

15 May 2019

To: The Manager  
Strategy and Transition Section  
Spectrum Review Implementation Branch  
Australian Communications and Media Authority  
PO Box Q500  
Queen Victoria Building NSW 1230

**Via On Line:** <http://www.acma.gov.au/theACMA/Consultations/Consultations>

**Subject:** Comments to ACMA Draft five-year spectrum outlook 2019–23, spectrum management work program-consultation draft, IFC: 10/2019

### **COMMENTS OF IEEE 802**

1. IEEE 802 LAN/MAN Standards Committee (LMSC) respectfully submits these responses to the Australian Communications and Media Authority (ACMA).
2. IEEE 802 LMSC is a leading consensus-based industry standards body, producing standards for wireless networking devices, including wireless local area networks (“WLANs”), wireless specialty networks (“WSNs”), wireless metropolitan area networks (“Wireless MANs”), and wireless regional area networks (“WRANs”). We appreciate the opportunity to provide these comments to ACMA.
3. IEEE 802 is a committee of the IEEE Standards Association and Technical Activities, two of the Major Organizational Units of the Institute of Electrical and Electronics Engineers (IEEE). IEEE has about 420,000 members in about 190 countries and supports the needs and interests of engineers and scientists broadly. In submitting this document, IEEE 802 acknowledges and respects that other components of IEEE Organizational Units may have perspectives that differ from, or compete with, those of IEEE 802. Therefore, this submission should not be construed as representing the views of IEEE as a whole.<sup>1</sup>

### **COMMENTS**

4. In general terms, we believe that global harmonization of spectrum allocation is important for a number of reasons:
  - In a world where international travel is the norm, protection of licensed and license-exempt radio operations demands normalization of radio frequencies.

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<sup>1</sup> This document solely represents the views of the IEEE 802 LAN/MAN Standards Committee and does not necessarily represent a position of either the IEEE, the IEEE Standards Association or IEEE Technical Activities.

- Australian tourism is best served by having travelers' wireless devices operating as they do at home
- With wireless connectivity and applications growing at an accelerated pace, cost of devices is reduced by economies of scale when all international requirements are met with a minimum of different RF bands to be served, each with an incremental cost.
  - o For example, a cellular radio may support FDD-LTE (Bands 1, 2, 3, 4, 5, 7, 8, 12, 13, 17, 18, 19, 20, 25, 26, 28, 29, 30, 66), TD-LTE (Bands 34, 38, 39, 40, 41), TD-SCDMA 1900 (F), 2000 (A), CDMA EV-DO Rev. A (800, 1900, 2100 MHz), UMTS/HSPA+/DC-HSDPA (850, 900, 1700/2100, 1900, 2100 MHz), GSM/EDGE (850, 900, 1800, 1900 MHz)
  - o Along with Wi-Fi® [1] radio that may support 900MHz, 2.4 GHz, 5 GHz and upper 5 GHz bands
  - o And a Bluetooth radio at 2.4 GHz.

5. In terms of the specific RF bands discussed in the ACMA 5-year Spectrum Outlook:

- Both the United States and European Union are in the process of making some or all of the 3400–3575 MHz and the 3700-4200 MHz bands available for 5G technologies. ACMA has recently started a consultation asking for public opinions on optimizing the 3400-3575 MHz bands (<https://www.acma.gov.au/theACMA/optimising-the-3400-3575-mhz-band>). In support of the general terms above, ACMA should consider the value of harmonization of these bands
- The 900 MHz (890–915MHz and 935–960MHz) bands continue to support many consumer products, and will increasingly serve Internet of Things (IoT) applications as the best band for the range versus power benefits that these applications require
- In regards to question 4 of the ACMA consultation (re-farming of bands): since 2011, ACMA has considered the possibility of re-farming the 803-960 MHz band (<https://www.acma.gov.au/Industry/Spectrum/Spectrum-projects/800-and-900-MHz-bands/review-of-the-803-960-mhz-band>). So far, the focus is on the reconfiguration of licensing in the 900 MHz 'GSM' band (890–915/935–960 MHz). The consultation of re-farming these identified bands is ongoing. The planned work on the facilitation of early access to the 928–935 MHz band for low-power wide-area IoT applications is still pending and IEEE 802 would encourage ACMA to allow IoT for in 928-935 MHz as soon as possible.

6. Also, in regard to question 4, IEEE 802.11, the standard underlying all Wi-Fi radios, is continually advancing to support more and improved wireless connectivity for consumers as well as industry. These advances will increase coverage and number of devices supported simultaneously, while reducing latencies required in many applications, e.g. in industrial and gaming, etc. The 5.6 GHz band is central to the effective utilization of the 5 GHz band.

- Channels 160 MHz wide are required to take full advantage of the anticipated IEEE P802.11ax technology
- The Extremely High Throughput amendment, currently under development as IEEE P802.11be may utilize 160 MHz and 320 MHz wide channels

We would ask ACMA to review the need for the proposed space apparatus licensing and to consider alignment with ongoing regulatory changes in the European Union and USA for the 5.6 GHz band.

7. In addition, IEEE 802 believes ACMA should also consider the following:
  - Due to popularity and essentiality of Wi-Fi technologies, both the 2.4 GHz and 5 GHz bands are becoming increasingly congested. As a hedge against future spectrum gridlock, both the EU and USA are working towards reorganizing and making available large portions of the bands between 5925 MHz and 7125 MHz for license-exempt use. IEEE 802.11 is in the process of evolving the IEEE P802.11ax draft to support this. At the same time, we continue to support Ultra-wide band (UWB) technologies in 6 GHz, based on IEEE 802.15 standards that operate there, and expect that any new regulations would ensure its continued use with existing regulations.
8. One final note, in response to question 2, we note that the Cisco VNI quoted is an older revision, and would suggest updating with the 12<sup>th</sup> annual forecast (<https://www.cisco.com/c/en/us/solutions/service-provider/visual-networking-index-vni/index.html>). This demonstrates that the rapidly changing RF spectrum horizon requires constant review.

### **CONCLUSION**

9. IEEE 802 thanks the ACMA for the opportunity to comment on the Draft five-year spectrum outlook for 2019-23.

Respectfully submitted

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### **References:**

- [1] Wi-Fi® is a registered trademark of the Wi-Fi Alliance.