



Comments of

The Ultra Wide Band (UWB) Alliance

Before

The Federal Communications Commission Office of International Affairs

***Request for Comments on Recommendations Approved by the World
Radiocommunication Conference Advisory Committee***

IB Docket No. 16-185

April 21, 2023

About the UWB Alliance

The Ultra Wide Band (UWB) Alliance is a global not-for-profit organization that works to collectively establish ultra-wideband (UWB) technology as an open-standards industry. A coalition made up of vendors that either design, manufacture, or sell products that use ultra-wideband technology, the UWB Alliance aims to promote and protect the current allocation of bandwidth as well as promote the continuing globalization of the technology. As part of our mission, we advocate UWB technology and use cases to promote verticals showing the value of UWB for IoT and Industry 4.0 and to build a global ecosystem across the complete UWB value chain, from the silicon to the service. In addition, the Alliance is promoting and assuring interoperability through its work with Standards Development Organizations such as the IEEE and ETSI and then working with members to define upper layers and testing to assure compliance. For more information, please visit us at www.UWBAlliance.org.

Introduction

The Ultra Wide Band (UWB) Alliance is pleased to offer the FCC Office of International Affairs (OIA) the following comments on the recommendations approved by the World Radiocommunication Conference Advisory Committee.

Regarding Agenda Item 10 proposal for International Mobile Telecommunications (IMT)

The UWB Alliance supports 'View C' and strongly recommends against 'View A'. It is important that spectrum remains available to support the innovation the global marketplace is enjoying based on the increasing adoption of ultra-wideband technology. The UWB Alliance further recommends that with respect to 'View C' the OIA consider studying spectrum above 12.7 GHz for future IMT. It is critical to maintain a steady pipeline of spectrum available for innovative technology development which can operate without disrupting the existing services operating between 10.8 GHz to 12.7 GHz.

While the usual pattern for both licensed and unlicensed users of spectrum is a growing need for more spectrum, some significant gains in use of spectrum can be achieved by preserving and improving upon the usability of the spectrum currently available. Key to maximizing spectrum value is recognizing that one critical metric of value and efficiency is diversity of use.

Ultra Wideband (UWB) is an ultra-low power technology that provides optimum spectrum sharing and enables other technologies to be used more efficiently. Airdrop is an example of how UWB enhances other technologies: UWB is used to identify and authenticate the desired peer and enable Wi-Fi communications with a minimum amount of overhead.

Systems operating under UWB rules (FCC part 15, subpart F) provide very efficient use of spectrum by achieving high spectral reuse. The use of UWB is expanding rapidly, supporting a robust ecosystem delivering products providing significant value. The UWB industry seeks to preserve and enhance the usability of the available spectrum. While innovatively finding ways to better use spectrum. Examples include new standards efforts such as IEEE 802.15.4ab, which provides features to further improve coexistence, sharing, device density, ultra-low energy usage, and utility of standard based UWB. Potential enhancements to the rules can enable continued innovation in uses. UWB supports a diversity of uses such as precise (centimeter accurate) location services, secure entry, in-vehicle use for presence detection, multi-media communications, and many other uses. We anticipate continued expansion in the diversity of use cases supported so long as the currently available spectrum remains usable.

We strongly discourage allocation of spectrum currently being efficiently and effectively shared by UWB to services that require substantially more transmit power. Higher transmit power limits efficient use of spectrum as well as increases device carbon footprint. We ask to consider the value provided by both existing and emerging UWB products, applications, and services, and the significantly higher efficiency of use of spectrum that is provided by the high spectral reuse of UWB when considering spectrum policy.

Designation for much higher-powered services such as IMT will reduce the usability of the spectrum for other-than-IMT and greatly reduce the overall value.

Traditional mobile broadband services that depend on high power and exclusive use of spectrum are not in all cases the most effective use of spectrum. In considering policy, 'more bits per second' is not the only measure of value. Diversity of spectrum use provides very high value compared to traditional models such as exclusive access.

The growing importance of spectrum sharing implies that systems need to seek to reuse their available spectrum with lower power solutions in order to achieve higher spatial reuse. This is not at all being considered by the proponents of 'View A', who just offer more of the same and some vague promises of unspecified new use cases. It is far from certain that more IMT spectrum will be needed until these use cases become clearer. It is equally unclear whether IMT is the optimal solution in many of potential use cases identified so far for IMT. Applying the 'one-size-fits-all' approach to wireless technologies results in wasteful non-optimal solutions, in which more energy and spectrum is consumed than when more appropriate technologies are used. The ability to coexist with other technologies is an important metric in determining actual cost and resources consumed by a solution. IMT has been shown not to coexist well with other technologies.

UWB is currently sharing with many other services as an underlay effectively. Further innovations are possible to provide greater coexistence among differing technologies in overlapping bands. The ultra-low power of UWB makes for 'quiet neighbors' but the corresponding need for sensitive receivers can make much higher powered transmissions disruptive.

It is important that spectrum remains available to support the innovation that is currently happening based on ultra-wideband technology. We therefore commend the proponents of 'View C' for advocating for a part of the spectrum where UWB can continue to thrive in mid-band spectrum from 3.1 to 10.6 GHz under current rules. In addition to providing value as a standalone technology, UWB:

- improves the efficiency of other wireless communication protocols;
- enables currently operating services to continue refining and delivering important technical advances in performance without fear of wasted investment; and
- enhances the ability of multiple wireless devices to operate in spectrum which is efficiently shared rather than impaired.

We thank you for the opportunity to comment on this very important issue, and look forward to working with the OIA as it develops its response to the World Radiocommunication Conference recommendations. If you have any questions, please do not hesitate to contact us.