



UWB Market Size Evaluation

Excerpt taken from the Comments of

The Ultra Wide Band (UWB) Alliance

Before

The Federal Communications Commission

***FURTHER NOTICE OF PROPOSED RULEMAKING
Mid-Band Spectrum Between 3.7 and 24 GHz.***

ET Docket No. 18–295

GN Docket No. 17-183

June 29, 2020

(Revised July 2, 2020)

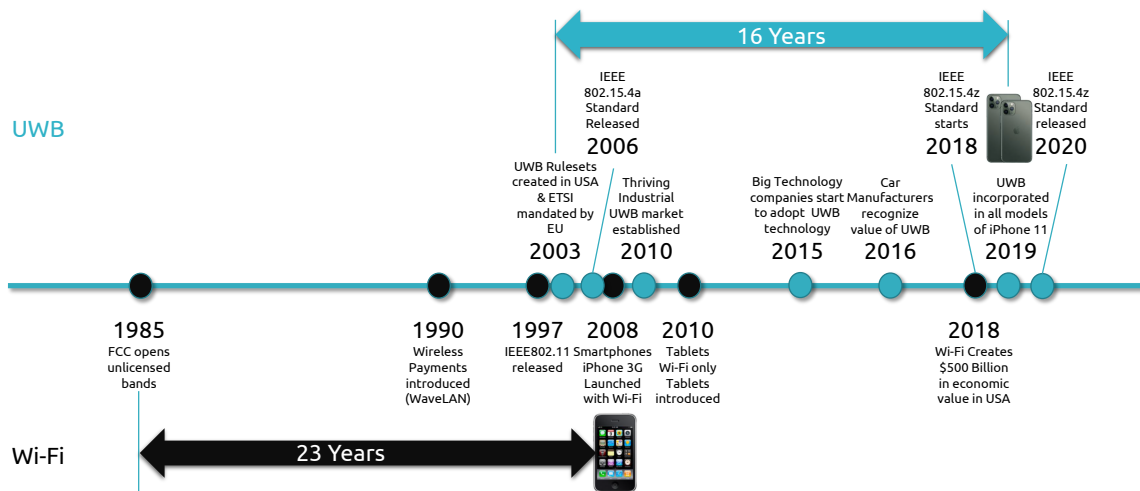


UWB Market Size and Evolution

The Ultra Wide Band Alliance (UWB Alliance) wishes to respectfully draw the Commission’s attention to the data point cited in the FCC’s recently published Report and Order and Further Notice of Proposed Rulemaking on Unlicensed Use of the 6 GHz Band (R&O), regarding the estimated global market value of the ultra-wideband (UWB) industry in 2022.

We would also like to submit the information below showing the evolution timelines of UWB and Wi-Fi as well as UWB and Bluetooth. These figures indicate how long these complimentary technologies took to reach sufficient maturity to be embedded within smartphone products, and therefore provide a reference point for this important milestone for UWB.

UWB and Wi-Fi Evolution into Consumer Electronics



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Wi-Fi source: WifiForward

Figure 1 Evolution of UWB and Wi-Fi

One can see that UWB has taken less time (16 Years) than Wi-Fi (23 Years) to be added to mass-market mobile consumer products, including smartphone.



UWB and Bluetooth Evolution into Consumer Electronics

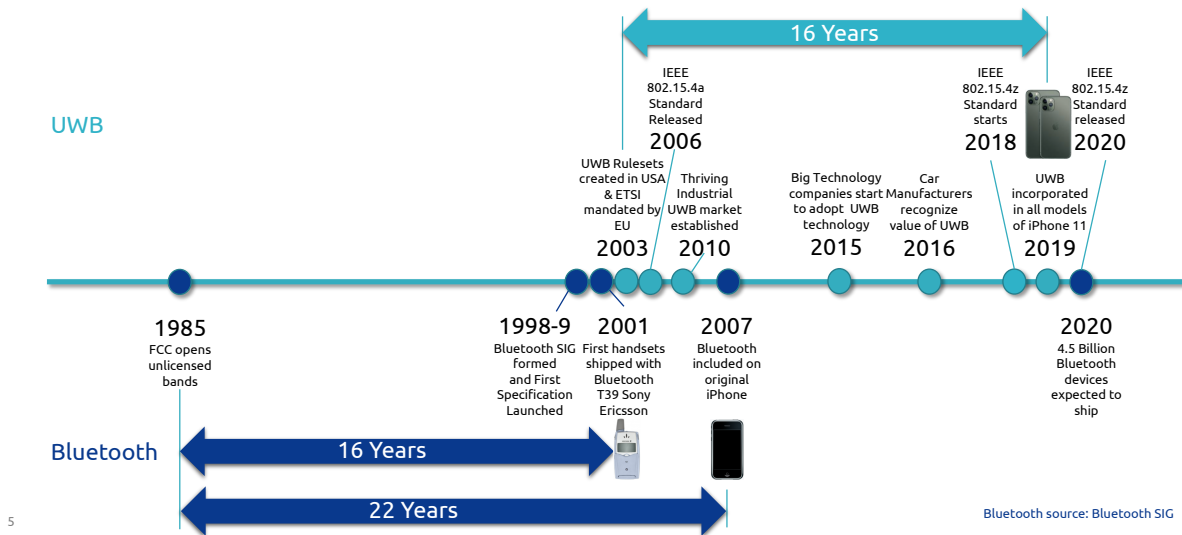


Figure 2 Evolution of UWB and Bluetooth

One can see that UWB has taken the same amount of time as Bluetooth (16 Years) to be integrated into mass-market mobile consumer products, including smartphone.

This provides valuable context for why the UWB Alliance has submitted multiple requests to the Commission to strongly consider aspects related to UWB co-existence both as part of its rulemaking and also in the formation of the Multi-Stakeholder Group in order to create a suitable framework for contention based access within the 6 GHz band. All these technologies ultimately must be able to work together inside the smartphone and associated ecosystems to leverage the combined value for the next generation of location-aware connected devices.

We would also like to draw the Commission’s attention to the recently released report provided by Techno Systems Research (TSR) from May 2020 entitled, *2020 Ultra Wideband Market Analysis*.¹ This independent report supports the UWB Alliance’s position that the ecosystem of products incorporating UWB will create a market that far eclipses the \$85.4 million value as stated in the R&O, showing that chip sales alone (not considering the immensely larger value of economic value generated) already represents \$489.5 Million in chip sale revenues this year.

¹ [2020 Ultra-Wideband Market Analysis](#), Techno Systems Research (TSR), May 2020.

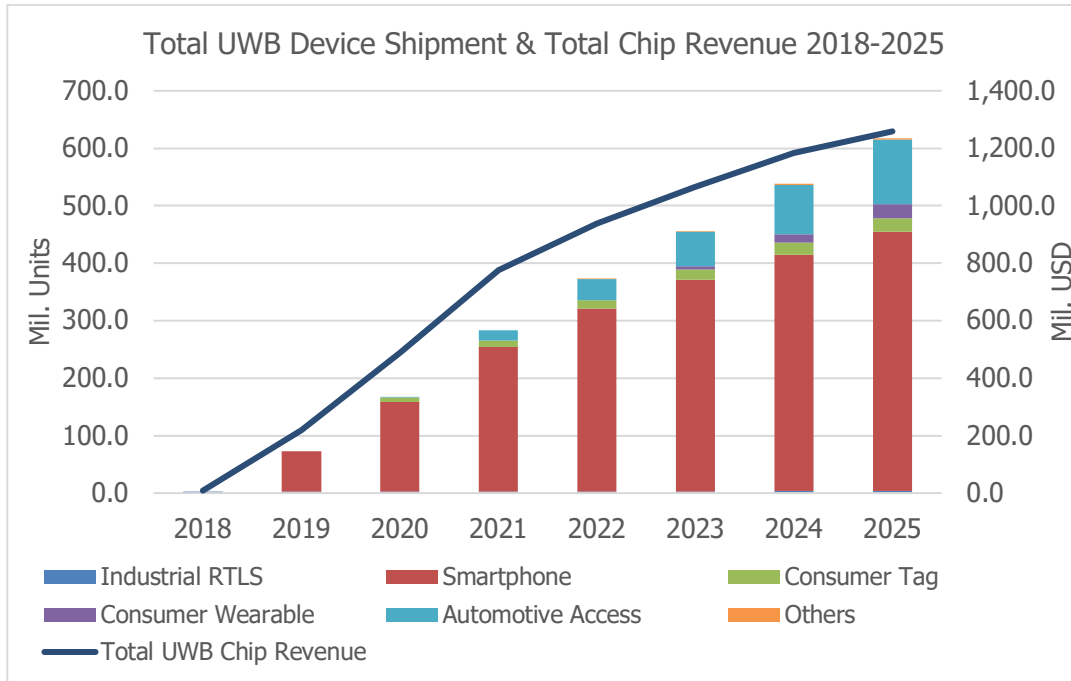


Figure 3 Device shipment and chip revenue, Source TSR Report, May 2020

The TSR report indicates that UWB chip revenue alone is expected to evolve from \$489.5 Million this year to \$1.259 Billion by 2025.

This report is significant because it takes the following milestones into consideration:

- The widespread UWB integration into consumer devices that started with the launch of the Apple iPhone 11 family and is currently proliferating to many other smartphone vendors that are integrating UWB technology into their devices.
- The widespread adoption happening within the automotive market with the incorporation of UWB into the Digital Key Release 3.0 specification under development in the Car Connectivity Consortium. The announcement from Apple at WWDC 2020 that UWB technology will be deployed inside the 2021 BMW 5 Series, is just the first step in an industry-wide adoption of UWB within the automotive vehicular market.

The UWB Alliance is in general agreement with most of the TSR report’s data-points and assumptions related to the evolution of UWB market size over the coming years. The ecosystem for UWB accessories will become a very significant portion of the overall chipset



market over the next five years. For every smartphone sold there will be a minimum of 1 UWB companion device placed on the market.

The updated projections regarding the UWB are therefore reflected in the table below:

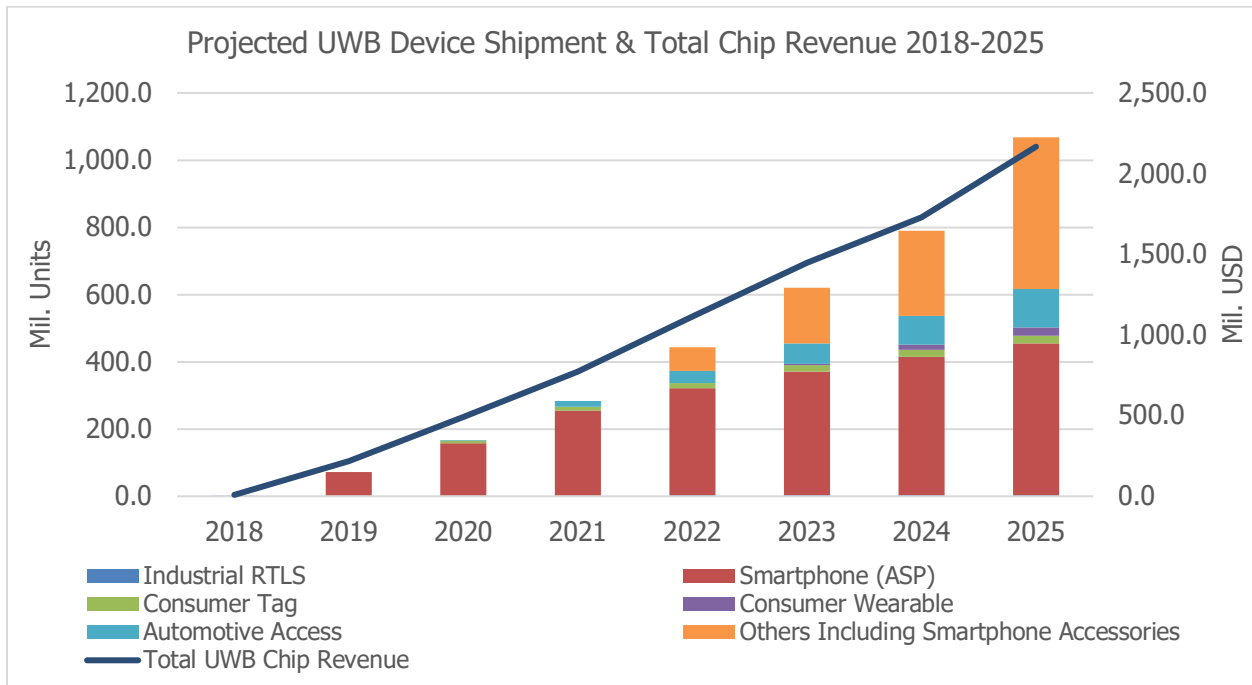


Figure 4 Device shipment and chip revenue, Source UWB Alliance, June 2020

These projections indicate that UWB technology will be integrated into numerous devices fuelling an adoption curve of over 1 billion devices annually by 2025, thus generating chipset revenues of over \$2 Billion per year.

These projections are conservative when compared to the ecosystem accessory market for other radio standards such as Bluetooth and Wi-Fi following the introduction of these devices into consumer smartphone devices.²

² Validation by comparing total Wi-Fi vs smartphone totals sold 5 years after 2008, i.e. in 2013 – See [Global Smartphone Sales to End Users 2007-2020](#) (S. O’Dea author, Statista, 28 Feb 2020) compared to [Global Wi-Fi Enabled Equipment Shipments 2012-2017](#) (Statista Research Department author, Statista, 29 Oct 2013).



The ultra-wideband industry is exploding into mainstream acceptance for multiple consumer markets including 5G IoT that are already driving huge volumes and resulting economic value. UWB's incorporation into the Apple iPhone 11 was the first of many such significant milestones for the current exponential-growth of UWB technology into high-volume consumer applications. Other smart phone manufacturers are incorporating UWB into their products as indicated by participation and contribution to standards development organizations (SDOs) such as IEEE 802.15.4z, and other industry associations.

In addition to the expansion in smartphone devices and automotive, the breadth of UWB applications include high-accuracy contact tracing for COVID-19, non-contact respiration, heart-rate, temperature and fall monitoring, VR movement and gesture sensing, providing tools for wall exploration, universal smart remote controls, sports tracking (NFL), professional audio, smart factories, stock animal health and tracking, tank level radar sensing, airport baggage handling, and bus and train control and communication. Many of these uses (e.g., high-accuracy COVID-19 contact tracing) have an intrinsic value to the public that is far beyond dollar value of the equipment used to provide it.

UWB's unique properties provide features and performance that work synergistically with other wireless technologies. No other technology can provide pinpoint accuracy and actively track locations with the minimal power requirements of UWB. It is an essential piece of the matrix of capabilities that are required to meet the IoT expectations for the next generation of 5G wireless applications.

Ultra-wideband adoption has therefore changed dramatically since 2016 and the underlying assumptions in the stated forecast used by the FCC are no longer valid. We would therefore respectfully recommend the Commission update these assumptions in the FCC record with data and projections that more closely aligned to the value that is currently being created by the expanding UWB ecosystem. The revenue streams resulting from new applications that are evolving have tremendously increased the current and evolving market for UWB.

To read the full UWB Alliance submission to the FCC click the link below:

<https://secureservercdn.net/166.62.112.193/ebt.244.myftpupload.com/wp-content/uploads/2020/07/UWBA-Comments-FCC-6GHz-FNPRM-June-29-2020-final-Updated.pdf>