

Response to implementation of the Spectrum Pricing Review

Consultation follow-up and consideration of submissions

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Executive summary

In February 2018, the Australian Government endorsed the recommendations of the [Spectrum Pricing Review](#). In March 2020, the Australian Communications and Media Authority (ACMA) commenced its consultation on the implementation of the Spectrum Pricing Review with the release of a [consultation paper](#). The original closing date for submissions of 15 April 2020 was extended to 30 June 2020 to allow industry sectors to prioritise their business-critical functions during the COVID-19 pandemic. We thank all submitters for their contribution to the consultation process.

This paper focuses on the ACMA's responses to the submissions and subsequent proposals for implementing a work program. This new consultation outlines the implementation of 3 of the 11 recommendations relevant to the ACMA's spectrum management responsibilities with pricing arrangements for licences issued under the *Radiocommunications Act 1992* (the Act):

- > **Recommendation 1:** The ACMA should publish guidelines on how it approaches its spectrum pricing decisions.
- > **Recommendation 7:** The ACMA should undertake a detailed review of the administrative pricing formula's parameters including density areas, the number of pricing bands and the number of power categories. The ACMA should implement regular updates to the location and band weightings to reflect changes in density, demography and demand.
- > **Recommendation 8:** The ACMA should apply opportunity cost pricing to a greater number of spectrum bands, especially where it is impractical to competitively allocate spectrum. This work should be identified in the ACMA's annual work program. The ACMA should consider more time effective approaches to implement these, and review fees as market conditions change over time.

These 3 recommendations are most relevant to the ACMA's approach to administrative pricing for apparatus licence taxes. The guidelines mentioned under Recommendation 1 can also apply to administrative pricing aspects of the ACMA's approach to radiocommunications licensing, including the spectrum licence tax.¹

This response to submissions paper addresses Recommendation 1 by outlining the ACMA's spectrum pricing guidelines, amended after consideration of issues raised by submitters in the consultation process. In addition, Recommendations 7 and 8 are being implemented, as outlined in the [work program](#), which includes:

- > Initial proposals that address a number of focus areas consulted on, including:
 - > A reduction in taxes based on the tax formula for services above 5 GHz, ranging from 25% to 90% and depending on the frequency range and the service. This is likely to benefit fixed service providers, the space industry and companies looking to provide innovative services in higher frequency ranges.
 - > Introducing a 'systems price' for earth stations with multiple antennas, with prices more commensurate with the spectrum denial of those systems. This will benefit the space sector.
 - > Introduction of an additional price discount to encourage more use of the land-mobile 'micro' service model. This will benefit the land mobile sector.

¹ The ACMA determines the amount of spectrum licence tax in part to recover the indirect costs of its spectrum management activities.

- > The further analysis that will be required before proposing new tax rates.
- > The consultation processes required to consider any proposed new tax rates, and the timing of those consultation processes.

This work program will also be included in the future editions of the five-year spectrum outlook ([FYSO](#)) to enable stakeholders to monitor the progress of its implementation and provide further comment.

Response to submissions

The ACMA received 30 submissions from various industry sectors, including the satellite industry, government bodies, mobile network operators, broadcasters and narrowcasters, and other interested parties.

The initial consultation paper invited comment on 16 questions set across broad pricing themes and focus areas. The ACMA has considered the information provided in submissions and is responding to the major themes raised and comments provided on the focus areas.

The role of the ACMA in implementing the Spectrum Pricing Review

Of the submitters who commented on the ACMA's role, all were of the view that we are well placed to implement the relevant recommendations of the Spectrum Pricing Review. No submitters raised any issues with the suitability of the ACMA in implementing these recommendations.

There was interest in the ACMA playing a more active role in supporting and providing incentives for space industry companies to compete in the Australian market.

Response to submitters

The ACMA looks forward to continued engagement with stakeholders on issues of spectrum pricing. We will work closely with industry and government to support innovation in all services using spectrum for their communications.

Spectrum used for the public good

A wide range of stakeholders put forward the view that spectrum pricing and allocation should better reflect the use of spectrum for the public good and the positive externalities provided. Submitters also proposed that the ACMA should be explicit in how these issues are addressed.

Several government bodies and associated corporations contended that use for the public good should not be put in direct competition with commercial applications, and that any assessment of highest-value use of spectrum should consider the public good. Submitters also noted that in some instances they had no control over which bands they used given international harmonisation. Examples of use for the public good raised by submitters included for weather forecasting, national security, servicing loss-making areas, and scientific purposes.

Other commercial interests also made submissions on similar grounds, with one example arguing that broadcasters' licences should be subject to an administrative cost framework and not opportunity cost pricing because there are positive externalities arising from broadcasting activity.

Response to submitters

Spectrum pricing, along with licensing, planning and technical regulation, is a tool to manage spectrum efficiently and effectively for the benefit of all Australians. There is a range of spectrum prices to accommodate the different uses of spectrum.

Approaches like opportunity cost pricing provide incentives to use spectrum efficiently to ensure all users have sufficient spectrum to provide services. Further, in undertaking cost-benefit assessments for any regulatory change in licensing and

planning arrangements, quantitative and qualitative factors such as the public benefit of the service provided are taken into consideration. We consider that opportunity cost pricing, or incentive pricing in general, is consistent with recognising the public benefit or good of a service.

The ACMA has updated its Spectrum Pricing Guidelines to emphasise the role of pricing in reflecting public benefit in the valuation of spectrum uses.

Industry specific issues

This section considers issues raised by the broadcasting and narrowcasting sector and the satellite sector. Other sectors like mobile, internet service providers (ISPs) and government agencies raised a few issues that were common to all pricing arrangements and as such have not been identified in this part of the response.

Broadcasting and narrowcasting related licence taxes

Several submissions were received from the narrowcasting industry, arguing that narrowcasters pay excessive taxes when compared with those paid by commercial broadcasters, and that their taxes should be reduced to an equivalent level or lower.

Submissions were also received proposing that low-power open narrowcasting (LPONs) licences should be subject to a new tax structure depending on the number of licences held. This was because many operators needed to have large number of licences to provide sufficient coverage in many areas.

One submitter also suggested that that different pricing constructs such as \$/MHz/Pop for narrowband services are unnecessarily complex. Meanwhile, they argued, medium-frequency narrowband area service (MFNAS) licences currently pay taxes that are calculated independently of the spectrum density area in which the licence authorise operation and, therefore, are too high in both the medium and low spectrum density areas.

Submissions also raised concerns that commercial broadcasters were provided with a tax waiver for 12 months due to the impact of COVID-19. Submitters argued that a similar fee waiver should be granted to narrowcasters given that they were impacted in a similar way by the pandemic.

Response to submitters

The ACMA acknowledges that there are differences between apparatus licence taxes and commercial broadcasting taxes. While taxes for narrowcasting services can be higher than the commercial broadcasting taxes in the same band, it can be difficult to make like-for-like comparisons across different licensing types.

LPON licence tax rates are generally at, or close to, minimum annual taxes rates (of \$41.49) and the ACMA expects that pricing to remain low for these services due to the low power and low spectrum denial.

To provide parity in pricing between narrowcasting and commercial broadcasting would require a mix of changes to apparatus licence taxes. We are currently consulting on the commercial broadcasting tax review and considering different pricing methodologies for commercial broadcasting taxes, including moving to a \$/MHz/pop pricing construct. However, the ACMA acknowledges that this pricing construct may not be appropriate for all services. Further, under the *Commercial Broadcasting (Tax) Act 2017*, the tax for commercial broadcasting is set by the Minister for Communications, Cyber Safety and the Arts, rather than the ACMA.

We have provided industry through the pandemic with extended timeframes for consultations, and assistance with deferrals and instalment arrangements for amounts owing to the Commonwealth. However, the ACMA has no power to exempt licensees from apparatus licence taxes.

We are proposing a work plan to consider broadcasting/narrowcasting related taxes in light of the report to be given to the minister about the commercial broadcasting tax review, in accordance with section 216AA of the *Broadcasting Services Act 1992*.

The satellite industry

A key feature of Focus Area 1 in the consultation paper related to the taxation issues associated with services using large bandwidths and deploying multiple devices. There was strong support from the space sector in particular for reviewing these taxes.

The advent of non-geostationary satellite orbit (NGSO) technology poses some potential issues with respect to how spectrum is managed and priced in the relevant spectrum frequencies. Submitters posited that, given the nature of the technology, a single apparatus licence should be issued to authorise each earth station for NGSO satellites which reflects their actual usage and denial characteristics more fairly.

Submitters within the industry noted that changes were required to the framework so that taxes are not applied repeatedly for accessing the same bandwidth.

Examples were also provided where there are different taxes for mobile satellite services (MSS) and television outside broadcast service (TOBS) and point to multi-point (P2MP) using similar spectrum.

Some submitters noted that while they understood the ACMA was encouraging satellite ground station operators to establish outside of high-density regions, they were concerned that there is no core infrastructure to support their services outside of high-density areas.

Some submitters also raised issues about the cost recovery charges for the satellite industry. For example, it was suggested that partial to full cost recovery waivers be available to academia, science and start-up businesses, to support the growth and transformation of the industry.

Response to submitters

The ACMA is proposing new tax rates under the tax formula for licences in frequency ranges above 5 GHz. We are also considering a systems approach to the taxation of licences for earth stations. This systems approach was highlighted in the initial consultation paper. Further consideration of taxes for space licensing may be appropriate as the work associated with earth stations develops. Details of the proposed tax rates are available in the [work program](#) and the [consultation](#) sections of this paper.

As noted in the FYSO, it is also possible that the outcome of the Communications' portfolio five-yearly Portfolio Charging Review² will require a review of our satellite

² The ACMA component of the Portfolio Charging Review process will review all existing and potential charging activities, evaluate the performance of charging activities, identify opportunities to amend or discontinue specific charging activities and assess the effectiveness of stakeholder engagement strategies and opportunities for improvement. Like all current charges, ACMA satellite filing charges will be reviewed in that process.

filing cost recovery process to ensure that practices are consistent with outcomes of that work.

The tax formula

Recommendation 7 of the Spectrum Pricing Review recommends the ACMA should review the apparatus licence tax formula:

The ACMA should undertake a detailed review of the administrative pricing formula's parameters including density areas, the number of pricing bands and the number of power categories. The ACMA should implement regular updates to the location and band weightings to reflect changes in density, demography and demand.

The ACMA's work program details the work it will conduct over 2021 in undertaking this review, including its initial proposal to reduce taxes for licences above 5 GHz. In addition, submitters noted some additional issues for consideration:

Tax formula normalisation factor (i.e. updates for inflation)

Currently, one of the ways we keep spectrum pricing contemporary includes updating the apparatus licence tax formula for inflation.

Some submitters noted that the annual adjustment for inflation should be reviewed. One proposition put forward is that the CPI adjustments should be based on 'telecommunication equipment and services' and not 'all groups' as is currently the case. This argument here is that this should better reflect the prices within the industries relevant to spectrum management.

Others proposed removing the annual adjustment altogether. Arguments put forward were that the annual adjustment was pushing the price of spectrum above what is affordable, especially for services in regional or remote Australia, and that these increases did not reflect actual pricing pressures within markets.

Response to submitters

The annual inflation rate for the period up until June 30, 2020 was minus 0.3%.³ We are proposing to reduce apparatus licence tax rates as a result, with effect from 5 April 2021. This is a matter of a separate consultation process.

As part of our work program we will consider other approaches to keeping apparatus licence taxes up to date.

Tax formula adjustment factors

Several submissions discussed the various adjustment factors for different classes of apparatus licenses. An example is that of the adjustment factor for fixed point-to-point licences, where it was argued that they do not service the local population within the interim network but are instead used for backhaul.

Response to submitters

Complications may arise where a transmitter in one area serves a population in a different area, and those areas have different applicable tax rates. However, reflecting those differences in spectrum pricing arrangements is difficult when services are potentially denying other services in highly populated areas. Typically, spectrum prices are higher in such areas to promote the efficient use of the spectrum. While not part of

³ <https://www.abs.gov.au/statistics/economy/price-indexes-and-inflation/consumer-price-index-australia/jun-2020>.

our initial work program, different pricing constructs such as \$/MHz/Pop may be part of a longer-term solution.

Spectrum pricing guidelines

There was general support for the proposed spectrum pricing guidelines from submitters. However, several suggestions were also made with respect to how they might be further bolstered and refined.

As noted above, some submitters commented on the issues associated with recognising the public good or benefit of their services. Others commented on ensuring that there is flexibility in pricing arrangements. The space industry made suggestions to incorporate global benchmarking of services within the guidelines and an accommodation of different sizes and different models of business to enter the Australian market. The suggestion was made that Australian pricing for spectrum relating to satellite services was not competitive when compared with international jurisdictions and thus could act as a barrier to entry for small and medium sized providers.

Others commented on the spectrum pricing in instances where there is excess supply in particular bands. The suggestion quoted final recommendations for the Spectrum Pricing Review that stated where there is enough spectrum to satisfy the demand of all interested parties if prices were to be zero, taxes and charges should be limited to recovering the ACMA's direct and indirect costs of managing the spectrum.

Response to submitters

No specific examples of pricing are included in the guidelines. However, we have updated the guidelines to highlight that:

- > Opportunity cost can reflect both the commercial value and the public benefit of services and therefore promote the efficient allocation of spectrum.
- > In providing pricing arrangements that are flexible to technology change this can also promote the use of spectrum by providers of different sizes and business models.

The ACMA's Spectrum Pricing Guidelines are set out later in this paper.

Focus Area 1: Large bandwidth and multiple device requirements

As noted above there was strong support from the space sector to review taxes to take account of these factors.

Response to submitters

The ACMA is proposing new tax rates using the apparatus licence tax formula for services in frequency ranges above 5 GHz.

The ACMA has reviewed the location weightings to address the concern that high licence tax amounts are incurred for services with large bandwidths. This issue is known to exist in frequency bands above 5 GHz and the ACMA proposes to adjust these taxes on a sliding scale as we move higher up in frequency (see last column of Table 1). It is a recognition of the different value and scarcity of spectrum due to shorter propagation and higher reuse for higher frequencies.

The weightings are adjusted down to bring satellite taxes closer to other jurisdictions. A short description of the process for deriving the new location weightings is at [Appendix A](#) and the proposed new taxes can be found at [Appendix C](#). These weightings outlined in Table 1 flow through to all licences whose tax is governed by the apparatus licence tax formula.

Table 1: Proposed weightings

Spectrum location	Geographic location										% of current weighting
	Australia-wide		High density		Medium density		Low density		Remote density		
	Current	Proposed	Current	Proposed	Current	Proposed	Current	Proposed	Current	Proposed	
0 to 30 MHz	4.3150	4.3150	4.3150	4.3150	4.3150	4.3150	4.3150	4.3150	4.3150	4.3150	100%
>30 to 70 MHz	9.7470	9.7470	3.8070	3.8070	2.0250	2.0250	0.4370	0.4370	0.2180	0.2180	100%
>70 to 399.9 MHz	10.0000	10.0000	4.1040	4.1040	1.8780	1.8780	0.4210	0.4210	0.2100	0.2100	100%
>399.9 to 403 MHz	10.0000	10.0000	5.6000	5.6000	2.5620	2.5620	0.4370	0.4370	0.2180	0.2180	100%
> 403 to 520 MHz	10.0000	10.0000	7.4114	7.4110	2.5620	2.5620	0.4370	0.4370	0.0000	0.0000	100%
> 520 to 960 MHz	10.0000	10.0000	5.6000	5.6000	2.5620	2.5620	0.4370	0.4370	0.2180	0.2180	100%
>960 to 2,690 MHz	9.9850	9.9850	2.2410	2.2410	1.0360	1.0360	0.5210	0.5210	0.2600	0.2600	100%
>2.69 to 5.0 GHz	9.9740	9.9740	1.8530	1.8530	0.7510	0.7510	0.6220	0.6220	0.3110	0.3110	100%
>5.0 to 8.5 GHz	8.4210	6.3158	1.5570	1.1678	0.7250	0.5438	0.3300	0.2475	0.1600	0.1200	75%
>8.5 to 14.5 GHz	3.7110	1.8555	1.3360	0.6680	0.3160	0.1580	0.0230	0.0115	0.0110	0.0055	50%*
>14.5 to 31.3 GHz	3.7110	0.3711	0.9880	0.0988	0.2170	0.0217	0.0230	0.0023	0.0110	0.0011	10%*
>31.3 to 51.4 GHz	1.0120	0.1012	0.5390	0.0539	0.1170	0.0117	0.0040	0.0004	0.0020	0.0002	10%
>51.4 GHz	0.1000	0.0100	0.0100	0.0010	0.0100	0.0010	0.0010	0.0001	0.0010	0.0001	10%

Note: For Space and Earth station licences (both transmit and receive), the frequency ranges are >8.5 to 17.3 GHz and >17.3 to 31.3 GHz. For these services and frequency ranges the weighting will reduce by 50% for >8.5 to 17.3 GHz and 90% for >17.3 to 31.3 GHz.

Systems price for Earth stations

The ACMA also proposes a ‘systems’ price for earth stations with multiple co-located antennas, managed by the same licensee using the same frequencies (similar to the pricing structure of scientific licences). This proposal recognises that additional antennas to these sites do not significantly add to spectrum denial. Details are provided in [Appendix B](#).

Focus Area 2: Sharing and low interference potential devices

There was general support for the sharing of spectrum and providing incentives for low interference potential devices. The Australian Radio Communications Industry Association (ARCI) supported the further price incentives for the licences issued in accordance with Radiocommunications Licensing Instruction (RALI) [LM8: Land mobile service](#). The satellite industry commented on providing incentives for internet of things (IoT) services and the need to promote sharing of spectrum.

Response to submitters

The ACMA is proposing a systems pricing approach to licences for earth stations, and a new low power discount for licences issued in accordance with RALI LM8. Details of these proposals can be found in [Appendix B](#).

Focus Area 3: Taxes and opportunity cost pricing

As noted above, there are mixed views about opportunity cost pricing and market allocations. There was strong support from the mobile industry for opportunity cost pricing, but concern was raised by government agencies and the satellite and broadcasting sectors. ARCIA noted a strong emphasis on providing transparency in pricing approaches.

The Wireless Internet Service Provider Association of Australia (WISPAU) suggested that dynamic spectrum licensing would facilitate more market-based approaches. The mobile industry noted that pricing should reflect the property rights associated with different licence arrangements.

Response to submitters

The ACMA considers that opportunity cost pricing and market allocations can identify the quantitative and qualitative public benefits of services. This has been recognised in the Spectrum pricing guidelines, set out below. As part of Focus Area 6 the ACMA will be providing greater transparency to its previous decision making by providing more details of pricing decisions in its Apparatus Licence Fee Schedule, a document that describes the tax rates applicable to different apparatus licences.

Licensing frameworks are not the focus of this work program, but the comments are useful in considering future licensing and allocation approaches. Pricing can reflect the different licensing conditions that may apply.

The opportunity cost pricing initiative will be outlined in the FYSO. In addition, we have developed a work program that offers stakeholders a range of opportunities to engage with the ACMA to discuss pricing issues.

Focus Area 4: Geographic areas and bands

There is general consensus from submissions that the density areas and frequency bands used to differentiate between tax rates for different licences should be reviewed. The concerns included the amount of time since these were last reviewed, and the lack of granularity in the geographic areas and the frequency ranges. It is submitted that some locations should not be included in high density areas (for example, Wollongong should be in a different density area to Sydney). There were also observations about the effects of high Australia-wide taxes and the positive impact that reducing taxes in under-serviced areas in regional and rural Australia could have in increasing the public benefit.

Some submitters also noted that while it understood the ACMA was encouraging satellite ground station operators to establish outside of high-density areas, they are concerned that there is no core infrastructure to support their services if they move outside of high-density areas.

Comments were also provided about spectrum licensing limiting the access to spectrum in remote areas and the advantages of area-wide licensing (AWL) to IoT.

Response to submitters

This focus area is a core element of the implementation of the Spectrum Pricing Review recommendation. As noted in the [work program](#), the ACMA will be exploring a range of options to recognise the different values and incentives that can apply across different locations and frequency ranges.

Focus Area 5: New technologies and trials

There was a general view that pricing should be flexible, adaptable, and facilitate service providers of different sizes and business models to enter the Australian market. Innovation should be fostered and protected.

There was a strong appeal that scientific licensing should be provided at minimal cost.

Response to submitters

In publishing the consultation paper, the ACMA suggested that one option for promoting new trials would be that the apparatus licence tax for trials of less than two months could be set at the minimum annual tax rate. As noted in the FYSO, the ACMA is reviewing scientific assigned and non-assigned apparatus licensing arrangements. The broad objective of the review is to ensure that suitable, low-cost licensing arrangements are available for spectrum users to trial and assess new and innovative radiocommunications technologies. To ensure consistency with this review of the licensing arrangements, the ACMA will align its pricing work program for scientific licences to the timing of the licensing review.

We also expect that the reductions in taxes for licences above 5 GHz will also promote innovation and opportunities for a range of providers to enter the Australian market.

Focus Area 6: Transparency and ease of calculating taxes

The ACMA proposed greater information being provided in the Apparatus Licence Fee Schedule to support a greater understanding of the ACMA's pricing decisions. The ACMA also proposed providing a new tax calculator.

There was general support for these initiatives. Some observations were also made about reviewing satellite filing cost recovery charges and the licensing application process.

Response to submitters

The ACMA recently provided an apparatus licence tax calculator to calculate taxes for the AWLs in the 26 and 28 GHz bands. The ACMA will draw on this experience to provide a tax calculator for a range of apparatus licences. As noted previously, we will also provide an update to the Apparatus Licence Fee Schedule. These updates will be made available in April 2021, when proposed changes to apparatus licence taxes for the CPI updates would take effect.

Recommendations of the Spectrum Pricing Review

In February 2018 the government endorsed the recommendations of the Spectrum Pricing Review. Some of the recommendations of the Spectrum Pricing Review require a change to primary legislation or relate to the actions of government and, as such, are matters for government. However, as stated in the FYSO, the ACMA considers it can implement, or has implemented, the intent of many of these recommendations under the current legislation.

In its consultation paper, the ACMA noted that it will include statements about how it has, or expects to implement, the recommendations of the Spectrum Pricing Review. The status of the ACMA's role in implementing the recommendations is set out below.

Summary of Spectrum Pricing Review recommendations

Allocation decisions

1. The ACMA should publish guidelines on how it approaches its spectrum pricing decisions.

Update: The guidelines provide an opportunity to state the legislative context and the ACMA's approach to considering future pricing matters. The guidelines complement the ACMA's explanatory material supporting its reasoning for pricing decisions in its consultation papers and explanatory statements to amending legislative instruments. After considering the feedback from stakeholders, the guidelines are detailed in this paper.

2. To ensure efficient use of spectrum, the government and the ACMA should endeavour to charge users of similar spectrum at the same rate.

Update: The calculation of apparatus licence taxes typically does not take into account the uses of spectrum, although it is based on licence types, and not all uses are accommodated by all licence types. However, the ACMA acknowledges that there are different pricing constructs for different licence types. In some circumstances, similar services can be provided under different licence types, making it difficult to replicate the charging arrangements.

The submission process highlighted a number of differences in pricing including:

- > The broadcasting/narrowcasting industry noting differences between commercial broadcasting taxes for transmitter licences held by commercial radio and television broadcasters and apparatus licence taxes for HPON and LPON licences.
- > The satellite industry noting differences between MSS and TOBS and P2MP in the current tax regime.
- > With the recent introduction of AWLs, the satellite community noted the difference between pricing in the wider 26 GHz and 28 GHz bands.

As part of its work program, the ACMA will be considering the differences in apparatus licence taxes, including for broadcasting.

- 3. Bespoke pricing arrangements will sometimes be necessary. Where spectrum fees are determined other than by auction or by the administered pricing formula, the ACMA, or the government where it directs the ACMA on pricing, should publish the reasons for this decision.**

Update: In implementing this recommendation, the ACMA sees an opportunity to improve the transparency of its pricing decisions. The ACMA provides extensive explanatory material supporting its reasoning for pricing decisions in its consultation papers and explanatory statements. In addition, the ACMA will provide more material detailing its previous pricing decisions to complement the existing information in the Apparatus Licence Fee Schedule.⁴ The new detail will be provided in the 5 April 2021 edition of the Apparatus Licence Fee Schedule.

Market-based allocations

- 4. The ACMA should further identify bands to transition from administratively set fees to competitive market-based allocations in its annual work program.**

Update: This recommendation has been implemented with the extensive forward work program of allocations published in the [Five-year spectrum outlook 2020–24](#). There are ongoing opportunities for stakeholders to comment on work program of allocations as part of the consultation undertaken each year for the FYSO.

- 5. In setting reserve prices, the ACMA and the government should consider the influence of the reserve price on competitive behaviour, and the scope for price discovery through upward movement toward the market value of the spectrum.**

See below for update.

- 6. For spectrum access charges determined by auction, the ACMA should generally require upfront lump-sum payments. There may be circumstances where instalment payments are warranted shortly after the beginning of a licence term. In considering use of instalments, the ACMA should assess the risks to the state of default and the potential impact on competition.**

Update—recommendations 5 and 6: The ACMA accepts these recommendations. The ACMA is mindful that each auction should consider the circumstances of the market. For example, the Minister recently directed the ACMA to provide instalment payment arrangements for the 26 GHz band auction.

Administered allocations

- 7. The ACMA should undertake a detailed review of the administrative pricing formula's parameters, including density areas, the number of pricing bands, and the number of power categories. The ACMA should implement regular updates to the location and band weightings to reflect changes in density, demography and demand.**

⁴ Information about the taxes and charges collected by the ACMA fees and the Apparatus Licence Fee Schedule can be found at www.acma.gov.au/fees-apparatus-licences.

See below for update.

8. **The ACMA should apply opportunity cost pricing to a greater number of spectrum bands, especially where it is impractical to competitively allocate spectrum. This work should be identified in the ACMA's annual work program. The ACMA should consider more time effective approaches to implement these, and review fees as market conditions change over time.**

Update—recommendations 7 and 8: These recommendations are at the centre of this review. The work program for the review is outlined in this response to submissions paper.

Legislative and cost recovery framework

9. **The government should consolidate the three existing spectrum tax Acts into one tax Act. The ACMA should continue to have the power to make determinations on the amount of tax under this Act. There should be no changes to the direct charges framework. In addition to the consolidation of the tax Acts, provisions of the separate *Radiocommunications Taxes Collection Act 1983* and the *Radiocommunications Taxes Collection Regulations 1985* should be consolidated with the remaining legislation.**

See below for update.

10. **The apparatus licence taxes and spectrum access charges for spectrum licences should be combined into a single spectrum access charge. This existing apparatus licence tax formula should become the administered incentive pricing formula and should dictate the price paid for administered prices under the spectrum access charge. This formula would be adjusted to remove the minimum tax constraint.**

See below for update.

11. **The spectrum licence tax and the minimum tax constraint of the apparatus licence taxes should be subsumed into one radiocommunications licence tax. The ACMA should continue to recover direct costs through charges. The ACMA should explore if there are any additional costs that should be recovered through the direct cost mechanisms. The use of charges should be consistent with the Australian Government Charging Framework.**

Update—recommendations 9, 10 and 11: The legislative changes mentioned in these recommendations are matters for government. However, as stated in the FYSO, the ACMA considers that it can implement aspects of these recommendations under the current legislation.

Spectrum Pricing Guidelines

Spectrum pricing decisions

The ACMA intends to apply these spectrum pricing guidelines to its spectrum pricing decisions where it administratively determines or sets the price for the various radiocommunications licences administered under the *Radiocommunications Act 1992* (the Act).

The Act provides three types of licences for authorising the operation of radiocommunications transmitters and receivers:

- > **Class licences:** A class licence authorises the operation of radiocommunications transmitters and receivers on shared frequencies. There is no need to apply for individual licences or pay any taxes or charges. As such, the spectrum pricing guidelines do not have any direct application to class licences.
- > **Apparatus licences:** An apparatus licence provides authorisation to operate specified radiocommunications transmitters or receivers. The applicant for an apparatus licence will need to pay cost recovery charges and apparatus licence tax. The amount of both the charges and the taxes are determined by the ACMA.
- > **Spectrum licences:** A spectrum licence authorises the use of radiocommunications transmitters and receivers within specified frequency ranges and in a defined geographic location. Most spectrum licences are allocated via a competitive allocation processes (for example, an auction) with prices determined by the market. These prices are collected as spectrum access charges under section 294 of the Act. The spectrum pricing guidelines do not apply to prices set by the market. However, where the ACMA allocates spectrum licence at a pre-determined price, or converts an apparatus licence into a spectrum licence under the Act, the spectrum pricing guidelines will apply. All spectrum licences may incur cost recovery charges and spectrum licences taxes that are set by the ACMA and the spectrum pricing guidelines will apply to the setting of these amounts.

Guiding principles

The ACMA has drawn upon the objects of the Act, the Spectrum Management Principles, the government's Spectrum Pricing Review and feedback from industry to form the following guiding principles that will apply when considering various taxes and charges.

Efficient allocation and use of the radiofrequency spectrum (efficiency)

The primary economic objective for managing public resources is to maximise the benefit that resource provides to society. This occurs when spectrum is allocated and used efficiently. This is achieved where spectrum is allocated to the highest value use or uses; that is, the use or uses that maximise the value derived from the spectrum by licensees, consumers and the wider community. This is most likely to occur when prices are set in a way that reflects the opportunity cost associated with spectrum denial. Opportunity cost can reflect both the commercial value and the public benefit of services and therefore promote the efficient allocation of spectrum.

Consistency and simplicity

A simplified framework should enable licensees to understand and navigate their regulatory requirements, thereby minimising regulatory burden. It should use the least restrictive approach to reduce regulatory burdens, allowing licensees to focus on optimising their use of spectrum.

Flexibility and adaptability to technology change

The highest value use of spectrum will change over time as technology develops, consumer and social preferences evolve, and as the circumstances of licensees change. These changes will also result in a change in the value of spectrum. The spectrum pricing regime should be flexible enough to reflect these changes to enable licensees to adapt spectrum usage to both market requirements and technological advances and promote the use of spectrum by providers of different sizes and business models.

Transparency in process

A principle of good governance is transparency. Stakeholders should be able to understand the basis for the pricing arrangements associated with their use of spectrum. This in turn ensures that the ACMA is accountable for the decisions being made about spectrum pricing.

Recovery of the costs of spectrum management

The ACMA incurs costs for spectrum regulatory activities such as planning, interference management and coordination, and these costs should be recovered from those using spectrum. The Radiocommunications (Charges) Determination 2017 sets out the cost recovery charges that can be directly attributed to a licensee, such as the consideration and issue of an apparatus licence. Indirect costs are those that cannot be easily attributed to a licensee. Spectrum licence tax enables the recovery of the indirect costs of spectrum management from spectrum licensees. The recovery of costs should be consistent with the Australian Government Charging Framework.

When will the ACMA consider changing prices?

The ACMA expects to update existing apparatus licence tax rates or introduce new tax rates when:

- > a new apparatus licence type is introduced
- > there is a change in the value of spectrum. Changes in value could be signalled through:
 - > changes in use of spectrum bands. The ACMA is proposing to develop simple monitoring frameworks to measure congestion in the bands and undertake pricing reviews concurrently with band planning reviews
 - > changes in market circumstances, which may become evident in auction results for equivalent spectrum and other market analysis undertaken by the ACMA, and representations to the ACMA from industry
 - > ACMA initiatives to keep spectrum pricing contemporary including by regular reviews of the parameters of the tax formula and updates for inflation.
- > there has been a change in cost recovery charges or changes in the indirect costs of spectrum management.⁵

Practical considerations

In implementing the recommendations of the Spectrum Pricing Review and the ongoing pricing work of the ACMA, there is a set of practical factors that need to be considered, such as:

- > **Data availability:** The apparatus licence tax rates are determined by legislative instruments; any measures included in these instruments need to be objective and certain. This assists both the ACMA and licensees to accurately assess the amount of tax imposed and consider any compliance matters.
- > **Limitations on implementation:** If changes to taxes require additional information from licensees, then this information will need to be provided as part of the licence application process. This will require changes in the ACMA and industry's systems and processes and may incur additional costs.
- > **Coordinating the implementation of the Spectrum Pricing Review with other reviews:** The ACMA and government are undertaking a number of reviews and reforms. The ACMA sees great benefit in coordinating the implementation of the Spectrum Pricing Review with other reviews. This will ensure that the ACMA can coordinate discussions with stakeholders and ensure consistency of pricing.

⁵ This is also relevant for cost recovery initiatives relating to spectrum licensing.

Work program

Stream of work	Description	Timing
Response to submissions paper	<p>Release of the response to submissions paper confirming the Spectrum Pricing Guidelines and announcing the first round of consultation on changes to apparatus licence tax rates. These changes relate to:</p> <ul style="list-style-type: none"> > New location weightings for services above 5 GHz (Focus Area 1). > Introducing a systems approach for co-located earth station (Focus Area 1). There was strong support for this focus area, particularly from the space and satellite industry which can use large bandwidths across multiple stations with little or no additional denial of spectrum. The feedback suggests that changes in pricing may increase deployments and would be consistent with the government's space strategy. > A new low-power discount to promote the efficient use of spectrum (Focus Area 2). 	<p>December 2020 consultation paper.</p>
Consistency of pricing approach across geographic areas and bands.	<p>We are considering how to best develop new location weightings for services below 5 GHz, including considering new approaches to representing differences in value in spectrum across geographic locations and reviewing frequency bands. This is effectively the review of the tax formula recommended by Recommendation 7 of the Spectrum Pricing Review. Major features of the review include:</p>	<p>Series of short quarterly papers or presentations seeking views on different approaches in March and June 2021.</p>

Stream of work	Description	Timing
(Broader review of taxes)	<ul style="list-style-type: none"> > Identifying the best approach to reviewing density areas and/or alternatives to density areas. > Identifying an approach to reviewing the frequency ranges. > Considering approaches to monitoring bands and keeping taxes up to date. 	September 2021 consultation paper proposing new approach to geographic areas and bands.
Consistency of pricing approach across services using similar spectrum	<p>Given the disparity between commercial broadcasting taxes and the apparatus licence taxes for narrowcasting licences, and that narrowcasters are facing some of the same commercial pressures as commercial broadcasters, there is an argument to consider potential changes to these taxes.</p> <p>We will explore the apparatus licence taxation arrangements for narrowcasting in light of the proposals and recommendations of the commercial broadcasting tax review currently being conducted.</p> <p>Other reviews of differences in tax rates may also be appropriate to account for other differences in pricing. For example, some submitters noted the difference in pricing arrangements for MSS and TOBS and P2MP in the current tax regime.</p>	This work is independent of the broader review of taxes and will be undertaken as a priority but in parallel with the review of the commercial broadcasting tax arrangements.
New technologies and trials	Considering whether pricing initiatives for scientific licensing can be aligned with the ACMA's consideration of licensing issues associated with scientific licensing.	Consideration of this work will be aligned with the project concerning scientific licensing.

Stream of work	Description	Timing
Transparency and ease of calculating taxes	<p>The ACMA is currently implementing AWL initiatives including a tax calculator. The ACMA will use feedback on this calculator in developing new calculators for other licences.</p> <p>We will also review the format of the Apparatus Licence Fee Schedule to include a longer history of price changes so that stakeholders can see the evolution of prices over time.</p>	April 2021 to coincide with the changes to licence taxes for inflation.
FYSO updates	Identifying other opportunity cost pricing initiatives. This will be an ongoing process.	Updates to be included in future editions of the FYSO.

For each stream of work, the ACMA notes it may be appropriate to expand its scope to take into account feedback from industry from the individual consultation processes.

Issues for comment

As noted in the work program, we are consulting on the first round of changes to apparatus licence taxes as a result of implementing the Spectrum Pricing Review.

The ACMA is proposing amendments to two determinations that relate to the apparatus licence tax calculations. These taxes are imposed in relation to apparatus (transmitter and receiver) licences. The determinations (collectively referred to in this paper as ‘the tax determinations’) are the:

- > Radiocommunications (Transmitter Licence Tax) Determination 2015 (the Transmitter Licence Tax Determination)
- > Radiocommunications (Receiver Licence Tax) Determination 2015 (the Receiver Licence Tax Determination).

The proposed changes to apparatus licence taxes are as follows:

- > As part of the review of location weights and in recognition of Focus Area 1 of the implementation of the Spectrum Pricing Review, the ACMA has developed new location weights for the tax formula for service above 5 GHz. In short this will reduce apparatus licence taxes for services where the taxes are calculated by the tax formula above 5 GHz by as much as 90%.
- > A ‘systems’ approach to antenna farms being used for multiple satellite systems all operating on the same frequency range and under a single operator. The ACMA proposes a systems approach for earth stations with multiple co-located, co-frequency antennas, managed under the same licence. This proposal recognises that additional antennas to these sites do not significantly add to spectrum denial.
- > The ACMA is proposing a new low power discount to encourage the use of the ‘Enclosed and Short-range Digital Service’, which is the smallest land mobile service model in the RALI LM8. The ACMA is proposing a new low power discount for land mobile licence of 95%.

Further information is available in Appendices A, B and C.

This consultation does not ask specific questions. However, the ACMA welcomes comment from interested stakeholders on the issues raised in this paper or any other issues relevant to the:

- > proposed work program
- > first round of changes to apparatus licence taxes as a result of implementing the Spectrum Pricing Review outlined in this section and Appendices A, B and C.

Invitation to comment

Making a submission

The ACMA invites comments on the issues set out in this paper.

- > [Online submissions](#) can be made via the comment function or by uploading a document. Submissions in Microsoft Word or Rich Text Format are preferred.
- > Submissions by post can be sent to:
 - The Manager
 - Economics Advisory
 - Australian Communications and Media Authority
 - PO Box 13112 Law Courts
 - Melbourne Victoria 8010

The closing date for submissions is **Thursday, 18 February 2021**.

Consultation enquiries can be emailed to spectrumpricing@acma.gov.au.

Publication of submissions

The ACMA publishes submissions on our website, including personal information (such as names and contact details), except for information that you have claimed (and we have accepted) is confidential.

Confidential information will not be published or otherwise released unless required or authorised by law.

Privacy

View information about our policy on the [publication of submissions](#), including collection of personal information during consultation and how we handle that information.

Information on the *Privacy Act 1988*, how to access or correct personal information, how to make a privacy complaint and how we will deal with the complaint, is available in our [privacy policy](#).

Appendix A: Process for deriving the new location weightings

The ACMA compared satellite prices with other jurisdictions (Canada, France, Germany, HK, Luxembourg, NZ, Singapore, UAE, UK and US) and is proposing to reduce location weights to bring Australian satellite prices closer to prices in other jurisdictions.

When reducing the weights the ACMA also compared prices of point to point licences (another major service that uses high frequency spectrum) with Canada, the UK, and New Zealand to check that the proposed changes to location weights were broadly consistent with like services in other countries.

These simple comparisons implied that we could reduce weightings in the >14.5 to 31.3 GHz band and higher frequency ranges to 10% of the current weightings. Given the shorter propagation and higher reuse for these higher frequencies, the ACMA proposes graduated reductions to weights in the >8.5 to 14.5 GHz band of 50%, and 25% for the >5.0 to 8.5 GHz bands.

While the analysis focused on satellite services, the proposed weightings would apply to all services where the taxes are calculated using the apparatus licence tax formula.⁶

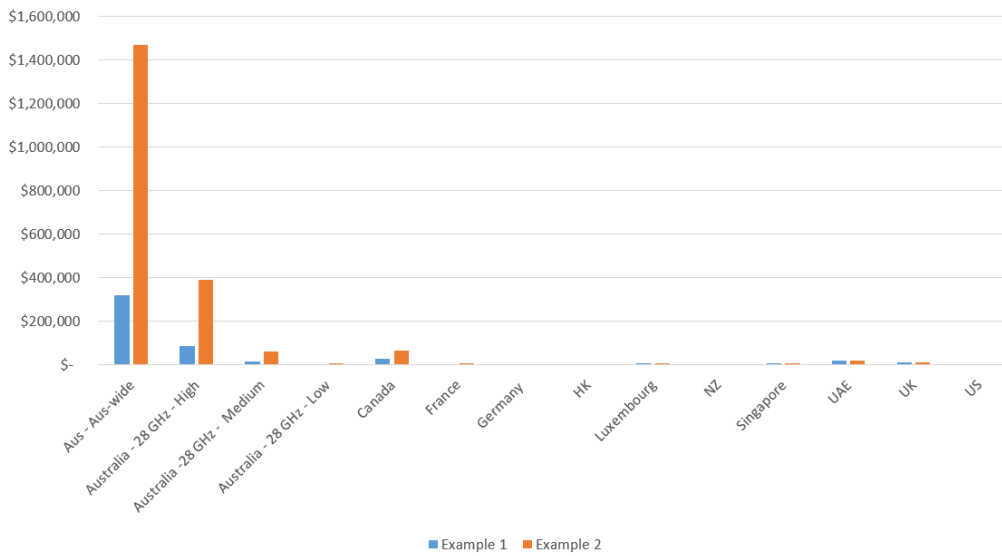
Figure 1 illustrates an international price comparison of two typical earth station services in the >14.5 to 31.3 GHz band using current weightings:

- > Example 1: 18 GHz Receive / 28 GHz transmit – 216 MHz bandwidth, 500W transmission power.
- > Example 2: 18 GHz Receive / 28 GHz transmit – 1000 MHz bandwidth, 500W transmission power.

Figure 1 shows that current taxes for these examples in Australia for Australia-wide, high-density, and medium density areas are significantly higher compared with other countries.

⁶ For Space and Earth station licences (both transmit and receive), the frequency ranges are >8.5 to 17.3 GHz and >17.3 to 31.3 GHz. For these services and frequency ranges the weighting will be 50% for >8.5 to 17.3 GHz and 10% for >17.3 to 31.3 GHz of the current location weightings respectively.

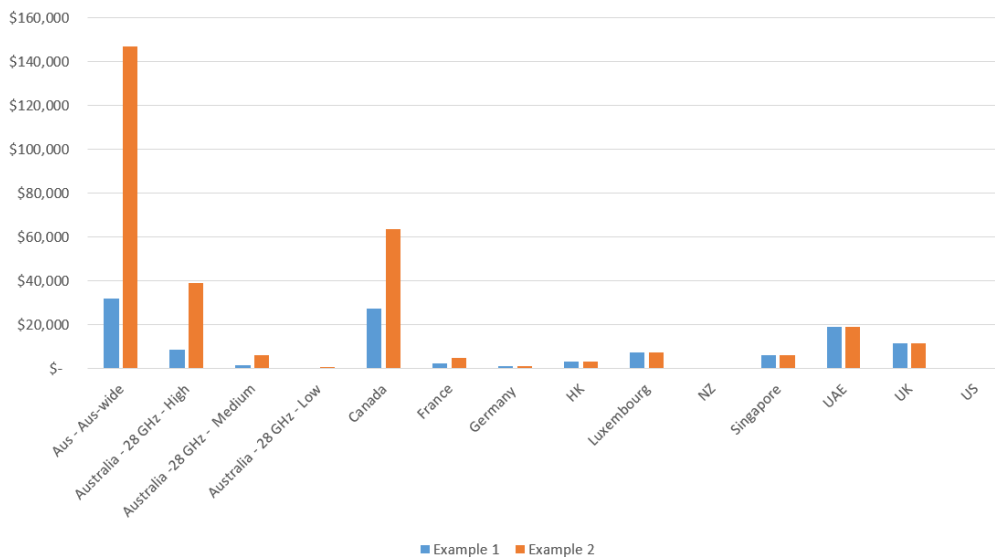
Figure 1: International comparison – current weightings



Source: ACMA analysis.

Figure 2 illustrates the impact of the proposed weightings on the international price comparison of the same two earth station services in the >14.5 to 31.3 GHz band. These proposed weightings would result in Australian licence taxes that are much closer to other countries, noting that variances in taxes do occur across different countries.

Figure 2: International comparison – proposed weightings



Source: ACMA analysis.

Appendix B: Micro service pricing and a systems approach to earth stations

Additional discount for land-mobile ‘micro’ service model

The Australian Radio Communications Industry Association (ARCIA) advocated for a new price discount to encourage the use of the ‘Enclosed and Short-range Digital Service’ which is the smallest land mobile service model in the [LM8 RALI](#). RALI LM8 allows for two low-power land mobile service models; one with a 2 km service radius and a smaller service model with a 0.2 km radius, allowing for more frequency reuse in high density areas. The ACMA incentivises these models with the low power discount (90% discount); however, ARCIA suggested that a separate discount for the smallest service model would encourage more efficient spectrum use.

The ACMA agrees with the ARCIA assessment that the low power allocation for these Enclosed and Short-range Digital Services equates to a coverage area of around ~4-5% of a standard land mobile radio system service (according to ARCIA) and proposes a price discount (95%) to encourage more use of the smallest service model.

Table 2: Land mobile services models and price factors

Land mobile service model	Notional service area radius (km)	Reuse distance (km)	Price factor
Land mobile radio systems (LMRS)	40	~100	1
Low-power land mobile radio systems (LPMRS)	2	10	0.1
‘Micro’ model (Enclosed and short-range digital service)	0.2	0.5	0.1 (current) 0.05 (proposed)

Systems price for earth stations

The ACMA proposes a ‘systems’ price for apparatus licences with multiple co-located co-frequency earth stations (GSO or NGSO) communicating with related ITU satellite filings, without additional licensing taxes. This means that the price for the earth station ‘system’ will be the same as a single earth station with the same technical characteristics. This proposal recognises that additional antennas to these sites do not significantly add to the spectrum denial. This aims to encourage efficient earth station deployment (much like the existing 30% co-location discount does). Figure 3 provides an example of the systems approach for antenna farms.

Figure 3: Example of the systems approach for antenna farms

A non-geostationary satellite orbit (NGSO) earth station transmitter located in Melbourne (a high-density area) using 500MHz in the 8.5-17.3 GHz range will pay an apparatus licence tax of $\$0.3780 \times 500,000 = \$189,000$.

If that same NGSO earth station was co-located with 9 other co-frequency earth stations with the same technical specifications as above, authorised under the same licence, current licensing/pricing arrangements allows a 30% co location discount for each subsequent antenna and the licensee would be due to pay $\$189,000 + 189,000 \times 8 \times 0.7 = \$1,247,400$. Despite the co-location discount, this is still a substantial additional cost given the efficient network configuration.

Under the 'system' approach, all 9 earth stations would need to be registered as separate spectrum accesses, but the combined system price would be $\$189,000$.

The proposal above is a convenient pricing construct for co-location of multiple earth stations operated under a single licence but is unlikely to be convenient for co-location of earth stations managed by different licensees due to administrative coordination costs. For these instances, the 30% co-location discount factor still applies.

Appendix C: Proposed apparatus licence tax rates

The ACMA allocates access to the radiofrequency spectrum through one of 3 licence types: spectrum, apparatus or class licences. The Apparatus Licence Fee Schedule published by the ACMA describes the rationale for apparatus licence fees and provides the necessary information for licensees to calculate their own fees. The publication is intended as a guide only and is updated periodically – the latest version can be found on the [ACMA website](#).

The Apparatus Licence Fee Schedule notes not only tax rates but charges as well.⁷ As this response to submissions paper focuses on changes to apparatus licence tax rates information about charges is not included in the following.

Proposed changes

Annual licence taxes are generally calculated by a licence tax formula that will consider several variables including a normalisation factor, bandwidth, power, location weighting, and adjustment factor. More information regarding the licence tax formula is available in the Apparatus licence fee schedule.

The tables in this appendix show the impact of the proposed changes to the normalisation factor and to location weightings for services in bands above 5 GHz as discussed in this response paper.

Table 34 of the Apparatus Licence Fee Schedule below shows location weighting.

Spectrum location	Geographic location									
	Australia-wide		High density		Medium density		Low density		Remote density	
	Current	Proposed	Current	Proposed	Current	Proposed	Current	Proposed	Current	Proposed
0 to 30 MHz	4.3150	4.3150	4.3150	4.3150	4.3150	4.3150	4.3150	4.3150	4.3150	4.3150
>30 to 70 MHz	9.7470	9.7470	3.8070	3.8070	2.0250	2.0250	0.4370	0.4370	0.2180	0.2180
>70 to 399.9 MHz	10.0000	10.0000	4.1040	4.1040	1.8780	1.8780	0.4210	0.4210	0.2100	0.2100
>399.9 to 403 MHz	10.0000	10.0000	5.6000	5.6000	2.5620	2.5620	0.4370	0.4370	0.2180	0.2180
> 403 to 520 MHz	10.0000	10.0000	7.4114	7.4110	2.5620	2.5620	0.4370	0.4370	0.0000	0.0000
> 520 to 960 MHz	10.0000	10.0000	5.6000	5.6000	2.5620	2.5620	0.4370	0.4370	0.2180	0.2180
>960 to 2,690 MHz	9.9850	9.9850	2.2410	2.2410	1.0360	1.0360	0.5210	0.5210	0.2600	0.2600
>2.69 to 5.0 GHz	9.9740	9.9740	1.8530	1.8530	0.7510	0.7510	0.6220	0.6220	0.3110	0.3110
>5.0 to 8.5 GHz	8.4210	6.3158	1.5570	1.1678	0.7250	0.5438	0.3300	0.2475	0.1600	0.1200
>8.5 to 14.5 GHz	3.7110	1.8555	1.3360	0.6680	0.3160	0.1580	0.0230	0.0115	0.0110	0.0055
>14.5 to 31.3 GHz	3.7110	0.3711	0.9880	0.0988	0.2170	0.0217	0.0230	0.0023	0.0110	0.0011
>31.3 to 51.4 GHz	1.0120	0.1012	0.5390	0.0539	0.1170	0.0117	0.0040	0.0004	0.0020	0.0002
>51.4 GHz	0.1000	0.0100	0.0100	0.0010	0.0100	0.0010	0.0010	0.0001	0.0010	0.0001

⁷ As users of spectrum are likely to be more familiar with the ACMA's apparatus licence fee schedule, the proposed changes to tax rates referred to in this appendix are expressed using the table references from the schedule, rather than relevant tax determinations.

Effect on licence taxes

As a result of the ACMA's proposed changes to the table of location weightings, the annual licence tax for a range of spectrum uses will also be subject to change. These changes are detailed in the tables below with table number references mirroring those currently set out in the Apparatus licence fee schedule and the tax determinations, taking into account adjustments for inflation of -0.3%. There may be marginal differences in the taxes determined due to rounding.

Division 1 of the Apparatus Licence Fee Schedule – generally assigned licences

Table 3 of the Apparatus Licence Fee Schedule. Annual licence tax (\$ per kHz).*

Spectrum location	Geographic location									
	Australia-wide		High density		Medium density		Low density		Remote density	
	Current	Proposed	Current	Proposed	Current	Proposed	Current	Proposed	Current	Proposed
0 to 30 MHz	1.2209	1.2172	1.2209	1.2172	1.2209	1.2172	1.2209	1.2172	1.2209	1.2172
>30 to 70 MHz	2.7579	2.7496	1.0772	1.0739	0.5730	0.5712	0.1236	0.1233	0.0617	0.0615
>70 to 399.9 MHz	2.8295	2.8210	1.1612	1.1577	0.5314	0.5298	0.1191	0.1188	0.0594	0.0592
>399.9 to 403 MHz	2.8295	2.8210	1.5845	1.5797	0.7249	0.7227	0.1236	0.1233	0.0617	0.0615
> 403 to 520 MHz	2.8295	2.8210	2.0970	2.0906	0.7249	0.7227	0.1236	0.1233	0.0000	0.0000
> 520 to 960 MHz	2.8295	2.8210	1.5845	1.5797	0.7249	0.7227	0.1236	0.1233	0.0617	0.0615
>960 to 2,690 MHz	2.8252	2.8167	0.6341	0.6322	0.2931	0.2923	0.1474	0.1470	0.0736	0.0733
>2.69 to 5.0 GHz	2.8221	2.8136	0.5243	0.5227	0.2125	0.2119	0.1760	0.1755	0.0880	0.0877
>5.0 to 8.5 GHz	2.3827	1.7817	0.4405	0.3294	0.2051	0.1534	0.0934	0.0698	0.0453	0.0339
>8.5 to 14.5 GHz	1.0500	0.5234	0.3780	0.1884	0.0894	0.0446	0.0065	0.0032	0.0031	0.0016
>14.5 to 31.3 GHz	1.0500	0.1047	0.2796	0.0279	0.0614	0.0061	0.0065	0.0006	0.0031	0.0003
>31.3 to 51.4 GHz	0.2863	0.0285	0.1525	0.0152	0.0331	0.0033	0.0011	0.0001	0.0006	0.0001
>51.4 GHz	0.0283	0.0028	0.0028	0.0003	0.0028	0.0003	0.0003	0.0000	0.0003	0.0000

* These taxes relate to Table 202 in the Transmitter Licence Tax Determination and Table 202 of the Receiver Licence Tax Determination.

Division 1A: Scientific assigned licences

Table 6 of the Apparatus Licence Fee Schedule. Annual licence tax (\$ per kHz).*

Spectrum location	Geographic location									
	Australia-wide		High density		Medium density		Low density		Remote density	
	Current	Proposed	Current	Proposed	Current	Proposed	Current	Proposed	Current	Proposed
0 to 30 MHz	0.1221	0.1217	0.1221	0.1217	0.1221	0.1217	0.1221	0.1217	0.1221	0.1217
>30 to 70 MHz	0.2758	0.2750	0.1077	0.1074	0.0573	0.0571	0.0124	0.0123	0.0062	0.0061
>70 to 399.9 MHz	0.2829	0.2821	0.1161	0.1158	0.0531	0.0530	0.0119	0.0119	0.0059	0.0059
>399.9 to 403 MHz	0.2829	0.2821	0.1584	0.1580	0.0725	0.0723	0.0124	0.0123	0.0062	0.0061
> 403 to 520 MHz	0.2829	0.2821	0.2097	0.2091	0.0725	0.0723	0.0124	0.0123	0.0000	0.0000
> 520 to 960 MHz	0.2829	0.2821	0.1584	0.1580	0.0725	0.0723	0.0124	0.0123	0.0062	0.0061
>960 to 2,690 MHz	0.2825	0.2817	0.0634	0.0632	0.0293	0.0292	0.0147	0.0147	0.0074	0.0073
>2.69 to 5.0 GHz	0.2822	0.2814	0.0524	0.0523	0.0212	0.0212	0.0176	0.0175	0.0088	0.0088
>5.0 to 8.5 GHz	0.2383	0.1782	0.0441	0.0329	0.0205	0.0153	0.0093	0.0070	0.0045	0.0034
>8.5 to 14.5 GHz	0.1050	0.0523	0.0378	0.0188	0.0089	0.0045	0.0007	0.0003	0.0003	0.0002
>14.5 to 31.3 GHz	0.1050	0.0105	0.0280	0.0028	0.0061	0.0006	0.0007	0.0001	0.0003	0.0000
>31.3 to 51.4 GHz	0.0286	0.0029	0.0153	0.0015	0.0033	0.0003	0.0001	0.0000	0.0001	0.0000
>51.4 GHz	0.0028	0.0003	0.0003	0.0000	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000

* These taxes relate to Table 206 in the Transmitter Licence Tax Determination.

Division 2 of the Apparatus Licence Fee Schedule – fixed point-to-point licences

Table 9 of the Apparatus Licence Fee Schedule. Annual licence tax (\$ per kHz).*

Spectrum location	Geographic location									
	Australia-wide		High density		Medium density		Low density		Remote density	
	Current	Proposed	Current	Proposed	Current	Proposed	Current	Proposed	Current	Proposed
0 to 30 MHz	22.5674	22.4997	22.5674	22.4997	22.5674	22.4997	22.5674	22.4997	14.3301	14.2871
>30 to 70 MHz	50.9768	50.8239	19.9106	19.8509	10.5907	10.5590	2.2855	2.2787	0.7240	0.7218
>70 to 399.9 MHz	52.3000	52.1431	21.4639	21.3995	9.8219	9.7925	2.2018	2.1952	0.6974	0.6953
>399.9 to 403 MHz	52.3000	52.1431	29.2880	29.2001	13.3993	13.3591	2.2855	2.2787	0.7240	0.7218
> 403 to 520 MHz	52.3000	52.1431	38.7616	38.6432	13.3993	13.3591	2.2855	2.2787	0.0000	0.0000
> 520 to 960 MHz	52.3000	52.1431	29.2880	29.2001	13.3993	13.3591	2.2855	2.2787	0.7240	0.7218
>960 to 2,690 MHz	1.2344	1.2307	0.2771	0.2762	0.1281	0.1277	0.0644	0.0642	0.0321	0.0320
>2.69 to 5.0 GHz	1.2331	1.2294	0.2291	0.2284	0.0928	0.0926	0.0769	0.0767	0.0384	0.0383
>5.0 to 8.5 GHz	1.0411	0.7785	0.1925	0.1439	0.0896	0.0670	0.0408	0.0305	0.0198	0.0148
>8.5 to 14.5 GHz	0.4588	0.2287	0.1652	0.0823	0.0391	0.0195	0.0028	0.0014	0.0014	0.0007
>14.5 to 31.3 GHz	0.4588	0.0457	0.1221	0.0122	0.0268	0.0027	0.0028	0.0003	0.0014	0.0001
>31.3 to 51.4 GHz	0.1251	0.0125	0.0666	0.0066	0.0145	0.0014	0.0005	0.0000	0.0002	0.0000
>51.4 GHz	0.0124	0.0012	0.0012	0.0001	0.0012	0.0001	0.0001	0.0000	0.0001	0.0000

* These taxes relate to Table 402 in the Transmitter Licence Tax Determination and Table 302 of the Receiver Licence Tax Determination.

Divisions 3 of the Apparatus Licence Fee Schedule – fixed point-to-multipoint licences

Table 12 of the Apparatus Licence Fee Schedule. Annual licence tax (\$ per kHz).*

Spectrum location	Geographic location									
	Australia-wide		High density		Medium density		Low density		Remote density	
	Current	Proposed	Current	Proposed	Current	Proposed	Current	Proposed	Current	Proposed
0 to 30 MHz	90.2690	89.9990	90.2698	89.9990	90.2698	89.9990	90.2698	89.9990	56.5913	56.4214
>30 to 70 MHz	203.9072	203.2955	79.6424	79.4035	42.3630	42.2359	9.1420	9.1146	2.8591	2.8505
>70 to 399.9 MHz	209.2000	208.5724	85.8557	85.5981	39.2878	39.1699	8.8073	8.7809	2.7542	2.7459
>399.9 to 403 MHz	209.2000	208.5724	117.1520	116.8005	53.5970	53.4362	9.1420	9.1146	2.8591	2.8505
> 403 to 520 MHz	209.2000	208.5724	155.0465	154.5730	53.5970	53.4362	9.1420	9.1146	0.0000	0.0000
> 520 to 960 MHz	209.2000	208.5724	117.1520	116.8005	53.5970	53.4362	9.1420	9.1146	2.8591	2.8505
>960 to 2,690 MHz	1.2344	1.2307	0.2771	0.2762	0.1281	0.1277	0.0644	0.0642	0.0321	0.0320
>2.69 to 5.0 GHz	1.2331	1.2294	0.2291	0.2284	0.0928	0.0926	0.0769	0.0767	0.0384	0.0383
>5.0 to 8.5 GHz	1.0411	0.7785	0.1925	0.1439	0.0896	0.0670	0.0408	0.0305	0.0198	0.0148
>8.5 to 14.5 GHz	0.4588	0.2287	0.1652	0.0823	0.0391	0.0195	0.0028	0.0014	0.0014	0.0007
>14.5 to 31.3 GHz	0.4588	0.0457	0.1221	0.0122	0.0268	0.0027	0.0028	0.0003	0.0014	0.0001
>31.3 to 51.4 GHz	0.1251	0.0125	0.0666	0.0066	0.0145	0.0014	0.0005	0.0000	0.0002	0.0000
>51.4 GHz	0.0124	0.0012	0.0012	0.0001	0.0012	0.0001	0.0001	0.0000	0.0001	0.0000

* These taxes relate to Table 502 in the Transmitter Licence Tax Determination. Table 15 of the apparatus licence fee schedule sets out taxes for 'assigned licences in high frequency bands' for frequency ranges up to 960 MHz. The taxes in Table 15 are the same as Table 12 for the same frequency range. However, the taxes in Table 15 relate to Table 302 of the Transmitter Licence Tax Determination. For taxes determined in Table 302, similar reductions of 25% to 90% apply to taxes for services operating in frequency ranges greater than 5 GHz as outlined in this paper.

Division 5 of the Apparatus Licence Fee Schedule – television outside broadcast licences

Table 19 of the Apparatus Licence Fee Schedule. Annual licence tax television outside broadcast station (\$ per kHz).*

Spectrum location	Geographic location									
	Australia-wide		High density		Medium density		Low density		Remote density	
	Current	Proposed	Current	Proposed	Current	Proposed	Current	Proposed	Current	Proposed
>960 to 2,690 MHz	1.4494	1.4450	0.3253	0.3243	0.1504	0.1499	0.0756	0.0754	0.0377	0.0376
>2.69 to 5.0 GHz	1.4478	1.4434	0.2690	0.2682	0.1090	0.1087	0.0903	0.0900	0.0451	0.0450
>5.0 to 8.5 GHz	1.2223	0.9140	0.2260	0.1690	0.1052	0.0787	0.0479	0.0358	0.0232	0.0174
>8.5 to 14.5 GHz	0.5387	0.2685	0.1939	0.0967	0.0459	0.0229	0.0033	0.0017	0.0016	0.0008
>14.5 to 31.3 GHz	0.5387	0.0537	0.1434	0.0143	0.0315	0.0031	0.0033	0.0003	0.0016	0.0002
>31.3 to 51.4 GHz	0.1469	0.0146	0.0782	0.0078	0.0170	0.0017	0.0006	0.0001	0.0003	0.0000
>51.4 GHz	0.0145	0.0014	0.0015	0.0001	0.0015	0.0001	0.0001	0.0000	0.0001	0.0000

* These taxes relate to Table 602 in the Transmitter Licence Tax Determination.

Division 8A of the Apparatus Licence Fee Schedule – space system licences

Table 26 of the Apparatus Licence Fee Schedule. Annual licence tax (\$ per kHz).*

Spectrum location	Geographic location									
	Australia-wide		High density		Medium density		Low density		Remote density	
	Current	Proposed	Current	Proposed	Current	Proposed	Current	Proposed	Current	Proposed
0 to 30 MHz	1.2209	1.2172	1.2209	1.2172	1.2209	1.2172	1.2209	1.2172	1.2209	1.2172
>30 to 70 MHz	2.7579	2.7496	1.0772	1.0739	0.5730	0.5712	0.1236	0.1233	0.0617	0.0615
>70 to 399.9 MHz	2.8295	2.8210	1.1612	1.1577	0.5314	0.5298	0.1191	0.1188	0.0594	0.0592
>399.9 to 403 MHz	2.8295	2.8210	1.5845	1.5797	0.7249	0.7227	0.1236	0.1233	0.0617	0.0615
> 403 to 520 MHz	2.8295	2.8210	2.0970	2.0906	0.7249	0.7227	0.1236	0.1233	0.0000	0.0000
> 520 to 960 MHz	2.8295	2.8210	1.5845	1.5797	0.7249	0.7227	0.1236	0.1233	0.0617	0.0615
>960 to 2,690 MHz	2.8252	2.8167	0.6341	0.6322	0.2931	0.2923	0.1474	0.1470	0.0736	0.0733
>2.69 to 5.0 GHz	2.8221	2.8136	0.5243	0.5227	0.2125	0.2119	0.1760	0.1755	0.0880	0.0877
>5.0 to 8.5 GHz	2.3827	1.7817	0.4405	0.3294	0.2051	0.1534	0.0934	0.0698	0.0453	0.0339
>8.5 to 17.3 GHz	1.0500	0.5234	0.3780	0.1884	0.0894	0.0446	0.0065	0.0032	0.0031	0.0016
>17.3 to 31.3 GHz	0.7350	0.0733	0.1957	0.0195	0.0307	0.0031	0.0033	0.0003	0.0000	0.0000
>31.3 to 51.4 GHz	0.2004	0.0200	0.1068	0.0106	0.0166	0.0017	0.0006	0.0001	0.0000	0.0000
>51.4 GHz	0.0283	0.0028	0.0028	0.0003	0.0028	0.0003	0.0003	0.0000	0.0003	0.0000

* These taxes relate to Table 802A in the Transmitter Licence Tax Determination and Table 402 of the Receiver Licence Tax Determination.