

A SERIES OF ARTICLES WHICH EXPLORES SOME OF THE COMPLEXITIES OF EMERGING TECHNOLOGIES

INTERNATIONAL DEVELOPMENTS IN HIGH DEFINITION AND DIGITAL TELEVISION

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In October 1994, officers from the ABA attended an international conference of the International Telecommunications Union (ITU). This summary reports on the meetings and likely effect on the Australian television broadcasting system.

The ITU is studying recommended options and standards for new generation television systems expected to become available on a worldwide basis, from about 1997.

Within the ITU's Radiocommunications Bureau there are 12 study groups, each with responsibility for different aspects of radiocommunications and broadcasting uses of the spectrum.

Study group 10 considers issues related to sound broadcasting and study group 11 considers issues related to television broadcasting. Meetings of each study group are normally held annually.

The major issues currently under study are high definition television (HDTV) and digital sound and television broadcasting systems. Studies relate to international recommendations for appropriate spectrum uses, recommended technical specifications for services and maximum commonality in standards for systems proposed for use in different countries and regions of the world.

The meetings of study groups 10 and 11 held during October 1994 built on previous work. They were seeking to finalise new draft recommendations for HDTV and digital services for approval at the Radiocommunications Assembly, scheduled in 1995, and the proposed later adoption by the World Radiocommunications Conference.

THE 1994 MEETINGS

The Australian delegation for these meet-



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ings comprised officers from the ABA (Bob Greeney and Eddy D'Amico), Federation of Australian Commercial Television Stations (FACTS—Dick Barton), the ABC (Spencer Lieng) and the Department of Communications and the Arts' (DCA) Communications Laboratory (Murray Delahoy).

STUDY GROUP 10: SOUND BROADCASTING

During October 1994, meetings of some of the task groups and working parties of study group 10 were held. Issues considered were assessment of sound quality, high frequency broadcasting, audio frequency characteristics, transmitting and receiving antennas and recording for broadcasting.

The Planning for Sound Broadcasting Above 30 MHz working party (WP10B), which includes FM and digital sound broadcasting services, meets in late No-

vember 1994. Those meetings are of significance to the ABA and will also be attended by ABA officers (Bob Greeney and Reji Mathew). A separate report will be prepared on completion of these meetings in December 1994.

STUDY GROUP 11: TELEVISION BROADCASTING

This was the meeting of most current importance to the Australian delegation. Its work is divided into six working parties and four task groups, each dealing with particular areas relating to analog and digital television broadcasting.

The ABA's delegates concentrated on issues relating to conventional, enhanced and HDTV systems, terrestrial television (emission and planning parameters) and digital terrestrial televisions. FACTS, the ABC and the DCA concentrated on studio interfaces, digital encoding, data broadcasting, recording for broadcasting and HDTV for studio and international program exchange.

MAIN ISSUES FOR AUSTRALIA

GHOST CANCELLING

Comprehensive tests in Australia and in the UK earlier this year demonstrated the benefits available from providing a world standard ghost cancelling system. The Australian delegation provided a technical contribution to these meetings which was used as the basis for input to modify ITU recommendations for ghost cancelling reference signals for the PAL television system. PAL is the television system used in Australia and in many other countries including the UK, most of Europe, Africa and parts of Asia and

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South Pacific nations. This work is likely to lead to the adoption of an Australian standard for and the availability of ghost cancelling receivers in Australia in about 12 months time. [See *ABA Update* no. 25 for a discussion about ghost cancelling.]

PROTECTION RATIOS FOR ANALOG TELEVISION FROM DIGITAL TELEVISION

This work is important in developing planning guidelines for the introduction of digital television. Considerable progress was made towards establishing firm recommendations for protection ratios. These can be used to ensure that existing analog television services do not suffer excessive interference from digital television services operating in the same bands, or on adjacent channels. This work was the result of input from Australia, the UK, the US, Japan, Sweden, Germany and France. More work is needed over the next year to finalise this draft new recommendation.

HIGH DEFINITION TELEVISION STANDARDS

The meeting agreed on including the existing North American and European proposed standards for analog HDTV in a new recommendation to be finalised by the ITU in 1995. This was finally agreed with some expressions of concern that the recommendation diverges from the goal of developing a single worldwide standard with the maximum degree of commonality between HDTV systems. The group recognised the need for a separate new draft recommendation for a common worldwide digital television standard. New draft recommendations are also being considered for extra HDTV which is comparable with the quality of 35mm film recordings.

PALPLUS WIDE-SCREEN TELEVISION

PALplus is a system which has not been given much attention by Australian broadcasters who are aiming for the quantum leap to digital television. However, but the meetings endorsed the PALplus system of enhanced, wide-screen PAL television for use in Europe and the UK. Commercial PALplus television receivers

are due to come on the market from 1995.

Australia does not plan to adopt PALplus because it is seen only as an interim step towards full HDTV using digital technology.

For the PALplus wide-screen system only two enhancement modules are used, out of six modules used to get fully enhanced television. If an enhanced television service with a display of 16:9 (wide-screen) and ghost cancellation was required, then full PALplus may be implemented, including the ghost cancelling module. The final wording of the proposed recommendation allows for the adoption of any of the six enhancement modules. Ghost cancelling could be implemented in Australia without having to go to the wide-screen television display module. Ghost cancelling is one of the other five options for enhanced television.

DIGITAL TERRESTRIAL TELEVISION

This is the dominating discussion in study group 11. Some progress was made towards convergence in digital standards for video coding and transmission, and in areas relating to occupied bandwidth and planning criteria. A major issue for Australia and other countries is the audio coding within MPEG-2, which has yet to be satisfactorily demonstrated. Recent tests have shown that the proposed standard is below commonly accepted broadcast quality, so more work is needed.

Significant progress was made towards the completion of tutorial documents outlining the development of digital terrestrial television broadcasting systems.

The new draft recommendation for digital terrestrial television systems has been updated to include new data on planning criteria and implementation methods for digital television. A new report is being prepared on digital terrestrial television broadcasting coverage studies and field trials. The latter will include protection ratios between analog and digital television services and digital radio services where they operate in television bands, interference to existing services, location variation factors, network topology, multipath performance and a reference receiving system. This work is important for the ABA's Digital Terrestrial Television Broadcast-



ing (DTTB) Specialist Group.

SINGLE FREQUENCY NETWORKS

SFNs are a proposed method of using supplementary transmitters within the licence area of a digital radio or television service reusing the same frequency as the parent or master transmitter. The obvious advantage would be the spectrum efficiency of such a system if it can be practically implemented.

SFNs were discussed in detail in the new draft report on DTTB broadcasting service coverage studies and field trials. The UK delegates submitted a late paper discussing results of successful field trials of an SFN in southern UK (Exeter). The main conclusion was that error correction coding successfully improved interference protection ratios as predicted. Use of the error correction techniques improved the picture quality from a bit error rate (BER) of 10:2, to a BER of at least 10:4—equivalent to an improvement of one picture grade in an analog system. There is a growing body of evidence that SFNs are likely to be a practical proposition for digital broadcasting services.

INTERACTIVE TELEVISION

An issue raised by the study group 11 convenor was his desire that the group actively pursue solutions leading to the determination of return channels for interactive television. In particular, the current initiative is seeking recommendations for radio frequency channels to be used with set-top transmitters on television receivers, using mobile radio channels to provide the return (interactive)

channel. This is a change from earlier attention to the possibility of using broadcasting channels for the return path.

Most, if not all, delegates are sympathetic to the need for return radio frequency channels for interactive television but, because of heavy radio frequency (RF) congestion already, would prefer use of non-RF communications channels such as telephone lines or coaxial or fibre optic cables as the return medium. These questions have yet to be resolved, but have been asked of each working party and task group in the study group.

STEREOSCOPIC TELEVISION

The study group was also reminded that each working party and task group is to consider recommendations for common standards for stereoscopic television (that is, stereophonic *sound* for television) in analog and digital television systems. This will have particular relevance to new systems and is of importance in determining the sound encoding system for digital television systems.

REPORTS OF INDIVIDUAL TASK GROUP AND WORKING PARTY MEETINGS

Reports from each of the task groups and working party meetings attended by the Australian delegates are held in Planning Branch of the ABA as well as the report of the delegation leader to the Australian administration, the SMA. As these tend to go into great technical detail, they have not been widely distributed.

If a copy of any report is required contact Bob Greeney (06-256 2851) or Reji Mathew (06-256 2845).

WORLDWIDE STANDARDS

Australian participation in these meetings has led to the inclusion of material from Australian experience in new studies for the planning and implementation of enhanced analog television systems and in the planning and implementation of digital television services.

The outputs of this series of block meetings of the study groups is showing convergence towards acceptable worldwide standards for enhanced as well as digital television services, which has been the goal of participating administrations for some time. ☐

ABA VISITS ALBURY, DENILIQIN, SHEPPARTON, WANGARATTA

Representatives of the ABA visited Albury, Deniliquin, Shepparton and Wangaratta in the week commencing 7 November 1994.

The ABA met with interested persons, discussing possible additional radio services and options for improved reception of existing radio services in the region.

This visit was part of the ABA's national planning process for radio services, which involve wide public consultation.

The ABA has begun the development of licence area plans for radio services in the Albury, Shepparton and Wangaratta areas with a call for public submissions.

For the purposes of the ABA's spectrum planning process, the Albury,

Shepparton and Wangaratta zone refers to a large area of Victoria and New South Wales within the licence areas of Albury-based services 2AY/2AAY, Shepparton-based services 3SR and 3SUN and Wangaratta-based service 3NE. This area is in the ABA's second priority group.

Written submissions are invited. The closing date is 16 December 1994. Submissions, quoting file number 93/7720, should be addressed to the Planning Officer for Albury, Shepparton and Wangaratta, ABA, PO Box 34, Belconnen, ACT 2616. An information booklet is available to help prepare written submissions and can be obtained by writing to the above address or telephoning 008 810 241. ☐

ABA TRAVELS TO TAIWAN, HONG KONG

Fiona Chisholm, Manager, Policy Section, visited Taiwan and Hong Kong on behalf of the ABA in September and October. The purpose of the visit was to establish new contacts and develop existing relationships with government agencies and industry bodies. The visit also provided the opportunity to examine satellite operations within the region.

Ms Chisholm attended the Taipei Telecom '94 and the Taipei Broadcast '94 exhibitions at the Work Trade Centre

in Taipei. Also in Taipei Ms Chisholm met with representatives of MGM, Pohsin Entertainment Incorporated, China Television Company, and United Advertising Company. She also visited the Broadcasting Corporation of China and was briefed on their operations.

In Hong Kong Ms Chisholm met with representatives of the Office of the Telecommunications Authority, Television and Entertainment Licensing Authority and the Government Secretariat of Recreation and Culture. ☐

PROGRAMS GRANTED C OR P CLASSIFICATIONS

Programs granted a C or P classification by the ABA between 17 October 1994 and 15 November 1994. Producers interested in submitting programs for classification should contact Liz Gilchrist on (02) 334 7830.

<i>Title</i>	<i>Origin</i>	<i>Clas</i>	<i>New/ renewal</i>	<i>Decision date</i>	<i>Applicant</i>
Alexander and the Terrible, Horrible, No Good, Very Bad Day	USA	C	new	21.10.1994	Southern Television Corporation Pty Ltd
Doug (Series 2)	USA	C	new	3.11.1994	Network TEN
Ira Sleeps Over	USA	C	new	3.11.1994	Southern Television Corporation Pty Ltd
Total Recall	Australia	C	new	7.11.1994	PRO Television Pty Ltd

CAD C Australian drama **PRC** Provisional C **Clas.** Classification