

**COMMUNICATIONS
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**COMMUNICATIONS ALLIANCE
SATELLITE SERVICES WORKING GROUP**

SUBMISSION

to the

Australian Communications and Media
Authority's (ACMA)

Response to the implementation of the
Spectrum Pricing Review (part 2) - Consultation
on the second tranche of reform proposals

10 December 2021

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EXECUTIVE SUMMARY

The Communications Alliance Satellite Services Working Group (SSWG) welcomes the opportunity to provide comments to the ACMA *Response to the implementation of the Spectrum Pricing Review (part 2)* Consultation Paper.

The SSWG believes the proposed increase in the location weightings for FSS services provided in the C-Band, in the greater than 2,690 to 5,000 MHz range, should not be applied to high and medium-density areas as it will cause an unbalanced additional cost for satellite services provided to remote areas. Several SSWG members operate C-band gateway Earth Stations in metropolitan and other areas of Australia to support the maritime, mining, energy, defence, telecommunications and government industries. These gateways provide vital communication links primarily to remote areas in Australia and the Asia Pacific, especially in tropical and oceanic areas, often where no other telecommunications options are available.

The SSWG recommends that the same fees established for low density areas be applied to high and medium density areas for satellite services in the greater than 2,690 to 5,000 MHz range, or at least the same fees as established for C-band above 5,000 MHz.

The SSWG notes that the current tax system does not adequately take account of situations when satellite network operators must use broad bandwidth because of the configuration of satellite systems, requiring use of the whole or a substantial part of the Ku band. The current tax system may create disincentives for the provision of satellite services as it may be economically unfeasible, due to high regulatory fees.

The SSWG would also like to encourage the ACMA to investigate a form of area-based licensing similar to that used in the 28 GHz band for FSS gateways in the 18 GHz band and MSS feeders in the 7 GHz band and to introduce a population-based fee structure so as to truly represent the very low opportunity cost of spectrum denial of these systems.

Please note that this submission does not represent the views of Telstra.

About Communications Alliance

Communications Alliance is the primary telecommunications 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, equipment vendors, IT companies, consultants and business groups.

Its vision is to provide a unified voice for the telecommunications industry and to lead it into the next generation of converging networks, technologies and services. The prime mission of Communications Alliance is to promote the growth of the Australian communications industry and the protection of consumer interests by fostering the highest standards of business ethics and behaviour through industry self-governance. For more details about Communications Alliance, see <http://www.commsalliance.com.au>.

1. Introduction

The Communications Alliance Satellite Services Working Group (SSWG) welcomes the opportunity to comment on the ACMA's *ACMA Response to the implementation of the Spectrum Pricing Review (part 2)* Consultation Paper. The following comments are to the questions in the Paper.

2. Responses to questions

Question 1

Do you have any comments on the proposal to amalgamate the >30 to 403 MHz range for the tax formula?

The SSWG does not wish to submit comments on this proposal.

Question 2

Do you have any comments on the proposal to increase location weightings for the high and medium-density areas in the >2,690 to 5,000 MHz range?

Several SSWG members operate C-band gateway Earth Stations in metropolitan and other areas of Australia to support the maritime, mining, energy, defence, telecommunications and government industries. These gateways provide vital communication links primarily to remote areas in Australia and the Asia Pacific, especially in tropical and oceanic areas, often where no other telecommunications options are available.

We therefore believe the proposed increase in the location weightings for FSS services provided in this frequency range should not be applied to high and medium-density areas as it will cause an unbalanced additional cost for satellite services provided to remote areas. The ACMA should instead consider applying the same fees established for low density areas to high and medium density areas for satellite services in the greater than 2,690 to 5,000 MHz range or at least the same fees as established for above 5,000 MHz, and we would like to make a few comments to justify it.

The ACMA contends that the greater than 2,690 to 5,000 MHz range has seen an acceleration of assignments between 2005 and 2020. The ACMA indicates that the 'location weightings in the tax formula are intended to provide relative price signals to balance and manage demand before congestion issues become acute.' The increase in assignments in this band range is not due to the increase in Point-to-Point (FS) or FSS assignments as the ACMA identified in a previous paper¹, but the increase in mobile services in the lower portion of the band range.

Differently from other terrestrial services that are provided in the greater than 2690 to 5000 MHz, standard C-band systems operate with downlinks in the band 3700 to 4200 MHz and uplinks in the 5925 to 6425 MHz band. As part of the ACMA's first tranche of pricing reforms, the uplinks received a 50% decrease in annual fees. For the downlinks, the ACMA is now proposing to increase the medium-density area location weighting by 65.5% and the high-density area location weighting by 45.1%. This will result in the downlink annual fees being 243% and 245% higher than their counterpart uplink fees (assuming the same licensed bandwidth) for medium and high-density areas!

¹ See IFC-27-2019 *Planning of the 3700-4200 MHz band* tables 3 and 4

As mentioned, most C-Band earth stations in high or mid-density areas are used as hub teleport stations to connect remote sites in C or Ku-band (cross-strap); those sites usually being located in rural areas, to provide broadband connectivity. Therefore, FSS C-band is not used to provide services for the population of the highly populated areas in which the earth stations are located, but mainly to provide connectivity to rural areas. So increasing license prices higher is going to impact access provisioning to rural communities and industries. In this sense, the C-band teleports are neither economically related nor benefited from the higher population density, but benefit from the better resourcing, interconnection, reliability and infrastructure conditions these areas can offer for deployment of such teleports. In addition, the use of spectrum by satellite services in these areas are not proportional to the population density and therefore it does not generate spectrum congestion or higher use because of population growth.

Therefore, these fees may be justified for area-based systems such as mobiles. They would, however, result in unjustified high charges for systems such as Point-to-Point (FS) and FSS with very small spectrum denials for compatible services. For the above reasons, the ACMA should consider applying the same low fees established for low density areas to high and medium-density areas for satellite services or reducing the high and medium-density area tax.

The SSWG would also like to remind the ACMA of the research carried out by Plum Consulting to conduct an international comparison of licensing fees for the ACMA in 2016. Figure 1 on the following page compares Plum's findings with the 2020 Australia earth licence fees by population density area and in three common FSS frequency bands (C, Ku and Ka-band). It was evident that Australia had significantly higher fees than all of the other countries surveyed. While the ACMA's first tranche of pricing reforms addressed the Ku and Ka-band fees, and to some extent the C-band uplink (5000 to 8500 MHz) fees, the high fees for C-band downlink now needs to be addressed.

Question 3

Do you have any comments on the appropriateness of the proposed spectrum location weighting for frequencies above 100 GHz?

A fee-free structure for greater than 100 GHz would seem appropriate provided it is supported with a form of technical structure that would ensure a single or a few applications would not prevent others from operating.

Question 4

The minimum tax in the proposed band above 100 GHz is intended for services exhibiting limited interference potential to other services. Should the ACMA restrict the minimum tax above 100 GHz to services, such as optical communications, with known limited spectrum denial?

This seems counterproductive. 100 GHz is at such a high frequency, that antenna performance is excellent and propagation losses are high. Provided some power limits are adopted that would allow economic use of the band there is no reason to limit the minimum tax to optical devices.

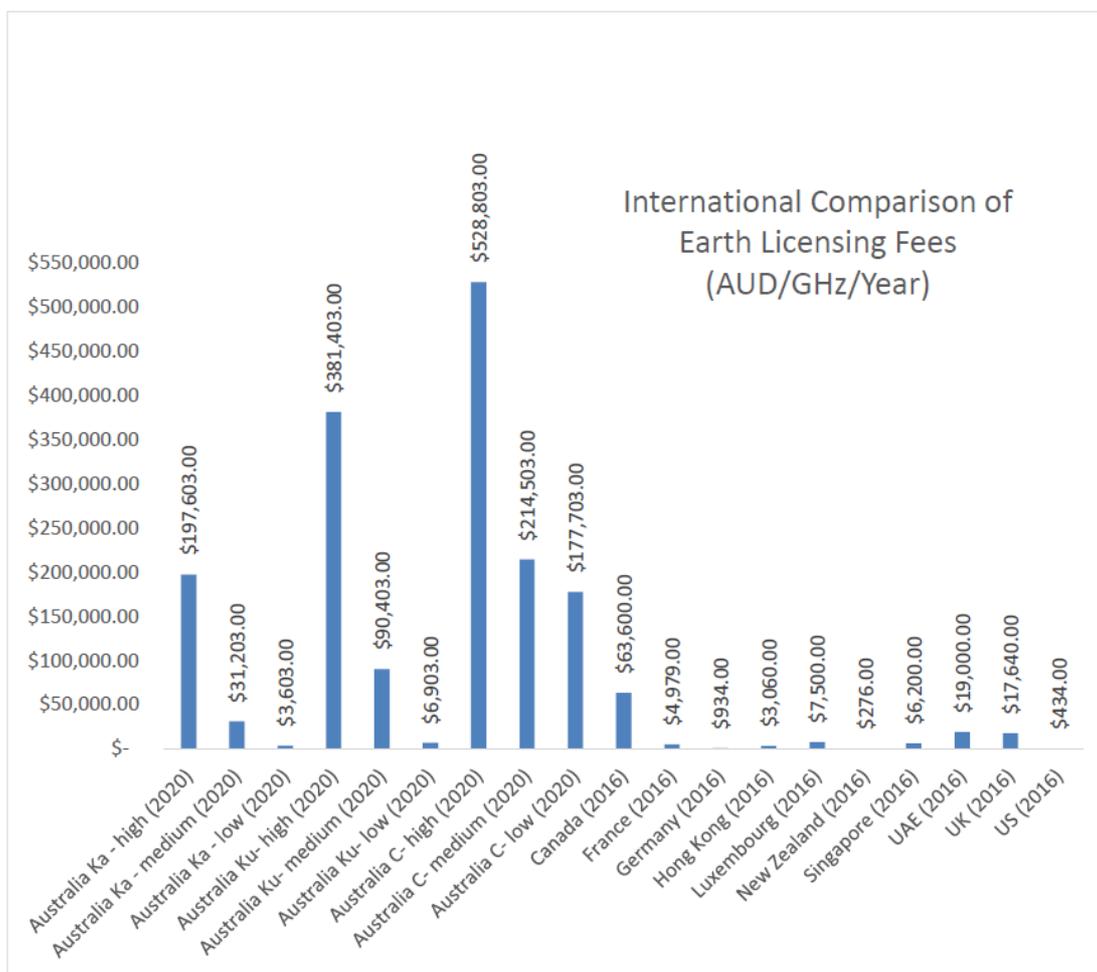


Figure 1: International comparison of earth licensing fees²

Question 5

Do you have any comments on the proposed method to update taxes by reference to population change, rather than annual adjustments based on the consumer price index?

This is in line with our support of \$/MHz/pop fee structures for area-based licensing. Therefore, the SSWG supports this approach.

However, the SSWG does not support area-based licensing as the ACMA is proposing using AWLs for C-band receivers. The ACMA's proposed AWLs for FSS C-band receivers where the intent is that 'FSS operator's licence sufficient spectrum and geographic area such that the potential interference from neighbouring (in location and in frequency) LA WBB AWLs is acceptable to the FSS licensee' is totally unacceptable. This is the reverse of the first-in-time coordination method, which has been relied on for many years, in which case the first-in-time licensee has priority and new licensees have to find a way to minimise interference to the existing licence (especially an existing receive-only licence). Service entrants should be able to coordinate with properly registered C-band earth stations.

² See Attachment E to ACMA, IFC 19-2016, *Review of Taxation Arrangements for Satellite Services Consultation Paper* (Aug. 2016).

In addition, FSS and MSS C-band is not used to provide services for the population of the highly populated areas but mainly to provide connectivity to rural areas or mobile systems (land, maritime). Use of spectrum by satellite services in these areas are not proportional to the population density and therefore it does not generate spectrum congestion or higher use because of population growth.

Question 6

Do you have any comments on the density area framework, proposed density area definitions, or proposed changes to the Perth and Adelaide medium-density areas?

Density areas are a very coarse measurement of spectrum denial. A more granular approach, such as that used in the 28 GHz AWL pricing would enable better use of area-based licensing systems which, in themselves, more accurately reflect the opportunity cost of the spectrum area 'denied' by a system and thus are a more efficient form of licensing.

Regarding the C-band earth stations deployed in such areas, please refer to comments provided to Questions 2 and 5 above.

Question 7

Do you have any comments on the tax reform proposals for HPON licences?

The SSWG has no comment on HPON.

Question 8

Do you have any comments on the proposed adjustments to the tranche one reforms?

The SSWG supports the proposed change to the Earth Station Systems Licence that would enable all earth stations within a frequency band to be covered by a single licence. See also our response below.

Question 9

Do you have suggestions for any additional pricing measures the ACMA could consider to encourage spectrally efficient technology deployments?

The ACMA recently changed fees for satellite systems in both the 18 and 28 GHz bands and the SSWG supports these changes as a significant step forward to more equitable pricing based on true opportunity cost.

The ACMA recently introduced AWLs in the 28 GHz band which, while not specifically designed for FSS systems introduced a fairer pricing outcome for FSS uplinks. These changes were welcomed by the satellite industry and have made the delivery of high throughput satellite broadband more affordable for Australians regardless of where they live, because the fees applicable to FSS feeders situated at a fibre Point-of-Presence feed through to end user charges.

The 28 GHz FSS uplink (Earth to space) band is paired with the 18 GHz downlink (space to Earth) band (17.7 to 20.2 GHz in whole or part). The dissimilar treatment of these two bands in terms of pricing leads to an inequity which is detrimental for the provision of satellite services.

Much of the 18 GHz band (17.7 to 19.7 GHz) is shared with fixed services (FS) in Australia with FS being coordinated via RALI-FX3 (18 GHz channel arrangements). The physical parameters of FS such as power, antenna gain, antenna height and terrain and clutter

mean statistically interference into FSS receivers is extremely unlikely. NBN has in fact been operating 'Skymuster' FSS services in this band for some time now under the CSO Class Licence with no known cases of FS to FSS interference.

However, the risk of operating gateway systems under the CSO Class licence, effectively on a secondary basis to FS (in the parts of the band where FS are permitted), is too high and protection via apparatus licensing is necessary. While the FSS uplink in the 28 GHz band is authorised by way of an AWL and proportional licensing fees are based on the population in a 'denial' area, the FSS downlink in the 18 GHz band is not. This results in disproportionately higher fees when in fact the area of spectrum denial is very small.

FS systems use high gain antennas that are highly directional. Other than in the direction of transmission, EIRPs are very low. Likewise, FSS systems use high-gain antennas but point upwards - at around 40 degrees for GSO and generally no lower than 20 degrees for NGSO systems. The combination of these parameters means these systems are very compatible and do not require large coordination areas.

In addition to FSS Gateways, and with the potential release of the 6 GHz for RLANs the ACMA should also consider MSS feeder link Earth stations in the 7 GHz band. These are similar to FSS gateways and have high gain antenna that point to space, and as a result the spectrum denial for these systems is also very low. These could be more efficiently licenced by way of an area licence and a population (within the area) based fee structure.

The SSWG would like to encourage the ACMA to investigate a similar form of area-based licensing for FSS gateways in the 18 GHz band and MSS feeders in 7 GHz and to introduce a population-based fee structure, so as to truly represent the very low opportunity cost of spectrum denial of these systems. The SSWG offers its expertise to assist the ACMA to develop these structures based on the successful implementation of the 28 GHz AWLs.

Finally, the current tax system does not adequately take account of situations when satellite network operators must use broad bandwidth because of the configuration of satellite systems, requiring use of the whole Ku band (or a substantial part thereof). For instance, a satellite network may employ multiple different access schemes, which include dynamic return link channel sizing and transmit frequency selection. Based on traffic conditions and resource availability, earth stations may be able to transmit in a significant capacity of C or Ku-band, but by transmitting at a variable bandwidth, the earth stations will only utilise a small portion of the band at a time. However, if the operator only has a few earth stations throughout the country, this may become economically unfeasible due to high regulatory fees. Therefore, the current tax system may create disincentives for the provision of satellite services. Instead, the ACMA could consider applying the same fees established for low density areas to high and medium-density areas for satellite services or further reducing the high and medium-density area tax.

Question 10

Are there any other comments that you would like to give relating to the proposals in this paper or other aspects of the apparatus licence tax regime?

Other than for area-wide systems, the use of 'density area' and bandwidth are a very coarse method of calculating spectrum fees. For systems such as the satellite systems described in the response to Q.9, smaller area-based licences charged on a \$/MHz/pop basis would result in a more economically efficient charging structure.

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