, after many hours of laborious discussion to produce a set of suspension rules, with all the necessary steps and flowcharts, those rules should be consigned to a few brief paragraphs in an appendix really did not take account of the realities of the future. In discussing a paper of such great importance, the Committee must consider the implications of what it had approved, and those implications were very serious, for the suspension rules were in effect the grounds on which an administration might be told to provide service of a reasonable quality or to turn its transmitter off. His Delegation had made its own estimates on the basis of Document 182 as amended and of other documents and had concluded that at least four years' work on software revision and development would be required - a conclusion that had serious financial implications. Moreover, it might have been possible to make some progress if the system had been developed to peak efficiency, yet Document 8 contained the extraordinary statement that there was no guarantee that the solution found was the best: in all seriousness, how could a conference propose the adoption of a system for which the best solution had admittedly not been found? With the best will in the world, it was impossible, for his Administration at least, to put any faith in a system of that nature, based simply on an assessment of the suspension rules. He was therefore obliged to reserve his Delegation's position on the entire contents of Document 182 and its right to revert to the subject in a Plenary Meeting.

Annex 3: National/international HFBC

1.13 The delegate of Mali said that his Delegation was unable to agree to the use of the term "domestic" as referred to in the second paragraph and proposed that the word "national" be used throughout. He also proposed that the second paragraph be deleted.

1.14 The delegate of the Federal Republic of Germany opposed that suggestion. In the view of his Delegation the paragraph should be retained as it stood.

1.15 The Chairman, noting that the Delegations of Côte d'Ivoire, Niger and Zimbabwe supported Mali's proposal, said that that paragraph would be placed in square brackets.

1.16 The delegate of Singapore said that his Delegation had doubts about Annex 3, and in particular considered that the list was not complete. He therefore wished to record his Delegation's reservations on that annex.

1.17 The Chairman said that Annex 3 contained elements which would be included in the report of Committee 5 to the Plenary. He was not prepared to open a debate on Annex 3 at the present meeting, since it would be premature. As he saw it, the annex had been produced for information purposes and could be amended if delegates so wished. In reply to a question raised by the delegate of Italy on the flowchart in the document, he said that the question of where certain items were to be placed was a matter for Committee 6 to decide.

1.18 The delegate of Norway said that he found the Chairman's ruling strange, considering the suggestions made by Working Group 5-A and Sub-Working Group 5-A-4. It was entirely unclear to him what the fate of Annex 3 would be or what would be done with it and he wanted that position noted in the Chairman's report. To suggest that it should be passed through the Committee simply by inviting amendments, particularly since the Working Group had suggested that the matter be transferred to Committee 5, was not the correct approach. If it was not going to be discussed in Committee 5, his Delegation wanted to know whether it was going to be discussed in the Plenary or simply deleted.

1.19 The representative of the IFRB (Mr. Berrada) said that the most practical solution would be to place Annex 3 in square brackets and revert to it when the note to Annex 1, also in square brackets, was taken up.

1.20 The delegate of Papua New Guinea said that his Delegation objected most strongly to the way the meeting was proceeding and failed to understand what was meant by premature, seeing that the entire question had remained unanswered for 40 years. The statement that the document would be included in the Chairman's report to the Plenary showed clearly that there was no will to deal with the question at the present time. His Delegation believed that if the matter could not be solved in Committee 5 then it must be solved in the Plenary, and it could in no way accept that a 40-year problem be placed in square brackets.

1.21 The Chairman replied that there was no point in debating Annex 3 without knowing where in the package the subject was going to fit. It had to be discussed within a precise framework. He had no intention of avoiding his responsibilities. If the annex were placed in square brackets, it could be taken up later by Committee 5, and if unresolved would then be passed to the Plenary. If it could not be resumed again in Committee 5 it would in any event go to the Plenary.

1.22 The delegate of Papua New Guinea said that having had the Chairman's assurances that the problem would be returned to with full substance, his Delegation was prepared to go along with the Chairman's proposal.

1.23 The Chairman of Committee 6 said that the was somewhat concerned about the decision just taken with regard to Annex 3. No Plenary Meeting was planned for the current week and Committee 6 had established a Drafting Group to deal with the procedures for the HFBC Planning System which was expected to start work later in the day and finish on the morning of 28 February at the latest. Unless Committee 6 received clear advice on that matter by the following morning, it would not be in a position to draft any kind of procedure at all.

1.24 The delegate of Syria was in favour of discussing Annex 3 in Committee 5 after a decision had been taken on issues arising from the work of Working Group 5-B.

1.25 The Chairman replied that the basic purpose of the annex was to provide information. No conclusion had been drawn and only a general attempt had been made to differentiate between national and international services. A debate on that subject was not on the agenda and would not be opened at the present meeting. As he had said before, however, any delegation was free to add to the information contained in Annex 3.

1.26 The delegate of Mexico said that he could not agree that the annex simply provided information on national and international services. The question raised at the end of the list as to whether any difference between national and international HFBC needed to be considered was the one on which Committee 5 should focus its attention, because no decision had been reached in the Working Group.

1.27 The Chairman replied that he was only prepared to open a debate on Annex 3 once its framework was known. He therefore suggested that the Committee take note of Annex 3 and that any debate on the substance should be deferred to a later stage.

1.28 The Chairman of the Conference said that that was probably the best solution. The question of the differences between national and international services was too complex to be solved in the present meeting. In fact, the work of the Conference was so complicated that it frequently had to be done under certain suppositions and on a step-by-step basis. While, therefore, he sympathized with the concerns of many delegations, he felt there was no other way to work. At the present time it was the main configuration of the System and the need to complete that that was the main issue; other important questions would be dealt with at other stages since it was impossible to deal with all the questions at the same time.

1.29 The Chairman said that Annex 3 would therefore remain in square brackets and that the matter would be discussed in Committee 5 when other aspects had been discussed.

The delegate of the United States made the following statement:

"Mr Chairman, the Delegation of the United States of America considers this an appropriate point in our work to address the issue of harmful interference in the HF broadcasting bands. No discussion of the proposed HFBC Planning System would be complete without due consideration of paragraph 4.2.5 (page 78) of the First Session Report, titled 'Actions relating to harmful interference.'

Paragraph 4.2.5 is an integral part of the planning method devised at the First Session. It states that 'in the event of harmful interference to an HF broadcasting service which is using an assignment in accordance with a current seasonal plan, the administration concerned shall have the right to request the prompt assistance of the IFRB in finding another frequency to help restore that service to the level of reliability achieved in the Plan ...'. Furthermore, the First Session agreed that 'The central automated system must be able to respond, as far as possible, to such requests from administrations.'

The basic idea here is to permit administrations the flexibility to take appropriate action to maintain a broadcasting service in the event its transmissions are interfered with.

As many administrations are aware, the Board, at its February 1986 information meeting, stated that it was unable to devise a means of incorporating such a procedure into its planning algorithm. Thus, the test plans produced by the Board, whatever their other merits or shortcomings, do not take into account he reality of harmful interference. More importantly, the HFBC Planning System, even with the improvements suggested thus far in this Committee, fails to make accommodation for the problem of harmful interference.

You will also recall that Resolution COM5/1 of the First Session instructed the Board to organize world-wide monitoring programs to determine the extent, and identify the sources, of such harmful interference. Four such monitoring programs were organized with the cooperation of numerous administrations. The Board has analyzed and presented the results of such monitoring in Document 9.

We presume that all delegations present have by now studied the Board's excellent report. We will not dwell here on the detailed findings, based on some 59,000 observations classified as usable by the Board. The report, however, raise concerns relevant to our work in this Committee: namely, how to implement an automated planning procedure in the face of harmful interference from some 1,375 identifiable locations to virtually every broadcast channel between 6 and 21 MHz, and I am sure everyone here is aware of the effects of such interference on adjacent and some co-channel assignments.

Resolution COM5/1 directed administrations subject to such interference to seek relief under Article 22 of the Convention. The Administration of the United States of America did in fact seek relief under Article 22. When no relief was obtained, we requested the Board to study the matter under section VII of Article 12 of the Radio Regulations. In its report dated 5 September 1986, the Board found such harmful interference to be contrary to Article 35 of the Convention as well as paragraphs RR 340, RR 341 and Article 17 of the Radio Regulations. The Board also urged the administrations from whose territory the interference originated to operate in accordance with Article 35 of the Convention and the appropriate Radio Regulations. There has been no reply to the Board's initiative. The interference to our stations continues.

We are well aware that the harmful interference in question has political rather than technical origins. We do not intend to address the political issues at this Conference. We have done so at the Conference on security and cooperation in Europe, in the United Nations Human Rights Commission and in other relevant political forums. We have also raised the matter in bilateral discussions at high political levels. The United States will continue actively to seek the prompt termination of such harmful interference in whatever form it takes and from wherever it may originate.

Nevertheless, harmful interference remains a massive reality in the HF broadcast bands. It cannot be ignored in any new planning procedures that might be adopted by this Conference.

The problem has been acknowledged by the IFRB in its thoughtful conclusions on the HFBC planning exercises, presented to our Plenary Meeting on 3 February. The Board noted that, if the HFBC System is to be adopted, there may be need to address 'The identification of the unauthorized uses and the manner in which to take them into account without affecting the seasonal plans'. The Board also observed that:

> 'Once a seasonal plan is established and implemented, if only one administration uses frequencies different from those identified by the System, the System will collapse.'

In summary, we believe that the HFBC Planning System must provide recourse both to administrations directly subject to harmful interference and for realistic protection to other administrations which might be affected by the computer assignment of co-channel and adjacent channel frequencies.

We hope that the Conference will find a technical solution to the problem of harmful interference. Unless the Conference finds a practical solution to this very real problem, as well as to other concerns already raised in the course of our discussions, my Administration must reserve its position on the acceptability of the HFBC Planning System pending decisions still to be taken by our Conference.

Lastly, the United States Delegation seeks comments by the Board, either at the present meeting or at a later stage, on the probabilities of finding a satisfactory mechanism that will carry out the intent of paragraph 4.2.5."

Annex 4

1.30 The delegate of Iraq supported the Syrian proposal, since the extension of the unit of the service area to one quadrant of a CIRAF zone should help to solve an increased number of incompatibilities.

1.31 The delegate of France pointed out that some CIRAF zones were so large that it was necessary to have two emissions to two different quadrants at the same time for two different programmes, and that the effect of the Syrian proposal would be that one of those emissions would have to be suspended. In that connection, it would be useful to have an estimate of the number of additional suspensions that might occur as the result of the application of the proposed rule.

1.32 The representative of the IFRB (Mr. Berrada) said that, if the proposed rule were to be applied, the software would have to be modified considerably in order to be able to include in a GIR group all requirements with at least one quadrant in the CIRAF zone concerned, thus greatly increasing the matrix. Moreover, the Board would be obliged to choose between two absolutely different requirements the one which was to be suspended; he would urge the Conference not to involve the Board in that kind of choice.

1.33 The Chairman observed that the Committee clearly could not take a decision on the proposal at that stage. The delegate of Syria reserved his Delegation's right to raise the question at another meeting.

2. Third and last report of Working Group 5-A (Document 189)

2.1 The Chairman of Working Group 5-A said that the guidelines in Document 189, Annex 1, covered the data required for the establishment of Appendix 2 without distinction as to categories. The note misplaced at the end of sub-item 5.3 referred to Annex 1 as a whole and should be transposed to page 1 of the document. Annex 2 had already been approved by Committee 4 and did not require discussion; it had been included for information in view of the reference to transmitting antenna characteristics in item 8 of Annex 1.

Item 1

Approved, subject to an editorial amendment in the Spanish text.

Item 5

2.2 The Chairman of Working Group 5-A said that the item (Service areas) had been adopted by Committee 4 so its substance was not for discussion. The only question was whether any addition need be made to it. The reference under sub-item 5.3 to paragraph [2] should read "paragraph 5.2".

2.3 The delegate of Saudi Arabia proposed, and it was agreed, that the title should be amended to read "Required service areas".

Item 6

Approved.

Item 7

2.4 The representative of the IFRB (Mr. Berrada) said that the information requested on temporary interruptions of broadcasting facilities under sub-item 7.3 corresponded to a separate paragraph in the requirements file and should therefore be listed separately in the guidelines as a new item 8. There was also the question of how to indicate that sub-item 7.1 raised a delicate issue which had not yet been properly considered.

2.5 The delegate of Mexico, supported by the delegate of Botswana, agreed with the separation of sub-item 7.3 as a new item 8, and proposed that the word "services" be substituted for "facilities" in the text.

2.6 The delegate of Algeria suggested that the question of sub-item 7.1 should be met by placing it in square brackets pending consideration of the problem raised by legal clock time changes.

Item 11

2.7 The representative of the IFRB (Mr. Berrada), replying to points raised by the delegates of Kenya and Brazil with regard to sub-item 11.1 (Assigned frequencies), said that the reference in brackets to Article 17 should be retained as an indication to Committee 6 of the need to consider suitable amendments to that Article.

2.8 The delegate of France proposed and it was agreed that sub-item 11.4 be amended to read "Preferred frequency bands (in MHz)".

Item 12

2.9 The representative of the IFRB (Mr. Berrada) said that the title should perhaps be made more explicit. Following a brief discussion, item 12 was amended to read "Indicate equipment limitations".

Item 13

2.10 The delegate of Austria proposed that the square brackets be removed from item 13, which should be incorporated in the guidelines as a new sub-item after 11.6 and amended to read: "Lowest value of BBR to be used for this requirement (see paragraph 3 of 4.2.3.4.4, Document 157)".

It was so agreed.

Item 14

2.11 The delegate of Austria suggested that it was necessary to amend item 14 to read:

"Indication of consultations are required when the co-channel protection ratio is less than 17 dB."

It was so agreed.

Item 15

It was agreed to retain the item in square brackets.

2.12 On a proposal by the delegate of Libya, supported by the delegate of Belgium, it was agreed to add an item 6 to read: "Nature of requirements".

Document 189 as a whole was approved for transmission to Committee 6.

The meeting was suspended at 1210 hours and resumed at 1410 hours.

3. Report of Working Group 5-D (Document 188)

3.1 The Chairman of Working Group 5-D thanked the delegations that had participated in the Group's work. Although the draft Recommendation contained in the document had been adopted by consensus, two delegations had reserved their position. Paragraph 3 of Document 188 reflected a difficulty faced in the Working Group concerning the implication of the words "extending" and "extension"; it should be placed on record, therefore, that the terms were to imply not only the widening of existing HF bands allocated exclusively to the broadcasting service but also the allocation of new bands to that service. With regard to the operative paragraph recommends to the Administrative Council, the text had been drafted with the deliberate aim of ensuring equality of meaning in all three languages. As a result, each individual language version might appear to invite better drafting, but in view of the approach adopted he urged delegations, and the Editorial Committee, not to amend the text further.

3.2 The Chairman thanked the Chairman and members of Working Group 5-D on behalf of the Committee. He felt sure that the Editorial Committee would note the concern expressed by the Chairman of the Working Group about the drafting. Referring to observations by the delegates of Brazil, Algeria and Italy, he agreed that the text of the Recommendation contained in Document 188 reflected but one part of a compromise package, the elements of which were inseparable. He invited the Committee to consider, item by item, the draft Recommendation contained in Document 188.

Title

It was agreed, on a proposal by the delegate of Finland, to replace the word "Bands" by "Spectrum".

considering e)

3.3 The delegate of Kenya, referring to the text within square brackets, wondered why the word "provisions" had been used instead of "methods". In response to an observation by the Chairman of Working Group 5-D, he agreed not to press the point since the square brackets were to remain around the text until it was known what the Conference would decide.

recommends to the Administrative Council

3.4 The delegate of Niger thought that the term "HF spectrum" should read "HF frequency spectrum".

3.5 The delegate of Algeria, supported by the delegates of Pakistan and Cameroon, said that some wording should be added, possibly within square brackets for the time being, recommending that provision should be made for the planning of any extension of the spectrum for the HF broadcasting service.

3.6 The delegates of Australia, Bulgaria, the Netherlands, Thailand and the United States opposed the proposal.

3.7 A proposal by the Chairman that the text should refrain from any reference to how the extension would be utilized was withdrawn because of opposition expressed by the delegates of Algeria, Kenya, Pakistan and Senegal.

3.8 The delegate of the United States supported the text as it stood; the wording was painstakingly drafted, neutral in tone and within the Working Group's terms of reference, and did not prejudge action by a future WARC.

3.9 The Chairman of Working Group 5-D said that there had been a feeling in the Working Group in favour of some stipulation about how an extension should be used. Although such an indication might be inappropriate in the text under discussion, perhaps a separate text, addressed to the Administrative Council, could be prepared.

3.10 The delegate of Algeria said he could support that idea, provided that such a text and the one under discussion were considered together.

3.11 The delegate of India said that, as a result of strong opposition from some countries during WARC-79 to the possibility of extending the HF bands allocated to the broadcasting service, agreement had been reached that any such extension would be subject to planning. His Delegation was utterly opposed, therefore, to discussing any extension without considering the question of planning.

3.12 The delegate of Australia disagreed with the delegate of India; the matter had been left subject to the provisions to be established by a WARC for the planning of the HF bands allocated to the broadcasting service.

3.13 The delegate of the United Kingdom recorded his Delegation's reservations about any recommendation to the effect that extension of the band should be subject to planning.

3.14 The delegate of the USSR saw no reason for a separate text. He suggested that suitable wording could be added to the end of the text an placed within square brackets pending discussion at a Plenary Meeting. The delegate of Algeria agreed and proposed that the wording, placed within square brackets, should be:

> "with the aim of planning it within the framework of the improved HFBC System".
>
> It was so agreed.

3.15 The delegate of the Islamic Republic of Iran withdrew his Delegation's reservation concerning the Recommendation, on the understanding that the text reflected only one of the elements of a compromise package, which would subsequently be discussed as a whole.

3.16 The delegate of Argentina reserved his Delegation's right to revert to the subject in a Plenary Meeting.

Draft Recommendation [COM5/A] (HFBC 87), as amended, was approved.

4. Oral report by the Chairman of Working Group 5-B (Document 169)

4.1 The Chairman of Working Group 5-B reported for information purposes that Working Group 5-B, as reported in Document 169, had considered seven compromise proposals in relation to the first part of its terms of reference but had been unable to reach any consensus. The Group had considered that it would be difficult to pre-establish numbers of requirements to be planned and although some delegations had considered that a minimum number of requirements might be satisfied by using the HFBC System, the Group was not able to reach a consensus on that proposal either. No consensus had therefore been reached on the proposal to set up a Drafting Group to prepare a text for submission to Committee 5 on the subjects considered by the Group.

4.2 The Chairman said that the matters discussed by Working Group 5-B were key points in the overall issues under consideration by the Committee and it was hardly surprising therefore that even after lengthy discussion the Group had failed to reach a consensus. In view of the underlying difficulties of the matters considered by the Working Group and the short amount of time left to the Conference, he suggested that the Committee should take note of the oral report and proceed to consider the final element in the proposed package, bearing in mind that the general outcome of consideration of the different elements must be in the form of a compromise package.

It was so agreed.

5. Consideration of the procedure (strategy and programme) for future work up to the introduction of the Plans (Documents DT/59, DT/41 and 133)

5.1 The Chairman introduced Document DT/59, an attempt to give a general but no exhaustive outline to provide a basis for discussion on how to tackle the question of strategy in accordance with the fourth proposal of Document DT/41.

5.2 The delegate of Libya said he would have difficulty in discussing Document DT/59 prior to clarification about the package solution. He therefore called for clarification concerning the other elements of the package solution in relation to the element to be discussed and the place they were to occupy in the Committee's discussion. Strategy must be considered not as an isolated element but as the element by which others were interlinked.

5.3 The delegate of the Islamic Repulic of Iran said that he had some difficulty from the conceptual point of view in following the method of procedure being proposed. Although Document DT/41 did indeed contain reference to the different elements of a package solution, it was so vague as to serve little purpose. He understood the development of a strategy as being intended to provide a means for the Conference to attain its objective but it would be very difficult to determine which path was to be followed unless its objective was clearly defined. If a Working Group was established and started its work before the issue was clarified, there was a danger that, as in Working Group 5-B, it would be impossible to reach any consensus. It had become important at the present stage of the Conference to look at the situation realistically and reach some conclusions about what the compromise package might be.

5.4 The Chairman agreed that the Conference had reached the stage where the main issues at stake must be clearly stated. He was proposing that the Committee should proceed to have an exchange of views on the final element of the package, in the same way as had been done for the other elements, with a view to determining the compromise package. It was to be expected that certain matters would have to be tackled at a later stage. At the present moment goodwill and frank discussion were required in order to establish the basis for the package.

5.5 The Chairman of the Conference supported the Chairman's proposal. At the sixth Plenary Meeting, as recorded in Document 133, he had outlined basic guidelines for a possible compromise package in which it was made clear that the package would consist of several steps. The first step would be partial implementation of the improved Planning System and, in parallel, an improved Article 17. It would, however, not be realistic to count on fully implementing the improved system in the short-term as the many amendments made to the System meant that even more channels would be necessary than had been assumed for test purposes. Consequently, an initial step must be taken in part of the available spectrum only, where there was no severe congestion, and where the possibility of increasing the number of channels and of frequency allocations to HF broadcasting could be envisaged as a subsequent step, to be followed by a further and final step when the period of full SSB introduction had been completed.

A very general outline of the package had thus emerged, with elements of it being discussed at Working Group and Committee level. An attempt at the present stage to submit a full package, including a strategy, would have meant that there would have been no opportunity for public debate on the strategy. The Committee was therefore being provided with an opportunity to express views on how to introduce the various elements of the System before going on to develop and discuss in detail the package as a whole.

5.6 The delegate of Syria said that his Delegation had arrived at the Conference expecting the latter to produce an overall plan for all high frequency bands but had been disappointed when it had become clear that such a development would not be possible, that there could be no planning for the very congested lower bands nor, subsequently, for the upper bands. His Delegation did not wish to see administrations bound by a schedule for the future application of the System irrespective of whether that System could succeed or not. It hoped that by the end of the Conference it would be possible to achieve results to bring order to the chaos which reigned in the area of planning. Even high-powered equipment was of no avail to an administration in the absence of coordination among countries.

5.7 The delegate of Pakistan said that consideration of Document DT/59 without linking it with Document DT/41, seemed to have caused a misunderstanding but, after the assurances given by the Chairman of the Conference regarding the package compromise as mentioned in Document 133, he could agree to discuss Document DT/59; the sooner its various elements were resolved, the sooner the package compromise would be reached.

5.8 The delegate of Cameroon stressed his Administration's support for planning of the HF bands on the basis of equitable distribution and use of natural resources, taking into consideration the needs of all. He could agree to discussion of the elements set out in Document DT/59 if it would achieve results by the end of the Conference and urged that the content of Document DT/41 should also be taken into account.

5.9 The delegate of Côte d'Ivoire said that he supported the views expressed by the Chairman of the Conference and understood that the Committee would embark on discussion of the work to be carried out by the Working Group proposed in Document DT/59.

5.10 The delegate of Libya emphasized that, while other elements of the package could be discussed in isolation, the strategy must be considered in connection with the others. Furthermore, it was particularly sensitive as it related to the future. Therefore, the compromise solution should be decided first and then the strategy could be discussed and included with the other elements.

5.11 The delegate of Tanzania, supported by the delegates of Cameroon, Colombia, the Islamic Republic of Iran and Libya, stressed that Document DT/59 was incomplete and proposed that it should be amended to incorporate the content of Document DT/41 before discussion.

5.12 The delegate of Colombia reminded the meeting that his support for the package - like that of a number of other countries - was dependent on the establishment of a protective mechanism for national services under Article 17 and the HFBC System.

5.13 The delegate of the Islamic Republic of Iran urged that the Committee should assume that there was a package solution containing the elements set out Document DT/41 and try to find a way to achieve those objectives. On that understanding, he had no problem in giving a mandate to the proposed Working Group to formulate a strategy but stressed that the Working Group's terms of reference should take into account Document DT/41 also.

5.14 The delegate of Egypt said that Document DT/59 constituted a positive step and in the limited time still available the Conference should concentrate on producing a package of assistance to all administrations. A very clear, precise plan was needed for the medium- and long-term as well as the short-term strategy. It was necessary to know the future time-scale envisaged and he therefore objected to the simplification of the flowchart. He stressed that the administrations concerned wanted their equipment to operate for its entire life-time and to implement the HFBC Planning System as well as possible, bearing in mind the introduction of SSB and other pertinent elements. He concluded by urging all administrations present to strive towards achieving positive results before the end of the Conference.

5.15 In reply to queries by the delegate of India, the Chairman of the IFRB replied that the minimum time-scale envisaged would be roughly three and a half years; the already complex system had been made even more complex and there was a great deal of work to be done. That length of time would begin at the end of the Council Meeting and would depend on the Council's providing resources for the Board to carry out the work.

5.16 The delegate of India pointed out that the time mentioned in a letter from the IFRB to the Chairman of Sub-Group 3 was two and a half years. He did not understand why a period of three and a half years was now being mentioned. In any case, he considered that the necessary work should not take as long as that.

5.17 The representative of the IFRB (Mr. Berrada) explained that the IFRB had to take into consideration not only the decisions of Committee 5 but also the decisions of Committee 4 in evaluating the necessary time required. The two and a half years mentioned assumed the provision of financial resources and applied only to the development and testing of the necessary software. Some time would also be needed to test the System before it could be operated in a secure way and that accounted for the estimate of three and a half years.

5.18 The delegate of Rwanda stressed that Document DT/41 was well-formulated and must be taken into account along with the further points for discussion at the Conference. He endorsed the establishment of a Working Group with terms of reference as set out in Document DT/59 and suggested that it should be chaired by the Chairman of Committee 5.

5.19 The delegate of Kenya reiterated his support for the points clearly set out in Document DT/41. He agreed with the setting up of a Working Group which should consider how and when to apply improvements to Article 16 and to the HFBC System. He felt also that the distinction between national and international broadcasts should be looked into, perhaps during consideration of the suggested package.

5.20 The delegate of Yugoslavia found Document DT/59 acceptable as a global strategy and agreed with the views expressed by the Chairman of the Conference. He supported that strategy for considering the whole package deal and expected there to be other proposals for elements to be included.

5.21 The delegate of France considered that, as well as the strategy and short-term estimates clarified by India and the IFRB, it was important for the Conference to look at the long-term. He was therefore glad to note that the mandate of the proposed Working Group included such a reference. He also hoped that proposals already made by France on the question would be taken into account by the Working Group.

5.22 The delegate of Tunisia, supported strongly by the delegate of Algeria, expressed his concern as to how all the elements of the package compromise could be included but thought that Document DT/59 provided a basis for discussion of one element. While he agreed that the three main concerns set out in the first part of that document were all laudable, they all contributed towards delaying the application of the System and he therefore proposed inclusion of a fourth indent to the effect that application of the System should not be delayed.

5.23 The Chairman summed up the various concerns expressed and proposals made during the Conference to date and pointed out that a decision had not yet been taken as to whether the Conference should approve the Planning System or refer it to the forthcoming Plenipotentiary Conference. The matter was complex and difficult and he therefore advocated a step-by-step approach with precise dates and objectives stated and urged all administrations to make a great effort to achieve such a result.

The meeting rose at 1710 hrs.

The Secretary: The Chairman:

M. GIROUX C.T. NDIONGUE

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS
ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

Document 198-E
26 February 1987
Original: English

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COMMITTEE 6

NOTE FROM THE CHAIRMAN OF COMMITTEE 5 TO THE CHAIRMAN OF COMMITTEE 6

The attached annex contains the second series of texts for the Planning Method and is submitted for consideration by Committee 6.

The two notes at the end of the document were left in square brackets and the Committee reserves the possibility to discuss these notes again.

It is to be noted that the United Kingdom made a reservation on Document 182.

C.T. NDIONGUE
Chairman of Committee 5

Annex: 1

For reasons of economy, this document is printed in a limited number of copies. Participants are therefore kindly asked to bring their copies to the meeting since no others can be made available.

ANNEX 1

Rules for dealing with incompatibilities

Following the selection of the appropriate band for each requirement, the Planning System will attempt to resolve the congestion cases that may arise in an hour block, band and unit of service area by applying the process illustrated in flowcharts A and B. For the purposes of the application of Rules N1 to N4, the unit of service area[1] is a quadrant of a CIRAF zone as indicated in the annex to Appendix 2.

Step 1 The selection of the appropriate band is undertaken for each requirement by considering in particular the need to ensure frequency continuity (see chapter on frequency continuity).

Step 2 For each hour and band, the evaluation of congestion is made using the concept of GIR (see [Document 8]) and using to start with a co-channel protection ratio of 33 dB. If there is no congestion, all requirements are placed in a "file of resolved requirements" (see step 9). If, however, there is congestion, step 3 is applied.

Step 3 Rule N0 is applied and the co-channel protection ratio is lowered in steps from 33 dB to [17 dB] until congestion is resolved, in which case requirements are placed in a "file of resolved requirements" (see step 9). If congestion still persists at the level of [17 dB], step 4 is applied.

Step 4 Rule N1 is applied as described in [Document 8] and all suspended requirements are placed in a file of temporarily suspended requirements (see step 10). If Rule N1 fails to resolve the case of congestion, step 5 is applied to the remaining requirements. If Rule N1 resolves the congestion case, all remaining requirements are placed in the "file of resolved requirements" (see step 9).

Step 5 Rule N2 is applied as described in [Document 8] and all suspended requirements are placed in a file of temporarily suspended requirements (see step 10). If Rule N2 fails to resolve the case of congestion, step 6 is applied to the remaining requirements. If Rule N2 resolves the congestion case, all remaining requirements are placed in the "file of resolved requirements" (see step 9).

Step 6 Rule N3 is applied as described in [Document 8] and all suspended requirements are placed in a file of temporarily suspended requirements (see step 10). If Rule N3 fails to resolve the case of congestion, step 7 is applied to the remaining requirements. If Rule N3 resolves the congestion case, all remaining requirements are placed in the "file of resolved requirements" (see step 9).

Step 7 Rule N4 is applied as described in [Document 8] if, and only if, the band under consideration is not the band of the requirement with the highest BBR and all suspended requirements are placed in a file of temporarily suspended requirements (see step 10). If Rule N4 fails to resolve the case of congestion, step 8 is applied to the remaining requirements. If Rule N4 resolves the congestion case, all remaining requirements are placed in the "file of resolved requirements" (see step 9).

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1 Reservation by SYR, IRQ

Step 8 Rule N5 is applied and the co-channel protection ratio is lowered in steps from [17 dB] to the value which permits resolution of the congestion case. No suspensions are made in the application of this rule, consequently the requirements remaining after the application of Rule N4 remain the same.

Step 9 All requirements which, as a result of the previous steps, have not been suspended, have been placed in a "file of resolved requirements". This file contains, therefore, all the requirements which will always enter in the "Tentative Plan" (see step 16). This will be the case of requirements with a protection ratio less than [17 dB]. However some of them will be the subject of consultation with administrations before their entry in this file.[1]

Step 10 This file of temporarily suspended requirements contains all requirements which have been suspended as a result of the application of suspension Rules N1, N2, N3, N4 and which are then placed in the "file of requirements to be reviewed" (see step 11).

Step 11 All requirements which have been suspended may be modified by the administrations concerned, as indicated in step 12.

Step 12 At the end of the first run, the administrations having a requirement in the "file of requirements to be reviewed" shall be consulted and requested to consider a review of their requirements for a possible:

- suppression, or
- reduction of their period of transmission, or
- reduction of their power, or
- reduction of their service area, or
- any other modification that would not cause a drastic change in the planning configuration nor, result in suspension of any requirement included in the "file of resolved requirements" nor result in any of these requirements being adversely affected.

Step 13 As a result of the consultation process described in step 12, whose duration shall not exceed 45 days, all requirements which have been modified as well as all other requirements contained in the "file of requirements to be reviewed" which have not been modified by the administration, are subjected to step 15.

Step 14 During the production of a seasonal plan, all requirements communicated to the IFRB after the initial deadline for submission or confirmation of requirements will be subjected to step 15.

Step 15 All requirements contained in the files described in steps 13 and 14 are processed with a view to inserting them in the "Tentative Plan". During this second run, steps 1 to 8 are applied to all requirements; however, none of the requirements contained in the "file of resolved requirements" may be suspended. A requirement in the "file of resolved requirements" will be considered to be adversely affected if, because of the insertion of any other requirement, its protection ratio being greater than 17 dB is lowered to a value less than 17 dB, or if its protection ratio being less than 17 dB is lowered to a smaller value. In this case, it would not be possible to insert the requirement under consideration in which case this requirement would be placed in the "file of requirements that cannot be reinserted" (see step 17).

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1 Reservation by CTI

In an attempt to satisfy as many as possible of the requirements to be inserted, the following process is applied:

1. frequency continuity will be attempted to the extent possible;

2. if frequency continuity cannot be achieved, an attempt will be made to insert the requirement in another of its usable bands.

Step 16 As a result of the process described in step 15, [as many requirements as possible are satisfied and] a "Tentative Plan" is produced.

Step 17 All requirements which could not be inserted after the application of step 15 are placed in a "file of requirements that cannot be inserted".[1]

Step 18 Administrations who so wish may request the Board to select alternative frequencies for their requirements. The Board shall attempt to select alternative frequencies without affecting the requirements appearing in the Plan. If the Board receives no comment from administrations following the publication of the tentative Plan, it shall consider that the frequencies indicated in the seasonal plan will be assigned by administrations to their stations.

[Note 1 - Suspension Rules N1, N2 and N3 shall not apply to national requirements.]

[Note 2 - All rules shall only apply to requirements above an equal minimum number of requirement hours that should be satisfied for each administration on an equal basis.]

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1 Reservation by USA

HFBC (2)

INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, **February-March 1987**

Document 199-E
26 February 1987
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COMMITTEE 6

NOTE FROM THE CHAIRMAN OF COMMITTEE 5

TO THE CHAIRMAN OF COMMITTEE 6

The attached Annex 1 contains, for consideration by Committee 6, the guidelines for the establishment of Appendix 2 of the Radio Regulations. It contains only the parts of Appendix 2 relating to data to be entered in the requirements file. Annex 2, extracted from Document 132, is for information purposes concerning antenna characteristics. The texts in square brackets have not been adopted by Committee 5 who reserves the possibility to discuss them again.

C.T. NDIONGUE
Chairman of Committee 5

Annexes: 2

For reasons of economy, this document is printed in a limited number of copies. Participants are therefore kindly asked to bring their copies to the meeting since no others can be made available.

ANNEX 1

Guidelines for the establishment of Appendix 2

Information Relating to the Broadcasting Service in the Exclusive HFBC Bands

1. Notifying administration.

2. Name of transmitting station.

3. Symbol of the country or geographical area in which the transmitting station is located.

4. Geographical coordinates of the transmitting station

When two transmitting stations are almost co-located, the administration shall indicate, as far as possible, the same coordinates.

5. Required service areas

5.1 In specifying the required service area, reference shall be made to a combination of:

- CIRAF zones,
- quadrants of CIRAF zones,
- a part of a quadrant specified by the set of test points contained within that part.

5.2 Where it is necessary to specify a required service area which is smaller than an entire zone or quadrant, this may be done by specifying the boundaries of the area as two azimuths and two ranges from the transmitter location.

5.3 The set of test points listed in the IFRB Technical Standards shall be used to represent the CIRAF zones and quadrants for planning purposes.

Where a required service area is defined as set out in paragraph 5.2 above and where such an area does not include a test point, the IFRB shall generate a new test point and include it within the Technical Standards. Such additions to the Technical Standards will be distributed to administrations (Nos. 1001 and 1001.1 of the Radio Regulations).

6. Season

7. Hours of operation (UTC)

[7.1 Indication on legal clock time changes.]

7.2 Specifies when not on a daily basis.

8. Indication on temporary interruption of broadcasting services due, for example, to natural disasters.

9. Transmitting antenna characteristics (see Annex 2).

10. Transmitter power (dBW)

- range of power capabilities.

11. Type of modulation.

11.1 Indicate if the transmitter can operate with two modes (DSB, SSB).

12. Frequency.

12.1 Assigned frequencies [under Article 17].

12.2 Preset frequencies.

12.3 Preferred frequency (in kHz).

12.4 Preferred frequency band (in MHz).

12.5 Number of frequencies that can be used simultaneously.

12.6 Requested types of frequency continuity.

Note - The requirements file shall permit inclusion of information on all the types of frequency continuity as defined in [paragraph 4.2.3.4.4 of Document 157].

12.7 Lowest value of BBR to be used for this requirement (see paragraph 3 of 4.2.3.4.4, Document 157).

12.8 Indication on the use of synchronized transmitters.

13. Indicate equipment limitations.

14. Indication if consultations are required when the co-channel protection ratio is less than 17 dB.

[15. Nature of requirement (national or international).]

[16. Nature of requirement (see Document 134).]

ANNEX 2

Information concerning antenna characteristics should be provided by administrations when submitting requirements

a) For all types of antennas:

1. Type

(When appropriate, reference should be made to the corresponding antenna type appearing in the set of antenna patterns in the IFRB Technical Standards.) (See Resolution COM4/3.)

2. Azimuth of maximum radiation

In degrees from true North in clockwise direction.

3. Maximum gain (isotropic, G_i, dB)

(If different from that associated with the relevant pattern in the reference antenna set.)

4. Covered frequency band(s), in MHz (lowest and highest frequency bands for multi-band antennas, or the band for single band antennas)

b) In addition to the above parameters, for horizontal dipole arrays:

5. Type of radiator (end-fed or centre-fed dipole elements)

6. Type of reflector (tuned dipoles or aperiodic screen)

c) In addition to the above parameters, for multi-band horizontal dipole arrays:

7. Design frequency, in MHz

(If not indicated, the design frequency will be assumed as the arithmetic mean of the centre frequencies of the lowest and highest frequency bands covered by the antenna.)

d) In addition to the above parameters, for slewed horizontal dipole arrays:

8. Azimuth of the normal to the plane of the radiating elements

In degrees from true North in clockwise direction.

HFBC (2) INTERNATIONAL TELECOMMUNICATION UNION
WARC FOR THE PLANNING OF THE HF BANDS ALLOCATED TO THE BROADCASTING SERVICE
SECOND SESSION, GENEVA, February-March 1987

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152	C.4	Summary Record of the Seventh Meeting of Committee 4	C.4
153	C.4	Summary Record of the Eighth and last Meeting of Committee 4	C.4
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155	C.6	Second series of texts from Committee 6 to the Editorial Committee	C.7
156	C.4	Fifth series of texts from Committee 4 to the Editorial Committee	C.7
157 + Corr.1	WG 5A	First Report of Working Group 5A to Committee 5	C.5
158	C.4	Note from the Chairman of Committee 4 to the Chairman of Committee 5	C.5
159	C.4	Note from the Chairman of Committee 4 to the Chairmen of Committees 5 and 6	C.5, C.6
160	C.4	Note from the Chairman of Committee 4 to the Chairman of Committee 6	C.6
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163	C.7	B.3	PL
164 (Rev. 1)	C.7	R.1	PL
165	WG 5C	Report of Working Group 5C to Committee 5	C.5

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166	C.7	B.4	PL
167	WG 2A	Third Report of the Working Group of Committee 2 (Credentials)	C.2
168	C.7	Note by the Chairman of the Editorial Committee	PL
169	WG 5B	Report of the Chairman of Working Group 5B to Committee 5	C.5
170	WG 6A	First Report of Working Group 6A to Committee 6	C.6
171 (Rev. 1)	WG 6A	Second Report of Working Group 6A	C.6
172 (Rev. 1)	WG 6A	Third Report of Working Group 6A	C.6
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174	C.5	Summary Record of the Sixth Meeting of Committee 5	C.5
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189	WG 5A	Third and final Report of Working Group 5A to Committee 5	C.5
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