DRAFT IEEE-SA POSITION STATEMENT

**Additional Spectrum Needed**

Approved by the IEEE-SA Board of Governors (pending)

(Date of Approval)

The IEEE Standards Association (IEEE-SA) supports the position that additional spectrum (preferably contiguous) is needed for both licensed and license-exempt technologies to meet data demand growth. As consumers and industry increase their consumption of wireless data, increased access to spectrum with commercially viable rules becomes vital to sustain the data growth.

IEEE-SA, through its participants, is a major contributor to development of multiple technologies. IEEE-SA participants develop wireless standards for various applications such as the IEEE 802.11 family of standards (inclusive of technologies known as Wi-Fi and WiGig) and IEEE Standard 802.15.4 (inclusive of ISA100, WiSUN, and Zigbee), which primarily use license-exempt spectrum. The number of IEEE 802.11 enabled devices shipped exceeds 15 billion and by 2019 the number of IEEE 802.15.4 enabled devices are expected to reach 2.1 billion.[[1]](#footnote-1) This high uptake of IEEE 802 enabled wireless devices is a testament to the importance of license-exempt spectrum as a driver for innovation and economic growth.

In addition to supporting additional spectrum, the IEEE recognizes the need for more efficient use of spectrum already allocated through various spectrum sharing mechanisms. Sharing can occur in bands that are currently licensed but occupied by temporally or spatially sporadic users, such as in the 3.5 GHz band in the United States, and TV white space in the United States, United Kingdom, Singapore, South Africa, and Columbia, in addition to administrations within which regulatory rules for TV white space still under development. Notably, the IEEE 802.15.4m, IEEE 802.11af, and IEEE 802.22 standards are designed to access TV white space with use cases ranging from low-rate personal-area networks to high-capacity wireless regional-area networks for broadband provisioning. Hundreds of megahertz of spectrum can be made available, faster and more cost effectively than relocating incumbent users.  Sharing can also occur in unlicensed bands among devices which utilize either common air interfaces or between devices with disparate air interface technologies.

An example of this is the use of cognitive radio technologies such as Listen Before Talk utilized in IEEE 802.11 Wi-Fi and 3GPP LTE based LAA systems or policy-based framework used by the IEEE Dynamic Spectrum Access Networks standards 1900.X or spectrum sharing with primary users based on sensing, spectrum database, and dynamic spectrum access rules used in the IEEE 802.22 TV White Space standards. The IEEE-SA believes that cognitive radio technologies should continue to be standardized to establish fair spectrum sharing among devices. Furthermore, given the role the IEEE SA plays in standardizing the world’s largest family of unlicensed radios, IEEE-SA is best positioned to establish the fora where these common rules and technologies can be standardized.

As a respected standards development body that develops global wireless standards and corresponding enabling technologies, the IEEE-SA supports making more spectrum available for both licensed and license-exempt technologies to meet data demand growth, the proliferation of connected devices, and to foster innovation. Furthermore, additional spectrum is needed for technologies to economically meet data demand growth.

Wireless technology has benefited and will continue to profoundly benefit humanity. For example, the use of wirelessly connected medical devices is expected to increase significantly in the near future.[[2]](#footnote-2) As a result, medical resources can be more rapidly dispatched to where they are needed and positively transform lives. IEEE has an important role to play in this future for the benefit of humanity and to promote access to these technologies is inherent in IEEE’s mission of fostering technology innovation and excellence for the benefit of humanity.

**ABOUT IEEE**

The IEEE is the world’s largest professional association advancing innovation and technological excellence for the benefit of humanity. IEEE and its members inspire a global community to innovate for a better tomorrow through its highly-cited publications, conferences, technology standards, and professional and educational activities. IEEE is the trusted “voice” for engineering, computing, and technology information around the globe.

There are more than 420,000 IEEE members in more than 160 countries. IEEE publishes a third of the world’s technical literature in electrical engineering, computer science, and electronics, and is a leading developer of international standards that underpin many of today’s telecommunications, information technology, and power generation products and services.

1. 802.11 device shipment – Wi-Fi Alliance; 802.15.4 device forecast - Telecompetitor report. [↑](#footnote-ref-1)
2. https://www.fda.gov/MedicalDevices/DigitalHealth/ucm512245.htm [↑](#footnote-ref-2)