

**COMMUNICATIONS
ALLIANCE LTD**



**AUSTRALIAN COMMUNICATIONS AND MEDIA
AUTHORITY**

**REVIEW OF TAXATION ARRANGEMENTS FOR
SATELLITE SERVICES**

COMMUNICATIONS ALLIANCE SUBMISSION

SEPTEMBER 2016

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INTRODUCTION

Communications Alliance welcomes the opportunity to provide this submission in response to the *Review of taxation arrangements for satellite services* Consultation Paper by the Australian Communications and Media Authority (Consultation Paper).

Executive Summary

Communications Alliance congratulates the ACMA on this initiative to review and analyse the current taxation arrangements, especially regarding the Ka-band frequencies that are widely used by latest generation high-throughput satellite systems.

The cost of doing business in the Ka-band, especially in high-density areas, has long been hampered by unrealistically high levels of spectrum taxation in Australia, as compared with the fees set in other jurisdictions.

The report by Plum *Review of apparatus licence fees in 17.3 to 51.4 GHz band Final Report to the ACMA* (Plum Report) has contributed to these discussions by providing an economics-based evaluation within the boundaries set out by the review. This has resulted in proposals to reduce taxation levels on the basis of existing and expected levels of congestion in Ka-band over the next five years and employing the concepts of spectrum denial. While Communications Alliance has reservations as to whether a spectrum denial analysis should be the sole approach to setting fees in all cases, the Plum Report does provide many useful data points to amply support the ACMA's proposal to reduce the taxation arrangements for the 14.5 to 51.4 GHz bands, including the Ka-band frequencies.

Communications Alliance supports the ACMA's proposal to reduce the fee levels in medium and low-density areas by 50% and in remote-density areas by 100%. The ACMA's proposal to provide even greater discounts than the small discounts recommended by Plum for medium, low and remote density areas is warranted and supported by the evidence. These same considerations also support a greater discount than the 30% proposed by the ACMA for high-density and Australia-wide licence areas. These discounts should also extend down to 14.5 GHz.

Communications Alliance suggests that the ACMA benchmark the levels of spectrum fees and taxation in Australia against similar fees in comparable countries as these costs to industry can have a direct impact on Australia's international competitiveness.

Communications Alliance recommends that the ACMA reconsider the proposed 50% premium on Non-Geostationary Satellite Orbit (NGSO) licence fees relative to Geostationary Satellite Orbit (GSO) fees in the 17.3 to 31.3 GHz band. Plum recommended a 50% premium only in 'congested' bands, but found that these bands are not congested. The sharp increase in NGSO fees proposed by the ACMA also threatens to discourage or inhibit the deployment in Australia of a number of new NGSO systems designed to provide affordable universal connectivity.

Communications Alliance recommends that the proposed 30% Earth Station spectrum-sharing incentive be adjusted to apply to terminals located within a radius of 2 km and for the discount be immediately made available.

With regards to the concessions for CDMA satellite systems operating in the UHF band, Communications Alliance believes that the ACMA should provide tangible tax incentives to operators choosing spectrum sharing technologies across the spectrum bands and that this particular legacy tax arrangement should remain in place.

The advent of Earth Stations in Motion (ESIMs) at Ka-band and other bands is fast growing as a reality in the market place and follows the advent of Ku-band Aeronautical mobile-satellite service (AMSS) and Earth Station on Vessels (ESV) systems. Communications Alliance would

recommend that ACMA create an 'aeronautical' and a 'maritime' fee category for ESIM, AMSS and ESV licences that is equivalent to remote-density fee categories and is band-independent.

Finally, Communications Alliance recognises a growing need to simplify and reform the ACMA's space and space receive licensing fee structure, especially in relation to spot beam satellites with multiple factors of spectrum re-use and the interaction between the space fees and access to the Space Object Class Licence.

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>.

Regulatory Proposal 1: Ka-band tax reductions and modified tax frequency range

Consultation Question 1	Do you have other evidence about demand and/or congestion in the Ka band that could improve the ACMA's views about the Ka-band tax rates for satellite services?
Consultation Question 2	Do you have any evidence of more appropriate taxation frequency ranges (tax brackets) for the Ka band that would better support opportunity cost pricing principles?

Communications Alliance supports the ACMA's proposal to reduce the fee levels in medium and low-density areas by 50% and in remote-density areas by 100%. As the ACMA has correctly noted, and consistent with the findings of the Plum Report, spectrum is underutilised in these areas and forecasted demand is unlikely to create congestion. Plum notes that 'other publicly available reports for Australia, the United Kingdom and Europe have concluded that there is unlikely to be excess demand for links in frequencies above 20 GHz over the next five or so years'¹. Thus the ACMA's proposal to provide even greater discounts than the small discounts recommended by Plum for medium, low and remote-density areas is warranted and supported by the evidence.

These same considerations, however, also support a greater discount than the 30% proposed by the ACMA for high-density and Australia-wide licence areas. As Plum found, even in high-density areas, a discount of 40% to 50% is supported by the evidence, especially in the frequencies between 14.5 and 31.3 GHz.² Plum found no evidence that this spectrum would become congested in the next five years. In any event, the possibility of greater congestion in high-density areas is already reflected in the higher fee payable in those areas. Even a 50% discount to the high-density fee (in line with the 50% discount for medium-density fees) would result in significantly higher fees in high-density areas than in medium and lower-density areas.³ By the same token, fees for Australia-wide licences can also be reduced by 50%.

These discounts should also extend down to 14.5 GHz (rather than beginning at 17.3 GHz). The very same evidence in the Plum Report that supports the ACMA's decision to reduce taxes above 17.3 GHz also supports a discount in the frequencies between 14.5 GHz and 17.3 GHz.⁴ The ACMA's concern about differential taxation of the uplink and downlink bands is not a sufficient reason to withhold the discount in the light of such evidence. Differential taxation of downlink and uplink bands is already a feature of the apparatus licence fees in

¹ See Plum 'Review of apparatus licence fees in 17.3-51.4 GHz band' Report, April 2016, Page 2

² See ACMA 'Review of taxation arrangements for satellite services' Consultation Paper, August 2016, Page 8.

³ The satellite industry has long been against the concept of regulator-initiated 'Satellite Parks' – whether in the form of licensing embargoes or in the form of differential taxation rates that distort the market. Whilst the Plum Report gives some consideration to infrastructure implications with satellite parks e.g. backhaul (with no back-up diversity), there are many other commercial reasons why a decision on Satellite Parks and the location of Earth Stations should be left to the industry and not to an enforced outcome from artificial taxation rates.

⁴ ACMA Discussion Paper at 8 ('The least cost alternative estimates Plus has produced ... are in the range of \$0.1-0.2/kHz and so are less than the current annual licence...tax of \$0.26/kHz for 14.5-31.3 GHz. This evidence alone indicates that a 40-50 percent reduction in high- and medium-density area taxes for the Ka-band could be justified, particularly given Plum has not identified the band as congested.')

other satellite bands (e.g. the C-band) and so should not pose a problem in the bands above 14.5 GHz.⁵

Finally, Communications Alliance encourages the ACMA to benchmark the levels of spectrum fees and taxation in Australia against similar fees in comparable countries. In this regard, Communications Alliance notes that Australia's Ka-band licensing fees remain quite high as compared to its peers⁶ – a fact that also affects Australia's international competitiveness as a location for earth stations for international satellite systems. This benchmarking suggests that the ACMA's spectrum valuation methodology and taxation levels may benefit from further review and revision.

Regulatory Proposal 2: Taxes for non-geostationary orbit satellites

Consultation Question 3: The proposed 50 per cent tax premium for NGSO services is based on spectrum denial analysis of a number of scenarios in the 18 GHz and 50 GHz bands using various elevation assumptions. Would spectrum denial analysis in other bands between 18 and 50 GHz produce results that are materially different to the analysis already undertaken?

The ACMA proposes to apply a 50% premium on NGSO licence fees relative to GSO fees in the 17.3 to 31.3 GHz band based on an analysis of relative spectrum denial areas created by GSO and NGSO earth stations. This new NGSO fee structure would replace a previous flat fee of \$279.13 per MHz for NGSO systems above 8.5 GHz.

There are a number of issues with the ACMA's proposal. First, the Plum spectrum denial analysis (even if accurate) does not support a 50% premium being charged on NGSO licence fees in the 17.3 to 31.3 GHz band. In fact, Plum's finding was that: 'What this implies is that in congested bands NGSO systems should pay fees that are roughly 50% higher than those paid by GSO systems' (emphasis added)⁷. However, elsewhere in its report, Plum found that these bands are not congested today, and are unlikely to be congested in the next five years.⁸ Thus, the proper conclusion is that no NGSO premium is warranted because there is no congestion. This makes sense as a 50% greater spectrum denial area does not necessarily imply a 50% premium if there is no practical demand from other potential users of spectrum. An additional premium is also not justified by the potential for greater congestion in high-density areas, as this is already accounted for by the significantly higher base fee charged in those areas.

Second, due to the replacement of the existing flat fee of \$279.13 per MHz with the GSO-based fees (and the 50% premium), the ACMA's proposal would actually result in

⁵ In any event, choosing 17.3 GHz as the breakpoint would not address the ACMA's concern about differential taxation, as the paired downlink and uplink bands in the Appendix 30/30A Broadcast Satellite Service ('BSS') bands would fall on different sides of that divide.

⁶ See, e.g., Industry Canada, Notice No. SMSE-021-14, *Fee Proposal for Fixed-Satellite Service (FSS) and Broadcasting-Satellite Service (BSS) Satellite Spectrum in Canada*, <http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf10909.html> (Dec. 4, 2014); Industry Canada, Notice No. SMSE-008-16, *Fee Order for Fixed-Satellite Service (FSS) and Broadcasting-Satellite Service (BSS) Spectrum in Canada*, <http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf11159.html> (Feb. 19, 2016). See also Plum Report, Appendix B.

⁷ The Plum Report, Page 79.

⁸ The Plum Report, Page 43.

substantial net increases in NGSO licensing fees for Australia-wide and high-density licences in the key NGSO satellite bands (see the tables below). In the Ku-band NGSO frequencies (10.7 to 14.5 GHz), the NGSO licensing fee will increase by 255% for the Australia-wide license and by 28% in high-density areas. In the core Ka-band frequencies (17.3 to 30 GHz), the Australia-wide NGSO licence fee will increase by 273%, after the proposed 30% general reduction and 50% premium are applied. These are unreasonable and burdensome increases in taxation for NGSO operators and service providers.

April 2016 Fee Schedule for NGSO (per GHz)

	Australia-wide	High-density	Medium-density	Low-density	Remote-density
NGSO > 8.5 GHz	\$ 279,130.00	\$ 279,130.00	\$ 279,130.00	\$ 279,130.00	\$ 279,130.00

ACMA Proposed NGSO Fees (per GHz)

Spectrum location/ frequency ranges	Geographic location				
	Australia-wide	High-density	Medium-density	Low-density	Remote-density
>8.5 to 17.3 GHz	\$ 991,400	\$ 356,900	\$ 84,400	\$ 6,100	\$ 2,900
% change	355%	128%	30%	2%	1%
>17.3 to 31.3 GHz	\$ 1,041,000	\$ 277,200	\$ 43,500	\$ 4,650	0
% change	373%	99%	16%	2%	0%

While the NGSO licensing fees would be lower in the medium, low and remote-density areas, the sharp hike in the Australia-wide fees is particularly unfortunate. Many of the innovative NGSO satellite systems that have been deployed or announced (e.g. O3b (Ka), OneWeb and SpaceX (Ku-/Ka-)) are designed specifically to provide affordable universal connectivity. The economics of such systems invariably relies on serving both urban and remote areas in order to generate the necessary returns to make the investment and risk worthwhile. The ACMA may want to consider the extent to which its Australia-wide fee would discourage the deployment of these systems in Australia.

Regulatory Proposal 3: Earth station spectrum-sharing tax incentive

Consultation Question 4 Do you agree with the eligibility criteria for the proposed Earth station spectrum-sharing incentive of a reduction in taxes of 30 per cent?

Communications Alliance supports a 30% reduction in tax 'for Earth Stations when two or more co-frequency terminals (where frequencies are congruent or overlap) are located

within a radius of 500 metres.⁹ This is consistent with a spectrum denial approach on which taxes are being revised in this proceeding.

Communications Alliance strongly recommends, however, that the ACMA extend the radius to 2 km, noting that the antennas located at the Gngangara and Mingenew teleports in Western Australia, (which are large sites with breadth greater than 1 km), could be positioned on these sites such that the distances between antenna locations is significantly greater than 500 m. Increasing this distance from 500 m to 2 km would not significantly increase the area of spectrum denial to terrestrial services.

Communications Alliance also recommends that this discount be immediately made available to existing earth station licences as soon as they qualify rather than wait until renewal.

Of course, satellite operators will continue to consider other important factors in siting gateways, including the technical requirements of their systems. However, where each site has more than a single antenna with overlapping spectrum requirements and pointing is towards separated orbital locations, any mechanism acting to reduce spectrum costs is welcome. We note that the lion's share of spectrum cost remains with the Space and Space Receive apparatus licences and that is where the biggest cost reductions should occur (addressed under 'Other Issues' below).

Regulatory Proposal 4: Taxes for CDMA Systems in the UHF band

Consultation Question 5 Do you have any evidence that would improve the ACMA's understanding of the application of opportunity cost pricing to CDMA satellite systems in the UHF band and the proposed tax reform?

It appears from the Plum Report, that Plum did not understand the logic for the existing tax concessions for CDMA operations in the UHF band, and on these grounds alone recommended that they be removed. Communications Alliance members were surprised that, in a paper focussed on tax arrangements for the Ka band, Plum made a recommendation to remove the CDMA 75% discount in the UHF band, based solely on a stated lack of understanding as to why the CDMA tax concessions had originally been introduced. Communications Alliance was also surprised that the ACMA has subsequently decided to propose to arbitrarily remove the 75% discount, an action that could create significant pricing uncertainty for all licence holders.

The Australian Communications Authority (ACA) made the original decision to provide a 75% discount because Globalstar had specifically chosen CDMA given it was (and still is) a technology suitable for spectrum sharing. The ACMA subsequently continued the 75% discount as, at that time, there were potentially three other NGSOs which could have launched using CDMA technology in the same shared spectrum without interfering with Globalstar.

The 75% discount was an early, innovative, and strong price-based incentive provided by the ACA/ACMA in support of operators who choose spectrum sharing technology. Its arbitrary

⁹ See ACMA 'Review of taxation arrangements for satellite services' Consultation Paper, August 2016, Page 17.

removal now would be a retrograde signal to the market that the ACMA does not fully and tangibly support operators choosing spectrum sharing technology.

The ACMA should give some tangible forward incentives for operators to adopt spectrum sharing technology. The 75% discount in the UHF band is a good incentive that promotes spectrum sharing technologies. If it is now removed arbitrarily, it would leave no pricing incentives for operators to choose technologies capable of sharing spectrum.

Spectrum sharing is a fundamental principle not limited to CDMA or to the UHF bands, which may well also be tested in the future by other technology solutions which offer orthogonal sharing of services with no interference, e.g. Software Defined Networks (SDNs). Therefore, rather than removing an existing incentive for spectrum sharing, it is considered to be important that the ACMA establishes sound principles which are able to stand the test of time.

Much more emphasis should be given by the ACMA to increasing the use of spectrum by multiple operators through spectrum sharing, leading to greater public use and benefits. Communications Alliance believes that a narrow, dry economic assessment of the ability for the ACMA to raise a certain amount of tax will not produce an optimal outcome in terms of efficient spectrum use.

To that end, Communications Alliance strongly believes that the ACMA should provide tangible tax incentives to operators choosing spectrum sharing technologies across the spectrum bands.

In providing those spectrum sharing incentives, it is a fundamental principle that if the first operator does not select a spectrum sharing technology, then no later operators can enter in that band. The ACMA concept floated in the discussion paper that incentives for spectrum sharing should only be provided after subsequent spectrum sharing operators enter the market ('actual sharing') is counter-productive. It is most important that the first operator into the market in a given band, is provided with a strong incentive from the outset to choose a sharable spectrum technology, and that operator should be rewarded for that technology decision from day one onwards, and on an enduring basis.

If the incentive is only provided after spectrum sharing actually occurs, then the second and subsequent operators would get an immediate boost to their business plan from their launch date, after the first operator into the market has had to wear all the spectrum costs at start-up, i.e. during the most difficult financial period for any network. Rather than promoting spectrum sharing, this proposal could actually operate as a strong disincentive for a first entrant to the market operator to choose a spectrum sharing technology.

Communications Alliance believes this legacy tax arrangement should be left alone on the basis that it does not apply to the Ka Band, and it was and still is, a tangible signal to the market of the ACMA's support for operators choosing spectrum sharing technologies.

Communications Alliance supports any technology that can enhance the uses of spectrum and sharing ability. CDMA is just one such technology that should be encouraged on the basis of inherent sharing capability. Similarly, High Density Fixed Satellite Service (HDFSS) application as deployed by nbn utilising a four colour reuse plan with nine active gateways amounts to a highly efficient 18 times frequency reuse extracting a maximum use of the spectrum. These technologies are to be encouraged.

Other Issues

Consultation Question 6 If the ACMA proceeds with the tax reform proposals presented in this paper, are there any implementation and/or transitional issues that the ACMA should be aware of?

Consultation Question 7 Do you have any other comments relevant to this consultation?

While the ACMA's proposal is a good first step towards more realistic spectrum fees in the 17.3 to 51.4 GHz band, Communications Alliance raises a number of additional issues related to ACMA's apparatus fee regime for satellite services, both in the Ka-band and other bands, that are ripe for reform.

Earth Stations in Motion (ESIMs) in the Ka and Other Bands

Ka-band ESIMs are happening now. Recognition by WRC-15 in agreeing to consider how licensing of such services should happen and in agreeing to WRC-19 Agenda Item 1.5 to study ESIMs in 27.5 to 29.5 GHz is evidence of this. While Plum expresses doubt about the success, or otherwise, of this agenda item, it would be prudent for the ACMA to plan on the basis that the agenda item will indeed succeed, based on indications from various satellite operators already planning to utilise this spectrum for such services.

The advent of ESIMs at Ka-band and other bands is a fast growing reality in the market place and follows the advent of Ku-band AMSS systems and their maritime equivalent, ESVs. The apparatus licensing fee regime as applied to such moving terminals, however, can be quite cumbersome and complicated and needlessly penalises operators of such systems by treating those terminals identically to fixed terminals. However, if a spectrum denial approach is applied, it is clear that neither aeronautical terminals flying above a certain altitude over Australian airspace, nor maritime terminals beyond a certain distance from the shore, create significant spectrum denial areas for co-frequency terrestrial services.

Communications Alliance recommends strongly that the ACMA create, as a first step, an 'aeronautical' and a 'maritime' fee category for ESIM/AMSS/ESV licences that is equivalent to remote-density (or at worst low-density) fee categories – regardless of whether the terminal is operating in C-band, Ku-band or Ka-band. To just take one illustration, an aircraft terminal flying over Sydney above 3,000 metres /10,000 feet will not deny the use of the same spectrum on the ground, and thus should not attract the high-density fee. Moreover, these systems are disabled for aircraft take-offs and landing and passengers are only given access when the aircraft is above 3,000 metres / 10,000 feet. Similarly, maritime vessels operating ESVs do not deny access to spectrum to land based systems when the vessel is at least 125 km from the shore (Ku-band) and 330 km from the shore (C-band) in accordance with ITU-R regulations. As Australia argued, albeit unsuccessfully, for these protection limits to be lowered at WRC-15 it is reasonable to conclude that the ACMA considers that these distances could be much shorter before there is any risk of interference and spectrum denial.

Space Licensing Fees

Communications Alliance urges the ACMA to simplify and reform its space and space receive licensing fee structure, especially in relation to: 1) spot beam satellites with multiple factors of spectrum re-use; and 2) the interaction between the space fees and access to the Radiocommunications (Communication with Space Object) Class Licence 2015 (Class Licence).

For spot beam satellites, the Plum Report suggested a possible reform: 'If spot beams are used by a satellite and an Australia-wide licence is not required then the tax is based on the tax for highest density area covered, i.e. if a high and a low density area are covered then the tax will be that for the high density area'¹⁰. While this highest common factor might be an improvement on existing approaches, Communications Alliance suggests that any space licence fee that is based on spectrum denial on the ground is fundamentally flawed.

For space licences, the only spectrum denial that could be relevant is the amount of denial created by the transmitter and receiver located in space. From that perspective, the amount of spectrum denial for ground services from a satellite is very limited or non-existent, especially when applicable Power Flux Density (PFD) limits are observed and if applicable limits for terrestrial transmissions towards the sky are observed. At most, the spectrum denial is only with respect to other space stations for which there is an international frequency coordination system in place for GSO and NGSO systems. Any spectrum denial on the ground resulting from the licensing of individual earth stations in non-class-licensed bands in different geographical areas would, of course, be captured by applicable earth licence fees.

Space and space receive licences are most commonly sought in the bands subject to the Class Licence. But even in these bands, there is no justification to require payment of a space apparatus licence fee that is based on spectrum denial on the ground. By definition, earth stations operating under the Class Licence operate on a non-interference basis, and thus cannot deny spectrum to any other authorised services in the band.¹¹ Thus, it does not make sense to require payment of the very high Australia-wide space fees before earth stations can be ubiquitously deployed in the Class Licence bands.

The purpose of the Class Licence – to enable and encourage ubiquitous deployment of satellite terminals in the band – should be borne in mind. Requiring every operator that wants to access the Class Licence to pay an Australia-wide space apparatus fee threatens to defeat the very purpose for which it was created. Moreover, such a regime would seem to invite multiple operators to pay the Australia-wide fee for access to essentially the same Class Licence spectrum, without causing any additional spectrum denial on the ground. Two VSAT operators each wanting to access the 14.0 to 14.5 GHz or the 29.5 to 30.0 GHz band under the Class Licence across Australia (e.g. on different satellites) should not each have to pay a very high Australia-wide Space Licence fee.

For these reasons, Communications Alliance urges ACMA to re-consider its fee structure for space licences that makes them much lower and independent of population densities on the ground. Such a fee structure would help improve access to the Class Licence bands while also simplifying the task of space licensing for multiple spot-beam satellites. Multiple reuse of the same frequencies over and over again at a transceiver located in space creates no more spectrum denial on the ground than a single use of such frequencies in space. The ACMA should also be encouraging more efficient use of spectrum through greater reuse by not charging multiple space license fees for each reuse of the same spectrum, whether on spot beam satellites or by VSAT operators using the Class Licence. Such simplification of space licensing could also relieve the administrative burdens on the ACMA's staff.

Transition

Should the ACMA proceed as planned, it will be essential that the new regime is instituted as soon as possible otherwise there will be a risk that satellite operators that deploy services

¹⁰ The Plum Report, Page 26.

¹¹ Class Licence, s.8(1).

early will be subjected to a different, much more expensive, fee regime to operators that delay deployment. Any delay will impact business decision-making and potentially deprive Australians of new innovative services.

Future review

Given the uncertainty surrounding some of the assumptions in the Plum analysis, and noting the ongoing developments in spectrum technologies and markets, along with changes in overseas satellite spectrum pricing, Communications Alliance believes it will be important to monitor the impact of the new charges on demand and make any further adjustments that may be necessary to achieve an optimal outcome. Communications Alliance recommends that the ACMA revisit the charges again within five years to check whether they continue to be appropriate, or should be further adjusted.



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