ARRL 2012 SPECTRUM DEFENSE FUND

ARRL Spectrum Defense Matters

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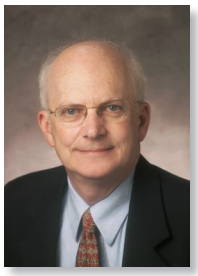
A Note from the Chief Executive Officer



In the May 2012 issue of *QST* you will find a five-page article detailing the World Radiocommunication Conference (WRC-12) from the Amateur Radio perspective. I am sure you will agree that it was a great success.

In my tenure as an ARRL staffer involved in the IARU, the 1979 World Administrative Radio Conference will always stand out as extraordinary. Even though 30 years have passed, we still sometimes hear 10, 18 and 24 MHz referred to as "the WARC bands." The 2003 WRC ranks second because we managed something that had never done before: to move HF broadcasting out of 100 kHz of spectrum and thereby greatly improve the usefulness of the 40 meter band.

WRC-12 had so many highlights that it is difficult to decide which was the greatest:

- Our fending off HF oceanographic radars from being in or even adjacent to amateur bands;
- The new allocation at 472-479 kHz;
- An agenda item for WRC-15 to consider a possible secondary allocation to the amateur service in parts of the 5250-5450 kHz band;
- Successful handling of a potentially difficult agenda item concerning very small pico- and nano-satellites;
- Joe Taylor, K1JT's speech to the Plenary at the end of the second week of the conference;
- The celebration of the 50th anniversary of the International Amateur Radio Club, 4U1ITU, in the magnificent Popov Room in the ITU Tower attended by past and present Secretaries General and Directors of the Radiocommunication Bureau.

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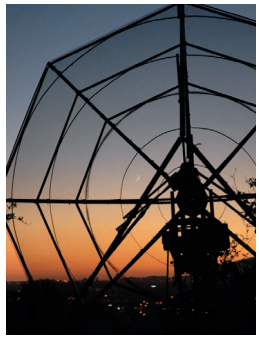
Amateur Radio is just a small part of the world's telecommunication community and is commercially insignificant compared to the satellite and mobile broadband interests. Yet, we have achieved a position within the International Telecommunication Union as a respected radio service. This position was not attained overnight or through the efforts of a single individual or small group. It was achieved through the shared passion and sense of purpose of an extraordinary band of people from many countries and diverse backgrounds, some with IARU titles and many not, nearly all of them volunteers, who have worked through the IARU over the decades to present a highly professional visage and to ensure that the participation on behalf of the amateur and amateur-satellite services is of a quality that is equal to that of any other radio service, and better than some.

I can't begin to tell you how proud I am to be a part of this team. Every donor to the Spectrum Defense Fund is also a team member, entitled to share that pride.

73,

David Sumner, K1ZZ
Chief Executive Officer

Amateurs Face Growing Challenges in the Microwave Bands



With demand for mobile broadband services skyrocketing, there is growing pressure on the rather narrow portion of the radio spectrum that is suitable for this application.

Commercial mobile broadband service providers need access to spectrum high enough in frequency to permit the use of physically small antennas, yet low enough to penetrate obstacles such as foliage. Definitions of the "sweet spot" vary but it is generally between about 600 MHz and 4 GHz.

At its January 2012 meeting the ARRL Board of Directors accepted the report of an ad hoc committee that it had created a year earlier to assess the threats posed by mobile broadband and tasked the Executive Committee with pursuing the necessary strategies for the defense of amateur spectrum.

Most of the spectrum access that we amateurs enjoy in this frequency range is on a secondary basis. The only exception is 2390-2417 MHz where the amateur service is primary in the United States. Even if you are not currently operating on these bands you should appreciate their future potential.

As the term implies, primary is better than secondary—but it does not mean exclusive. Very few radio services enjoy exclusivity in this part of the radio spectrum; sharing is the order of the day. The Radio Regulations of the International Telecommunication Union (ITU) state that a secondary service "shall not cause harmful interference to stations of primary services" and "cannot claim protection from harmful interference from stations of a primary service." The same provisions are contained in the FCC Rules.

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In This Issue

WRC-15 Agenda Presents Opportunity, Challenges for Amateur Radio

In its final week, the 2012 World Radiocommunication Conference recommended the agenda for WRC-15, subject to approval by the ITU Council. Such approval is usually a formality, and ARRL and IARU representatives have begun preparations for the issues presented by the agenda.

Amateur Radio Gets a Chance at a Worldwide Allocation near 5.3 MHz

WRC-15 Agenda Item 1.4 calls on WRC-15 "to consider [a] possible new allocation to the amateur service on a secondary basis within the band 5250-5450 kHz." The resolution setting the basis for the consideration of the allocation suggests that any allocation need not necessarily be contiguous.

The supporting WRC-12 resolution for Agenda Item 1.4 notes Amateur Radio's role in the mitigation of catastrophes and the provision of communications in support of relief operations, particularly "in areas where the telecommunication infrastructure is weak or has collapsed." The resolution correctly notes that "radiocommunication in the HF bands is dependent on propagation factors, with the result that frequencies in different bands have to be used to maintain stable communication for a relatively sustained period of time, with frequency changes in the case of communications with different correspondents located at very different distances." The resolution suggests that an allocation between 5250-5450 kHz would better satisfy the ability of the Amateur Service to fulfill this objective.

The band 5250-5450 kHz is allocated to the fixed and mobile services, except aeronautical mobile, on a primary basis. The limited, channeled domestic allocation to Amateur Radio in the United States is an indication of the hesitance that users of these incumbent services have to more widespread Amateur Radio use of this band. ARRL is grateful for the opportunity to make the case for a broader allocation on the international stage, but is aware that a persuasive case will be necessary to overcome domestic and international resistance.

WRC-12 adopted a new allocation to the radiolocation service for oceanographic radars at 5250-5275 kHz, which effectively takes this segment off the table because the amateur and radiolocation services were found to be incompatible during the WRC-12 preparations—a determination that worked to our advantage.

The resolution accompanying the agenda item notes that "an allocation of an appropriate amount of spectrum, not necessarily contiguous, to the Amateur Service at around 5300 kHz would be adequate to better satisfy its needs associated with use for providing communications in disaster situations and during relief operations." The resolution calls for studies of "spectrum requirements for a secondary allocation to the amateur service within the band 5250-5450 kHz" and of "the impact to other services currently allocated in the band…and in the adjacent bands."

Numerous Defensive Challenges at UHF and Above

It was widely speculated that an expansive item seeking more spectrum for the mobile service for broadband applications would be placed on the agenda of WRC-15. Not only did this happen, but the item was placed first on the agenda. Agenda Item 1.1 instructs WRC-15 "to consider additional spectrum allocations to the mobile service on a primary basis and identification of additional frequency bands for International Mobile Telecommunications (IMT) and related regulatory provisions, to facilitate the development of terrestrial mobile broadband applications."

Neither the Agenda Item nor its supporting resolution specifies bounds on the frequencies to be considered. The resolution merely notes "advantages of the frequency bands below 1 GHz for wide coverage and… above 1 GHz for higher data rates" for broadband applications, and does not further address frequency at all. Taken literally, the Agenda Item can be viewed as putting all services but the mobile service at risk from DC to daylight. In all likelihood, most of the focus on this item will be between 400 MHz and 5 GHz.

In a departure from the normal procedure for ITU sharing studies, where the group responsible for a potential incoming service conducts the studies, considering inputs from impacted groups, a Joint Task Group has been established for this item, to ensure that all stakeholders are at the table. ARRL will participate in meetings of this group—another necessary commitment of resources to the defense of Amateur Radio spectrum.

The agenda for WRC-15 poses additional items of concern to Amateur Radio, including:

- **Agenda Item 1.6.1**, considering a primary allocation of 250 MHz between 10 and 17 GHz in ITU Region 1;

- **Agenda Item 1.10**, considering to spectrum requirements and possible additional spectrum allocations for the mobile-satellite service in the Earth-to-space and space-to-Earth directions, including the satellite component for broadband applications, including International Mobile Telecommunications (IMT), within the frequency range from 22 GHz to 26 GHz;

- **Agenda Item 1.12**, considering an extension of the current worldwide allocation to the Earth exploration-satellite (active) service in the frequency band 9 300-9 900 MHz by up to 600 MHz within the frequency bands 8 700-9 300 MHz and/or 9 900-10 500 MHz;

- **Agenda Item 1.18**, considering a primary allocation to the radiolocation service for automotive applications in the 77.5-78.0 GHz frequency band.

All of these items require engagement by Amateur Radio's representatives on the international stage, who will continue to meet these challenges with your support.

Highlights...

Longtime IARU volunteer Tafa Diop, 6W1KI, and ARRL President Kay Craigie, N3KN, caught during a quiet moment. [Carter Craigie, N3AO, photo]

At the February 3 WRC-12 Plenary, Dr Hamadoun Touré, Secretary-General, International Telecommunication Union (ITU) awards Professor Joe Taylor, K1JT, a certificate and a medal. [ITU/P. M. Virot photo; used with permission]

Amateurs Face Challenges

Continued from Page 1

The amateur service was made secondary to military radar in these bands back in 1958, at the height of the Cold War and the dawn of the Space Age, when national defense was propelled to the top of the priority list. Secondary status has not been all bad. Cohabiting with military radar can be uncomfortable at times and in some places, but in general we have been able to coexist for more than a half-century without a great deal of difficulty. After all, military radars must be able to function in an environment far more hostile than that created by the presence of a few amateur signals. Our partnership with the military has helped fend off commercial pressures; we have retained access to wider bands than would be the case if we were all alone, and primary. However, even the military is no longer exempt from the public's seemingly insatiable appetite – and willingness to pay – for mobile broadband.

But that's not the only source of pressure on this part of the radio spectrum.

The 902-928 MHz (33 cm) band has earned the designation "The Kitchen-Sink Band" because of the FCC's inclination to shove "everything but the kitchen sink" into it. We were able to gain access to the band at the 1979 World Administrative Radio Conference because its status as an Industrial, Scientific and Medical (ISM) band made it unattractive to most services. Unfortunately, spectrum access being a scarce commodity, others soon warmed up to it. When the band was finally opened up for amateur use in 1985 we were required to protect automatic vehicle monitoring (AVM) systems, among other services, from interference. In 1993 the FCC proposed expanding AVM into a new "location and monitoring service" (LMS) and ultimately did so. LMS has had its ups and downs, but recently a potential market has been identified for providing precise location information in places where GPS is either unreliable or not sufficiently precise. If this service becomes commercially viable it will pose some new challenges for amateurs in a band that is already impacted by other users.

The Federal Aviation Administration (FAA) has begun installing a new generation of Common Air Route Surveillance Radars (CARSRs) that operate in the 1240-1350 MHz band. Aeronautical radionavigation is one of several primary services in the 1240-1300 MHz (23 cm) band that the amateur service must protect. We have been coexisting with aeronautical radionavigation for many years, but it now appears that amateur stations (particularly repeaters) operating on or near a CARSR frequency can cause harmful interference to the new system. The ARRL is working with FAA engineers to limit the constraints on amateur operation as much as possible, consistent with aviation safety.

Another primary occupant of this band is the radionavigation-satellite service. The Russian GLONASS system uses frequencies between 1240 and 1260 MHz. Europe's Galileo system, to be deployed between now and 2019, will use frequencies between 1260 and 1300 MHz. It remains to be seen how difficult it will be to maintain amateurs' full access to the band.

At 2300-2305 MHz we are in the curious position of having a secondary allocation in a band that has no primary occupant. The ARRL has argued, thus far unsuccessfully, for an upgrade to primary. This would partly compensate for the allocation of 2305-2310 MHz to the Wireless Communications Service (WCS); the amateur secondary allocation has been maintained but continued use by amateurs will be problematic in areas where WCS is deployed. The ARRL is also arguing for greater protection of the 2300-2305 MHz segment from out-of-band WCS emissions.

Potentially affecting 2390-2400 MHz is a proposal to allow Medical Body-Area Networks (MBANS) to use the band on a secondary basis for low-power data applications. This is not necessarily a threat to continued amateur access; depending on how such networks are implemented they might actually provide some protection against reallocation to mobile broadband, as is occurring in other parts of the world. However, the proponents of the idea have not made it clear how protection of the amateur service, which is primary in this band, would be implemented in practice.

The highest-frequency amateur band in this range is 3300-3500 MHz, where our fortunes remain closely tied to military radar. Mobile broadband interests would dearly love to get access to this band, but ongoing national security requirements may continue to trump commercial pressures here.

Keeping track of these and other spectrum challenges, and responding to them, is part of life for the ARRL staff and volunteer leadership. Knowing that we have the support of thousands of ARRL members and friends who support the Spectrum Defense Fund helps keep us motivated to do our best for Amateur Radio, not just for now but for future generations.

NEW!

2012 Spectrum Defense Mug and Pin!

Support Spectrum Defense with a gift of $50 and you are eligible to receive our newly designed 2012 Spectrum Defense pin. Gifts of $100 or more are eligible to receive both the mug and pin.

To receive your pin or mug, contribute via the ARRL Web site using the ARRL Donation form at **www.arrl.org/arrl-donation-form**, or make a one-time contribution by mailing the enclosed reply form with your check payable to the **ARRL Spectrum Defense Fund**, 225 Main Street, Newington, CT 06111.

A Note from the Chief Technology Officer

A World Radiocommunication Conference is an all-consuming affair, and it is all too easy for a participant at a WRC to lose sight of the fact that spectrum management has a domestic front. ARRL can't afford to do this—and we don't.

I am writing this note in the Federal Communication Commission's meeting room, waiting for a workshop titled "Spectrum Efficiency and Receiver Performance" to begin. The FCC has historically been hesitant to mandate receiver performance standards, and this hesitance has been the bane of many amateurs over the years, as neighbors blamed amateurs when their television sets received signals at, say, 21 MHz when tuned to channel 2. This problem hasn't disappeared with widespread migration to cable or wired television, as I found out first hand when I opened my neighbor's garage door opener, operating near 380 MHz, during the 2009 ARRL RTTY Roundup.

Section 302(a)(2) of the Communications Act authorizes the FCC to establish reasonable, minimum performance standards for home electronic equipment and systems to reduce their susceptibility to interference from radio frequency energy. While the FCC has preferred to encourage industry to adopt voluntary standards than to exercise the authority granted in this section, it has become increasingly clear that as demand for spectrum among consumer devices increases, receiver performance standards can no longer be ignored. With mobile broadband operators seeking substantial additional spectrum and predicting substantial use of that spectrum, it is becoming increasingly more important that receivers be designed to reject strong signals in adjacent bands.

The FCC's willingness to address receiver standards is welcome, but vigilance is required to make sure that the development and application of these standards is fair to all services, including the Amateur Radio Service. Amateur Radio manufacturers have made great strides in receiver efficiency and performance, and are generally quite robust to strong signals in adjacent bands. But improved receiver design is only effective if the strong, adjacent band signal is cleanly generated. The FCC has too recently suggested that radio amateurs could be expected to resolve interference issues by relocating or redirecting their station antennas. Simply put, no radio user—amateur, broadcast listener, broadband consumer—should have to change their system's setup to avoid interference from out-of-band transmitters or from unlicensed devices with no allocation status.

The FCC's evaluation of receiver performance is but one domestic issue that will require ARRL's attention in the coming years. That's on top of an ambitious international agenda, as WRC-15 will consider a secondary amateur allocation near 5.3 MHz, vehicular radiolocation at 77.5-78 GHz, worldwide allocation of spectrum to the mobile service for broadband applications, and a host of other issues. That's a lot to cover, and we would not have the resources to do so without your support.

I can't credibly ask you to support the 2012 Spectrum Defense Fund if I don't do so myself—which is why I've made my annual contribution early in the year. Please join me and give generously today, and help ARRL maximize the usability of our spectrum, both in the United States and around the world.

73,

Brennan Price, **N4QX**
Chief Technology Officer

A Note from the Chief Development Officer

Even though this is the first request in 2012 to our members asking for support of the Spectrum Defense Fund, as you have read throughout this newsletter the challenges—and ARRL's involvement—is on-going. This has been an exceptional year; ARRL staff and volunteer efforts for the 2012 World Radiocommunication Conference began well in advance of the convening of delegates and attendees in Geneva in late February. Indeed, time is precious. Preparation for WRC-12 began immediately following WRC-07 and, as noted on these pages, agenda items for WRC-15 have already been set, determining the focus of our work.

Protecting our frequencies both at home and throughout the world is critical to your Amateur Radio operations —be it emergency response, contesting, or just working contacts.

Protecting our frequencies both at home and throughout the world is critical to your Amateur Radio operations —be it emergency response, contesting, or just working contacts. Spectrum Defense touches each and every operator. It is a reality of today's society that we cannot take Amateur Radio frequencies for granted—the FCC is under continuous demands from wireless technology businesses and other big corporations to relinquish this precious commodity. Once lost, it cannot be regained.

ARRL, together with the IARU, is the voice of our members. Through thoughtful, diligent and vigorous efforts we make ourselves heard, over and over again.

To support this work, the Spectrum Defense Fund must raise $375,000 in 2012. To the 300+ ARRL members who have already contributed to date, thank you. To the rest of our ARRL family, now is the time to give to this important fund.

Thank you and 73,

Mary M. Hobart, **K1MMH**
Chief Development Officer

P.S. You may make your tax deductible contribution in any amount by phone, on the web at **www.arrl.org** or by mail to ARRL Spectrum Defense Fund, 225 Main Street, Newington, CT 06111-1494. ARRL is an IRS-designated 501(c)(3) organization holding Federal tax identification # 06-6000004. For questions or more information, please contact:

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