OUTCOMES OF THE WORLD RADIOMEMUNICATION CONFERENCE

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The International Telecommunication Union (ITU) held the World Radiocommunication Conference (WRC-07) from 22 October 2007. Deliberations were concluded on 16 November 2007 with the adoption of an international treaty to meet the global demand for radiofrequency spectrum that has been fuelled by rapid technological developments and growth in the communications industry. Australia’s objective at WRC-07 was to promote the development of international world radiocommunication agreements that enhance efficient and coordinated access to spectrum and to increase Australia’s ability to implement and use satellite and terrestrial systems. This paper outlines Australia’s objectives and WRC-07 proposals, describes the WRC process and Australian preparatory activities, then summarises the outcomes.

THE CONFERENCE

More than 2,900 people/delegates participated over the four weeks of WRC-07. A total of 162 member countries were represented at the conference, which was marked by intense negotiations on the future of wireless communications. Australia’s delegation of 38 members was the largest Australian delegation to a WRC and came from a cross section of government, industry and the private sector.

The Australian preparatory process for the conference was extensive and comprehensive. The process led to the development of proposed Australian positions to the conference that were submitted to the former Minister for Communications, Information Technology and the Arts. The Minister provided final approval to the Australian Delegation Brief to WRC-07 prior to the conference.

The purpose of the WRC is to revise and update the international treaty known as the Radio Regulations, which govern the use of the radiofrequency spectrum and satellite orbits.

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The conference’s 30 agenda items were broad and varied and related to almost all terrestrial and space radio services and applications, including future generations of mobile telephony, aeronautical telemetry and telecommand systems, satellite services including meteorological applications, maritime distress and safety signals, digital broadcasting, and the use of radio in the prediction and detection of natural disasters.

Australia participated in ITU-R activities leading up to the conference, contributing both individually and via the Asia-Pacific Telecommunity (APT). The APT countries provided Common Proposals on most WRC-07 Agenda items with the majority of APT countries signing up to these proposals. The APT countries represent the majority of the world’s population, with potentially huge future markets, along with significant operational and supply industries. Common Proposals therefore carry significant ‘leverage’ in international fora. The coordinated activities of APT countries during the WRC were successful in gaining acceptance of many of these proposals with little modification.
Additionally, Australia independently submitted five proposals to the conference. Most of the proposals contained individual proposals calling for modification or suppression of a particular element of the ITU Radio Regulations. Australia proposed:

- regulatory and procedural amendments to the mitigation techniques developed for operation of the sensors and emission limits for future active systems to enable a gradual transition of remote sensing systems within the 10.6-10.68 GHz band. This aimed to ensure that, over a period of time, levels of ambient man-made RF interference are gradually reduced to a level that will allow coexistence of the current active and passive systems in this band;
- an allocation to the aeronautical mobile service in the band 4 400-4 949 MHz for aeronautical mobile telemetry (AMT) for flight testing, but did not support an allocation in the 5 925-6 700 MHz band, as studies did not clearly demonstrate that AMT could share with existing FSS, FS and MS users in the band;
- the update to various regulatory instruments contained in ITU Radio Regulations relating to the notification and registration of assignments in the use of the 47.2-47.5 GHz and 47.9-48.2 GHz bands by high altitude platform stations;
- that no change be made to any HF allocations between 4-10 MHz, as detailed analysis of Australia’s domestic spectrum usage indicates the requirement to accommodate new allocations is outweighed by the necessity to maintain and protect existing services and allocations; and
- to add the threshold levels to an existing resolution in the ITU Radio Regulations to allow compatibility between radio astronomy and active services in adjacent or nearby bands.

OUTCOMES

Australia’s proposals and positions, together with the enterprise of the APT members, resulted in satisfactory Conference decisions for Australia on virtually all matters of interest. The following provides a brief outline of the key decisions of WRC-07:

BROADCAST SERVICES

The 698-862 MHz band has been allocated for International Mobile Telecommunication (IMT) 2000¹ applications such as future wireless services. Countries may individually elect by footnote to allocate this band for IMT applications. The 520 to 820 MHz band is already designated as a broadcasting services band in Australia.

SATELLITE SERVICES

WRC-07 considered the 3400-4200 MHz band (3400-3700 MHz is known as Extended C band; and 3700-4200 MHz is known as C band) for additional spectrum for future wireless services. There was no agreement to re-allocate C band (3700-4200 MHz) which remains for satellite service applications. However, a compromise agreement was achieved at WRC-07 that allows countries to individually elect by footnote to identify 3400-3600 MHz (part of the Extended C band) for future wireless services. Australia did not put its name to such a footnote at WRC-07.

Satellite mobile telephony was allocated to the bands 1518-1525 MHz and 1668-1675 MHz.
MOBILE
Harmonised spectrum in the following bands was identified for use by International Mobile Telecommunications (IMT):

- 450–470 MHz band;
- 698–862 MHz band in Region 2 (North and South America) and nine countries of Region 3 (Asia, Subcontinent, Pacific),
- 790–862 MHz band in Region 1 (Europe and Africa) and Region 3,
- 2.3–2.4 GHz band, and
- 3.4–3.6 GHz band (no global allocation, but accepted by many countries).

MARITIME PROCEDURES
International regulations related to the maritime mobile service were brought in line with current maritime communications technology, including distress and safety transmissions within the Global Maritime Distress and Safety System (GMDSS).

- 156.525 MHz (156.4875–156.5625 MHz) was made the international distress frequency for Digital Selective Calling.
- 161.975 MHz and 162.025 MHz, the Aeronautical Identification System frequencies, were also made available to the Mobile Satellite Service for reception of Automatic Identification System information.

AERONAUTICAL SERVICES
Aeronautical security has been enhanced and civil aviation telecommunication systems modernised through:

- upgrading radiolocation service to primary allocation status in the bands 9 000–9 200 MHz and 9 300–9 500 MHz;
- allocating additional spectrum for aeronautical telecommand and high bit-rate aeronautical telemetry, and
- adding new allocations for the aeronautical mobile (R) service.

EARTH-EXPLORATION SATELLITE SERVICE (EESS)
Existing primary frequency allocations for EESS (which monitor the planet as well as predicting and monitoring natural disasters, meteorology and climate change) were extended, allowing research and exploration of Earth resources and environmental elements.

WRC-07 also approved proposals concerning the use and further development of satellite systems using highly inclined orbits, high altitude platforms, as well as the compatibility and sharing between different space and terrestrial services.

WORLDWIDE PLAN FOR FIXED-SATELLITE SERVICE (FSS)
Technical and regulatory provisions for fixed-satellite service in the 800 MHz band used in different regions for applications such as communications, TV and Internet, were revised to allow access to spectrum.
GENERAL

WRC-07 also approved proposals concerning the use and further development of satellite systems using highly inclined orbits and high altitude platforms (HAPs), as well as the compatibility and sharing between different space and terrestrial services. Allocation was made for low power secondary amateur use of band 135.7-137.8 kHz.

WRC-07 also advocated the development of spectrum management guidelines for radiocommunication in emergency and disaster relief, as well as identification and maintenance of available frequencies for use in the early stages of humanitarian assistance in the aftermath of a disaster. The ITU will develop a database for frequency management in disaster situations.

The results of WRC-07 will require substantial follow up work, both internationally and within Australia. The ITU Radiocommunication Bureau will implement the decisions of the conference on a wide range of changes to service allocations and the Radio Regulations. Within Australia, the outcomes of WRC-07 will need to be ratified by the Government. The Australian Communications and Media Authority will arrange, in consultation with industry bodies and users, changes to the Australian Radiofrequency Spectrum Plan to take account of outcomes of WRC-07.

CONCLUSION

Overall, the majority of Australian positions were successful at the conference. A number of the contentious items took a considerable amount of time to reach consensus, with Australian delegates working long hours to achieve suitable outcomes.

It is estimated that the Final Acts of the Conference were signed by 154 of the 162 member states present. The majority of the provisions revised by WRC-07 shall enter into force via the ITU Radio Regulations from 1 January 2009.

Australia’s activities in preparation for the next Conference in 2011 have already started. Government and industry representatives have begun identifying their interest in the WRC-11 agenda and initiating participation in the necessary studies. Regional activities have also commenced with the first APT preparatory group meeting held in Bangkok, Thailand, held from 6 to 8 March 2008.

ACMA, with the assistance of the Australian delegation, presented an industry debrief on the outcomes of WRC-07 to an audience of almost 100 interested parties at the National Convention Centre in Canberra on the 28th February 2008.

Further information about the ITU and WRC can be found at http://www.itu.int/newsroom/press_releases/2007/36.

ENDNOTES

1 IMT refers to the family of advanced mobile technologies that will support for example, 3G and wireless broadband services such as WiMAX.