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COMMENTS FROM TELESAT

On the Consultation Paper
"Proposed licensing arrangements for 2 GHz narrowband mobile-satellite services and 28 GHz fixed-satellite services" – December 2021

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The ACMA has released the "Proposed licensing arrangements for 2 GHz narrowband mobile-satellite services and 28 GHz fixed-satellite services" consultation paper which authorises the use of uncoordinated earth stations under class-licensing arrangements in the 2 GHz and 28 GHz frequency bands. In consideration of future Telesat Lightspeed operations in the Ka-band, Telesat would only provide comments on the proposed licensing arrangement for the 28 GHz frequency band.

Under this consultation, the ACMA proposes a revision to the Communications with Space Object ("CSO") class licence to cover the use of ubiquitous Fixed Satellite Service ("FSS") earth stations in the 27.5 – 28.3 GHz range, extending the current CSO class licence for these ubiquitous FSS earth stations to the entire 27.5 – 30.0 GHz range.

General Comments

Overall, Telesat is very supportive of the ongoing effort to introduce class licensing arrangements for ubiquitous FSS earth stations in the frequency band 27.5 – 28.3 GHz and appreciates the transparency on ACMA's eventual proposal through the details shared in the Appendices.

Consideration of VSATs communicating with NGSO satellites

It is of Telesat's understanding that the proposal for ubiquitous FSS earth stations under this consultation is only relevant to those communicating with geostationary satellites, while Earth Stations in Motion ("ESIM") communicating with non-geostationary orbit ("NGSO") satellites will be considered, in relation to 27.5 – 28.3 GHz, after WRC-23. Telesat understands the rationale of ACMA's approach to this matter considering the progressive implementation of ITU-R Res **169 (WRC-19)**. Similarly, it is expected that ACMA would be implementing the provisions for ESIMs communicating with NGSO satellites based on WRC-23 outcomes.

However, Telesat notes that ubiquitous Very Small Aperture Terminals ("VSATs") communicating with NGSO satellites ("NGSO VSATs") would not seem to be considered as part the consultation. Telesat also notes that the operation of NGSO VSATs is already covered under the current provisions of the Radio Regulation and not under study in any WRC-23 Agenda Item. As such, Telesat would kindly suggest, also considering the technical similarity between NGSO and GSO VSATs, for the ACMA to consider class licensing of NGSO VSATs under similar technical conditions as GSO VSATs in the frequency range 27.5 – 28.3 GHz.

As the ACMA is aware, there has been an increasing interest by satellite operators in deploying NGSO satellite constellations due to rapid advancement in satellite technology and the vast benefits these constellations bring.

In any case, allowing a class-licensing arrangement for NGSO VSATs in the 27.5-28.3 GHz would reflect ACMA's foresight in leveraging regulations as a means to facilitate innovative and competitive solutions.

Feedback on results of sharing studies with FWA

Aeronautical ("A-ESIM"):

In a defined population centre, the ACMA proposes power flux density limits under Clause 3.1 of Part II of Annex 3 of ITU-R Res **169 (WRC-19)**, regardless of the A-ESIM airborne altitude in the frequency range 27.5 – 28.1 GHz.

Telesat applauds the ACMA's initiative in undertaking an independent analysis based on ITU-R Res **169 (WRC-19)**, thereby concluding not to impose the more stringent power flux density ("pfd") limits in Clause 3.2 of Part II of Annex 3. Such conclusion and independent studies from the ACMA further affirm Telesat's belief that there is only a need for one maximum pfd limit since the values are measured at the same reference point[1]. Unnecessary stringent limits proposed would only curtail the operations of A-ESIMs and restricts the provision of capacity to end users.

ACMA also concludes that A-ESIM operation is prohibited when the aircraft is stationary on ground in view of the difficulty in managing interference with primary FWA. With a view to seamlessly connect passengers for gate-to-gate service, Telesat is of the view that the ACMA could consider allowing ground operations on a case-by-base basis since FWA services may not be operating within the proximity of airports.

Maritime ESIM ("M-ESIM"):

The ACMA proposes for a pfd limit of -112.2 dBW/m^2/MHz at a height of 30m at the boundary of defined population centres for the protection of primary co-frequency with the Fixed Wireless Access ("FWA").

Telesat notes that the pfd limits proposed for the M-ESIM compliance is significantly different from the pfd limits imposed on the registered devices to be met at the geographical boundary of the AWL[2], albeit a difference reference point is used above ground.

Akin to the previous point made by Telesat where one maximum pfd limit would be sufficient and would eliminate further complexity in the implementation of various

[1] As per ITU-R Res **169 (WRC-19)**, the maximum pfd referenced by both Clause 3.1 and 3.2 of Part II of Annex 3 is "at the surface of the Earth on the territory of an administration".
[2] In RALI MS 46 (Oct 2020), the licensing and coordination procedures for area-wide apparatus license in the 28 GHz band states that the pfd limits to be met by FSS and FWA licensees at the geographical boundary specified in the AWL is to be -91 dBW/m2/MHz at a height of 5m above ground.

technical conditions, Telesat would encourage the ACMA to consider using the same limits imposed by the conditions of the AWL (i.e. pfd of -91 dBW/m^2/MHz at a height of 5m).

Feedback on guard band to mitigate potential adjacent channel interference (for land-based ubiquitous FSS)

The ACMA proposes for a guard band to be imposed to ubiquitous land-based FSS outside defined population centres at the boundary of 27.5 GHz as well as inside population centres at the boundary of 28.1 GHz. This guard band will be 50 MHz or twice the occupied channel bandwidth of the ubiquitous land-based FSS (whichever is greater up to 200 MHz).

Telesat is of the view that the implementation of such guard bands is unnecessary. Specifically, newer satellite ubiquitous land-based FSS terminals, including Telesat Lightspeed Terrestrial Terminals, may occupy up to 400 MHz of bandwidth. With such restrictions, having a guard band of 200 MHz for these terminals would only mean a further reduction in the availability of spectrum for operations in the 28 GHz band. Instead, Telesat would respectfully request for the ACMA to consider suggesting for acceptable out-of-band emissions or limit the guard band to a fixed value. Telesat notes that the guard band in CEPT in relation to the same frequency band is 10MHz[3].

Furthermore, should a guard band still be required, Telesat is of the view that such imposition could also apply to the primary FWA services operating at the boundaries as well. This ensures that all services are treated equally.

Feedback on results of Sharing Studies between FSS and Point-to-Point Links

Telesat is supportive of proposed measures by the ACMA to resolve potential interference to grandfathered Point-to-Point ("PTP") assignments.

Feedback on protection of NGSO FSS

Telesat is aligned to the ACMA's proposal relating to the protection of NGSO FSS systems in the frequency band 27.5 – 28.6 GHz as per Annex 1 of ITU-R Res **169 (WRC-19)** and agrees with the need for meeting these requirements in addition to the ESIM requirements mentioned in this consultation.

[3] As per ECC/DEC(15)04 and ECC/DEC(13)01 Annex 2, "In the territory of any administration, ESOMPs shall not have their transmit occupied band edges closer than 10 MHz from the edges of the bands identified by that administration for FS operation;"

Summary

Telesat recognises ACMA's effort in following through the series of consultations and discussions for the allocation of FSS in the 27.5 – 30.0 GHz band since 2019.

While the consultation is a progressive implementation in consideration of the outcome of WRC-19 for GSO ESIMs, Telesat anticipates similar changes to be made to NGSO ESIMs after WRC-23. In the meantime, Telesat would highly encourage the ACMA to consider the class licensing of NGSO VSATs under similar conditions as GSO VSATs.

Telesat has provided some further suggestions for the kind consideration of the ACMA, remains at the ACMA's disposal and looks forward to our continued engagement and cooperation.