Ultra Wide Band (UWB) Alliance

comments to the

Telecom Regulatory Authority of India

on

Consultation Paper on Assignment of the Microwave Spectrum in 6 GHz (lower), 7 GHz, 13 GHz, 15 GHz, 18 GHz, 21 GHz Bands, E-Band, and V-Band

Consultation Paper No. 05/ 2025

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 collaborating with members to define upper layers and testing to assure compliance. For more information, please visit us at www.UWBAlliance.org.

Introduction and Summary

We commend the Telecom Regulatory Authority of India (TRAI) for this comprehensive Consultation Paper regarding use of important microwave spectrum and thank TRAI for the opportunity to provide input on this important subject.

Most Ultra Wide Band (UWB) systems operate in the 6–8.4 GHz range mentioned in the Consultation Paper. Over the past six years, UWB applications, especially for consumers, have grown rapidly, thanks to non-exclusive spectrum access. Most devices follow IEEE Std 802.15.4, supporting a robust multi-vendor ecosystem.

UWB delivers precise ranging, location, and sensing with minimal interference due to its extremely low power output. The introduction of significantly higher-powered systems in this band could disrupt efficient spectrum use by creating an imbalance and interfering with UWB's benefits to other technologies. We respectfully ask TRAI to consider existing de-licensed UWB users when making decisions on IMT allocation.

Value of De-licensed (licensed exempt) Spectrum and UWB

UWB is authorized in India in bands overlapping the lower 6 GHz and 7 GHz ranges. It enables precise, centimeter-level position tracking for consumer and industrial uses, including secure access control to buildings and vehicles. UWB offers energy-efficient, highly accurate sensing with much lower transmission power than Wi-Fi or Bluetooth. In fact, it complements these technologies by enhancing directional link communications such as Apple Airdrop. It also provides lossless, low-latency audio communications.

UWB offers significant value with minimal, nearly undetectable interference thanks to its exceptionally low transmitted power and Impulse Radio (IR) characteristics. This allows for high device density and extensive spectrum reuse. It supports diverse applications within the same frequency and area. UWB's transmit power is much lower than other de-licensed technologies like Bluetooth and Wi-Fi in India, enabling coexistence with most any low-power technologies. Disruption typically arises only when there is a substantial power difference. Spectrum sharing among various technologies and uses maximizes the value per MHz.

We support the positions of the Broadband India Forum (BIF), NXP, ICEA, and AMCHAM on maintaining Ultra-Wideband (UWB) technologies in the global ecosystem. BIF and ICEA highlight the significance of the 7700–8400 MHz range (UWB channel 9 per IEEE Std 802.15.4), while all parties emphasize the value of the 7125–8400 MHz band. They recommend delaying any national review of microwave backhaul in this band until after WRC-27, a suggestion we endorse. We also agree that any spectrum reallocation should protect UWB usability.

The 7700–8400 MHz (Channel 9) band is vital for enterprise, consumer, and automotive uses. The full 6 GHz to 8.4 GHz range also supports ongoing UWB growth. We recommend prioritizing coexistence strategies, such as compatible power limits, when adding new services in this spectrum to minimize disruption. These measures will help maximize spectrum value and align with TRAI's objectives.

Respectfully Submitted,

Tim Harrington, Chairman

Ultra Wide Band Alliance