Chairman Michael Doyle
House Committee on Energy & Commerce
Subcommittee on Communications and Technology
2125 Rayburn House Office Building
Washington, DC 20515

December 3, 2019

Ranking Member Robert Latta
House Committee on Energy & Commerce
Subcommittee on Communications and Technology
2322 Rayburn House Office Building
Washington, DC 20515

RE: **Hearing on "Accountability and Oversight of the Federal Communications Commission", Dec. 5, 2019; Ultra Wide Band Alliance Comments Regarding the FCC's 6 GHz Proceeding**

Dear Chairman Doyle and Ranking Member Latta:

The Ultra Wide Band Alliance (UWB Alliance) is concerned the FCC's current rulemaking proceedings on unlicensed use of the 6 GHz spectrum[1] would have a deleterious impact on consumers by allowing unlicensed Wi-Fi users to use the entire 6 GHz band at power levels ten million times higher than currently allowed for licensed exempt operation. This would drown out all existing 6 GHz devices and hamper future innovation in the thriving ultra-wideband ecosystem that already features thousands of successful applications in the advanced manufacturing, automotive, aerospace, and communications industries. In fact, the UWB market is expanding and projected to exceed 3.1 billion devices by 2025.[2]

Instead, the UWB Alliance recommends a coexistence approach that both protects both new and incumbent users and ensures efficient use of the spectrum. We respectfully request Congress urge the FCC Commissioners to direct the Office of Engineering and Technology (OET) to conduct a comprehensive review of the FCC rules governing UWB devices (Part 15, Subpart F) to facilitate the development of new UWB products and systems. In addition, OET should amend the current 6 GHz NPRM to authorize new unlicensed broadband uses at the below proposed standard power levels and restrict out of band emissions to a manageable level. In the alternative, it should include maximum transmit duty cycles for use of standard power operation and specify lower power levels for the remainder of the band.

The FCC 6 GHz NPRM

The FCC recognized the need to share available bandwidth for radio frequency applications in the NPRM (GN Docket No. 17-183). Innovation is the key to adding virtual bandwidth for new applications, where requirements vary widely: from thousands of short bursts for locating to video streaming. However, of significance is the need to consider the impacts on numerous industrial and commercial applications that operate in the unlicensed 6 GHz band under existing Part 15 rules. Current rules have stimulated innovation and efficient use of spectrum

[1] *Unlicensed Use of the 6 GHz Band*, ET Docket No. 18-295; *Expanding Flexible Use in Mid-Band Spectrum between 3.7 and 24 GHz*, GN Docket No. 17-183.
[2] See *IEEE 802.15-18-0486-01.*

resources; Some of the schemes proposed will adversely affect important existing applications. These applications, while not yet in the forefront of the consumer consciousness, are pivotal to the well-being of numerous industries comprising our newly resurgent innovation economy. New applications are being deployed widely that will provide significant value to consumers in devices such as mobile phones and vehicles. The UWB Alliance holds grave concerns that the NPRM's proposed power levels and use of the entire 6 GHz band will halt true innovation, to allow yet another variation of the current Wi-Fi techniques to be applied to a new band.

When technologies play well with others, everybody wins.

Common consumer standards such as Wi-Fi, Bluetooth, and ZigBee all evolved to share the 2.4 GHz band to provide different services. Wi-Fi, an older technology, is optimized for moving large amounts of data, whereas UWB is optimized for bursts that uniquely provide precise localization capability. The current regulations allow both UWB (15.517 – 15.519) and Wideband (15.250) to coexist, and as a result, have stimulated innovation in UWB and Wideband applications, such as: smartphone ecosystems**;** consumer home automation, including automated lawnmowers; sports tracking and analytics, including every NFL stadium; secure automated vehicle lock/unlock; aviation manufacture/tool tracking, including throughout 30 buildings across Boeing's four campuses; wireless USB; and automated automotive manufacturing. The IEEE projects the expanding UWB market will exceed 3.1 billion devices by 2025. But most importantly UWB has only begun to evolve technically, including expanding device ranges up to 1,000 feet and techniques that will offer equivalent Wi-Fi services, but at power levels that won't threaten all other users of the band. UWB promises to be the 5G for IoT. Investment and innovation in UWB is accelerating.

There is more to the story than what is reported by its proponents.

The UWB Alliance and others such as iRobot[3] and AT&T[4] have performed evaluations of coexistence between current users of the 6 GHz band under existing Part 15 rules and those that would be allowed by the NPRM. The results raise valid concerns. We believe while these studies are quite compelling, there is not yet been a thorough analysis performed to evaluate accurately the full impacts to the UWB community and licensed incumbents. The study performed for licensed Fixed Service users by RKF Engineering Solutions is deeply flawed. The RKF study was commissioned by the RLAN proponents, and hence the results are predictable. The study by RKF's admission is incomplete and lacking thorough evaluations of other users in the frequency band. The results are analogous to the studies that showed smoking was not detrimental to respiratory health that were commissioned by the cigarette industry in the '60's.

Updating the UWB rules and coexistence are the keys to preserving innovation.

In 2002, the FCC promised a comprehensive review of what even they considered "overprotective" and "ultra-conservative" UWB rules. The time is right to reassess those rules in light of a number of significant interests: Congress' FCC mandate to make more spectrum available, the Wi-Fi industry's need for additional bandwidth, an already thriving UWB ecosystem, and the need to provide the greatest value to consumers from our scarce spectrum resources. Key to these goals are technologies that can coexist. We believe building on the existing Part 15 rules to broaden applications will stimulate real innovation and better achieve these key goals. In addition, we believe that any rule change in the current NPRM should consider new techniques, such as UWB, that can help the FCC achieve its goal without destructive increases in power and bandwidth utilization. The

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[3] See *Impact of Proposed High-Power Wi-Fi Operations on iRobot Ultra Wide Band Devices at 6 GHz*, Prepared by Roberson and Associates, LLC, October 14, 2019, in Notice of Ex Parte Filing of iRobot from Tonya Drake, Vice President and Asst. General Counsel, iRobot Corp., to Marlene H. Dortch, Secretary, Federal Communications Commission, ET Docket No. 19-295, GN Docket No. 17-183, filed October 17, 2019.

[4] See Notice of Ex Parte Filing of AT&T Services, Inc., to Marlene H. Dortch, Secretary, Federal Communications Commission, ET Docket No. 19-295, GN Docket No. 17-183, filed August 8, 2019.

modulation technique and the power levels requested will cause interference with licensed operators in the 6 GHz band, and virtually destroy the usefulness of the band to all other unlicensed services. The refusal by the RLAN industry to operate in subject bands is a matter of technology choice. If maximum spectrum efficiency is the goal, then coexistence with other technologies is the key.

The Solution.

We respectfully ask the Subcommittee to direct the FCC to consider the following points in determining the final rules in its 6 GHz proceeding:

- Limit mobile hotspots to 1 mW peak. AFC mapping can't provide the coexistence solution for mobile devices like smartphones and keyless entry;
- Conduct a comprehensive review of the Part 15, Subpart F rules to normalize current waivers and encourage the utilization of existing standards to promote coexistence;
- Significantly less power for all (or some). UWB installations such as Boeing show that high power is not required:
    - Authorize new unlicensed broadband at the proposed standard power levels only in the sub-band 5.925 - 6.1 GHz (the lower 175 MHz of the proposed U-NII-5 band), and
    - specify out of band emissions not to exceed -61 dBm/MHz;
- In the alternative, allow IoT – including UWB devices – to occupy both standard and low power designated portions of the band at the low power level and density specified in the NPRM.
    - Include maximum transmit duty cycle requirements for use of standard-power operation, and
    - specify lower power levels for the remainder of the band (6.1 to 7.125 GHz).

About the UWB Alliance.

The Ultra Wide Band Alliance ("UWB Alliance") is a global not-for-profit organization that works to collectively establish ultra-wideband (UWB) technology as an open-standards industry. A non-profit 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. In addition, the Alliance is promoting and assuring interoperability through its work with Standards Development Organizations (SDOs) such as the IEEE and ETSI and then working with members to define upper layers and testing to assure compliance.

Chairman Doyle and Ranking Member Latta, the UWB Alliance commends the work that both Congress and the FCC are doing to ensure our nation's spectrum policy encourages innovation, promotes efficiency, and serves the American public, from whether it be consumers, utilities, first responders or technology innovators. We stand ready to answer any questions you may have regarding the impact of the FCC's 6 GHz proceeding or the ultra-wideband ecosystem writ large. I can be reached

Respectfully,

Tim Harrington
Executive Director
Ultra Wide Band Alliance