



**Documents of the Regional Administrative Radio Conference for the planning of VHF/UHF television broadcasting in the African Broadcasting Area and neighbouring countries (1st session) (RARC AFBC(1))**

**(Nairobi, 1986)**

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

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AGENDA  
OF THE  
MEETING OF HEADS OF DELEGATIONS  
Monday, 22 September 1986 at 11.00 hrs  
(Room II)

Document No.

- |  |      |
|--|------|
| 1. Opening by the Secretary-General and designation of the Chairman of the meeting | --   |
| 2. Approval of the agenda of the meeting   | --   |
| 3. Proposals for the election of the Chairman of the Conference                    | --   |
| 4. Proposals for the election of the Vice-Chairmen of the Conference               | --   |
| 5. Conference structure  | DT/1 |
| 6. Proposals for the election of the Chairmen and Vice-Chairmen of the Committees  | --   |
| 7. Draft agenda of the first Plenary Meeting                                       | DT/2 |
| 8. Allocation of documents to Committees   | DT/3 |
| 9. Other business  |      |

R.E. BUTLER  
Secretary-General



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R.E. BUTLER  
Secretary-General



STEERING COMMITTEE

DRAFT

GENERAL SCHEDULE OF THE WORK OF THE CONFERENCE

1st week (22 - 26 September)

Organization and commencement of work 1)

2nd week (29 September - 3 October)

Continuation of the work in Working Groups and Committees 1)

Wednesday 1      End of the work of Working Groups of Committee 4

Thursday 2      - End of the work of Working Groups of Committee 5

Friday 3      - End of the work of Committee 4

3rd week (6 - 10 October)

Monday 6      - End of the work of Committee 5

Tuesday 7      - End of the work of Ad Hoc Working Group of PL  
- Report of Credentials Committee

Wednesday 8      - End of the first reading of the texts of the Report by PL

Thursday 9      - End of the second reading of the texts of the Report by PL  
- Report of Budget Control

Friday 10      - Approval of the Report and closing

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1) Plenary meetings if necessary.

# AFBC

INTERNATIONAL TELECOMMUNICATION UNION  
**RARC FOR THE PLANNING OF VHF/UHF TELE-  
VISION BROADCASTING IN THE AFRICAN  
BROADCASTING AREA AND NEIGHBOURING  
COUNTRIES**  
FIRST SESSION, NAIROBI September-October 1986

Document DL/3-E  
23 September 1986  
Original: French

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STEERING COMMITTEE

Note by the Chairman of the Editorial Committee

CONTENTS OF THE REPORT

To enable the Editorial Committee to organize its work, it would be useful to provide, as soon as possible, an outline of the structure of the Report to be prepared for submission to the second session of the Conference.

As a guide, the annex hereto sets out a preliminary draft set of possible contents of the Report to be prepared, based on the table of contents of the Report drawn up by the RARC for FM Sound Broadcasting in the VHF Band (Region 1 and certain countries concerned in Region 3 - first session, Geneva, 1982), duly adapted to the requirements of the present Conference.

The Steering Committee is requested to examine this preliminary draft and submit its comments, on the basis of which a final draft will be prepared, indicating which Committees are to supply the material to be included in the Report.

H. BERTHOD  
Chairman of Committee 6

Annex: 1

ANNEX

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PRO MEM.

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LIST OF ITU MEMBER COUNTRIES WHICH PARTICIPATED IN THE FIRST SESSION

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\* Non-exhaustive list

Note by the Chairman of ad hoc Working Group 4-A

PROPOSALS FOR THE COMPLETION OF DOCUMENT 45

(ENTITLED: CHAPTER 2 - PROPAGATION IN THE VHF/UHF BANDS)

WITH REGARD TO AREAS IN THE AFRICAN CONTINENT AND NEIGHBOURING  
COUNTRIES SUBJECT TO PRONOUNCED SUPER-REFRACTION PHENOMENA

1. Add to section 2.1.1 the following third paragraph:

"The propagation characteristics above warm seas and the coastal areas bordering them differ considerably from those prevailing elsewhere; above warm seas and their coastal areas, the variation in refractive index versus altitude is responsible for super-refractive effects and for the occurrence of "ducts". These phenomena have been observed, for example, along the west coast of Africa between the Equator and the Tropic of Cancer, in the Straits of Gibraltar, in the Red Sea and in the maritime area extending from the Shatt al Arab to the Sea of Oman. Extensive studies have been carried out by Gulfvision in the latter area.

The method used to forecast field strength values in the various regions of Africa and neighbouring countries is explained below."

2. A Zone C should be added in section 2.1.2: "Maritime zone neighbouring the Gulf" to be defined more precisely (the map in Figure 3.33 of Document 3 should be extended to "neighbouring countries" and supplemented to delimit the propagation zones contained within this extension).

3. Section 2.1.3 might be entitled:

"Areas subject to pronounced super-refraction phenomena" and might read as follows:

"Over the sea, ducts have a more or less persistent character depending on the climate and the prevailing winds. In the Gulf region, they may persist all day and surface ducts have been observed in excess of 240 m in depth for 1% of the time and 120 m for 50% of the time. Over coastal areas, the altitude and depth of these ducts diminishes and their penetration inland depends not only on the coastal topography but also on the force and direction of the wind."

4. In section 2.1.4.1 and possibly also in the annexes, the information given concerning Zones A and B should be supplemented by details applying to Zone C.

H. BERTHOD  
Chairman of ad hoc Working Group 4-A

Draft note from the Chairman of Committee 5DRAFT TEXT FOR PARAGRAPH 5.4 FREQUENCY PLANNING  
CONSTRAINTS AND MEASURES FOR REDUCING THEM5.4.1 Introduction

In order to ensure effective planning of terrestrial TV broadcasting services in the frequency ranges 47-68 MHz (Band I), 174-230 MHz (Band III) and 470-862 MHz (Band IV/V), it may be necessary to take into account certain constraints on the use of frequencies in order to avoid interference to other TV broadcast transmissions and to ensure compatibility with other broadcast services, e.g. with the sound broadcasting service in the frequency range 87.5-108 MHz.

This section identifies the constraints that may result from the technical limitations of receiver design and also from the transmission of several TV and VHF/FM sound broadcast programmes from the same site or from non co-sited transmissions with overlapping service areas. Co-channel, adjacent-channel and image channel transmissions are dealt with in Chapter 2.

No account is taken of interference resulting from radiation of harmonics and intermodulation products at transmitter sites, on the assumption that the broadcaster can take the necessary precautions to reduce such spurious radiation to acceptable levels.

It should be noted that these constraints refer to uniform channel spacing for the whole planning area. In the case of non co-sited transmitters using different systems and/or different channel spacings with overlapping coverage areas a detailed case-by-case investigation is necessary.

5.4.2 Constraints introduced by TV broadcast receivers5.4.2.1 TV receiver local oscillator radiation

Because of the possibility of interference being caused by the use of superheterodyne receivers, the use of certain channel combinations is precluded. Receiver local oscillators operate at frequencies of 32.7 MHz below and between 38.9 and 40.2 MHz above the vision carrier of the wanted signal for systems used in Africa. Hence, if the channel separation is 7 and 8 MHz and Channel N is used by one service, the choice of Channel N+5 for a neighbouring service would result in interference being caused from local oscillators in receivers which are tuned to Channel N.

Additionally with such a difference in channel numbers, interference caused by an intermediate frequency beat may occur.

In practice, these problems are gradually diminishing with improved receiver technology.

Radiation from TV receivers in the range 47-68 MHz may affect VHF/FM reception. This may occur when the TV local oscillator frequency lies near the carrier frequency of a VHF/FM transmission (see Report 946).

#### 5.4.2.2 Image channel

Image channel interference occurs when transmissions are separated by about twice the intermediate frequency. The image channel affecting receivers tuned to channel N would be N+9 for systems G, H, I, and N-9, N+9 and N+10 for system K1.

Although the improved image channel rejection characteristics of modern receivers minimise the problem, rejection is not complete and the situation should be avoided in preparing a frequency plan. Image channel interference is not a problem within Bands I and III.

#### 5.4.3 General considerations

The following constraints may be noted although they cannot be generally taken into account when preparing frequency plans:

- harmonics from VHF/FM receiver local oscillators;
- harmonics and intermodulation products generated under overload conditions in receivers;
- transmitting antenna system limitations.

Note - For more details see CCIR Report AU/11.

E. KAMDEM-KAMGA  
Chairman of Committee 5

CHAPTER 5 - PLANNING PRINCIPLES AND METHODS  
IN THE FREQUENCY BANDS TO BE PLANNED

5.3.4 Planning method in the band 47 - 68 MHz

5.3.4.1 The planning of the band 47 - 68 MHz shall be based on channel spacing of 7 or 8 MHz as selected by each administration without overlapping the adjacent bands not allocated to the broadcasting service.

5.3.4.2 Considering the small number of channels available in this band, it is not considered appropriate to use a theoretical lattice planning method in this band.

5.3.4.3 The planning will consist in protecting the existing assignments and to include the planned stations in the Plan when they are compatible with these existing assignments.

E. KAMDEN-KAMGA  
Chairman of Committee 5

## CHAPTER 4 - COMPATIBILITY WITH OTHER SERVICES

### 4.3 Sharing criteria

The first indent should read:

"- field strength to be protected;"

#### 4.3.3.1 Field strength to protect the television broadcasting service against fixed and mobile services

Taking into account that in Region 1 the band 790 - 862 MHz. and in Region 3 the bands I, III, IV and V are allocated on a shared basis, the First Session of the Conference adopted the following figures of minimum usable field strengths to protect the television broadcasting service from fixed and mobile services:

46 dB( $\mu$ V/m)	band I
49 dB( $\mu$ V/m)	band III
53 dB( $\mu$ V/m)	band IV
58 dB( $\mu$ V/m)	band V.

C.T. NDIONGUE  
Chairman

## CHAPTER 3 - TECHNICAL STANDARDS AND TRANSMISSION CHARACTERISTICS

3.4 Field strength values to be used in the planning process3.4.1 Reference usable field strength

The median field strength values as given in Recommendation 417-2 should be used for the purpose of planning against interference in the bands I, III, IV and V. These values are:

Band	I	III	IV	V
dB( $\mu$ V/m)	+48	+55	+65	+70

The values refer to the field strength at a height of 10 m above ground level. The percentage of time for which protection may be sought should lie between 90 and 99%.

3.4.2 Minimum usable field strength

[The above values as in 3.4.1 are identical to the values of the minimum usable field strength to be protected.]

[Note] - In arriving at the figures shown in 3.4.1, it has been assumed that a satisfactory picture quality in the absence of interferences from other television transmissions and man-made noise may be obtained with the following values [of field strength]:\*

Band	I	III	IV	V
dB( $\mu$ V/m)	+47	+53	+62	+67

In arriving at these figures the receiver noise, cosmic noise, antenna gain and feeder loss have been taken into consideration.

These values are based on noise limits, giving satisfactory\*\* quality of the received picture on an average receiver and antenna installation. In countries with high density of interference, the values of usable field strength will depend on interference and not on noise.

It should be stated that the values from Recommendation 417 are based on old measurements and it is believed that the noise figures of receivers have improved. This seems to be the reason for several countries reporting having a good service with much lower field strengths in the absence of interference and man-made noise.

\* See Note 1 of CCIR Recommendation 417.

\*\* Approximately grade 3 under CCIR Recommendation 500-3.