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Bureau of Meteorology

Submission to the Future use of the upper 6 GHz band

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The Bureau of Meteorology (the Bureau) acknowledges the Australian Communications and Media Authority's (ACMA) ongoing consultation with spectrum stakeholders regarding the introduction of radio local area networks (RLANs) and wide-area wireless broadband (WA WBB) services in the upper 6 GHz band in Australia.

The 6 GHz band is important for the operations of passive microwave radiometers for global sea-surface temperature (SST) measurements. Unlike infrared sensors, these passive microwave radiometers provide temperature measurement of the ocean even under the cloud cover. The critical data on SST directly influences weather forecasting, climate studies, and oceanographic research. Earth exploration satellite services (EESS) rely on this band to collect accurate and timely information related to ocean dynamics, sea ice, and atmospheric moisture content.

The Bureau uses data from Advanced Microwave Scanning Radiometer 2 (AMSR2) onboard the GCOM-W1 that uses 6.925 GHz channel. The data retrieved from AMSR2 is ingested into level 4 SST analysis products such as Regional Australian Multi-Sensor Sea surface temperature Analysis (RAMSSA) and Global Australian Multi-Sensor SST Analysis (GAMSSA). The importance of the band for SST measurement is acknowledged in the Radio Regulations via footnote 5.458 that urges administration to considers the requirements of EESS passive sensing in their future planning of the 6425-7075 MHz, which overlaps with frequency band considered in this consultation.

Radio-frequency interference from land sources can impact passive microwave sensors measurements in the coastal areas because of their large field of view. For the continuity of interference free SST measurements that is useful to strengthen resilience to climate related hazards, Bureau recommends that ACMA carefully balances the demands of emerging wireless technologies with the preservation of essential scientific observations. By doing so, we can ensure the responsible and efficient use of the upper 6 GHz band while safeguarding our environment and advancing scientific knowledge.