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FINAL REPORT
FIRST MEETING OF PERMANENT CONSULTATIVE
COMMITTEE II: RADIOBROADCASTING (PCC.II)
August 22 - 26, 1994
Ottawa, Canada

A. MINUTES OF THE WORKING SESSION

1. FIRST WORKING SESSION

Date: August 22, 1994
Time: 11:00 a.m.
Chairman: Mr. G. Ronald Begley (Canada)
Vice-chairman: Mr. Osvaldo Martin Beunza (Argentina)

The Chairman opened the meeting with some brief introductory remarks. The draft agenda (PCC.II-02/94) was then considered and adopted with some minor adjustments. The Chairman indicated a strong desire to have a serious discussion sometime later in the week regarding the future of PCC.II. Larry Olson (USA) was appointed chairman of the drafting group to prepare the report of the meeting. Finally, to allow more time to consider future work of the group, the order of business was adjusted so that the DAB/HDTV seminar was moved to the beginning of the week with the PCC.II meeting to begin after the conclusion of the seminar.

SEMINAR - DIGITAL AUDIO RADIO BROADCASTING (DAB)

The following are brief summaries of the documents presented during the seminar on Digital Audio Broadcasting:

SEMDB-06/94 Field Tests of Digital Audio Broadcasting Using the NASA Tracking and Data Relay Satellite at S-Band. (USA)

A series of satellite-based experiments were completed at the end of July 1994 on mobile reception of compact disk quality audio. These experiments were conducted using Digital System B (Voice of America/ Jet Propulsion Laboratory) at S-Band (2.05 GHz) using one of NASA's Tracking and Data Relay Satellites while it was moved from an equatorial location over Brazil to one over Hawaii. An instrumented van was driven on urban, suburban and rural routes in the Pasadena, Calif. area. Details analyses are underway. Preliminary results indicate that flawless quality audio can be received via satellite at the power levels (7 watts) available from this satellite, but that buildings and heavy foliage block the signal if the duration of the blockage exceeds around one second. With a validated RF Simulation model for L- and S- band propagation, and the data already collected, we will be able to determine what levels of satellite power per channel will be required for true direct-to auto satellite delivered digital radio.

SEMDB-16/94 Field Trials with a Three-site DRB Facility Operating at 1452-1492 MHz for Single Frequency Network and Coverage Extension. (CAN)

A three-site Digital radio Broadcasting (DRB) facility was established in the Montreal area to evaluate the coverage possibilities and the performance of various transmitter network architectures for terrestrial DRB in the 1452-1492 MHz frequency range.

The measurements, to be carried out in the 1994-1995 time frame are discussed together with computer predictions of the coverage achieved with the facility.

Synchronized Single Frequency Network (SFN) coverage, and non-synchronized SFN coverage extenders are evaluated for terrestrial DRB on the basis of the Eureka-147 DRB System.

Preliminary results are presented showing the coverage achieved. A gap filler experiment to correct coverage deficiencies is also described including the coverage measurements demonstrating the improvement that was achieved.

The concepts need to be experimented with before various frequency planing approaches can be considered for the Canadian DRB Service which is planned to be an eventual replacement service for AM and FM radio broadcasting. The Canadian coverage requirements were taken into account in selecting the spacing between the three transmitters. This spacing is in the 55 Km range.

SEMDB-09/94 Status of In-Band Digital Audio Broadcasting Development.(USA)

Five terrestrial digital radio systems are being developed and tested (EIA) in the USA for use in the existing VHF and Medium-wave radio broadcasting bands, 88 - 108 MHz and 535 - 1705 kHz, respectively. These are called "in-band" systems. Three of them are systems that will simultaneously broadcast a radio program using analog and digital waveforms. These are called "in-band on-channel" systems. One of them is currently undergoing mobile field trials by the developer. The results are very encouraging. The system effectively combats the severe multipath situation in downtown Chicago. This system uses a digital waveform whose power level is 25 to 30 dB lower than the FM signal. The digital waveform uses a large number of orthogonal subcarriers spread over a 500 kHz band centered at the FM carrier signal. The digital signal power levels fall below those values limited by the FCC for spillover into the adjacent channels (beyond 100 kHz above and below the FM carrier frequency). Via the EIA laboratory and field tests that are underway, all forms of signal interference are being thoroughly tested (digital to host FM, host FM to digital; co-channel and adjacent channel of FM to digital, digital to FM and digital to digital for other than host simultaneous broadcasts).

SEMDB-07/94 3. Report on Work for the Comparative Evaluation of Digital Audio Radio Systems.

(USA)

Digital Audio Broadcasting (DAB) has been actively considered by the United States for several years. In recent years several DAB systems (specifically various delivery schemes) have been proposed. Some propose operation in WARC-92 allocated bands, terrestrial or satellite. Others propose operation in existing broadcasting bands, either on channel or adjacent channel. The Electronic Industries Association (EIA) established a subcommittee to evaluate the systems. This paper provides a brief discussion of the evaluation process. Three main points of the document should be highlighted. First, the approach used is to evaluate each overall system or an integrated unit rather than separate examination of audio source and channel coding. Second, the test plan includes both the objective and subjective evaluations of the systems. Finally, the status of the process indicates laboratory testing to be concluded near the end of 1994 with field testing beginning early in 1995. Analysis of the testing program is expected to be completed by mid-1995. In conclusion, because of the various systems proposed, because of the industry/ government desire to implement an appropriate system in the US and because of the ongoing testing, the US cannot support any DAB standards at this time.

SEMDB-08/94 Digital Audio Broadcasting Implementation Plans Throughout the World. (USA)

Current information reveals that many administrations are considering terrestrial DAB operations in the VHF frequency bands in addition to those bands allocated at WARC-92. In July 1995, CEPT is holding a planning conference for Terrestrial Digital Radio Broadcasting implementation in Europe. Among the frequency bands being planned are VHF and the top 10 MHz of the 1452-1492 MHz L-Band allocated at WARC-92 for DAB. In conclusion, there is no consensus on the frequency band to be used for DAB service and members of CITEL are asked to supply information regarding their plans for DAB implementation.

SEMDB-14/94 Coverage Concepts for Digital Radio Broadcasting at 1.5 GHz.

The applicability of a number of new coverage concepts to produce high quality and high reliability Digital Radio Broadcasting (DRB) service over given service areas is investigated in Canada. For the terrestrial DRB service, a concept called "distributed emission" is being developed based on the use of several transmitters operating on the same frequency. These new coverage concepts are based on the assumption that the modulation scheme used will allow constructive tower addition, at the receiver, of echoes created by these on-channel transmitters.

Typical configurations for these transmitters include: gap-fillers to fill shadowed areas, coverage extenders to extend and/or shape the coverage of local areas, and Single Frequency Networks (SFN) of synchronized transmitters to cover large areas.

The use of several low power repeaters to supplement the main transmitter enables a significant reduction of the ERP of the main transmitter. Also the fact that many sources of signal are available to the receiver throughout the service area creates space diversity and redundancy (i.e., network gain) that results in a further improvement in the service availability. At the service planning stage, and especially at the early frequency allotment stage, all these coverage options need to be clearly defined and investigated so that maximum flexibility can be secured for the service implementation phase. The extent of implementation of each of these various options would then depend on the service requirement and market demand.

The spectrum allocation at 1.5 GHz for both terrestrial and satellite broadcasting services achieved at the WARC-92 clears the path for the introduction of extended coverage concepts based on the "hybrid" and the "mixed" terrestrial/satellite broadcast approaches. These allow the use of both terrestrial and satellite transmitters in the same frequency band to supplement and/or complement the coverage of each other. In countries such as Canada, with vast geographical expanse and unevenly-distributed population, both hybrid and mixed terrestrial/satellite broadcasting concepts have much to offer in covering diverse types of areas. Rural and remote areas, as well as cross-country roads, can be covered by satellite beams whereas for urban and suburban areas, the satellite service can be supplemented by on-channel local re-transmitters (hybrid concept). Independent terrestrial transmitters operating on different frequencies in the band can also provide additional channels for local coverage. Using proper techniques, it is possible to have the two services completely integrated in the same frequency band and using the same transmission format to allow the consumer receiver to have access to both services in a transparent way.

SEMDB-11/94 Planning for the Implementation of the DRB Service in Canada. (CAN)

Canadian Broadcasters have expressed the desire to replace their existing AM and FM sound broadcasting services with a Digital Radio Broadcasting (DRB) service. While the new DRB service promises to deliver significantly improved technical quality, it also offers challenges which must be met. Planning the introduction of DRB in Canada is an evolutionary process and some of the steps taken so far are outlined. The conclusion is reached that under specified conditions, the 40 MHz of spectrum allotted near 1.5 GHz is just sufficient to replace the existing Canadian AM and FM service and also make provision for a modest digital satellite broadcasting service. Three planning approaches which have been studied to date are described as well as planning software which is being developed to assist in the development of DRB allotment plans.

SEMDB-12/94 DAB and Canada's Private Broadcasters. (CAN)

This paper describes the strategic approach developed by Canada's private radio broadcasters in order to ensure that Digital Audio Broadcasting (DAB) services can be smoothly integrated into the national broadcasting system. The key factors that have compelled the industry to include DAB as a major element of its long-range plans are identified. The technical co-operation that has taken place between the public and private sector broadcasters and the government is described, as is the outcome of a joint government/industry study to develop DAB implementation policy recommendations. The paper outlines the views of the Canadian Association of Broadcasters (CAB) concerning the probable roll-out of DAB services around the world and concludes with a summary of the planning tasks that still must be undertaken before regular DAB broadcasting can be implemented in Canada in the 1.5 GHz band.

SEMINAR - HIGH DEFINITION TELEVISION (HDTV)**SEMDB-10/94 Status of the Grand Alliance HDTV System. (USA)**

An Advisory Committee in the U.S. to the Federal Communications Commission to develop technical recommendations on terrestrial HDTV is well underway. Approximately a year and a half ago, a decision was made to select a digital technology using the combined expertise of 4 proponents groups to design a system composed of the best elements of each of the initially proposed digital systems. A design was approved, and will be tested in laboratory and field testing during the next 8 months or so. Recommendations to the FCC are scheduled for mid-1995. Some of the characteristics of the prototype are: digital, 6 MHz program channel bandwidth, vestigial sideband (VSB) modulation, 16:9 aspect ratio, MPEG-2 video compression, MPEG-2 transport stream, 1280 x 720 and 1920 x 1080 video formats, and Dolby AC-3 audio.

SEMDB-02/94 Digital Compression of Television Program Material. (USA)

This paper notes the major benefits of using digital compression and transmission compared with analog transmission of TV programming. It describes the fundamental techniques of video compression, including motion estimation for reducing temporal redundancy, application of the discrete cosine transform for reducing spatial redundancy, and entropy coding. After distinguishing these techniques from those used for audio compression, and indicating the bit rate reductions they make possible for TV program material, the MPEG1 and MPEG2 standards are described. It is explained why adoption of these standards will not ensure interoperability of compression and decompression equipment. The paper concludes with illustrations of how video compression is being, or might be, used.

**SEMDB-03/94 DIRECTV: A Business Model for the Delivery of Direct-to-home Television Entertainment.
(USA)**

This paper provides an overview of how DIRECTV, Inc. was able to create a fully-integrated technical and marketing organization for the first high power, fully-digital, direct broadcast satellite (DBS) system in the Western Hemisphere in a period of about 34 months and at a cost of about \$600 M. It describes the key goals of the system in terms of consumer equipment size and cost, number and diversity of program offerings, and monthly subscription charges and emphasizes the fundamental philosophy regarding system quality and reliability. The strategic alliances that were formed to develop the consumer hardware, the billing system and equipment, the security and access systems, and the digital equipment for the new broadcast center are identified and their importance emphasized. Also described in some detail are (a) the type of customer service facilities established, (b) the types of programming carried and the number of channels of each, (c) the program packages and their prices, (d) the capabilities of the Broadcast Center, (e) the cost of the consumer hardware and the methods for selling it through large retail chains as well as satellite dealers. The paper closes with a description of the expected markets for DIRECTV service and the plans for "rolling out" that service across the United States.

SEMDB-04/94 Technical Architecture of the DIRECTV Direct Broadcast Satellite System (USA)

This paper described the technical aspects of the DIRECTV system concept with emphasis on the characteristics of the Castle Rock Broadcast Center, the nature of the all-digital TV program multiplex and the features of the subscriber terminal antennas and integrated receiver-decoder (IRD).

The following innovative state-of-the-art technologies incorporated into the system were described in detail:

- HS601 satellites and high power transmitting tubes**
- Shaped-aperture satellite antennas**
- Digital video-audio MPEG-2 compression and advanced digital coding and modulation**
- Packet transmission**
- Secure conditional access using "smart cards"**
- User-friendly electronic program guide**
- Highly automated all-digital broadcast facility.**

The paper concluded with the current status and future schedule for the system which will ultimately include these satellites at 101 degrees West Longitude providing in the order of 150 channels of programming.

SEMDB-05/94 Overview of DBS and DIRECTV Regulatory Developments Internationally and in the United States (USA)

This paper provided a comprehensive overview of the International and US regulatory provisions governing the implementation of 12 GHz DBS systems such as the DIRECTV system. In particular, it described:

- a) the coverage areas, orbital positions and channel positions assigned to the USA in the RARC-83 Plan for Region 2;
- b) the development of DBS regulatory policy and licensing procedures in the USA;
- c) the regulatory classification of DBS licensees in the USA;
- d) the specific frequencies and orbital positions assigned by the FCC to the nine DBS permittees in the USA;
- e) the technical and regulatory factors that influenced the development of US DBS systems in general and the DIRECTV system in particular.

An appendix to the paper provided a detailed description of how the technical compliance of the DIRECTV system with the provisions of the Region 2 Plan was demonstrated.

SEMDB-13/94 Planning and Implementation of ATV Service in Canada. CAN)

The establishment of an Advanced Television (ATV) system for North America has been a cooperative venture among industry and government participants and the USA. The Frequency Allotment Planning Group of the Joint Technical Committee on Advanced Broadcasting has conducted preliminary ATV planning studies for Canada to identify the capability of the existing VHF and UHF spectrum to meet the ATV service objectives. Studies based on F(50,90) reliability have shown a very high percentage of needs can be met using power levels that are practical. However, to match the reliability of the analog NTSC system, F(90,90) reliability or better is needed because of the rapid degradation of digital ATV (from excellent to unusable in 1 dB). However, using conventional planning methods at F(90,90) and transposing from VHF to UHF makes power levels impractically high. An example of CBOT-TV, Channel 4, Ottawa was used and it was shown that 1 MW average ERP would be needed to duplicate this station's VHF 100 kW service in the UHF band. A potential solution for this is a COFDM transmission system, such as has been developed in Europe for 8 MHz channels. In this approach multiple synchronized low-power transmitters could be used instead. The NAB in the USA has expressed interest in this approach and has initiated a contract to develop a 6 MHz COFDM ATV system.

2. SECOND WORKING SESSION

Date: August 23, 1994
Time: 4:00 pm
Chairman: Mr. G. Ronald Begley (Canada)
Vice-chairman: Mr. Osvaldo Martin Beunza (Argentina)

Following the DAB/HDTV seminar, PCC.II reconvened for the second meeting and initially discussed the future of the group. The Chairman expressed his opinion that such a discussion required a greater attendance from countries of Central and South America. Thus, the chairman suggested that further discussion would take place the following day. During a discussion, an important point was raised regarding the future of the Working Group dealing with the Rio incompatibilities. Namely, associate members, such as broadcasters, should be brought into the process to provide important advice and consent on matters that directly involve the affected stations. Mr. R. Zeitoun (CAN) announced that a meeting regarding the VGE report would be held in Venezuela in February. PCC.II Documents were then presented and are summarized as follows:

PCC.II-12/94 Consideration of Appendices 30 and 30A at WRC-95. (USA)

This contribution described how items 1 and 3a on the agenda of WRC-95 could impact current and future implementation of broadcasting-satellite systems under the RARC-83 BSS and feeder link Plans of Appendices 30 and 30A respectively. In particular, Annex I to the document provided a detailed introduction to:

- a) the three Recommendations of the VGE Report that would affect Appendices 30 and 30A under the agenda item 1; and
- b) the objectives of the revisions to the parts of Appendices 30 and 30A applicable to Regions 1 and 3 that are to be considered at WRC-95 under item 3a.

Annex II described some of the implications for Region 2 of the actions that WRC-95 might take on these two items, and suggested certain positions for consideration by CITEL members.

3. THIRD WORKING SESSION

Date: August 24, 1994
Time: 9:15 am
Chairman: Mr. G. Ronald Begley (Canada)
Vice-chairman: Mr. Osvaldo Martin Beunza (Argentina)

The following documents were presented:

PCC.II-04a/94 ITU-R TG 10/5 on HF Broadcasting. (USA)

Document PCC.II-04a was presented by Mr. Richards. He provided background information on HF broadcasting (HFBC) including the adoption of additional allocations to HFBC by WARC-79 and WARC-92 and the restrictions on them; adoption of a question by 1993 Radiocommunication Assembly on HFBC; and establishment of Task Group (TG) 10/5 by Study Group 10, whose first meeting will be this fall in Vatican City. He also described the work being carried out by the European Broadcasting Union and the Asian Broadcasting Union in preparation for the TG 10/5 meeting.

PCC.II-04b/94 Technical Parameters and Planning Procedures for HF Broadcasting.(USA)

Document PCC.II-04b was presented by Ms. Gomez. She described the process which had taken place in the U.S. in preparation for the TG 10/5 meeting. The document provided the 5 contributions that the U.S. will submit to the TG 10/5 meeting in Vatican City. PCC.II's consideration and comments on these documents were invited.

PCC.II-11/94 Resolution of Incompatibilities - Rio (1981). (USA)

At Rio de Janeiro in 1981, the countries of this region concluded a two-session conference designed to resolve existing interference problems and to provide for the orderly growth of AM broadcasting in the region. The 1981 Rio Agreement included a regional agreement, pertinent technical standards, and a comprehensive plan of AM broadcast stations in Region 2.

Before the conference, administrations were requested to provide an inventory of their planned or operating stations. A review of the inventory indicated that the region had varying degrees of incompatibilities. In the north of the region, because of long-standing agreements, the majority of the identified incompatibilities were deemed to be acceptable under the terms of the existing agreement and were, thus, acceptable under the 1981 Rio Agreement. In other areas, however, geographical and other factors combined to create numerous interference situations.

At the conference, a frequency assignment plan for Region 2 was developed. Since the conference was not able to resolve all incompatibilities, stations were listed in the Plan in two categories termed List A or List B. List A included stations that neither cause nor receive interference. The remainder are included in List B. The

agreement included provisions to encourage future negotiations to mutually resolve these incompatibilities.

Since the conference, several seminars to discuss the resolution of incompatibilities were conducted. During the seminars, delegations agreed to make a substantial number of adjustments to stations to reduce interference and to move stations from List B to List A. The delegates participating in the seminars, however, did not have the authority to make changes to the Plan. As a result, many of the changes were never formalized. This is a major difficulty in the process of resolving incompatibilities.

The 1981 Rio Agreement allows for and, in fact, encourages the resolution of incompatibilities in the region by:

- (1) unilateral adjustments;
- (2) bilateral negotiations; and
- (3) multilateral negotiations.

A major objective of the 1981 Rio Agreement is the resolution of all incompatibilities. It is important for each administration to make every effort to resolve the incompatibilities that were identified at the 1981 Rio Conference so that the purpose of the agreement can be fulfilled. Such an achievement would exemplify the mutual cooperation of the countries of Region 2.

PCC.II-13/94 Technical Assignment Criteria for the AM Broadcast Service. (USA)

For various reasons, AM broadcasting in the United States has suffered greatly over the last two or three decades. Because of this, the FCC created a comprehensive strategy to rejuvenate the AM radio service in the US, a strategy requiring coordinated action by both the FCC and the broadcast industry. The FCC recognized that it was dealing with no less an issue than the very survival of the AM service in the US.

The FCC attacked the problem on three fronts. First, it made changes to technical standards. Second, it changed some non-technical regulations. Finally, it included the AM expanded band (1605 - 1705 kHz) in the solution. It is hoped that the efforts described herein will be of benefit to other countries in preventing the problems that develop when spectrum demand is not adequately managed.

PCC.II-18/94 AM Receiver Tests - Adjacent Channel Interference.(CAN)

In assessing a USA initiative to update and improve AM broadcasting technical criteria, Canada decided that further testing of adjacent channel protection criteria was needed. Using actual programming material which met new bandwidth rules, the material was transmitted at different frequencies and signal levels and increasing levels of pink noise interference into a number of modern receivers. The results were compared

to a co-channel reference by panels of non-expert listeners. The results showed no discernible correlation with frequency, but a significant correlation with field strength. First adjacent channel ratios varied from 3 dB at 0.5 mV/m to 10 dB at 5 mV/m, averaging 6 dB, the value eventually adopted in the USA. Although a variation with field strength also occurred with second adjacent channel interference, the average was very close to the existing standard. Since the size of the interfering contour is small, a change in second adjacent channel criteria is not warranted. On the other hand, first adjacent channel results, both in Canada and the USA, show that the present 0 dB ratio is insufficient.

NOTE: After the presentation of the previous two documents (Docs. PCC.II-13/94 and PCC.II-18/94), the chairman questioned whether the subject of planning and assignment criteria should be included in the work plan of the Working Group on the Rio incompatibilities. There was general consensus that it should be included in the Working Group.

PCC.II-21/94 New Broadcast Information Services and their Migration to Digital Radio Broadcasting. (CAN)

In addition to higher quality audio services digital broadcasting systems are capable of providing lots of useful information for the receiver and for the listener such as value-added services. These value-added services are seen as playing a crucial role in the public's acceptance of DSB. Some attractive value-added services should be seen as an integral part of it. In addition to hastening the acceptance of DSB, these services are likely to generate significant revenue for the broadcasters. DSB is, in essence, a digital bit pipe which is optimized especially for delivery of information to mobile users.

These value-added services may be generally divided into three categories:

Service-related feature: These may include a directory of all services included in the multiplex, service labels, frequency information for alternative services of the same service (in case of simulcast) and conditional access.

Program-Related Services: There are many opportunities for enhanced program-related services when the bandwidth limitations typical of RDS are eliminated; for example, details about individual musical selections being broadcast on the stereo audio channels could be transmitted. The information could, of course, include information on where to obtain the recording (or order the transcript of the program, etc.) - the commercial possibilities are obvious. In addition, more sophisticated text labels presented in a teletext-like display may be provided.

Independent data services: These independent services may include time and date information, paging, traffic messages, warning signals and the information about transmitter locations. In particular, DSB could become very competitive in offering the following potential data broadcasting services:

- Traffic Information Services

- Traveller Information Services
- Vehicle Location and Navigation Systems
- Downloading of Information for Portable Systems

PCC.II-20/94 Channel Characterization and Modelling for Digital Radio at 1.5 GHz. (CAN)

In order to lay the groundwork for the use of the WARC-92 allocation at 1452 - 1492 MHz for digital sound broadcasting, it is necessary to learn more about the characteristics of the channel. A measurement program has been undertaken in Canada to gather and compile information on the channel, with the initial emphasis on terrestrial transmission.

This paper describes the test set-up constructed at CRC for mobile-channel data collection and analysis, and provides a summary of the results thus far collected at 1.5 GHz. The various parameters which can be extracted from the raw data are discussed, and examples are given of how they can be used to construct a channel model. The application of the channel characterization measurements to the programming of hardware simulation facilities used at CRC and by the EIA/NRSC testing program for the DAR systems is also described.

4. FOURTH WORKING SESSION

Date: August 24, 1994
Time: 1:40 pm
Chairman: Mr. G. Ronald Begley (Canada)
Vice-chairman: Mr. Osvaldo Martin Beunza (Argentina)

The report of the chairman of the DAB Working Group, Ms. Tereza Mondino (BRA) was presented and is attached as Appendix IV, part C of the report. The Chairman indicated that seminars are valuable and provide much needed information. However, the chairman noted that general meetings were not very effective for one primary reason: documents that are to be considered are not distributed in sufficient time to allow administrations to review and be prepared to make appropriate responses to the highly technical content.

The Chairman called the attention of PCC.II to the small number of responses by Administrations to the invitation to the DAB Working Group meeting and suggested that PCC.II might consider whether it is premature for the majority of the CITEL Administrations to entertain detailed discussions on DAB at this time. It was agreed that the activities of the Working Group on DAB should be held in abeyance until DAB becomes a higher priority in the majority of the countries of the region. The subject, however, was deemed to be of sufficient importance that the group agreed that it should continue to be on the agenda of the PCC.II activities.

There was general discussion regarding the scope of the Working Group that is chaired by Larry Olson (USA) and which deals with Rio incompatibilities and planning. At least one administration suggested that associate members, such as broadcasters be included in the future meetings and be fully involved in the process to find solutions to the problems facing countries in the region. It was noted that there is a meeting scheduled to be held in Venezuela in March and that might be an appropriate place to follow up on such a discussion. Argentina suggested that CITELE should look for issues that are common to all members, noting that the resolution of 1981 Rio incompatibilities is a pressing problem and seems to be of significant interest throughout the region. Mr. Olson agreed to draft a resolution that would initiate the process for scheduling of a seminar to resolve the Rio 81 incompatibilities in Region 2.

It was decided that Venezuela and Paraguay would draft a letter [Appendix III, part C of this report] that would be directed to each administration in Region 2 and would attempt to identify interest in subjects that are important to the region. Canada suggested that the working group not be limited to only the question of Rio 81 incompatibilities but also to include the other relevant issues involving the improvement of broadcasting in the region. It was agreed that the incompatibilities were certainly included within the mandate of the Working Group and that if enough interest surfaced in responses to the letter, it should and could be handled in the Working Group.

A draft resolution [PCC.II-23/94] regarding broadcasting issues at future radio conferences and CITELE preparations for the WRC-95 was presented by Warren Richards (USA). The draft resolution addresses the issues of Appendices 30 and 30A, the availability of newly allocated HFBC bands, and three Resolutions related to broadcasting that are contained in the Report of the VGE. After some discussion, limited adjustments were made to the document and the group approved it appears in part B of this report as Resolution CCP.II/Res.2(I-94).

DRAFTING WORKING GROUP FOR THE FINAL REPORT

Mr. Larry Olson (USA), chairman of the group, and assisted by Mr. Doug Forde (CAN) and Mr. Osvaldo Beunza (ARG).

JOINT SESSION PCC.II AND PCC.III

[see report of PCC.III]

5. FIFTH WORKING SESSION

Date: August 25, 1994

Time: 3:00 pm
Chairman: Mr. G. Ronald Begley (Canada)
Vice-chairman: Mr. Osvaldo Martin Beunza (Argentina)

After a brief introduction, the Chairman passed the floor to Mr. Larry Olson, Chairman of the Drafting Group for presentation of the draft report. Mr. Olson described the procedure used by the Drafting Group and noted that there were a few items to be added to the report and that he would indicate during his presentation where they would be inserted. All the papers presented during the seminars or the working sessions were or would soon be included in summary form.

During the presentation there were discussions of the summaries of two of the seminar papers, SEMDB-08/94 and SEMDB-12/94. Agreed revisions to the text of the summaries would be made for the final report. Following presentation of the three summaries related to AM broadcasting, Mr. Olson had inserted a paragraph summarizing the discussion of these documents, since that had led to adding to the mandate of the working group which had been formed under his chairmanship to look into the resolution of Rio 81 incompatibilities and other planning matters. It was agreed that the paragraph would remain where it had been inserted with a minor addition to the text. It was also agreed that the working group would be named "Working Group on Incompatibilities and Planning". Several minor changes were made to the summary record of the fourth working session. The Chairman thanked Mr. Olson and the Drafting Group for a job well done.

There was considerable discussion on the draft resolutions that had been presented in the report concerning the resolution of incompatibilities. Previous seminars to resolve incompatibilities had limited success because of the inability of administrations to follow through on agreed changes. The chairman noted that the proposal to include or at least consult broadcasters, permitted by the revised constitution of CITELE, could be the factor which would make the next attempt successful. Discussion centered on timing and the proposed work plan. Mr. Michel Giroux of ITU-BR added valuable information on the assistance which the Radiocommunication Bureau could provide and also on sources for financial support for attendance at a seminar. Consensus was reached on the following:

- the work plan should be refined by the Working Group on Incompatibilities and Planning;
- administrations should correct and update the data on their stations;
- administrations should list the incompatibilities which are most important to them to resolve;
- resolution of incompatibilities and studies performed by the BR should be based on calculations made in accordance with the Rio Agreement for signatories and any other agreed criteria between non-signatories;
- any seminar should be ITU sponsored so as to include non-signatories.

SIXTH AND FINAL WORKING SESSION

Date: August 26, 1994
Time: 2:00 pm
Chairman: Mr. G. Ronald Begley (Canada)
Vice-chairman: Mr. Osvaldo Martin Beunza (Argentina)

The Chairman began the meeting by opening a 20-minute discussion on how to proceed with the resolution of the remaining Rio 81 incompatibilities. The delegate from Paraguay tabled a proposal that we follow two paths towards this goal. The first would be bilateral or multilateral negotiations initiated by member administrations. The second would involve the assistance of the ITU-BR as previously discussed. The decision from the previous meeting that March would be too soon for a full seminar was confirmed. It was agreed that the Working Group on Incompatibilities and Planning would review the resolutions and work plan tabled at the fifth meeting and make a proposal to the next PCC.II meeting. Mr. Olson advised that he would start this work as soon as possible and would consult members by mail or fax and perhaps hold a brief meeting. Ms. Mondino offered to ask her administration to host a small meeting in Brazil. It was agreed that the Chairman would forward a copy of the meeting report to the ITU-BR requesting that the Bureau perform incompatibility studies for all Region 2 countries and send the entire results to Mr. Olson and to each CITELE member administration the results for its stations. Mr. Giroux was asked how soon the Bureau could complete this work and responded that due to the current staff shortage, he could not estimate a date. However, he agreed that March would be realistic. It was noted that the accuracy of station data had been highlighted as a problem, and suggested that the Bureau also forward a list of station data to administrations and ask them to verify and update it. Mr. Giroux stated that this could be done in about two months, but if resulting data were to be captured and used in the incompatibility studies, they would be delayed beyond March. The suggestion was then clarified that the two steps proceed independently, with the incompatibility studies being based on current data.

Mr. Richards (USA) introduced a joint PCC.II/III document containing draft resolutions concerning WRC-95. One of these affected PCC.II and was approved with minor changes as it appears in part B of this report as Resolution CCP.II/Res.1 (I-94). Mr. Richards conveyed these changes to PCC.III and later reported that they had been accepted. Mr. Reinhart, chairman of the PCC.II Working Group on WRC-95 Preparation, was also named as liaison with PCC.III, which had been designated as the body to coordinate WRC-95 input.

The floor was then passed to Mr. Olson to present the revised version of the draft report. Mr. Olson proceeded by noting any sections which had been changed or added since the previous meeting and requesting comment on those. He also invited any participant who found any editorial corrections to approach him before the final version was printed. Mr. Olson tabled a suggested revision to the record of the fourth session concerning the report of the Chairman of the DAB Working Group. After a short discussion and minor editing, this was adopted. A place had been left for the record of the joint PCC.II/III meeting of the morning of August 25. It was suggested that the text of Document PCC.II-27/94 be used, but Mr. Beunza (ARG) noted that this document omitted some important matters in that meeting. He agreed to draft appropriate text and was given the latitude to either add his text to PCC.II-27/94 or to incorporate its salient points. Mr. Olson also tabled a draft record of the fifth session. The Chairman agreed that the text represented what happened at the meeting, although discussions at the current meeting altered some of the conclusions on resolution of

incompatibilities. All that remained was the addition of the record of the current meeting and the insertion of various documents, such as resolutions, the letter from the Chairman to members concerning resolution of incompatibilities, and lists of documents and participants. The lists would be inserted by the Secretariat as soon as they were ready. All other documents were ready and would be inserted into the report following the meeting.

The group agreed that the next meeting would be held in March, 1995 in Venezuela in conjunction with a PCC.III meeting and a VGE seminar.

The Chairman and others thanked Mr. Olson for his excellent work and he, in turn, thanked his assistants Messrs. Forde and Beunza. The Chairman thanked all members for their participation and declared the meeting closed.

B. RESOLUTIONS

RESOLUTION PCC.II/Res.1 (I-94)

**ESTABLISHMENT OF A WORKING GROUP RELATIVE TO CITEL PREPARATION
FOR REGIONAL AND WORLD RADIOCOMMUNICATION CONFERENCES**

The First Meetings of Permanent Consultative Committee II: Radiobroadcasting and Permanent Consultative Committee III: Radiocommunications of the Inter-American Telecommunication Commission (CITEL),

CONSIDERING

Under the International Telecommunication Union ("ITU") structure, World Radiocommunication Conferences ("WRC") will be held every two years and regional conferences will be held as appropriate;

The WRCs will consider and implement changes to the Radio Regulations that will impact the interests of all CITEL Members;

There are a number of issues to be considered by the WRCs which are of common regional importance;

It would be to the benefit of all CITEL Members to coordinate their preparation for the WRCs;

That Article 92 of the CITEL Regulations prescribes the conduct of meetings and administrative support for the PCCs and Working Groups;

That Article 93 of the CITEL Regulations prescribes the working procedures governing the activities of the PCCs; and

That WRCs will have agendas for each conference that will likely chate in subject matter attracting different regional experts and leadership to prepare for these conferences.

RESOLVES:

1. That a Working Group be established under PCC.III to coordinate CITEL preparations for uncoming WRCs and regional radiocommunication conferences;

2. That the Terms of Reference for this Working Group and working method are:

- a) to develop recommended views or proposals on PCC.III issues that will be considered at WRCs or regional radiocommunication conferences convened under the auspices of the ITU;**
- b) these recommended views or proposals would then be considered by PCC.III;**

- c) that the recommended proposals agree by PCC.III would be sent to all CITELE Member countries with a recommendation that each country submit the proposal to the ITU as a country proposal.

3. That the Working Group will have a Chairman and a Vice Chairman who will serve for a two year period from the conclusion of one WRC until the conclusion of the next WRC.

4. That upon the conclusion of a WRC two year cycles, the Vice Chairman shall assume the Chairmanship of the Working Group and a new Vice Chairman shall be appointed.

5. That PCC.III will designate a coordinator to facilitated the coordination of PCC.II matters related to WRCs.

6. That PCC.II will provide its proposals on WRC broadcasting issues to PCC.III for submission to CITELE Members.

7. That administrations would be free to develop their own proposals for the WRCs as they deem appropriate.

RECOMMENDS:

That in accordance with Article 92 of the CITELE Regulations the Working Group:

- a) should conduct its business using facsimile and other modern means of correspondence; and
- b) schedule meetings, to the extent possible, in conjunction with relevant PCC.III Plenary meetings.

RESOLUTION CCP.II/Res.2 (I-94)

BROADCASTING ISSUES AT FUTURE RADIO CONFERENCES

The First Meeting of Permanent Consultative Committee II: Radiobroadcasting of the Inter-American Telecommunication Commission,

CONSIDERING:

That the agenda for WRC-95 includes, under agenda item 3, the following two items related to broadcasting:

"to consider the following items, taking into account the work carried out by the study groups and the CPM of the Radiocommunication Sector, with a view to WRC-97 taking action, as appropriate:

- a) **appendices 30 and 30A for Regions 1 and 3 in response to Resolution 524 (WARC-92), and taking particular account of resolves 2 of that Resolution and with due regard to the advantage of taking into account, where practicable, the orbital arcs of Appendix 30B; and**
- b) **the availability of the newly allocated HFBC bands";**

That, in addition, the agenda for WRC-95 includes under agenda item 1, consideration of the VGE Report which, inter alia, contains three Recommendations related to broadcasting.

That these issues will impact the interest of all CITEL members; and

That it would be to the benefit of all CITEL members to coordinate their preparations for World Radiocommunication Conferences.

RESOLVES:

1. **That a Working Group be established under PCC.II to develop common views or proposals on each broadcasting issue in Considerings a and b.**
2. **That the working Group will complete and distribute its Report to all Members at least one month prior to the next PCC.II meeting.**
3. **That PCC.II will provide its proposals on the WRC issues to PCC.III who will forward them to all CITEL Member countries with a recommendation that each country submit the proposals to the ITU as country proposals.**
4. **That the Working Group should conduct its business using facsimile and other modern means of correspondence.**
5. **That the Chairman of this Working Group shall be Mr. Edward Reinhart (USA).**
6. **That the following Administrations have offered to participate in the Working Group: Argentina, Barbados, Brazil, Canada, USA, and Venezuela.**
7. **That all other Administrations are welcome to participate in this Working Group.**

C. APPENDICES

I. LIST OF PARTICIPANTS

LIST OF DOCUMENTS/LISTA DE DOCUMENTOS

Number/Número	Title/Título	Language/Idioma	
PCC.II-01/94	List of Documents/Lista de documentos	E	I
PCC.II-02/94	Draft agenda/Proyecto de temario.	E	I
PCC.III-03/94	Draft Schedule of Activities/Proyecto de calendario.	E	I
PCC.II-04/94	<p>Technical Parameters and Planning Procedures for HF Broadcasting. (Presented by the Delegation of The United States) Parámetros técnicos y procedimiento para la radiodifusión por ondas decamétricas.</p>	E	I
PCC.I/II/III -05/94	<p>Associate members in the work of the permanent consultative committees of the Inter-American Telecommunication Commission (CITEL) Los miembros asociados en los trabajos de los Comités Consultivos Permanentes de la Comisión Interamericana de Telecomunicaciones ~ (Documento presentado por la Delegacion de México).</p>	E	I
PCC.I/II/III -06/94	<p>Comments on Article 82: Associate Members Under the Regulatons of the Inter-American Telecommunication Commission (CITEL), and Proposed Amendment. Comentarios al Artículo 82 (Miembros Asociados) del Reglamento de la Comisión Interamericana de Telecomunicaciones (CITEL) y propuesta para su modificación. (Documento presentado por el Presidente del PCC.III).</p>	E	I
PCC.I/II/III -07/94	<p>CITEL Associate Members (Information document by the Executive Secretariat) Miembros Asociados de la CITEL (Documento informativo de la Secretaría Ejecutiva).</p>	E	I
PCC.I/II/III -08/94	<p>CITEL Working Groups (Information document by the Executive Secretariat) Grupos de Trabajo de la CITEL (Documento Informativo de la Secretaria</p>	E	I

Ejecutiva).

**PCC.I/II/III
-09/94**

Inter-American Telecommunication Commission (CITEL): Participants, Structure/Authorities and Member Country Directory (Information document by the Executive Secretariat). Comisión Interamericana de Telecomunicaciones (CITEL). Participantes, Estructura/autoridades y Directorio de los Países miembros (Documento informativo de la Secretaría Ejecutiva).

E I

PCC.II-11/94

Resolution of Incompatibilities- Rio (1981) (Presented by the Delegation of the United States).

E I

PCC.II-12/94

Proposed addition to the Work Program of PCC.II: Consideration of Appendices 30 and 30A at WRC-95. (Presented by the Delegation of The United States).

E I

PCC.II-13/94

Technical Assignment Criteria for the AM Broadcast Service. (Presented by the Delegation of The United States).

E I

PCC.II-14/94

Resoluciones CIJEL RES.8/10(I-94) de la Asamblea de la CITEL en Montevideo, 1994 (Documento informativo de la Secretaría Ejecutiva).

E I

PCC.II-15/94

**Grupo voluntario de expertos para el examen de la Atribución y Utilización más eficaz del espectro de frecuencias radioeléctricas.
Voluntary Group Experts (VGE) Study the most effective allocation and use of the Radio Spectrum and Simplification of the Radio Regulations.**

E I

PCC.II-16/94

Informative Document on the Chart Depicting the Allocation of Frequency Bands Between 960 MHz in the Republic of Argentina and the Status of its Use by Fixed and Land Mobile Service Stations.

E I

PCC.II-17/94

AM Receiver Tests Adjacent Channel Interference Pruebas con receptores de AM. ~Intefferencia del

E I

Canal Adyacente).

PCC.II-18/94	AM Receiver Tests Adjacent Channel Interference Pruebas con receptores de AM (Interferencia del Canal Adyacente).	E	I
PCC.II-20/94 (Rev. 1)	Channel Characterization and Modelling for Digital Radio Broadcasting.	E	I
PCC.II-21/94	New Broadcast Information Services and their Migration to Digital Broadcasting.	E	I
PCC.II-22/94	Participants List for PCC.II/Lista de Paricipantes del CCP.II.	E	I
PCC.II-23/94	Broadcasting Issues at Future Radio Conferences.	E	I
PCC.II-24/94	Open Letter to Member Countries of CITELE Carta a los países miembros de la CITELE.	E	I
PCC.II-25/94	Regional Data Base of Spectrum Usage of the 942-2690 MHz in Canada. Base de datos regional sobre la utilización del espectro empleo de la gama de 942-2690 MHz en Canadá.	E	I
PCC.II-26/94	Report of the Chairman of the Ad-Hoc Working Group on Digital Audio Broadcasting. Informe del Presidente del Grupo de trabajo Ad Hoc sobre Radiodifusión Digital Sonora.	E	I
PCC.II-27/94	JWG using Radio Frequency Spectrum/Reunión cojunta del CCP.II, CCP.III sobre el uso del espectro de radiofrecuencia.	E	I
PCC.II-28/94	Proposal for the resolution of incompatibilities/ Propuesta de tratamiento de incompatibilidades de Río-1981.	E	I
PCC.II-29/94	JWG - Translation	E	
PCC.II-30/94	Introductory Remarks by Roberto Blois - Executive	E	

Secretary of CITEL.

PCC.II-31/94	Working group relative to CITEL/Grupo de trabajo relativo a la CITEL.	E	I
PCC.II-32/94	Draft Final Report PCC.II/Informe final CCP.II	E	I
PCC.II-33/94	Record of fifth meeting.	E	I

III. LETTER**Open Letter to Member Countries of CITELE**

Dear Sirs:

PCC.II, in its first meeting held last August in Ottawa, felt it necessary to urge all member administrations of CITELE to make the strongest possible effort in analyzing the present and future status of broadcasting in your respective countries, and to forward all comments to the chairman of PCC.II, particularly your suggestion regarding the topics which this Committee should deal with in the future. At this time, pending your guidance, it is intended that the agenda for the next meeting of the committee which will take place in Caracas in March of 1995, will include,

- Incompatibilities of RJ-81 and possible solutions.
- Consolidation of technical standards in radio broadcasting.
- New technologies in radio broadcasting.
- Technical assistance.
- Updating of data bases.

Hoping for your prompt reply; (by 30th November this year, if possible), I remain.

Very cordially,

Ronald Begly
Chairman, PCC.II
300 Slater Street, Room 1230
Industry Canada
Ottawa, K1A 0C8 FAX: (613) 954-6091

For the convenience of member administrations, replies may also be addressed to either of the following:

Marlene Garcia Romero
Gerente de Radiofifusion
Comision Nacional de Telecomunicaciones
Calle Veracruz, Edificio M.T.C
Urbanizacion Las Mercedes
Caracas, Venezuela
Tel: (582) 92-67-68
FAX: (582) 993-5525
Pedro M. Duarte F.
Director de Radiocomunicaciones y

Administracion de Frecuencias
Administracion Nacional de Telecomunicaciones
Pai Perez y Pettirossi - 10 o Piso
Asuncion, Paraguay
Tel: (595) (21) 200-093
FAX: (595) (21) 210-887

IV. REPORT OF DAB AD HOC WORKING GROUP