

Feb 28, 2022

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

RE: Replanning the 2 GHz band: Review of the 2 GHz Television Outside Broadcast Frequency Band Plan – consultation 45/2021

Dear Sir/Madam,

Fleet Space Technologies ("Fleet Space") welcomes the opportunity to provide this response to the Replanning the 2 GHz band: Review of the 2 GHz Television Outside Broadcast Frequency Band Plan – consultation 45/2021, 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.

The Australian space sector has influence on effectively every aspect of the Australian economy, including sending satellites and spacecraft into space as well as using space to help us communicate, locate and see the Earth in new ways.¹ Further, space-based technology enables the provision of critical data for everyday services, from weather forecasting, emergency management to internet access, online banking through to navigation systems². In terms of investment, since 2018 the Australian Government has invested more than A\$700 million in the civil space sector as part of its plan to grow the sector to A\$12 billion and add another 20,000 jobs by 2030³.

The allocation of sufficient spectrum for space operations activities is a critical enabler for the Australian space industry. As a critical enabler, the ability for space operators to access sufficient spectrum to effectively operate their systems, is a crucial consideration for both current and future investors in the Australian space industry. Further, Fleet Space believes that a regulatory environment that is not able to ensure stable and certain access to spectrum for space-based infrastructure will unduly risk the investments made by the Australian government and the vibrant commercial space sector as well as the ability to attract future investors. Specifically, Fleet Space draws attention to §7(1)(c) and §7(2)(c), of the draft frequency band plan, which designate any operation of an earth station in the 2025 MHz to 2110 MHz and any

¹ See Advancing Space – Australian Civil Space Strategy 2019 – 2018 (April 2019). *Australian Space Agency*

² See id

³ See Australian Space Industry set to rock to new height (15 Apr. 2021). *Australian Trade and Investment Commission*

operation of an earth receive station in the 2200-2300 MHz band as a secondary service.⁴ Fleet Space is aware that as a secondary service, any operation that meets the proposed criteria, will need to be coordinated to ensure it does not cause harmful interference to a primary service, using this frequency band.

In its interpretation of the draft frequency band plan, through consultation with the Radiocommunications (Interpretation) Determination 2015,⁵ Fleet Space considers that the operations of any system that operates in this band using an earth station or an earth receive station, will be considered a secondary service. This will affect the following services that use an earth station or earth receive station in their network architecture including:

- Earth Exploration-Satellite Service ("EESS")
- Space Operation Service
- Space Research Service

Each of the three services above, are ubiquitously recognised as primary services in the 2025-2110 MHz and 2200-2290 MHz bands of spectrum, in all three International Telecommunications Union ("ITU") regions,⁶ as well as domestically in the Australian Radiofrequency Spectrum Plan 2021. Fleet Space believes that the proposed change needlessly creates a difficult coordination situation for operators whose services are relegated to secondary status in this band. Fleet Space encourage an Australian Radiofrequency Spectrum Plan that is in close alignment with the ITU Article 5 Frequency Allocations, and as such support the status of EESS, space operations and space research as primary services in this band.

In terms of the practical implementation of such a proposal, Fleet Space asserts that it is difficult for these three services to coordinate with itinerant services, such Television Outside Broadcast ("TOB"). As described in RALI: FX3, the 'geographic coordinates (location) of the transmit and receive site, is one of several details that is necessary at a minimum in order to initiate the most basic level of coordination between systems.'⁷ Fleet Space understands that the unique operational characteristics of the TOB service require that it be afforded a certain level of flexibility in terms of the locations in which the licensee can operate. Indeed, the five most prolific TOB licensees in these bands all have Australia Wide licences.⁸ Fleet Space believes that coordinating with such an itinerant system will be difficult and necessitate significant technical and administrative resources to effectively carry out such coordination. This level of resource is not always available to the operators of Earth stations in EESS, Space operations, and Space research services. As such, Fleet Space believes that this proposal will create a regulatory barrier for new entrants into the Australian space sector. The earth station infrastructure for these three services is typically deployed as long-term, fixed infrastructure assets, such as the Nova Systems IGS-Network, through which Fleet Space operations activities are conducted. The Nova Systems IGS-Network, is deployed as a Ground Station as a Service ("GSaaS"), and its data transmission requirements are determined by their customers project

⁴ See Radiocommunications (Television Outside Broadcasting) (2010-2110 MHz and 2200-2300 MHz) Frequency Band Plan 2022 (Draft for Consultation)

⁵ See Radiocommunications (Interpretation) Determination 2015 - Schedule 1 - Dictionary. 17 Jun. 2021

⁶ See *generally* ITU-RR Chapter II Article 5 Section IV - Table of Frequency Allocations

⁷ See *RALI: FX 3* Radiocommunications Assignment and Licensing Instruction, Microwave Fixed Services Frequency Coordination Section 4.1. Australian Communications and Media Authority. Sept. 2019

⁸ These licensees are Nine Network, Australian Broadcasting Corporation, Network Ten, Channel Seven, and Fox Sport Australia Pty Limited

offices well in advance. Further, the transmissions in the space operations service that are required for launcher and Launch & Early Orbit Phase ("LEOP") operations are normally outside the control of the earth receive stations.

Fleet Space supports a regulatory environment that facilitates the development of space industry within Australia and cannot overstate the importance of stable and certain access to sufficient spectrum to enable the growth of this industry. Fleet Space recognises the contribution that TOB services make to society through their coverage of sporting and cultural events. Noting these contributions, and assessing the proposed changes put forth, Fleet Space respectfully objects to the proposal to consider all operations of an earth receive station and earth station in these bands, as secondary services. Fleet Space are concerned that this change will create a cumbersome, one-sided coordination environment, introduce added regulatory burden for new operators and directly conflicts with the international allocations. Indeed, Fleet Space has doubts whether it would be technically viable for a satellites system to operate as a secondary service with ToB services in the 2010-2110 MHz and 2200-2300 MHz band.

Fleet Space greatly appreciate the opportunity to consider and comment on ACMA consultation paper 45/2021. 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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