FLEET

Fleet Space Technologies Pty Ltd
8A Myer Court Beverley SA 5009
AUSTRALIA

Feb 28, 2022

The Manager
Space Systems
Australian Communications and Media Authority
PO Box 78
Belconnen ACT 2616

RE: Proposed licensing arrangements for 2 GHz narrowband mobile-satellite services – consultation paper

Dear Sir/Madam,

Fleet Space Technologies ("Fleet Space") welcomes the opportunity to provide this response to the Proposed licensing arrangements for 2 GHz narrowband mobile-satellite services and 28 GHz fixed-satellite services – consultation paper, released by the Australian Communications and Media Authority ("ACMA") in December 2021.

Fleet Space is a space engineering company headquartered in Adelaide, Australia. Fleet Space specialises in the provision of Industrial Internet of Things ("IIoT") connectivity for remote locations. Since 2016, Fleet Space has been designing, building, and operating smallsats and edge components for a communications network that supports critical infrastructure, mining, utilities, and enterprise level users monitoring and managing their assets.

Fleet Space supports the proposed reallocation of the upper 2 x 5 MHz of the 2 GHz band for innovative narrowband mobile-satellite applications such as satellite internet of things ("IoT") applications. Further, Fleet Space supports the proposal to authorise the use of uncoordinated earth station receivers under class-licensing arrangements in this band.
Fleet Space asserts that this reallocation of this spectrum for the use of narrowband mobile-satellite services will lower the time and cost of securing frequency resources and will provide operators of satellite IoT with the certainty necessary to commit to long term investment in the Australian IoT industry.

Fleet Space strongly encourages the further consideration of the arrangements for the use of gateways in regional/remote areas, in this band. The consideration of gateways in this band is significant, as the IoT services which are likely to utilise the new allocation broadly fall into two categories: sensors which communicate direct to satellite and edge devices which aggregate data from many sensors and then uplink to satellite. Fleet has capabilities in both categories.

Fleet's edge device ("Portal") can aggregate and process messages from hundreds of sensors. It then uplinks a subset of the sensor messages. This results in significant traffic volume reductions, often greater than 90% of the total sensor signal volume. This results in very efficient use of the available spectrum and the approach is therefore being adopted by other IoT service providers. The uplink to the satellite from the Portal is a synchronous link resulting from a handshake between the satellite and the portal, once again differentiating it from the random and potentially repetitive nature of sensor-to-satellite bursts. Fleet's development of the edge device also significantly reduces the potential for interference with other systems.

Consequently, this type of edge device configuration requires higher power and duty cycle parameters, than what would be required for a direct sensor-to-satellite link. Despite the higher power and duty cycle requirements, this type of configuration is much more spectrally efficient and supports greater spectrum sharing capacity with co-frequency systems.

Fleet Space acknowledges the technical conditions proposed at subsections 8(4) and 8(5) of the draft variation to the Radiocommunications (Communications with Space Object) Class Licence 2015[1]. Further, Fleet Space supports the proposal to constrain the proposed technical conditions to systems that operate in metropolitan areas, whilst not prescribing limits on duty cycle and radiated power levels for systems that operate outside of metropolitan areas. Fleet Space believes that the absence of such limits will not preclude harmonious sharing between MSS operators in this band or increase the probability for interference into adjacent band services. Fleet Space therefore strongly supports the adoption of a ubiquitous class licensing framework for earth stations in this band.

Fleet does not support the imposition of operational limits outside of metropolitan areas. As previously stated, Fleet Space encourages further consideration of the possible configurations for IoT systems that may operate in this band, to avoid stymieing innovative and spectrally efficient configurations such as the edge device configuration proposed by Fleet Space.
Fleet Space supports the ACMA proposed objective of minimising the regulatory barrier to entry for new entrants and believes that imposing operational limits on radiated power levels and duty cycle for systems that operate in remote/regional areas is counterintuitive to this objective and unnecessary given the low probability of interference from these low power IoT deployments.

Fleet Space encourages the ACMA to amend the regulatory instruments to enable innovative solutions that promote sharing between co-frequency systems and compatibility with adjacent-band services, whilst not being constrained by technical conditions that are designed around the implementation of a particular configuration.

Fleet Space greatly appreciate the opportunity to consider and comment on ACMA consultation paper 46/2021. Fleet Space is pleased to engage further with the ACMA and other interested stakeholders, to discuss the contents of this submission.

Yours Sincerely,

Flavia Tata Nardini
Co-Founder & Chief Executive Officer
Fleet Space Technology
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[1] *See* Australian Communications and Media Authority, *Radiocommunications (Communications with Space Object) Class Licence Variation 2022 (No. 1)* (DRAFT) (Dec. 2022)

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