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COMMUNICATIONS ALLIANCE

SATELLITE SERVICES WORKING GROUP

SUBMISSION

to the

Australian Communications and Media Authority's (ACMA)

Improving the technical arrangements for AWLs in the 26 GHz and 28 GHz bands

9 March 2022

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EXECUTIVE SUMMARY

The Communications Alliance Satellite Services Working Group (SSWG) welcomes the opportunity to provide comments to the ACMA *Improving the technical arrangements for AWLs in the 26 GHz and 28 GHz bands* Consultation Paper.

The SSWG notes that this consultation is running in parallel with a consultation on *Proposed licensing arrangements for 2 GHz narrowband mobile-satellite services and 28 GHz fixed-satellite services*. The SSWG has highlighted that the protection requirements provided for AWL licensees in the AWL framework discussed in this consultation are more relaxed than imposed on the uncoordinated FSS operation in the 28 GHz band, even though we are dealing with the protection of the exact same devices. We urge the ACMA to align the protection requirements imposed on uncoordinated FSS operation with the AWL framework as per the response submitted by the SSWG to the 28 GHz consultation.

The SSWG has limited comment on RALI MS 46 except where it affects FSS systems. The engineering presented in the document is sound, however the SSWG remains concerned that the ACMA is applying overly restrictive pfd requirements on FSS systems and that, given RF power is the same once emitted, the values applied to FWA in AWLs should also be applied to all FSS systems as outlined in our response to the 28 GHz satellite licensing paper.

The SSWG also understands that the ACMA is proposing to modify RALI MS44 in order to include NGSO Ka-band earth stations to the Mingenew Earth Station Protection Zone (ESPZ), which previously was limited to NGSO C-band earth stations. Our review of RALI MS44 in general relates to Mingenew and Uralla ESPZ and we have identified possible inconsistencies in uplink and downlink frequency bands in the GSO and NGSO tables. The SSWG would request clarifications from the ACMA on the points raised in this paper and possible modifications to the RALI text with a view of clarifying the intent of the tables or modifying them.

About Communications Alliance

Communications Alliance is the primary communications industry body in Australia. Its membership is drawn from a wide cross-section of the communications industry, including carriers, carriage and internet service providers, content providers, platform providers, equipment vendors, IT companies, consultants and business groups.

Its vision is to be the most influential association in Australian communications, co-operatively initiating programs that promote sustainable industry development, innovation and growth, while generating positive outcomes for customers and society.

The prime mission of Communications Alliance is to create a co-operative stakeholder environment that allows the industry to take the lead on initiatives which grow the Australian communications industry, enhance the connectivity of all Australians and foster the highest standards of business behaviour.

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1. General Comments

The SSWG notes that this consultation is running in parallel with a consultation on *Proposed licensing arrangements for 2 GHz narrowband mobile-satellite services and 28 GHz fixed-satellite services*. The SSWG has highlighted that the protection requirements provided for AWL licensees in the AWL framework discussed in this consultation are more relaxed than imposed on the uncoordinated FSS operation in the 28 GHz band, even though we are dealing with the protection of the exact same devices. We urge the ACMA to align the protection requirements imposed on uncoordinated FSS operation with the AWL framework as per the response submitted by the SSWG to the 28 GHz consultation.

2. Specific Comments on RALI MS 46

2.1 Registration of FSS earth stations

In Section 3.2 The ACMA states:

> *An earth station must not be operated, nor its details registered in the RRL, until all relevant coordination requirements and procedures have been completed, including obtaining ACMA support to operate and register an earth station as detailed in the earth station BOP.*

The SSWG wishes to point out to the ACMA that the ITU processes are fraught with difficulties. From multiple 'paper satellites' blocking access to 'overstated' systems that refuse to coordinate, full coordination has become almost impossible. This results in many systems operating under the provisions on Article 11.41. As an example, the NBN system is yet to coordinate with a recalcitrant Administration which has overstated the coverage of its system and as a result has withheld agreement.

In addition, in order to register the earth station as per the BOP, operators are required to obtain 'coordination agreement' from other Australian operators, both civil and defence. The SSWG submits that private operator-to-operator coordination remains the gold standard for managing spectrum, because operators themselves are best positioned to understand the capabilities of their systems and their business objectives, driving toward the most efficient use of shared spectrum. However, without appropriate backstop policies in place, private coordination can also present issues, as operators may withhold agreement on commercial grounds or in order to 'preserve' options or obtain advantage in other areas beyond the ITU processes. This sort of gamesmanship harms Australian consumers, competition, and innovation. As such, SSWG suggests that the ACMA couple a requirement of good faith coordination with spectrum policies that reward efficiency and drive operators toward timely coordination agreements.

Regardless of the status of coordination, the SSWG requests the ACMA to bear in mind that Telemetry, Tracking and Command (TT&C) facilities will be needed and provision for these needs to be made.

2.2 Figure 3 - Distances from boundaries

These are useful tools and should be applied to the boundaries of populated areas as well as at ports where it is not possible to establish a base station in the water.

The ACMA also makes provision for terrain and clutter losses in making these calculations. While terrain losses can be estimated from DEM clutter losses cannot. Given clutter can also be dynamic, such as containers at a port, the SSWG suggests the ACMA defines a set of acceptable clutter and building penetration loss, estimated for a number of common scenarios.

2.3 Summary

The SSWG has limited comment on RALI MS 46 except where it affects FSS systems. The engineering presented in the document is sound however the SSWG remains concerned that the ACMA is applying overly restrictive pfd requirements on FSS systems and that, given RF power is the same once emitted, the values applied to FWA in AWLs should also be applied to all FSS systems as outlined in our response to the 28 GHz satellite licensing paper.

3. Comments on RALI MS 44

The SSWG understands that the ACMA is proposing to modify RALI MS44 in order to include Ka-band earth stations to the Mingenew Earth Station Protection Zone (ESPZ), which previously was limited to NGSO C-band earth stations. We agree with the general aim of adding relevant satellite frequency ranges to the ESPZs. However, the current limitation to NGSO C-band earth stations (i.e., not including GSO) and the specific changes proposed to RALI MS44 to this extent seem to be inconsistent and discriminate between uplink, downlink and NGSO, GSO operations.

All of the frequency bands included in Table A2 for the Mingenew and Uralla ESPZs are allocated to the GSO FSS as per the ITU Radio Regulations. Also, all of the frequency bands included in Table B2 for the Mingenew ESPZ are allocated to the GSO FSS as per the ITU Radio Regulations.

The SSWG notes that the 24,650 – 25,250 MHz and 27,000 – 29,500 MHz bands have only been added to Table B2 (NGSO Earth transmit band details). These bands are also allocated to the GSO FSS as per the ITU Radio Regulations and therefore the SSWG questions why GSO FSS operation at Mingenew ESPZ is excluded. Furthermore, the corresponding Ka band downlink frequencies for 17,700 – 20,200 MHz do not seem to be included for Mingenew ESPZ for GSO nor NGSO operation. It is unclear why the ESPZ would include provisions only for operation in the earth station uplink direction.

In addition, it is also unclear why Uralla ESPZ would only include provisions for the operation in the C-band downlink direction. Therefore, Uralla ESPZ and its corresponding C-band uplink frequencies (i.e. 5850 – 6700 MHz) need to be added into Table B1 and Table B2 accordingly. Consequentially, Table 4 and Table 6 need to be revised with the addition of Uralla ESPZ into Table B1 and Table B2.

Based on the comments made above, Appendix A and B of the Draft Update to RALI MS 44 should be revised as per the Tables below.

Appendix A: Earth receive bands

Table A1 GSO Earth receive band details

ESPZ name	Frequency range (MHz)	Point ID	Latitude (GDA94)	Longitude (GDA94)
Quirindi	3575 – 4200 6700 – 7075 10700 – 11700 12200 – 13250 17700 – 20200 37500 – 42500	1	–31.278542	150.664064
		2	–31.531797	150.392637
		3	–31.758854	150.673901
		4	–31.334364	150.462804
		5	–31.683343	150.483362
		6	–31.524093	150.815250
		7	–31.472816	150.681203
Moree	3400 – 3442.5 3475 – 3542.5 3575 – 4200 6700 – 7075 10700 – 11700 12200 – 13250 17700 – 20200 37500 – 42500	1	–29.202410	149.840025
		2	–29.470438	149.530685
		3	-29.740189	149.840030
		4	–29.436083	150.130913
		5	–29.375475	149.730499
		6	–29.566334	149.730211
		7	–29.566412	149.949630
		8	-29.366173	149.949382
Roma	3400 – 3442.5 3475 – 3542.5 3575 – 4200 6700 – 7075 10700 – 11700 12200 – 13250 17700 – 20200 37500 – 42500	1	–26.571626	148.633980
		2	–26.590870	148.501616
		3	–26.708009	148.632882
		4	–26.840857	148.784921
		5	–26.710678	148.940348
		6	–26.588340	149.083815
		7	-26.571818	148.935420
		8	–26.516060	148.779018
		9	–26.589408	148.856840
Mingenew	3400 – 4200 17 700 – 20 200	1	–29.045905	115.350437
		2	–29.078611	115.233333
		3	–29.078611	115.457778
		4	–28.9	115.457778
		5	–28.9	115.233333
Uralla	3400 – 3442.5 3475 – 3542.5 3600 – 4200	1	–30.6315	151.5661

Appendix B: Earth Station transmit bands

Table B1 GSO Earth transmit band details

ESPZ name	Frequency range (MHz)	Point ID	Latitude (GDA94)	Longitude (GDA94)
Quirindi	5091 – 5250 5850 – 7075 13750 – 14714.5 15430 – 15630 17300 – 18400 19300 – 19700 24650 – 25250 27000 – 30000 42500 – 43500 47200 – 50200 50400 – 51400	1	–31.278542	150.664064
		2	–31.531797	150.392637
		3	–31.758854	150.673901
		4	–31.334364	150.462804
		5	–31.683343	150.483362
		6	–31.524093	150.815250
		7	–31.472816	150.681203
Moree	5091 – 5250 5850 – 7075 13750 – 14714.5 15430 – 15630 17300 – 18400 19300 – 19700 24650 – 25250 27000 – 30000 42500 – 43500 47200 – 50200 50400 – 51400	1	–29.202410	149.840025
		2	–29.470438	149.530685
		3	–29.740189	149.840030
		4	–29.436083	150.130913
		5	–29.375475	149.730499
		6	–29.566334	149.730211
		7	–29.566412	149.949630
		8	–29.366173	149.949382
Roma	5091 – 5250 5850 – 7075 13750 – 14714.5 15430 – 15630 17300 – 18400 19300 – 19700 24650 – 25250 27000 – 30000 42500 – 43500 47200 – 50200 50400 – 51400	1	–26.571626	148.633980
		2	–26.590870	148.501616
		3	–26.708009	148.632882
		4	–26.840857	148.784921
		5	–26.710678	148.940348
		6	–26.588340	149.083815
		7	–26.571818	148.935420
		8	–26.516060	148.779018
		9	–26.589408	148.856840

ESPZ name	Frequency range (MHz)	Point ID	Latitude (GDA94)	Longitude (GDA94)
Mingenew	5850 – 6700 24650 – 25250 27000 – 29500	1	–29.045905	115.350437
		2	–29.078611	115.233333
		3	–29.078611	115.457778
		4	–28.9	115.457778
		5	–28.9	115.233333
Uralla	5850 – 6700	1	–30.6315	151.5661

Table B2 NGSO Earth transmit band details

ESPZ name	Frequency range (MHz)	Point ID	Latitude (GDA94)	Longitude (GDA94)
Mingenew	5850 – 6700 24650 – 25250 27000 – 29500	1	–29.045905	115.350437
		2	–29.078611	115.233333
		3	–29.078611	115.457778
		4	–28.9	115.457778
		5	–28.9	115.233333
Uralla	5850 – 6700	1	–30.6315	151.5661

The SSWG proposes that, if Ka band operation is added to the Mingenew ESPZ, then operation should be allowed consistently for NGSO and GSO, as well as uplink and downlink. These also applies for C-band operation in Uralla ESPZ.

Furthermore, in Table 4, the minimum angle (degrees) for Mingenew transmitters should be 5° to match Table 1, as satellite operations in the bands in Appendix A and B use both transmit and receive frequencies on the Earth stations to perform the satellite operations. Further, since footnote 4 indicates that a minimum angle of 3° is to be used in the transmit bands 24.65 – 25.25 GHz and 27 – 29.5 GHz at Mingenew, it would be assumed that the minimum antenna elevation angle above horizon in Table 9 of RALI MS 46 should also be 3°. Also, the antenna height, metres above ground level (AGL) in Table 9 of RALI MS 46 should be 10 m to match Table 4 in the RALI MS 44.

The SSWG also would appreciate clarification on the meaning of footnotes 5 and 6 linked to Table A1 and B1 respectively. The aim of the footnotes remains unclear, as the footnotes speaks about consistency with satellite frequency bands, but refers to App. 7 of the ITU RR, which deals with international coordination around earth stations. Also footnote 1 ('Mingenew and Uralla provide support for Transfer Orbit Satellite Services and other similar services. As such, the minimum angle of elevation should be considered in all azimuth directions.') is only applied to Table 1 when we assume that it should also apply to Table 4.

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