

WRC 2000

World Radiocommunication Conference 2000

Istanbul, Turkey

World Radiocommunication Conferences often forge agreements that substantially affect Amateur Radio. Thanks to your support, the IARU and ARRL were in Istanbul last May and June to monitor these crucial proceedings.

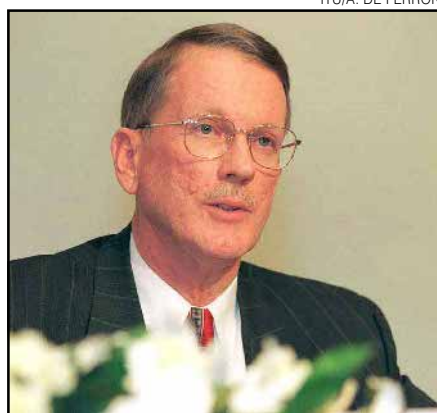
A World Radiocommunication Conference (WRC) is a meeting of Member States of the International Telecommunication Union (ITU) empowered to revise a basic treaty instrument called the Radio Regulations (RR). The RR contain basic definitions, frequency band allocations and the rules for the many radio services including the amateur and amateur-satellite services. WRCs are convened every 2-3 years and consider agenda items generated by the previous WRC and approved by the ITU Council, an administrative body that meets annually and holds the purse strings. The accelerating pace of telecommunications development has put increasing pressure on WRCs to find ways to accommodate new uses of the radio spectrum without destroying the enormous investment that has been made in existing radiocommunication services.

At the invitation of the government of Turkey, WRC-2000 met in the Istanbul Conference and Exhibition Centre from May 8 through June 2, 2000. Attendance topped off at some 2400 people, consisting of delegates and advisers from 150 administrations (that is governments) and observers from various organizations throughout the world including the International Amateur Radio Union (IARU).

The key issues for this conference were finding spectrum for the third-generation (3G) mobile system called IMT-2000, re-planning Region 1 and 3 satellite-to-home TV broadcasting, spectrum for radio-



Conference chairman F. M. Yurdal, TA2MY.



Radiocommunication Bureau Director Bob Jones, VE3CTM.

navigation-satellite systems including the proposed European *Galileo* satellites, re-planning the spectrum in the range 71-275 GHz, and sharing between services. Equally important, the conference was tasked with recommending an agenda for the next WRC (probably to be held in 2003) and a preliminary agenda for a WRC in 2005 or 2006.

Of course, it would be impossible for a conference of this size to deal with such wide-ranging and complex issues in a single forum. Instead, the conference was structured into several committees and working groups. Most of the conference proposals were referred either to Committee 4, Regulatory and Associated Issues, or Committee 5, Allocations and Associated Issues. The committees themselves were subdivided by topic into working groups, and sometimes into sub-working groups or drafting groups. Agreements reached in smaller groups were brought back up the line for approval or modification at each higher level, culminating in approval by the Plenary. In addition to the committees there were two Working Groups of the Plenary, the first for issues related to a replanning of satellite broadcasting in Regions 1 and 3 and the second for future conference agendas.

Recent WRCs have worked very hard to achieve consensus and to avoid formal voting. No country can be forced to accept a regulation that it believes is contrary to its national interests, so conference decisions

must be generally acceptable to everyone.

Setting the Agenda for the Next Conference

There were literally dozens of proposals for agenda items for the next WRC. Working Group 2 of the Plenary met 15 times to identify the items having sufficient support to warrant inclusion and to establish priority. Many more informal meetings were held between representatives of regional telecommunications organizations, such as CEPT for Europe, CITEL for the Americas, and APT for the Asia-Pacific area. When the smoke cleared, the recommended WRC-2003 agenda included several items that concern the amateur services. Here is what's on our plate for WRC-2003:

- Consideration of the realignment of amateur and broadcasting bands around 7 MHz on a worldwide basis. Any amateur who has operated on 40 meters knows the problem: the upper two-thirds of the band is used for broadcasting outside the Americas. A solution was attempted at the World Administrative Radio Conference in 1992, but the best that could be accomplished at that time was the adoption of a recommendation calling for consideration by a future conference.

- Possible revision of Article S25—the basic rules for the amateur and amateur-satellite services. This includes the issue of whether to retain the treaty requirement to demonstrate Morse code proficiency for access to amateur bands below 30 MHz. Several administrations are known to favor dropping the requirement.

- Review of the terms and definitions of Article S1 to the extent required as a consequence of changes made in Article S25. Article S1 contains, among other things, the definition of the amateur and amateur-satellite services. This and another item, review of the provisions of Article S19 concerning the formation of call signs in the amateur services in order to provide flexibility for administrations, were European proposals prompted by administrations' desires to solve specific problems for their amateurs.

- Consideration of additional allocations for non-geostationary (non-GSO) Little LEO satellites below 1 GHz. Little LEOs received no new allocations at WRC-2000, but they have another shot if they can develop persuasive studies showing they can share with other services.

- The introduction of digital modulation techniques in the HF broadcasting service. Digital radio is seen by some HF broadcasters as giving the service a new lease on life and could be cited as a justification for expanded broadcasting allocations.

- Harmonized bands to meet the global/regional needs of public protection agencies. This item enjoyed broad support among de-

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Committee 5 (Allocations and Associated Issues) chairman Chris van Diepenbeek.

veloping countries that are particularly vulnerable to natural disasters. While not directly related to Amateur Radio, this item could have allocations implications.

- Two additional items of interest were recommended to Council for inclusion if additional budgetary and conference resources could be provided: the adequacy of the frequency allocations for HF broadcasting from about 4 MHz to 10 MHz, and the provision of up to 6 MHz in the band 420-470 MHz for the Earth exploration-satellite service.

The above list does not contain everything that might conceivably concern us at the next conference but includes the ones that merit the closest attention. The WRC-2000 decisions regarding the next agenda

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A view of the plenary meeting room.

Radio Amateurs at WRC-2003

The Conference elected Fatih Mehmet Yurdal, TA2MY, Chairman of the Board of Turkey's Telecommunications Authority, as its overall chairman. Of the many committees, working groups, sub working groups and drafting groups, several other amateurs held important chairmanships. They included Eberhard George, DL7IH, chairman of the important Working Group 2 of the Plenary that developed the recommendations for future conference agendas, and Hugh Railton, ZL2MT, chairman of Committee 4 (Regulatory and Associated Issues). ITU Radiocommunication Bureau Director Robert Jones, VE3CTM, coordinated the work of his sizeable staff imported for the occasion from Geneva to make the conference flow smoothly.

Representing the International Amateur Radio Union (IARU) were President Larry Price, W4RA; Secretary David Sumner, K1ZZ; and Wojciech Nietyksza, SP5FM. IARU Vice President David Wardlaw, VK3ADW, was a member of the Australian delegation and represented the Wireless Institute of Australia (WIA). Jay Oka, JA1TRC was in the delegation of Japan for the Japan Amateur Radio League (JARL). Ken Pulfer, VE3PU, was in the Canadian delegation for the Radio Amateurs of Canada (RAC). Oyekunle B. Ajayi, 5N0OBA, was on the Nigerian delegation for the Nigerian Amateur Radio Society. Paul Rinaldo, W4RI, was a member of the United States delegation for ARRL.

In addition, there were at least 46 other licensed radio amateurs in the delegations of administrations and observer organizations there for the interests of their employers.

Special Event Station TA1ITU

It has become customary at major ITU events for radio amateurs of the host country operate a special-event amateur station at the conference site. WRC-2000 was no exception. TA1ITU was activated by the Turkish Radio Amateur Club (TRAC) during the first week of the conference and was operated throughout the conference period by TRAC members and licensed delegates. Equipment was loaned by Yaesu.

Table 1**A Comparison of Amateur Allocations Before and After WRC-2000**

Bear in mind that the post-WRC-2000 allocations are not yet implemented; domestic allocations remain as they are until Part 97 of the FCC Rules is amended. (Capital letters signify primary allocations. Lower case designates secondary allocations.)

<i>Bands (GHz)</i>	<i>Old Amateur Allocations</i>	<i>New Amateur Allocations</i>
75.5-76	AMATEUR AMATEUR-SATELLITE Space research (space-to-Earth)	A new footnote permits the amateur services to use the band 75.5-76 GHz until 2006.
76-77.5	RADIOLOCATION Amateur Amateur-satellite	RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite Space research (space-to-Earth)
77.5-78	RADIOLOCATION Amateur Amateur-satellite Space research (space-to-Earth)	AMATEUR AMATEUR-SATELLITE Radio Astronomy Space research (space-to-Earth)
78-79	RADIOLOCATION Amateur Amateur-satellite Space research (space-to-Earth)	RADIOLOCATION Amateur Amateur-satellite Radio astronomy Space research (space-to-Earth)
79-81	RADIOLOCATION Amateur Amateur-satellite Space research (space-to-Earth)	RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite Space research (space-to-Earth)
81-81.5		A new footnote allocates this band to the amateur and amateur-satellite services on a secondary basis.
119.8-120.2	FIXED EARTH EXPLORATION- SATELLITE (passive) INTER-SATELLITE MOBILE SPACE RESEARCH (passive) Amateur	
122.25-123		FIXED INTER-SATELLITE MOBILE Amateur
134-136		AMATEUR AMATEUR-SATELLITE Radio astronomy
136-141		RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite
142-144	AMATEUR AMATEUR-SATELLITE	
144-149	RADIOLOCATION Amateur Amateur-satellite	
241-248	RADIOLOCATION Amateur Amateur-satellite	RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite
248-250	AMATEUR AMATEUR-SATELLITE	AMATEUR AMATEUR-SATELLITE Radio astronomy
275-400	(Not allocated)	
275-1000	(Not allocated)	



constitute recommendations to the ITU Council, which sets the final agenda approximately two

years before the next conference. Assuming the Council goes along, the next conference cycle is going to be a busy time for the international advocates of Amateur Radio!

3G Bullet Dodged

A possible threat to amateur spectrum at 2300-2400 MHz was that this band might be designated for use by the third-generation cellular systems known in ITU parlance as IMT-2000 or International Mobile Telecommunications. Proponents were eager to find at least 160 MHz of spectrum for terrestrial use and additional spectrum for handset-to-satellite applications. While China indicated interest in using the 2300-2400 MHz band domestically for IMT-2000, the conference found the bandwidth being sought in other bands. The new bands identified for IMT-2000 terrestrial use are: 862-960 MHz in Region 1, 806-902 and 928-960 MHz in Region 2, and 806-960 MHz in Region 3; 1710-1885 MHz; and 2500-2690 MHz. WRC-2000 also named some mobile-satellite service bands for the satellite component of IMT-2000.

Bands above 71 GHz Shuffled

A WRC-2000 agenda item called for review of the existing allocations above 71 GHz to improve the allocations to the passive services (radio astronomy and Earth exploration) in the range 71 to 275 GHz. While these bands are not widely used today, it is the nature of WRCs to be thinking of the future. Over the past two years, the IARU, ARRL and several sister societies have been working with the spectrum managers of the passive services to protect amateur interests. Early in the process, it was clear that radio astronomers were interested in sharing our bands. Since they just listen, they would cause us no interference. They were willing to tolerate some interference from amateurs in order to obtain access to these allocations. Compatible sharing partners provide some measure of protection against the future introduction of incompatible partners, so it was in our interest to work with them.

The extension of the allocation table to 1000 GHz (see Table 1) indicates interest in allocation of these bands at a future conference, possibly as early as 2006. In the meantime, bands of particular interest to the passive services between 275 and 1000 GHz are identified by footnote. The ITU is starting studies of frequency bands above 3000 GHz





Deputy head of the Polish delegation, Chris Slomczynski, SP5HS, chats with Jadwiga Nietyksza and Wojciech, SP5FM, just before the closing ceremony.

(3 THz), although there is a small problem: the present definition of radio waves is limited to frequencies below 3000 GHz!

Radionavigation-Satellite Service Gains at 23 cm

The status of the amateur service secondary allocation at 1240-1300 MHz and the amateur-satellite uplink band at 1260-1270 MHz are unchanged, but we have a new sharing situation. The conference allocated the band 1215-1260 MHz to the radionavigation service for space-to-space use to provide protection from potential future users that might interfere with satellites receiving GPS signals. This allocation is based on years of successful operation without protection and without interference. In theory, it should not affect amateur use of the 1240-1260 MHz band.

In addition, there are new space-to-Earth and space-to-space allocations for the radionavigation-satellite service in the band 1260-1300 MHz for the proposed European *Galileo* positioning satellites similar to GPS. The allocation does not diminish the amateur and amateur-satellite service allocations but could be cause for future concern.

Country Footnotes

A housekeeping agenda item for all WRCs is one calling for deletion of country footnotes to simplify frequency allocations. The agenda item calls for countries only to delete their names, not add them. However, it has become customary for conferences to permit additions when there is no objection from affected neighboring administrations.

The principal changes affecting the amateur services were to improve the status of the amateur service in the 160-meter band in Austria, Liechtenstein, and Switzerland, to suppress a footnote for domestic broadcasting in Canada in the band 3950-4000 kHz, and to add the fixed and mobile services in eight Region 2 countries (not includ-



Looking across the Bosphorus from the conference center.



IARU team members at WRC-2000: (l-r) David Sumner, K1ZZ; David Wardlaw, VK3ADW; Wojciech Nietyksza, SP5FM; Larry Price, W4RA; Ken Pulfer, VE3PU; and Paul Rinaldo, W4RI.

ing the USA or Canada) in the band 10.0-10.45 GHz and in Uzbekistan and seven Region 2 countries (again, not including the USA or Canada) in the band 10.45-10.5 GHz. Uzbekistan was deleted from the short list of countries in which the bands 14250-14350 kHz and 18068-18168 kHz have a primary allocation in the fixed service.

Broadcasting Satellites

Reading this article might give the impression that the conference was full of amateur items. On the contrary, perhaps a third or half of the resources were consumed by replanning of the broadcasting-satellite service (BSS) "slots" in the geostationary arc. BSS provides direct-to-home television broadcasting. This was a politically charged issue on which past conferences failed to reach agreement. It wasn't easy but WRC-2003 hammered out a new plan, which mostly affected Regions 1 and 3.

Another significant satellite-related issue was sharing between GSO and non-GSO satellites. The new non-GSO systems promise to deliver high-speed Internet connections anywhere in the world. It wasn't easy, but the conference reached agreement

on the power limits and other rules of sharing that will allow existing services to continue operating and new services to be introduced without unreasonable constraints.

What's Next?

The amateur items on the WRC-2003 agenda will result in a significant preparatory workload for the IARU and its national societies, including the ARRL. The IARU Region 3 Conference and IARU Administrative Council meeting in Darwin, Australia in late August will provide an early opportunity for coordinating a plan for success at WRC-2003.

Larry E. Price, W4RA, has served as President of the International Amateur Radio Union (IARU) since May 1999. Prior to that, Larry was IARU Secretary and held a number of volunteer posts in the ARRL, including President from 1984 to 1992.

Paul Rinaldo, W4RI, is Technical Relations Manager of the ARRL. Paul heads the ARRL's Technical Relations Office in Washington, D.C.

David Sumner, K1ZZ, is Executive Vice President and Secretary of the ARRL as well as Secretary of the IARU.