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## CCIR News

### The XVIIth CCIR Plenary Assembly

**T**he XVIIth Plenary Assembly of the CCIR concluded its work on 1 June 1990 with the participation of 520 delegates representing some 75 administrations, 32 recognized private operating agencies, and 15 international organizations and two United Nations specialized agencies. It had started on 21 May.

The CCIR, one of the five permanent organs of the ITU, is responsible for the development of technical bases for international sharing and management of frequency spectrum and geostationary-satellite orbit resources, for the standardization of radio systems (compatible performance and interconnectivity) world-wide and for the production of information used for the development, planning and operation of radio systems, with particular emphasis on the needs of developing countries.

The Plenary Assembly is the governing body of the CCIR and meets every four years at the conclusion of a study period to examine reports of the Study Groups established by the previous Plenary Assembly and to consider, for adoption, the draft Recommendations they contain. CCIR Recommendations cover nearly every domain of the use of the radio technology, including radio-relay systems in telecommunication networks, satellite systems for communications, radio and television broadcasting and mobile services such as maritime, aeronautical and land mobile including personal communications systems. Some basic aspects of radiocommunication are also studied by the CCIR such as propagation of radio waves and technical means for using the radio frequency spectrum.

The XVIIth Plenary Assembly examined the results of the work of the 13 Study

Groups established by the previous Plenary Assembly. Sixty new Recommendations were approved and 126 revised, bringing the total in force to 378. The Plenary Assembly also reassessed the role of the CCIR, its working methods and structure and its functioning and adopted the programme of work for the study period (1990-1994).



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*Mr R. C. Kirby, Director of the CCIR, addressing the XVIIth Plenary Assembly at Düsseldorf*



## High-definition television

One of the major subjects of discussion of the Plenary Assembly undoubtedly was high-definition television (HDTV). The following five Recommendations relating various aspects of HDTV were adopted unanimously:

- Recommendation XA/11 which defines 23 of the 34 basic parameter values considered necessary for the HDTV studio standard (based on analogue signals while not excluding compatibility with digital signals) and for the international exchange of HDTV programmes. The exchange of HDTV programmes, based on this Recommendation, is already taking place. In addition to the production and exchange of high-definition programmes, a studio standard is required to facilitate the introduction of HDTV broadcasting services and the use of HDTV for non-broadcast purposes (computer displays, avionic display equipment, displays for medical uses such as in micro-surgery, industrial applications such as industrial design, electronic press industry, etc.);
- Recommendation XB/11 which provides methods for the subjective assessment of image quality in HDTV. This recommendation, along with the adoption of a report on objective measurements, represents a major step forward as a world-wide agreement has been reached on the procedures, analysis and context of HDTV measurements. This will enable the use of uniform criteria to assess the quality of HDTV images irrespective of the system used. Test centres have already been established in Washington, Ottawa and Moscow, operating on the basis of this Recommendation;
- Recommendation XC/11 which deals with the recording of HDTV images on 35-mm cinematographic film;

- Recommendation XD/11 which concerns the international exchange of recorded HDTV programmes;

- Recommendation AD/10-11 which defines the area of a 35-mm motion picture film to be scanned for HDTV telecines (non-anamorphic pictures).

The major difficulties encountered in respect of the Recommendation relating to the studio standard were conceptual rather than technical. The differences lay in the way to introduce HDTV (compatibility with existing systems, evolutionary/immediate introduction, terrestrial emission/satellite and cable transmission, etc.) with the resulting differences in the related technical characteristics. Progress was therefore slow but steady, concretely leading to a convergence in the development of HDTV systems.

### A solid basis for the future development of HDTV

The parameter values adopted represent the foundation of a unique world-wide studio standard. The agreed aspect ratio of 16:9 and the colorimetric values represent an important world-wide agreement in the history of television. With this agreement, it is now possible for manufacturers to go ahead with the production of HDTV equipment, in particular television displays; it will also enable enhancement of conventional systems. The outstanding parameter values include picture characteristics related to the way in which the television picture is to be constructed (for example, common image format/common data rate), reference primary colours, picture rate, signal format, analogue representation and bit rates. A number of concepts were introduced during the 1986-1990 study period that could lead to a world agreement for picture and scanning characteristics, but further studies need to be carried out. Moreover, values already

agreed on luminance and colour-difference equations will be refined.

Furthermore, the five Recommendations will greatly facilitate the exchange of high-definition programmes, a world agreement having been reached on the exchange of programmes, on the transfer from HD programmes to 35-mm films and on the relation between the 35-mm motion picture film and HDTV telecines.

The Plenary Assembly attributed a high degree of priority to the preparation of standards for both analogue and digital HDTV (both existing HDTV systems are basically analogue), as an increasing number of broadcasters and production houses begin to produce programmes in HDTV. The various aspects of HDTV which have been included in the CCIR 1990-1994 study programme have been put in the "urgent" category and, as a result, Recommendations are expected within 1 to 3 years.

### Future emphasis: emission/transmission and full representation of digital HDTV

Future work will also cover parameters for HDTV digital studio standards (number of samples per digital active line, number of samples per full line, analogue-to-digital horizontal timing relationship, form of coding, correspondence between video signal levels and quantization levels, video index, code word usage), radio frequency and emission technical parameters including modulation, channel coding and multiplexing of HDTV satellite broadcasting, system parameters for wide RF band analogue and digital HDTV transmissions by satellite, propagation characteristics for band suitable for wide RF-band and HDTV transmissions and inter- and intra-service sharing and interference as well as interregional sharing and terrestrial broadcast of HDTV.



These studies are particularly relevant to the forthcoming ITU World Administrative Radio Conference of 1992 for the allocation of a specific frequency band for HDTV direct satellite broadcasting.

An Interim Working Party (IWP 11/9) responsible for the harmonization of HDTV standards between broadcast and non-broadcast applications, was established in 1989. It will work with the International Electrotechnical Commission (IEC) and the International Organization for Standardization (ISO) with respect to information technology and industrial, scientific and medical applications including consumer applications such as video and optical recorders, as well as with the ITU's CCITT and the Joint CCIR/CCITT Study Group on television and sound transmission (CMTT) for the delivery of HDTV signals by means of broadband integrated services digital networks (ISDN) and other digital networks. It will meet in Tokyo, Japan, from 3 to 9 October 1990 to review the progress of work and to identify the steps that need to be taken by the CCIR, in consultation with other organizations and international standards bodies, to reach early decisions on outstanding parameters of HDTV standards.

### Mobile system

In the area of future public land mobile telecommunications systems, a Recommendation was approved on the objectives, services to be provided, frequency band considerations and technical/operational characteristics intended for systems used on a regional and world-wide scale. This new Recommendation opens the way to a variety of mobile terminals ranging from those which are small enough to be easily carried on the person to those which are mounted in a vehicle providing voice and non-voice telecommunications (telephony, text, paging, videotex, telefax, data) that can be used anywhere—in the air, at sea, across national frontiers.

All the Recommendations drafted in the 1986-1990 study period relating to the Global Maritime Distress and Safety System were adopted; among them digital selective calling (which includes procedures to provide position information and to accommodate automatic station identification), automatic VHF radio-telephony operation, narrow-band direct printing, satellite emergency position indicating radio beacons (EPIRB) to facilitate detection and location at sea and the technical characteristics of VHF DSC EPIRBs.

A total of eight new Recommendations in relation to mobile systems were adopted and 12 were revised. Many of them deal with the delicate problem of interference and frequency sharing between the mobile-satellite service and other services using the same frequency bands. Sharing issues will determine, to a large extent, the future growth of mobile systems and their coverage areas.

The question of public telecommunications services from and to aircraft was also the subject of study and the existing report providing technical and operational considerations was expanded and updated.

### Others matters

The Recommendation on satellite news gathering (SNG) was also endorsed. This Recommendation harmonizes and simplifies the technical, operating and procedural aspects used so far by broadcasters when operating SNG in different countries. SNG consists of the use of transportable or portable transmitting earth stations that can be handled by one or two persons and checked in as ordinary baggage on scheduled airline flights and which can be rapidly set up to feed television news via satellite from virtually any place in the world.

A new Recommendation was also adopted concerning the international synchroni-

zation of UTC time scales. This is relevant to multi-country operations which require time synchronization such as mondovision television programmes.

In the area of radio broadcasting, new Recommendations were approved on HF transmitting antenna diagrams, the characteristics of AM and FM reference receivers, AM data broadcasting systems and on high-quality sound and data standards in satellite broadcasting.

Several Recommendations in the field of satellite communications were also adopted or revised, particularly in the area of performance, satellite antenna radiation patterns, the positioning of satellites and permissible interference levels in geostationary-satellite networks.

## Organizational reforms

### Study Groups

The Plenary Assembly decided to reorganize the structure of the Study Groups so as to reflect telecommunication priorities and technology for the 1990s, to streamline the decision-making process and to focus on decision responsibility.

#### CCIR Study Groups

Study Group 1—Spectrum management and techniques (spectrum engineering, planning, sharing, monitoring and utilization)

Study Group 4—Fixed-satellite service

Study Group 5—Radio wave propagation in non-ionized media

Study Group 6—Radio wave propagation in ionized media

Study Group 7—Science services

Study Group 8—Mobile, radiodetermination and amateur services



- Study Group 9—Fixed service
- Study Group 10—Broadcasting services (sound)
- Study Group 11—Broadcasting services (television)
- Study Group 12—Inter-service sharing and compatibility

#### *Joint Study Groups*

CCV—Coordination Committee for vocabulary (CCIR, CCITT, ITU General Secretariat, and other interested organizations, mainly the IEC)

CMTT—Television and sound transmission

Plan Committees

Special Autonomous Groups

Study Group 12, a new special inter-service sharing and compatibility Study Group, was created to work in association with Study Group 1. It will be autonomous and have the authority to review draft Recommendations submitted by the Task Groups created to deal with specific assignments. The questions referred to this new group will be limited to those which are urgent and require special attention. The new Study Group has been established for the next study period and its continued existence will be reconsidered by the next Plenary Assembly.

#### **Working methods**

The role of the Study Groups will be to perform an executive function, including the planning, scheduling, supervision, delegation and approval of the work and other related matters. It will set up Working Parties to study the Questions assigned to the Study Group and to prepare draft Recommendations and

other texts for consideration by the Study Group. When a Question is categorized as "urgent" and cannot be reasonably carried out by a Working Party, it may be assigned to a Task Group. After completion of its specific assignment, the Task Group will be dissolved.

Study Groups have been given areas of interest and responsibility called "scope" instead of formal terms of reference which inhibited a project-oriented approach to broad tasks.

The establishment of Working Parties and Task Groups will be the subject of a Decision of the Study Group adopted during one of its meetings; the Decision will clearly state the specific matters to be studied and the subject of the draft Recommendation to be prepared as well as the deadline. In addition, urgent Questions which may arise between Study Group meetings and which cannot wait for the Study Group scheduled meeting may be assigned to a Task Group by the Chairman of the Study Group after consultation with the Vice-Chairmen and the Director of the CCIR.

In future, the Plenary Assembly will issue directives concerning the Study Group meetings and the meetings will be scheduled according to need, in principle twice during the study period. Each Study Group will have the authority to adopt draft Recommendations using the newly adopted procedure for approval of a Recommendation between Plenary Assemblies. If adopted on the basis of this procedure, the Recommendation will be published and come into force within six months of the date of adoption, on the date specified by the Secretary-General. Study Groups may also adopt Decisions, Reports and Handbooks.

A number of proposals to merge certain Study Groups were considered but not accepted given the need to assess the costs-benefits of the various options. For

this reason, the Plenary Assembly decided to establish a Working Party to examine the structure of the Study Groups adopted at its present session and to prepare a report recommending any further changes as may be deemed necessary to provide economy, efficiency and effectiveness in the work of the CCIR. After consultations with administrations, a consolidated report and a plan for implementation based on the Working Party's proposals will be submitted by the Director of the CCIR to the next Plenary Assembly.

The Plenary Assembly also decided to establish an *ad hoc* Advisory Group to discuss issues identified by the Director of the CCIR as being important for strategic review and planning of CCIR work.

A procedure for approval of Recommendations between Plenary Assemblies has been adopted by the XVIIth Plenary Assembly to better respond to the requirements of the scientific, technical and user communities.

In essence, the procedure provides for the Chairman of the Study Group concerned to seek the adoption of a draft Recommendation at a given Study Group meeting. This intention is to be communicated to all participants at least three months before the meeting. The decision by the Study Group participants to apply this procedure must be unanimous. The text of the draft Recommendation is then circulated among all Members of the CCIR. Recognized private operating agencies, scientific and industrial organizations and international organizations participating in the work of the CCIR are also informed of the consultation. If 70% or more of the replies from the Members indicate approval, the Recommendation is adopted and published within six months. If not, it is referred back to the Study Group for further study. It may subsequently be submitted to the Plenary Assembly for



adoption or be subject again to the accelerated procedure.

### Administrative Radio Conferences

When the need for technical studies for an administrative radio conference arises between two Plenary Assemblies, the procedure for assigning the work to a Task Group will be the same as the procedure followed to assign to a Study Group a Question arising in the interval of two Plenary Assemblies. The Task Group will have the authority to adopt the report to be submitted to the Conference.

The XVIIth Plenary Assembly also established the work programme for the Study Groups relating to the preparations of the World Administrative Radio Conference of 1992 and of the World Administrative Radio Conference of 1993.

### Technical Co-operation

The role of CCIR's technical cooperation activities and their relationship with the Telecommunications Development Bureau (BDT) were examined. As a result, five Resolutions were adopted. One concerns the role of the CCIR in providing advice and assistance to developing countries in the field of radiocommunications, another invites the BDT to call upon the services of CCIR engineers for short-term technical assistance missions and proposes that, at the request of the BDT, the CCIR compiles material on specific problems posed by developing countries in radiocommunications; a third aims at encouraging the organization of some CCIR meetings in developing countries so as to increase their participation in the work of the CCIR. These texts bring into focus the role of the BDT in future technical cooperation activities of the CCIR. The other two Resolutions relate to the propagation measurement campaigns in developing countries, in-

cluding possible funding, and the institution of information meetings aimed at exchanging views on the developments in the CCIR work for countries which are normally unable to participate in the Study Group meetings.

### Future programme of work

In respect of its programme of work for the period 1990-1994, the Plenary Assembly decided to establish three categories for the questions to be studied:

- Urgent—Questions associated with work already being undertaken which is related to preparations for administrative radio conferences; questions which, by direction of the Plenary Assembly, are candidates for the formulation of a Recommendation within 1 to 3 years and questions submitted by the IFRB unless indicated otherwise.
- Important—Questions eligible for retention for study in the following study period and for which Recommendations would, in principle, be prepared by Working Parties for approval by the Study Group and adoption by the following Plenary Assembly.
- Other—Questions which are eligible for deletion or are referred back to the Study Group for further consideration or those which the Plenary Assembly decided to delete.

The work programme will be established by each Study Group concerned on the basis of the guidelines provided by the Plenary Assembly.

### Information

The Director of the CCIR will issue, at regular intervals, an Information Bulletin which will include the schedule of meetings for at least the next six months,

an outline of the agenda of forthcoming meetings and brief reports of recent meetings.

## CCITT News

### Meeting of Working Party XI/7

### First draft Recommendations take shape



**Working Party XI/7** (Operation, administration and management (OAM)) held its second meeting of the 1989-1992 study period from 19 to 23 March 1990. The meeting was chaired by Mr G. H. Peterson (American Telephone and Telegraph Company—AT&T).

Working Party XI/7 is responsible for all OAM matters related to switching and signalling and has accepted responsibility for the development of an open system interconnection (OSI) aligned protocol architecture supporting the OAM needs of Study Groups IV (Maintenance), XV (Transmission sys-