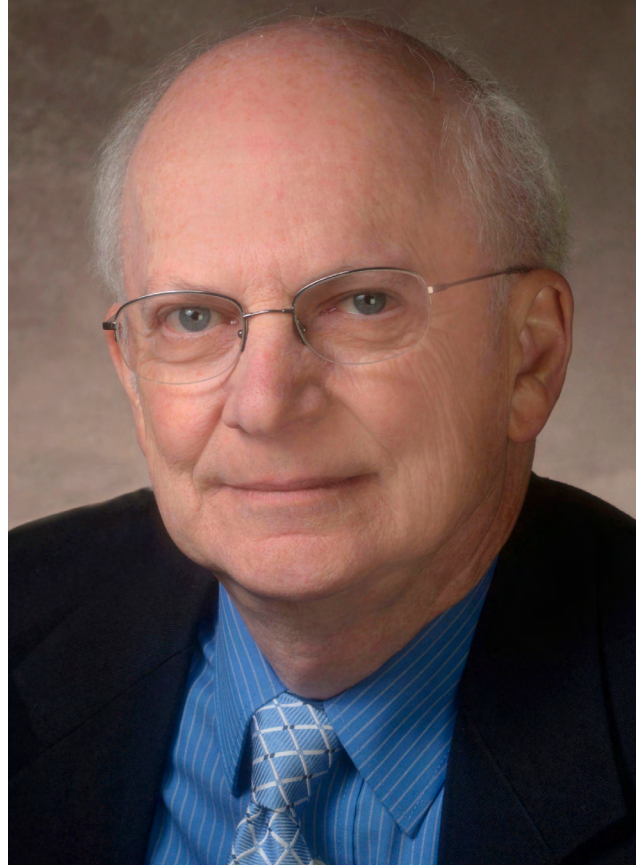


Self-training, intercommunication and technical investigations: the amateur service in the 21st Century

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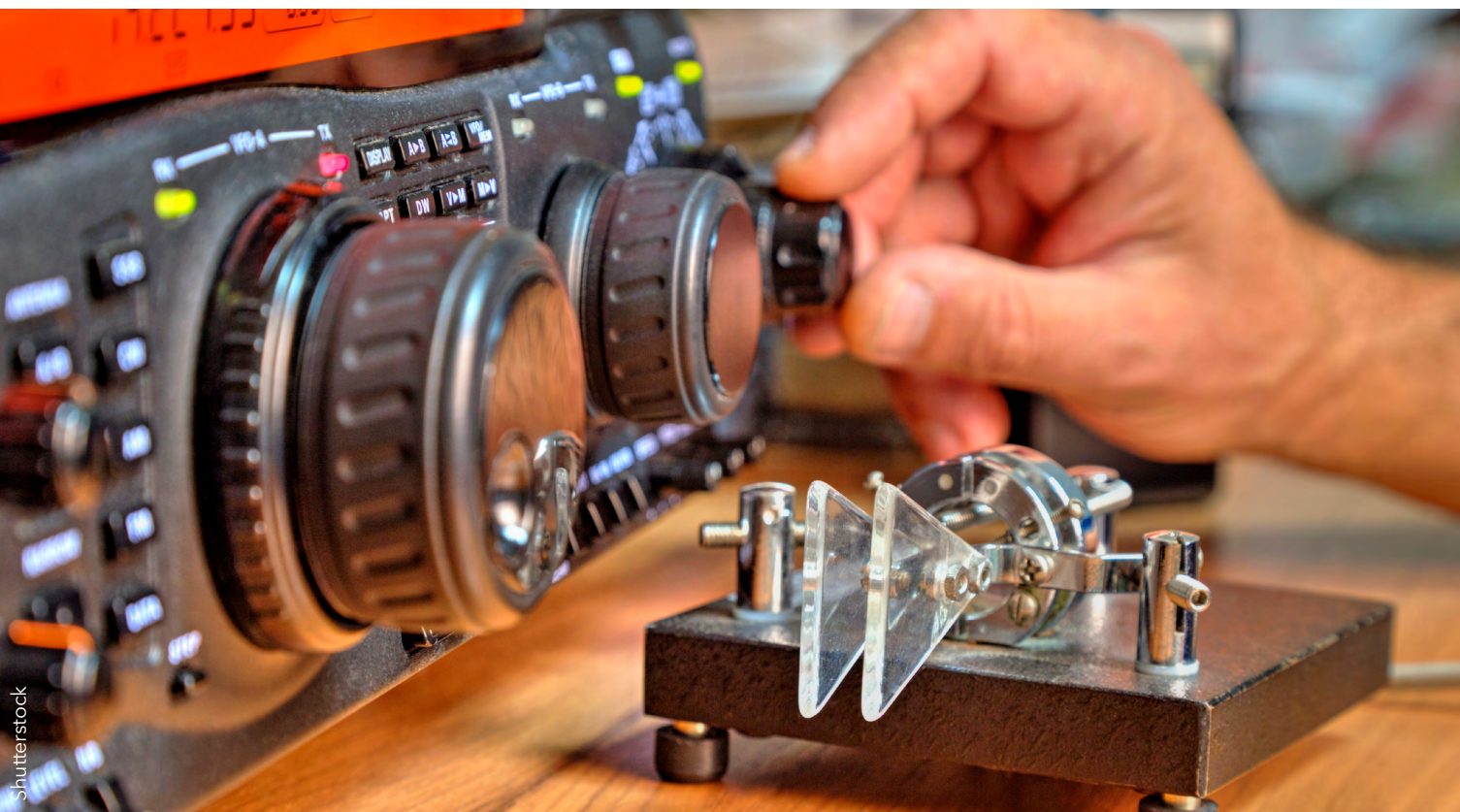


The amateur service is one of the oldest radio services, predating regulation. Recalling his earliest experiments, Marconi proudly referred to himself as an amateur. Today more than three million radio amateurs throughout the world follow in his footsteps and those of other radio pioneers, motivated by curiosity, and the desire to understand and harness the natural phenomena that influence radiowave propagation.

In so doing, they expand the body of human knowledge and technical skills that are essential to development, and offer a resource that can literally save lives when natural disasters disrupt normal communications channels, all at very low cost.

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Who are radio amateurs?

Radio amateurs come from all economic, social, cultural, and educational backgrounds. Each has earned a licence from his or her administration by demonstrating operational and technical qualifications in accordance with the ITU Radio Regulations (RR) 25.6. In return they gain the privilege of operating a station for non-commercial two-way communication and experimentation within the framework of the RR, and as authorized by their administration. Countless students have discovered their passion for electronic communication through amateur radio and have gone on to rewarding careers in technology and related fields.

What do they need from ITU?

Amateur licensees are grateful that the ITU Member States continue to recognize the benefits of providing direct access to the radio spectrum to qualified individuals. Access to frequency bands spaced throughout the radio spectrum is essential to the continued success of the amateur service. This pattern of amateur allocations was established at the [International Radiotelegraph Conference](#) (Washington, 1927) and has been extended at subsequent conferences, most recently at the World Radiocommunication Conference ([WRC-15](#)) with the addition of a narrow secondary allocation near 5.3 MHz. Today the international Table of Frequency Allocations includes amateur bands from 135.7 kHz (WRC-07) to 250 GHz.

Most amateur service allocations are on a world-wide basis, but some are limited to one or two of the three Regions (see the regional spectrum allocation map on page 13). Harmonized allocations highly facilitate intercommunication. The first item on the WRC-19 agenda is to consider the allocation of the band 50–54 MHz to the amateur service in Region 1, to align with the existing allocations in Regions 2 and 3.

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At the [1979 World Administrative Radio Conference](#) ITU Member States agreed to extend terrestrial allocations above 40 GHz for the first time. Included at appropriate intervals beginning at 47 GHz were co-primary allocations to the amateur and amateur-satellite services, along with other allocations on a secondary basis, to permit the greatest flexibility for the exploration of the propagation characteristics of millimeter wavelengths.

Amateurs have established two-way communication repeatedly over paths of more than 300 km at 47 GHz and of more than 200 km at higher frequencies. If a future World Radiocommunication Conference (WRC) extends allocations above 275 GHz, adequate provisions for amateur experimentation should be made.

Amateurs are particularly concerned about electromagnetic compatibility with devices that are likely to be near their stations, usually in their homes and vehicles.

Through its regulations and standards ITU plays an essential role in preventing radio spectrum pollution from unintentional emitters of radio frequency energy and other unwanted emissions.

While this is important for all radiocommunication services, it is especially vital to the amateur service, which uses sensitive receivers to compensate for practical and regulatory limitations on antennas and transmitter power levels.

Extending frontiers

In addition to extending the frontiers of frequency and wavelength, amateurs are refining communication protocols by optimizing coding, modulation, and digital signal processing to improve weak-signal performance. This endeavour is being conducted by an international team led by Dr Joseph H. Taylor, Jr., who earned the Nobel Prize in physics in 1993 for his groundbreaking work in radio astronomy that led to the discovery of binary pulsars and subsequent observations that confirmed the existence of gravitational radiation.

During the [2012 World Radiocommunication Conference](#) Dr Taylor was awarded the ITU Gold Medal in recognition of his outstanding contributions to research in the field of radiocommunication research that he began as a radio amateur while still in high school.

The original social network

As the first electronic community that bridged geographic, cultural, and social barriers, amateur radio is sometimes called “the original social network.” The tradition continues today. Meeting people “on the radio” with whom you share an interest is enjoyable in itself but also provides hands-on experience that develops skills and capabilities that can be invaluable in providing communication when telecommunication services are damaged or disrupted by natural disasters.

With a low-power high-frequency (HF) transceiver, a car battery, and wire for an antenna, a skilled amateur can establish communication from virtually anywhere using his or her knowledge of ionospheric propagation. Local amateur emergency networks rely heavily on the frequency band at 144 MHz, which is the only global primary allocation to the amateur service between 29.7 MHz and 24 GHz.

The IARU's contributions to the work of ITU

Representing the interests of radio amateurs is the mission of the International Amateur Radio Union (IARU), a federation of national associations in more than 140 ITU Member States. The IARU's contributions to the work of ITU began with its admission to participation in the work of the CCIR (International Radiocommunication Consultative Committee) in 1932, and continue to the present day in both the Radiocommunication and Development Sectors ([ITU-R](#) and [ITU-D](#)).

The IARU is proud to be an active member of the ITU community.

