

16 December 2022

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The Bluetooth Special Interest Group welcomes the opportunity to provide a response to the Australia Communications and Media Authority consultation in “Variation to the Low Interference Potential Device Class Licence Consultation paper” and “Radiocommunications (Low Interference Potential Devices) Class Licence Variation 2022 (No. 2)”.

Since 1998 Bluetooth technologies have been the primary wireless connection for peripheral devices from cellular phones to music players and tablets and PCs. Over the course of these 24 years the technology has advanced and grown both in value to consumers and numbers of devices. In 2021 over 5 billion Bluetooth devices were shipped and expectations are that by 2026 that number will reach 7 billion, this in addition to the estimated more than 22 billion Bluetooth devices still in service. As such access to wireless spectrum is critical to support of existing devices as well as continued innovation of the technology. Until now all of that was within the confines of the 83.5 MHz of the 2.4 GHz band.

In November of this year the Bluetooth SIG announced that it was expanding its technology footprint beyond the 2.4 GHz band into higher bands with license-exempt regulatory rules. Among those higher bands we are focusing on the 6 GHz band as well as the 5 GHz band to support operation in regulatory domains that do not yet support 6 GHz.

With that in mind we would like to provide our input on these two documents that address both the 6 GHz and 2.4 GHz bands.

With respect to the 2.4 GHz band our comments are in the context of Question 11.

### **Question 11**

Should we consider the introduction of arrangements to facilitate systems that utilise space-based transmitters that operate in the bands 915–928 MHz and 2400–2483.5 MHz at power levels higher than currently permitted under the LIPD class licence? If so, what matters should be considered in the regulatory framework? In particular, comment is sought on:

- > What is an appropriate power for such services so that there is no impact on other services? While some might operate at power levels slightly higher than those currently supported under the LIPD class licence, others could at operate higher levels. The impact also depends on other technical parameters such the orbital characteristics, number of satellites and what types of services are sharing the band. Such considerations suggest a case-by-case approach (more akin to an apparatus licensing regime) may be required.
- > What effect, if any, will the proposed use have on existing services such as the amateur-satellite services and services authorised under the LIPD class licence? For example, Wi-Fi, Bluetooth and radio frequency identification devices (RFID).

- > Do systems need to be brought under the scope of the Radiocommunications Act via variations to the Radiocommunications (Australian Space Objects) Determination 2014 or the Radiocommunications (Foreign Space Objects) Determination 2014?
- > Is the LIPD class licence or the communication with space objects (CSO) class licence the appropriate legislative instrument to be used to facilitate such systems?
- > If apparatus licensing is used, are the current apparatus licence fees and taxes appropriate? (Assuming the entire band is licensed, for the 915–928 MHz band, the annual tax for an Australia-wide space licence is estimated as \$36,673; for the 2400–2483.5 MHz band, the annual tax for an Australia-wide space licence is \$235,194.)

We also have a number of questions that we would need answered for us to craft a more full response:

1. What are the power density requirements for these new Transmitters?
2. What are their spectral mask requirements?
3. What type of medium access and back off do they deploy for the technology as they co-exist in ISM band?
4. What are the Emission / Channel BW / Throughput Requirements?
5. What is the frequency hopping cadence of the transmitter? The duty cycle for uplink and downlink?
6. What are the expected applications that will utilize this satellite service? The number and location of ground stations is an important factor. Will they be stationery or mobile, and
7. Are the ground stations receive-only?
8. What does Australia have in 2483.5 – 2500 MHz that requires adjacent channel protection?

### The 6 GHz band

With respect to the 6 GHz band our comments are with reference to Table Item 57A as shown in the second document.

57A	Frequency hopping transmitters	5925–6425	25 mW	<ul style="list-style-type: none"><li>(a) The power spectral density of the transmitter must not exceed 10 mW EIRP per MHz.</li><li>(b) A minimum of 15 hopping frequencies must be used.</li><li>(c) Emissions must have a maximum bandwidth of 20 MHz.</li><li>(d) Emissions below 5925 MHz must be no greater than –37 dBm EIRP.</li></ul>
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1. The “Limitations” shown here were developed based upon Bluetooth operation in the 2.4 GHz band. The requirement for a minimum of 15 hopping frequencies was related to the spreading of energy within the 83.5 MHz of spectrum. In the 6 GHz band this limit is no longer critical in 500 MHz. We believe this requirement deserves further study in order to maximize the usability while still protecting other users of the band.

2. Because of the reduced range at this higher frequency, the power and PSD limits could also be studied for equivalent interference potential and optimized usability.

**About the Bluetooth SIG**

Formed in 1998, the Bluetooth SIG is the not-for-profit trade association that oversees Bluetooth® technology. In support of more than 38,000 member companies, the Bluetooth SIG facilitates the collaboration of its members to create new and enhanced specifications that expand the technology, drives global interoperability via a world-class product qualification program, and grows the brand by increasing the awareness, understanding, and adoption of Bluetooth technology.

Respectfully,

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