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31/01/2024

The Manager
Space Systems Section
Australian Communications and Media Authority
PO BOX 78
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RE: FLEET SPACE TECHNOLOGIES COMMENTS REGARDING SATELLITE DIRECT-TO-MOBILE SERVICES, REGULATORY ISSUES

Thank you for the opportunity to comment on the Australian Communications and Media Authority ("ACMA") consultation on the suitability of the current regulatory environment to support satellite direct-to-mobile services. As an established entity in the Australian space industry, Fleet Space Technologies Pty. Ltd. ("Fleet Space" or "Fleet") is committed to working with the ACMA to ensure that the Australian satellite radiocommunications regulatory environment remains relevant and effective.

Fleet Space operates a low-power, small satellite constellation. To date, Fleet has launched seven satellites into low earth orbit (LEO), with a further four satellites planned for launch in 2024. Fleet's satellites include a communications payload, that employs proprietary LoRaWAN protocols to support bi-directional direct-to-device RF links with low-power terrestrial-based emitters. LoRaWAN technology is widely used by different machine-to-machine (M2M) communication applications, such as geological surveys, logistics management, environmental monitoring, and Industry 4.0, to name a few.

For the ACMA to generate the greatest benefit from the evolving direct-to-mobile satellite service landscape, the regulatory environment should accommodate direct-to-mobile satellites in bands where the satellite operator provides sufficient evidence that their proposed operations will not cause interference to incumbent operators. Additionally, operators would acknowledge that their licence does not afford them protection from interference, pursuant to Article 4.4 of the ITU Radio Regulations (RR).

A straightforward example of how this framework could work in practice is within the frequency bands regulated under the Low Interference Potential Devices (LIPD) class licence. Devices that comply with the requirements set forth under the LIPD rules are eligible to operate under the LIPD class licence. This framework works with regulated operational parameters (transmit power, dwell time etc.) and with sufficiently robust technologies. The high sensitivity of the Fleet satellite LoRaWAN communication payload supports the satellite reception of emissions from devices in the LIPD bands while respecting regulated operational parameters of the LIPD class licence.

Whilst there is no allocation for satellite services in the LIPD bands, Fleet contends that where satellite operators are able to suitably demonstrate that they can operate in compliance with

the operational limits defined in the LIPD Class Licence, the satellite operators should be eligible for authorisation to operate under Article 4.4 of the ITU RR. The ACMA has previously endorsed this view in the outcomes paper for the 2023 LIPD consultation process.[1] However, it is unclear what is the appropriate licensing instrument for this type of space system. Fleet is of the view that the most efficient option would be a revision to the CSO Class Licence to cover associated earth stations in the LIPD bands, 915-928 MHz, 2400-2483.5 MHz and 5150-5250 MHz, provided they meet the existing operating requirements in the LIPD Class Licence. The alternative approach would be to licence each earth station which would introduce an unnecessary regulatory burden on satellite operators and the ACMA.

Fleet believes that the application of Article 4.4. could be further extended to other bands for Earth-to-space operations, particularly those with existing allocations to the Mobile Service on a primary basis. Mobile terrestrial devices have extensive spectrum allocations, however, their ability to provide ubiquitous geographic coverage is limited by the inherent overheads associated with installing the required infrastructure in remote and rural areas. For mobile users in remote and rural communities, this means that no receiver may be available to backhaul their data. Satellites, such as Fleet's, can fill this coverage gap without affecting the interference environment. The evolution of direct-to-mobile satellite services highlights the convergence of mobile and mobile satellite radio technologies. Many large mobile network operators have already announced their intention to offer direct-to-mobile satellite services from unmodified handsets starting as early as this year.[2]

In assessing the viability of a frequency band's suitability to support such operation, Fleet is supportive of policies that would ensure robust and enduring competition among service providers, whilst also limiting interference risks. A fit-for-purpose framework for direct-to-mobile satellite services should spur healthy competition between service providers and limit the risk of potential direct-to-mobile satellite operators being locked out of the market by those providers that first partnered with the few nationwide footprint holders of spectrum eligible for direct-to-mobile satellite service.

To meet the increasing demand for direct-to-mobile connectivity, especially in areas not covered by existing terrestrial networks, spectrum policies and rules must facilitate access to spectrum in a manner that promotes competition. A spectrum screen specific to direct-to-mobile satellite services would prevent one provider from gaining an unfair advantage as well as protecting and promoting competition. A spectrum screen "act[s] as an analytical tool in identifying markets where: (1) there could be an increased likelihood that rival service providers or potential new entrants would be foreclosed from expanding capacity, deploying mobile broadband technologies, or entering the market; and (2) rivals' costs could

[1] *See* Variation to Low Interference Potential Devices Class Licence, Outcomes Paper, ***Australian Communications and Media Authority***. May 2023.
[2] *See* Optus signs 'straight-to-mobile' Starlink deal, *Adam Thorn, Space Connect*. 12 July 2023. https://www.spaceconnectonline.com.au/satellites/5942-optus-signs-straight-to-mobile-starlink-deal

be increased to the extent that they would be less likely to compete robustly."[3] Said differently, a spectrum screen "helps identify local markets where changes in market concentration or spectrum holdings from a transaction may be of particular concern."[4] The application of a spectrum screen for direct-to-mobile services should focus on the mid-band spectrum, where mobile devices typically operate,[5] with the intent of ensuring against excessive concentrations in holdings of mid-band spectrum and inefficient underuse of this spectrum. Additionally, it should identify bands with inflexible usage rights (e.g., in terms of who can use the spectrum, or technical restrictions on how the spectrum can be used) that could be adjusted to enable the movement of spectrum to its highest value use, such as direct-to-mobile satellite services in remote, underserved communities.

Fleet Space greatly appreciates the ACMA's ongoing deliberation on the technical and policy considerations for direct-to-mobile satellite services. The ACMA can ensure that it achieves the maximum positive impact by allowing direct-to-mobile satellite services in LIPD bands, consistent with the existing technical rules and requirements defined in the LIPD class licence; and by investigating the viability of additional bands to promote competition and efficient use of Australia's spectrum resources.

If you require any further information or wish to discuss any aspects of the comments contained in this submission, please contact the Director of Telecommunications Strategy, Mike Kenneally at [redacted].

Yours sincerely

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Federico Tata Nardini
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[3] Facilitating Shared Use in the 3100-3550 MHz Band, Further Notice of Proposed Rulemaking et al., 35 FCC Rcd 11078 ¶ 109 (2020).
[4] Use of Spectrum Bands Above 24 GHz for Mobile Radio Services et al., Second Report and Order et al., 32 FCC Rcd 10988 n.187 (2017) ("Spectrum Frontiers 2d R&O").
[5] *See* Satellite 2.0: going direct to device. GSMA Intelligence. March 2022. https://data.gsmaintelligence.com/api-web/v2/research-file-download?id=69042417&file=220322-Satellite-2.0-going-direct-to-device.pdf