

**COMMUNICATIONS  
ALLIANCE LTD**



**COMMUNICATIONS ALLIANCE  
SATELLITE SERVICES WORKING GROUP (SSWG)**

SUBMISSION

to the

Australian Communications and Media Authority's  
(ACMA)

Response to implementation of the Spectrum  
Pricing Review - Consultation follow-up and  
consideration of submissions

18 February 2021

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## EXECUTIVE SUMMARY

The Communications Alliance Satellite Services Working Group (SSWG) welcomes the opportunity to provide comments to the ACMA *Response to implementation of the Spectrum Pricing Review - Consultation follow-up and consideration of submissions Paper*.

The SSWG acknowledges the significant resources and good-faith effort that the ACMA has devoted to formulating proposals in this area and consulting on them with stakeholders.

In summary the SSWG:

- applauds the thrust of the ACMA's proposal to significantly reduce many of the apparatus licence taxes applicable to satellite services – an initiative that will improve the global competitiveness of Australian services;
- has highlighted areas where price reductions are not proposed, but where the SSWG believes such reductions would benefit Australian satellite service users and promote further investment; and
- has proposed some further innovation and flexibility in a number of aspects of antenna licence design and technology trials.

The SSWG notes that many of its members will be submitting independent response to this consultation.

### **About Communications Alliance**

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

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

## 1. Introduction

The Communications Alliance Satellite Services Working Group (SSWG) applauds the ACMA's proposal in the *Response to implementation of the Spectrum Pricing Review* to significantly reduce the apparatus licence taxes applicable to satellite services, especially for those operating above 5 GHz, ranging between 25% to 90%. This is a good first step in moving the pricing of such licences to more realistic levels in comparison to Australia's international peers. This is essential if Australia is to build a globally competitive space industry.

As the SSWG has previously demonstrated, Australia's pricing of apparatus licences for satellite services has been considerably higher (often by orders of magnitude) than those in comparable countries, which suggests that a substantial reduction was in order. The SSWG is pleased that the ACMA has recognized this and is proposing significant reductions. However, more can be done. ACMA's own comparison of international pricing shows that Australia's apparatus licensing fees remain high relative to its peers, even after the proposed reductions.

Even after the proposed 90% reduction in the case of spectrum between 14.5-31.3 GHz, Australia's satellites licensing fees are more than double those in some jurisdictions, and up to 7 times those in the UAE. For spectrum below 14.5 GHz, for which existing fees are already substantially higher than those above 14.5 GHz, the ACMA has proposed lesser reductions of 0% (below 5 GHz), 25% (between 5-8.5 GHz) and 50% (between 8.5-14.5 GHz). This means that the satellite spectrum pricing gap between Australia and its international peers will remain very high in those lower bands (even greater than in spectrum above 14.5 GHz). In addition, the smaller reductions to the higher fees for spectrum below 14.5 GHz vs. the larger reductions to the lower fees for spectrum above 14.5 GHz threatens to distort competition in Australia among satellite services using different frequency bands. These two factors presently combine to detract from Australia as an attractive destination for space investments.

Instead of lesser reductions in bands below 14.5 GHz, the SSWG recommends that the ACMA consider (1) further reducing the baseline fees for satellite services in all bands – spread out over time, if necessary – in order to improve Australia's international competitiveness, and (2) applying the same (or at least comparably similar) percentage reductions for satellite spectrum below by 14.5 GHz as for bands above 14.5 GHz in order to avoid unfairly distorting competition. The baseline prices below 14.5 GHz were already higher than those above 14.5 GHz, so a percentage reduction that was the same (or very similar) across the board would continue to maintain such valuation differences as the ACMA may conclude is relevant across the different bands.

For example, ACMA's proposed 90% reduction for Ka-band (above 14.5 GHz) could even be extended to a 95-96% reduction and flow through to the bands below 14.5 GHz. This further reduction would bring pricing better into line internationally and make Australia competitive. The reduction is also justified by orbital sharing by satellites which, at defined angular separations, avoids interference amongst satellite services and thereby allows operators to re-use spectrum – a very efficient process which is not available to terrestrial transmitters/receivers and which is not currently credited to the fixed satellite service. Given that this reusability applies also to satellite spectrum below 14.5 GHz as above 14.5 GHz, there is no reason why the proposed reductions should be less below 14.5 GHz as above 14.5 GHz. There is also no reason in principle why the proposed fee reductions should only start at 5 GHz, especially if the ACMA is going to require more sharing between satellite and terrestrial services in those bands. A more realistic across-the-board reduction for satellite pricing will also ensure that ACMA is not overcharging the market by collecting from each of a number of satellite service providers extraordinarily high fees to use the same spectrum.

For further information on international price comparisons, please refer to the data provided by the SSWG in its July 2020 [submission](#) to the ACMA's consultation on 'Implementation of the Spectrum Pricing Review – Proposed guidelines and focus areas for change'.

Sharing is recognised amongst earth stations within the document as an influence on future spectrum pricing, as a 'systems price' and this is strongly supported. It relies on the same basis of angular separation of satellites in the orbital arc which avoids interference in a given frequency range.

The ACMA gives credence to opportunity cost pricing (OCP) as a fundamental principle and this can allegedly reflect both the commercial value and the public benefit of services and therefore promote the efficient allocation of spectrum. The SSWG looks forward to the ACMA's intellectual demonstration of this, and to participating in the consultations associated with these difficult exercises.

On the commercial side, great care needs to be made with normalisation of the comparisons between satellite and terrestrial services – for the above sharing considerations - given that the next best thing to a satellite formulation might well be a terrestrial service (and how OCP principles would apply). Perhaps more difficult is the application of OCP principles to social or public benefit. To the SSWG's knowledge this has yet to be satisfactorily achieved in the world and the ACMA has set itself a useful target if it can be achieved successfully.

Finally, a parallel pricing development has been provided with the recent pricing of Area Wide Licences in 26/28 GHz. These have also seen significant reductions in the price of spectrum for satellite systems, for many of the same reasons - and which the SSWG has supported. It would be useful to make a comparison of reductions for equivalence purposes and consistency.

## **2. Issues for comment**

The SSWG notes that in the SSWG work program, the ACMA is consulting on the first round of changes to apparatus licence taxes as a result of implementing the Spectrum Pricing Review, proposing amendments to the following two determinations:

- 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 1) new location weights for the tax formula for service above 5 GHz, 2) a 'systems' approach to antenna farms being used for multiple satellite systems all operating on the same frequency range and under a single operator, and 3), a new low power discount to encourage the use of the 'Enclosed and Short-range Digital Service'. The first two proposed changes are the subject of the following comments.

## **3. The Tax formula**

Recommendation 7 of the *Spectrum Pricing Review* recommends that the ACMA review the apparatus licence tax formula.

The ACMA's proposal to change aspects of the tax formula in response to comments is welcome. The ACMA's proposal to allow for a 'systems' approach for 'earth stations with

multiple co-located, co-frequency antennas, managed under the same licence' is an appropriate step.

Additionally, while the proposed change to the tax formula for services above 5 GHz is satisfactory, the determination to only reduce apparatus licence taxes above 5 GHz appears arbitrary. The ACMA has not explained why this requirement should not equally apply to services in the lower bands, especially for satellite services.

In relation to the proposed changes for bands above 5 GHz, the SSWG has examined the impact on each of the bands defined in the Division 8A Table and offers the following observations:

- a) The proposed reductions are a very good step in the right direction and serve to bring spectrum access charges closer to the charges that apply in other countries.
- b) Noting the fact that the relative tax rates for the different population density areas as currently defined are common to both terrestrial and satellite services and have been used for an extended time, it is accepted that a more extensive overhaul that might change these relativities might be problematic and thus not worthwhile attempting.
- c) Deliberations on proposed changes in weighting for the different frequency ranges in the Table above 5 GHz appear to concentrate on bands above 17.3 GHz leading to unjustifiable differentials in cost between those bands and lower bands, particularly those below 5 GHz which have not been considered.
- d) It would be reasonable to further adjust the weightings to end up with differentials that are closer to the current tax rate differentials while at the same time easing the tax burden for bands between 1980 MHz and 31.3 GHz and thereby ensuring that the Australian rates come even closer to those applicable in other countries. This would make Australia competitive at a time when the Government is committed to the future of the space industry.
- e) The ACMA has recently decided that the 2 GHz band be allocated to MSS with a complementary ground component. It is therefore timely that pricing for these bands be investigated, taking into account the ability of MSS to share inter and intra service situations and that these bands be re-entered into the Communicating with Space Objects Class Licence.

Appendix A to this response contains the results of three calculations aimed at illustrating the impact of changes to the weightings for bands above 2.69 GHz in terms of tax differentials between adjacent bands (the premiums for lower bands in terms of % of current rates instead of reductions for the sake of convenience). The first illustrates the premiums resulting from the weighting changes proposed by the ACMA, followed by two variants (Option A & B) that propose modifications in the weightings that are supported by the SSWG membership and deemed worthy of further consideration by the ACMA. Choosing between Option A and Option B can also be supplanted by an Option between them.

#### 4. Spectrum pricing Guidelines

The ACMA has proposed the following five guiding principles for 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):

- Efficient allocation and use of the radiofrequency spectrum (efficiency)
- Consistency and simplicity
- Flexibility and adaptability to technology change
- Transparency in process
- Recovery of the costs of spectrum management

The SSWG believes that the proposals in this submission successfully meet the intent and realisability of the guiding principles

#### 5. Focus Area 1: Large bandwidth and multiple device requirements

The development of Area Wide Licences (AWLs) in (26 and) 28 GHz was eventually well received by the satellite industry. However, subsequently the actual implementation of priority within an AWL where the ACMA issued overlapping licences has not gone smoothly.

The application of the new pricing structure was probably the element of the new concept that won the majority of satellite industry players over.

In practice, the 28 GHz band is paired with the 18 GHz band and other than in populated areas and in 27.5 – 28.1 GHz Fixed Satellite Services (FSS) operate under the *Communicating With Space Objects Class Licence*. In some parts of the 18 GHz band (Earth receive), FSS shares the band with the Fixed Service (FS). This appears to be a satisfactory solution as the probability of interference into FSS from FS is very low, and it is understood to date that NBN has not suffered a single case of interference into its user terminals. However, some operators may wish to protect gateway stations from FS interference. This is probably best done via an AWL at the moment, although it is noted that the actual spectral denial of FSS terminals is low - so other methods could be implemented. The most important outstanding factor is the timely introduction of the new pricing schedule in the 18 GHz band.

#### **Co-located, co-frequency antennas, managed under the same licence**

The ACMA 'systems' proposal, to apply a single fee for earth stations with multiple co-located, co-frequency antennas, managed under the same licence, is good spectrum policy that will encourage satellite deployment in Australia. The ACMA correctly notes that these earth station 'systems' do not appreciably deny spectrum to other users more than a single antenna earth station. This is a particularly important policy decision as many new satellite systems require multiple antenna gateways to support the demand for data intensive satellite applications. and implementing this change will help encourage next generation satellite system operators to deploy services and infrastructure in Australia.

Noting the positive changes to spectrum pricing above 5 GHz, some changes to 'multi-device areas' would be welcomed. For example, within the boundary of a defined area, for example a satellite park, and an airport, a port etc., a single licence could be used to cover all devices within that boundary. Such a system would increase the allocative efficiency of spectrum in these areas and allow consistency and simplicity in managing defined areas where multiple devices are deployed.

In addition, some flexibility is required when a device location is registered. RF environments can change. When a system is installed, a clear view of the sky may exist. However, over time buildings or vegetation (outside the property boundary) may block that path and the device may need to move. Previously, the ACMA and its predecessors adopted a radius of 200 m within which a device could re-locate (site management) and in bands where AWLs are used similar flexibility would allow systems to continue operation without burdensome regulatory procedures.

### **Co-located, co-frequency antennas communicating with different satellites**

The SSWG observes that in a recent review of Earth Station licensing, discounts were introduced for Earth stations which were 'closely located' and accessing the same frequencies but maybe pointing at different satellites and including NGSO constellations. These Maximum Separation Distances' are currently set at 500 m for high density, 1 km for medium density and 2 km for low density locations. Whilst the SSWG applauds the inclusion of the 30% discount, these varying separation distance limits based upon the 'density' do not have any technical basis.

The SSWG therefore suggests that the ACMA review the Maximum Separation Distances and apply the same Maximum Separation Distance proposed to be 2 km, across all density areas.

## **6. Focus Area 2: Sharing and low interference potential devices**

Sharing is a process whereby two or more systems share the burden of operating in a band, unless one or more of those systems is secondary. The ACMA needs to take a holistic approach to this process and ensure the burden is properly shared. There have been instances where a licence type (usually a Spectrum Licence) or a technology (notably FWA in a current consultation on 28 GHz) have been afforded most or all of the benefits of protection at the detriment of the satellite service.

## **7. Focus Area 3: Taxes and opportunity cost pricing**

There are cases, for example the 18 GHz band, where FSS receivers are effectively secondary to FS and gateways need to be licensed in both uplink and downlink to be protected. In such cases it is not appropriate to charge for the blocks of spectrum where FSS are secondary as a part of the space licence bundle. In these cases either the FSS or the terrestrial service is operating based on thorough ITU studies and therefore does not receive harmful interference.

## **8. Focus Area 4: Geographic areas and bands**

The SSWG also wishes to bring up a matter included in previous submissions but which does not appear to be addressed in the current review. SSWG members have encountered a potential anomaly in the charging for Earth and Earth Receive licences in bands which are also available for Space Class licensing. These bands are usually for space services only and are not shared with terrestrial services. However, the ACMA still applies the spectrum charge based on density areas (high, medium, low or remote) applicable to the site in these bands, whilst there is no additional spectrum denial based upon location. The SSWG still believes that a reduced charge should be considered for these cases.

## **9. Focus Area 5: New technologies and trials**

The ACMA suggested one option for the apparatus licence tax for trials of less than two months could be set at the minimum annual tax rate. This option may be a good start to promoting more innovation opportunities to be carried out in Australia. However, setting a two months' trial period might be considered short for companies to carry out more meaningful testing. Hence, the SSWG recommends the ACMA implement a simple and inexpensive access to the spectrum for radiocommunication tests of 12 months at the minimum annual tax rate. This will promote more research and development of new innovative technologies in Australia and remove an unnecessary barrier to participation.

## **10. Focus Area 6: Transparency and ease of calculating taxes**

The SSWG believes that transparency and justification of the previous licence fee Tables has not always received the amount of focus warranted, perhaps because international regulatory experience has been thin. Significant pick up in licensing globally especially in Ka-band now provides a much more relevant basis for setting fees.

## **11. ACMA Work Program**

The paper does not seem to be specific on when these changes will be implemented. While 28 GHz (and some of 26 GHz) have been implemented via AWLs, there does not seem to be a defined timeline to make other changes.

The ACMA has done a lot of work on the fee schedules and weightings for bands above 5 GHz and has an indicative workplan for bands below 5 GHz. These are both acceptable and as such the SSWG recommends that the ACMA implement the new schedules immediately.

It should be noted that many services, such as FSS, have a very low 'area of spectral denial'. The ACMA has recognised this in the AWL process and has also recognised the low impact of low interference potential devices (due to low power). Implementing a simple pop/kHz (kHz being the unit used in the pricing schedule) should also be a priority.

While the ACMA paper focusses on pricing, this is linked to licensing and, given recent ACMA decisions, it is timely that the ACMA re-enter the 2 GHz MSS bands into the CSO Class Licence and investigate pricing for the space segment licences.

## Appendix A: Results of analysis of different weighting options

The three Excel spreadsheet objects inserted below contain the results of three calculations aimed at illustrating the impact of changes to the weightings for bands above 2.69 GHz in terms of tax differentials between adjacent bands. See Section 3. *The Tax Formula* for an explanation of the calculations.



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ACMA Proposal: Comparison of different weighting options for a SSWG proposal on division 8A spectrum pricing showing price relationships between bands above 2 GHz

Spectrum location	Geographic location																			
	Australia-wide				High density				Medium density				Low density				Remote density			
	Current	current premium on next highest band %	ACMA Proposed	resulting premium on next highest band %	Current	current premium on next highest band %	ACMA Proposed	resulting premium on next highest band %	Current	current premium on next highest band %	ACMA Proposed	resulting premium on next highest band %	Current	current premium on next highest band %	ACMA Proposed	resulting premium on next highest band %	Current	current premium on next highest band %	ACMA Proposed	resulting premium on next highest band %
>2.69 to 5.0 GHz	2.8221	18 (Note)	2.8221	58	0.5243	19	0.5243	59	0.2125	4	0.2125	38	0.1760	88	0.1760	151	0.0880	94	0.0880	159
>5.0 to 8.5 GHz (C)	2.3827	127	1.7870	240	0.4405	17	0.3304	75	0.2051	129	0.1538	244	0.0934	1,337	0.0701	2,055	0.0453	1,361	0.0340	2,092
>8.5 to 17.3 GHz (Ku)	1.0500	43	0.5250	614	0.3780	93	0.1890	866	0.0894	191	0.0447	1,356	0.0065	97	0.0033	885	0.0031	Infinite	0.0016	Infinite
>17.3 to 31.3 GHz (Ka)	0.7350	267	0.0735	267	0.1957	83	0.0196	83	0.0307	85	0.0031	85	0.0033	450	0.0003	450	0.0000	Infinite	0.0000	Infinite
>31.3 to 51.4 GHz (Q)	0.2004	608	0.0200	608	0.1068	3,714	0.0107	3,714	0.0166	493	0.0017	493	0.0006	100	0.0001	100	0.0000	Infinite	0.0000	Infinite
>51.4 GHz (V/E)	0.0283	N/A	0.0028	N/A	0.0028	N/A	0.0003	N/A	0.0028	N/A	0.0003	N/A	0.0003	N/A	0.0000	N/A	0.0000	N/A	0.0000	N/A

weighting options 2 GHz band	ACMA (%)
ACMA proposed (no reduction)	100

weighting options C band	ACMA (%)
ACMA proposed (25% reduction)	75

weighting options Ku band	ACMA (%)
ACMA proposed (50% reduction)	50

weighting options Ka and higher bands	ACMA (%)
ACMA proposed (90% reduction)	10

Note:

The step up of the current Australia-wide weighting of 2.8221 in the 2.69 to 5.0 GHz band to 2.3827 in the 5.0 to 8.5 GHz band represents a 18% increase (i.e. 2.8221 increased by 18% equals 2.3827).

SSWG Option A: Comparison of different weighting options for a SSWG proposal on division 8A spectrum pricing showing price relationships between bands above 2 GHz

Spectrum location	Geographic location																			
	Australia-wide				High density				Medium density				Low density				Remote density			
	Current	current premium on next highest band %	Proposed	resulting premium on next highest band %	Current	current premium on next highest band %	Proposed	resulting premium on next highest band %	Current	current premium on next highest band %	Proposed	resulting premium on next highest band %	Current	current premium on next highest band %	Proposed	resulting premium on next highest band %	Current	current premium on next highest band %	Proposed	resulting premium on next highest band %
>2.69 to 5.0 GHz	2.8221	18 (Note)	2.1166	78	0.5243	19	0.3932	79	0.2125	4	0.1594	55	0.1760	88	0.1320	183	0.0880	94	0.0660	191
>5.0 to 8.5 GHz (C)	2.3827	127	1.1914	467	0.4405	17	0.2203	191	0.2051	129	0.1026	474	0.0934	1,337	0.0467	3,492	0.0453	1,361	0.0227	3,553
>8.5 to 17.3 GHz (Ku)	1.0500	43	0.2100	186	0.3780	93	0.0756	286	0.0894	191	0.0179	482	0.0065	97	0.0013	294	0.0031	Infinite	0.0006	Infinite
>17.3 to 31.3 GHz (Ka)	0.7350	267	0.0735	267	0.1957	83	0.0196	83	0.0307	85	0.0031	85	0.0033	450	0.0003	450	0.0000	Infinite	0.0000	Infinite
>31.3 to 51.4 GHz (Q)	0.2004	608	0.0200	608	0.1068	3,714	0.0107	3,714	0.0166	493	0.0017	493	0.0006	100	0.0001	100	0.0000	Infinite	0.0000	Infinite
>51.4 GHz (V/E)	0.0283	N/A	0.0028	N/A	0.0028	N/A	0.0003	N/A	0.0028	N/A	0.0003	N/A	0.0003	N/A	0.0000	N/A	0.0000	N/A	0.0000	N/A

weighting options 2 GHz band	ACMA	SSWG
ACMA proposed (no reduction)	100	75

weighting options C band	ACMA	SSWG
ACMA proposed (25% reduction)	75	50

weighting options Ku band	ACMA	SSWG
ACMA proposed (50% reduction)	50	20

weighting options Ka and higher bands	ACMA	SSWG
ACMA proposed (90% reduction)	10	10

Note:

The step up of the current Australia-wide weighting of 2.8221 in the 2.69 to 5.0 GHz band to 2.3827 in the 5.0 to 8.5 GHz band represents a 18% increase (i.e. 2.8221 increased by 18% equals 2.3827).

SSWG Option B: Comparison of different weighting options for a SSWG proposal on division 8A spectrum pricing showing price relationships between bands above 2 GHz																				
Spectrum location	Geographic location																			
	Australia-wide				High density				Medium density				Low density				Remote density			
	Current	current premium on next highest band %	Proposed	resulting premium on next highest band %	Current	current premium on next highest band %	Proposed	resulting premium on next highest band %	Current	current premium on next highest band %	Proposed	resulting premium on next highest band %	Current	current premium on next highest band %	Proposed	resulting premium on next highest band %	Current	current premium on next highest band %	Proposed	resulting premium on next highest band %
>2.69 to 5.0 GHz	2.8221	18 (Note)	2.1166	78	0.5243	19	0.3932	79	0.2125	4	0.1594	55	0.1760	88	0.1320	183	0.0880	94	0.0660	191
>5.0 to 8.5 GHz (C)	2.3827	127	1.1914	656	0.4405	17	0.2203	288	0.2051	129	0.1026	665	0.0934	1,337	0.0467	4,690	0.0453	1,361	0.0227	4,771
>8.5 to 17.3 GHz (Ku)	1.0500	43	0.1575	329	0.3780	93	0.0567	479	0.0894	191	0.0134	774	0.0065	97	0.0010	491	0.0031	Infinite	0.0005	Infinite
>17.3 to 31.3 GHz (Ka)	0.7350	267	0.0368	267	0.1957	83	0.0098	83	0.0307	85	0.0015	85	0.0033	450	0.0002	450	0.0000	Infinite	0.0000	Infinite
>31.3 to 51.4 GHz (Q)	0.2004	608	0.0100	608	0.1068	3,714	0.0053	3,714	0.0166	493	0.0008	493	0.0006	100	0.0000	100	0.0000	Infinite	0.0000	Infinite
>51.4 GHz (V/E)	0.0283	N/A	0.0014	N/A	0.0028	N/A	0.0001	N/A	0.0028	N/A	0.0001	N/A	0.0003	N/A	0.0000	N/A	0.0000	N/A	0.0000	N/A

weighting options 2 GHz band	ACMA (%)	SSWG (%)
ACMA proposed (no reduction)	100	75

weighting options C band	ACMA (%)	SSWG (%)
ACMA proposed (25% reduction)	75	50

weighting options Ku band	ACMA (%)	SSWG (%)
ACMA proposed (50% reduction)	50	15

weighting options Ka and higher bands	ACMA (%)	SSWG (%)
ACMA proposed (90% reduction)	10	5

**Note:**

The step up of the current Australia-wide weighting of 2.8221 in the 2.69 to 5.0 GHz band to 2.3827 in the 5.0 to 8.5 GHz band represents a 18% increase (i.e. 2.8221 increased by 18% equals 2.3827).

## Communications Alliance Satellite Services Working Group membership

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