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

SUBMISSION

to the

Australian Communications and Media
Authority's (ACMA) spectrum management
work program

Consultation draft

Five-year spectrum outlook 2019–23

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Communications Alliance

The Communications Alliance Satellite Services Working Group (SSWG) welcomes the opportunity to provide this submission to the Australian Communications and Media Authority's (ACMA) Spectrum management work program – Consultation draft: Five-year spectrum outlook 2019–23 (FYSO).

Communications Alliance acknowledges some of its members, including Telstra and Optus, do not agree with some aspects of this submission, in particular where these relate to the proposals for replanning in the 28 GHz band. These members will be making their positions clear in separate submissions to the *Replanning in the 28 GHz band* Options Paper. They will also be making separate submissions to the Consultation draft of the *Five-year spectrum outlook 2019–23*.

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>.

INTRODUCTION

The SSWG is once again pleased to make a submission to the FYSO consultation process. It is encouraging to reflect on the continuing improvements which have occurred with this process over the years and to note that stakeholders have genuinely influenced changes through their past submissions. For the satellite industry, for example, there was some concern in the past that the ACMA may have had a tendency to favour the terrestrial mobile broadband industry, to the detriment of the satellite industry. This worry was largely allayed, however, in more recent FYSO versions, where the ACMA has demonstrated its appreciation of the full importance of satellite services and innovation occurring to the benefit of Australia.

We have now arrived at a point in time where it is appropriate to evaluate some of the fundamentals which drive decision making in the ACMA and ultimately are invoked in the FYSO. Some of those fundamentals, such as the Principles which are used to derive the highest value use(s) of spectrum when assessing a particular band, are in need of some cautionary consideration, to avoid the risk of these very useful Principles creating outputs which are sub-optimal.

In addition, the rapid technological advancements and markets which are uncharacteristic of the past call for some other augmenting Principles which should guide deliberation of spectrum management in a modernisation of policy thinking.

Added to this is the impending environment of legal upheaval which the new legislation will bring. It will be essential that the Department and the ACMA work together efficiently and avoid duplication of involvement in technical and policy matters. The boundaries at present do not always appear to be clearly defined, which carries the risk of resource overlap.

In the following sections, the SSWG has some proposals on these broader matters, as well as particular matters relating to individual bands and planning, and technical regulatory observations.

The SSWG would like to see the ACMA take greater advantage of the potential for reforms in spectrum pricing arrangements to be a catalyst for broader economic development. The high barriers to entry caused by spectrum pricing can act as a disincentive to investment and are not compatible with the new breed of services becoming available. Industry would like to work with the regulator on fresh thinking that can help stimulate economic activity and investment through innovative approaches to the pricing and availability of spectrum.

REFLECTING ON PRINCIPLES

The FYSO brings together the spectrum management challenges in a holistic sense. However, in the execution of the elements of the FYSO, that holistic benefit is immediately lost because of a train of individual and separate consultations which each focus on one band at a time; where quite often a number of bands could be considered together and the aggregate outcome would be more beneficial while involving less risk than its individual components.

The current consultation on the 28 GHz band may serve as an example. The ACMA approach, in some of the options it explores, includes efforts to force-fit different services (WWB, FWA, FSS and satellite services – gateways and ubiquitous) into the 27.5-29.5 GHz band. In each of the four ACMA scenarios assessed, success is measured on how many different services can fit into this spectrum applying the 5 Principles which are used to assess the highest value use(s) of spectrum.

However, by adopting a more holistic approach which takes into account the more appropriate family of 26, 28 and 37-43.5 GHz bands, as discussed in the SSWG submission to the *Replanning in the 28 GHz band* Options Paper, all spectrum demands can be met comfortably with 2 GHz in the 26 GHz band, a possible further 400 MHz for either WWB or FWA, exclusive access to the 28 GHz band by the FSS (as envisaged by WRC-15), and 2 GHz of

spectrum for WWB, plus 1 GHz for FWA / PTP (which can be coordinated) in the 37-43.5 GHz band. All of this could be achieved with plenty of spectrum to spare in higher mmWave bands. To try to fit different services into one subject band risks creating an inefficient fragmentation of spectrum which the ACMA is now at pains to avoid. The 3-band holistic approach is, in the SSWG's view, a superior approach, because each of these services can use these bands, and the outcome is an efficient highest value use (HVV) by exclusive occupancy of the 28 GHz band by the FSS.

Thus the lesson in successfully applying the 5 Principles is to get the input assumptions right.

There are other augmenting principles which the SSWG believes should form part of the analytical framework and tools of the ACMA's approach to its work. Those include:

- Recognise that some issues may be beyond the competence and/or resources of the ACMA. An example is the application of DSA, which the ACMA has considered on past occasions, yet no progress has been made in seriously studying and harnessing this potential for creating greater efficiencies in defined applications within the spectrum. The answer may be to get some help by outsourcing the issue and bringing in intellectual horsepower and experience in this area and applying it to the Australian environment. Ofcom and the FCC are making strong progress in this area.
- Recognise that lighter touch regulation is becoming more relevant as technologies and types of service becoming available. The extraordinary success of WiFi is a case in point – a success story achieved without onerous regulation. Very often the best regulatory strategy is simply to allow markets to continue to do what they have been doing with relatively unfettered constraints, and to ensure the availability of reasonably priced spectrum.
- Recognise that an impending avalanche of ubiquitous terminals in both the terrestrial and satellite markets marks a totally game-changing epoch. Extending the virtues of class (or blanket) licensing and minimising spectrum price barriers, especially in the satellite field, will generate economic benefits which surpass the taxation revenue and pricing structures of the past. Adopting and creating new regulatory structures which cater for genetically different services calls for a much more holistic approach than has been the case in the past. Again, this new era may require some external help.

AT A GLANCE – 2019-20 Work Program

Once more, the SSWG commends the ACMA for setting out a Work Program with target delivery quarters based on the Australian financial reporting year (1 July – 30 June) – as a temporary fill-in ahead of the new legislation which is intended to require an Annual Report. The 6-month report of achievement against targets is also very welcome and reflects a commercial attitude which is befitting the value and importance of the resource, i.e. spectrum.

The SSWG notes that the Work Program contains a large number of complex items and, by its own admission, the ACMA is not resourced to the level where it can guarantee achievement of all of these targets.

This is understandable, and to assist with priorities the SSWG has reproduced the Work Program Tables in Annex 1 with superimposed priorities and comments by the satellite industry. It could be agreeable with other timings and priorities.

PART 1 – Five-year spectrum outlook

Mobile broadband and the ACMA mobile broadband strategy still seem to dominate the ACMA agenda, together with the current FYSO and forward work allocation plan. The mobile

broadband agenda itself relies on repurposing a band to the highest value use (that is usually in the direction of the well-resourced mobile broadband cellular industry) and progressively moving this to auction where is an opportunity to gain exclusive use of spectrum for the next 15 years. This is the almost inevitable consequence of the mobile broadband strategy, especially if the spectrum is treated via a single-band approach rather than a multi-band approach.

5G is a term coined by the 3GPP and marketed heavily by the GSMA and GSA in a strong push for additional spectrum. The ITU term for 5G is IMT, and at present the difference is the 28 GHz band. The ACMA's account in this section reports the 5G lobby's statistics and claimed economic values. However, no attempt is made to balance the investments and economic importance associated with, say, the 28 GHz band which is the subject of strong satellite industry focus, despite these statistics being made available to the ACMA in the September submissions to the ACMA 28 GHz Discussion Paper. The ITU WRC-15 meeting intentionally left 28 GHz off the IMT agenda for study, recognising the importance and potential of this band for the satellite industry. Consequently, massive satellite investments have been pouring into the 28 GHz band and these could be endangered by poor regulatory decisions.

A further omission in this section of the paper is the value which satellite innovations bring to 5G, acting in a complementary role with the terrestrial mobile cellular networks. In some cases, 5G will not prosper without satellite involvement. In a competitive sense, satellite backhaul and WiFi backhaul offer a much more achievable solution for Internet access in many regions of Australia. For some countries, satellite will, in fact, be their first encounter with 5G; and 3G or 4G will be sufficient and economically relevant for many years to come, and well beyond the 5-year outlook.

The ACMA states that it recognises three broad categories of use and that these categories may act in combination. The SSWG would contend that a fourth important category exists with satellites bringing high capacity and mobile broadband solutions to the market. FWA seems to be overstated by the ACMA which indicates that the standard C-band and 28 GHz bands seem to be fair game for FWA assignment. The SSWG believes that the 28 GHz band is best served by the FSS, and very significant deployments exist in C-band for the satellite industry.

The ACMA lists key characteristics of 5G that distinguish it from previous developments. These characteristics to varying degrees can be met by the different satellite solutions coming to market and the ACMA is invited to reflect on this.

Machine-to-machine communications and the Internet of Things (IoT)

It is telling that satellites get their first positive mention in the paper for development of IoT in a number of bands. This is because the low data rates are ideally suited to satellite networks. But this is only the tip of the iceberg of innovation that we are seeing with regard to satellite networks.

Satellite communications

Some relevant and useful points are made in this section - but insufficient prominence is given to high throughput satellite services.

The ACMA makes mention of the Ku-band and additional downlink spectrum for earth stations in motion (ESIM). However, future growth of ESIM may make it appropriate to also address the uplink spectrum – potentially 12.75-13.25 GHz which is allocated to the FSS subject to Appendix 30B of the RR.

Satellite is also recognised by the ACMA as being important to broadcasting service delivery.

New approaches to spectrum sharing

The SSWG agrees that spectrum sharing is fundamental to effective spectrum management. However, this must be approached in the broadest holistic sense in order to extract the best efficiencies and to avoid band fragmentation.

In these new approaches it needs to be realised that a new challenge of ubiquity presents itself in both the satellite and mobile areas. These services are generally incompatible with fixed services of various description – and new licensing arrangements need to cope with this situation. Exploration of the time dimension will have some consequences and the ACMA would do well to bring in expert advice in this area.

Class licensing and spectrum commons

Class licensing does not necessarily imply spectrum commons. It does, however, involve the liberation of terminals from individual licences and the bureaucratic burden associated with it. It is an area of licensing which requires more depth of thought and broader application in an era which will demand lighter touch regulation. In the case of ubiquitous satellite terminals – other fixed or mobile – it is the only sensible way forward.

For convenience of regulatory control in Australia, the construct in satellite communications regulation for space objects has been introduced in order to provide a link and an undertaking by satellite operators to commit to regulatory requirements for satellites which are otherwise outside the territorial ambit of Australian law. In practice, the apparatus licensing of a satellite provides blanket authorisation for ubiquitous earth terminals whether fixed or in motion.

These are areas which require further development and finessing to pave the way for substantial increases in economic activity. Critical to this are incentives in spectrum pricing to encourage that activity. Otherwise, regulation may artificially dampen potential and distort market activity. The geographic structure of apparatus licensing in Australia is no longer relevant to ubiquitous service offerings and should be abolished in favour of a more modest charge which covers administrative costs. For non-ubiquitous services, the high costs of the geographic structure still remains a significant disincentive but has some merits.

WiFi is a harbinger. The phenomenal success of this access technology is a tribute to the virtues of light touch regulation and affordable spectrum. The ACMA should not be looking to ways of regulating the industry because it is a "victim of its own success" but rather to base broader thinking in other areas along these lines. Again artificial regulatory constraints or micro management should not interfere with the natural freedoms of market forces.

PART 2 – Proposed 2019-20 annual spectrum management work program

This is a welcome development in advance of an Annual Report which is intended in the new legislation. While the introduction mentions Government priorities and available resourcing, it does not reference industry priorities, which should be an important input. Despite this the SSWG has offered comment in Annex 1 on its views on priorities.

In addition, the delineation of responsibilities between the ACMA and the Department would benefit from greater clarity.

Priorities and resources

In this area, much could be done to alleviate the apparent restrictions caused by the finite resources of the ACMA. The take-up of activities by the Department in areas which could be categorised as more inclined towards policies and processes, and outsourcing of contracts in pathfinding areas for the future (e.g. DSA). The Department could act as a host for broader industry and Government interactions, and analysis of new principles which are fit for modern purposes and then offer the framework for the ACMA to operate. At the same time, the doubling up of involvement by both the Department and the ACMA in the more technical

areas of study activities in ITU-R Study Group and Working Party activities is not necessary, nor the most efficient application of Government funding. It is only relevant where processes are involved, and this is an area where the ACMA should then be freed from distraction from its technical work.

On this basis, the future activities of the Department could include :

- Management and chairmanship of WRC processes;
- All RA and RAG activities;
- APG WG1 (processes) chairmanship;
- Hosting of pathfinding efforts including RadComms, Tune-ups;
- Outsourcing of fundamental futurist thinking and consultancies e.g. with DSA; and
- Interfacing with broader policy areas.

International engagement

From an external perspective, the overlap in effort and responsibility between the ACMA and the Department seems particularly evident in ITU-R Study Group and Working Party activity.

The Department has a genuine and realistic role in leading bilateral and multilateral engagement, especially during conferences, but can rely on technical advice from the ACMA, and does not need to develop technical expertise – unless this is the intention whereby engineering staff could be migrated to the Department from the ACMA.

Planning

The optimisation of planning arrangements will require a reprise of the principles and some new principles which guide the ACMA's decision making in regulatory implementation. In particular, implementation needs to be based on a more holistic approach of involving combinations of bands rather than a fragmented approach. The latter may be simpler to achieve but does not do justice to durable solutions and longer term stability.

Replanning outcomes should be regarded as a failure of regulatory foresight. They are destabilising and expensive, and can undermine the confidence in the regulator. One acceptable case, however, involves the natural progression from one generation to another in the same service e.g. cellular mobile 3G, 4G, 5G. The most destructive case occurs between different services. The ACMA should go to great lengths to avoid the latter scenario by using more holistic approaches.

Major band planning and replanning activities

The 3.6 GHz "successful" outcome was achieved with some pain to the satellite industry.

Mention of the 28 GHz band for a possible 5G allocation is somewhat troublesome given the already massive investments and commitments by the satellite industry.

Major band planning and replanning activities

(A) Monitoring

Within the monitoring category, the SSWG is wary of 3GPP signals which mention standard C-band. This is an important work horse band for the satellite industry with much dependency for current services broadcasting, critical communications, and telecommunications in general. In addition, mention of FWA should not be necessary as other bands are available at less cost to incumbent satellite service providers.

The SSWG is fully supportive of bands being studied under WRC-19 Agenda Item 1.13. The SSWG believes that adequate and generous allowance for IMT service developments is

available without resort to other bands, in particular the 28 GHz band. In this respect the SSWG agrees with the RSPG within the European Commission.

The SSWG also expresses its support for the common view priorities towards the 24.25-27.5 GHz and 37-43.5 GHz bands for IMT in the APG, and urges the ACMA to tailor a holistic analysis which includes these bands.

The SSWG notes the related work within the ACMA within the 66-76 GHz band.

(B) Initial Investigation

The SSWG strongly supports the initial work on extended MSS L-band (1518-1525 MHz and 1668-1675 MHz). With the implementation of services in the extended band as a result of additional spectrum allocation during WRC-03 and WRC-07, Inmarsat in particular has a need for protection of shipping and other services so that performance is not degraded by out of band IMT interference and coexistence (from below 1518 MHz) for its customers.

There appears to be a dislocation in timing with the possible availability of extended L-band for MSS in Australia being at the "initial investigation" stage whilst the possible availability of 1427-1518 MHz for IMT is at the "preliminary replanning" stage. Because of the close inter-relationship, these should be aligned.

The sharing of IMT services (both terrestrial and satellite) at 2 GHz is a timely consideration, given that studies at 2 GHz (1980-2010 MHz and 2170-2200 MHz) are likely to come to a head at WRC-19 under Agenda Item 9.1, Issue 9.1.1. Whilst polarisation still prevails over whether regulatory conditions should be invoked, the ACMA needs to have a considered position and this may involve a fall-back to engage and support whichever way the debate takes in order to have some say in the future which will affect Australia. The SSWG supports this work going ahead in the timetable envisaged.

The 3.8 GHz band is a red flag band for the satellite industry. As the ACMA notes, debate has occurred for several years (and WRCs) and at times has been intense. It is likely to be no less intense going forward. WRC-19 may be asked to include a WRC-23 Agenda Item on this subject. If this were the case, then WRC-19 would likely create a Resolution to guide the studies. From this point of view, the ACMA may wish to defer discussion until after the WRC-19 meeting. Alternatively, discussion may assist the ACMA in preparing for WRC-19. Whilst the ACMA refers to a more holistic consideration, it needs to be careful of band fragmentation and associated inefficiencies.

Foxtel's/Foxsport's use of C-band feeds, which includes 10 linear channels consisting of World News (e.g. BBC, CNN, CNBC), Sport (e.g. ESPN) and Discovery Channels, may serve as only one example of the importance of the C-band for program contributions to the Australian public. The programming delivered over the C-band covers news and sports such as golf, cricket, the Rugby World Cup, the French Open, La Liga Soccer, Reuters and AAP news feeds etc. Consequently, Australia would risk being cut off from a diversity of live world events without the use of C-band for satellite links.

(C) Preliminary Replanning

28 GHz (27.5-29.5 GHz)

The SSWG notes the mention of this band for which exclusive use by the FSS is supported by the SSWG. The case for this is presented in the SSWG submission to the parallel consultation by the ACMA on the *Replanning in the 28 GHz band* Options Paper.

The SSWG looks forward to a favourable outcome from that consultation.

5.6 GHz (5600-5650 MHz)

The SSWG notes the preference which the ACMA has indicated to the FWA community. In addition, the SSWG is of the opinion that spectrum at 38 GHz should be assigned to the FWA, as indicated in the SSWG submission on the *Replanning in the 28 GHz band Options Paper*.

26 GHz (24.25-27.5GHz)

The SSWG notes that this band is being closely studied in WRC-19 Action Item 1.13 and will be decided upon this year. The SSWG has no concerns with IMT being considered for this band, and this together with spectrum in the 37-43.5 GHz band provides a generous allowance for future IMT.

Optimising established planning frameworks

This is an expectation of the ACMA that will ensure that spectrum continues to be used efficiently and takes into account advances in sharing, coexistence and mitigation techniques.

Satellite planning

The key planning priorities over the coming year list "support the deployment of novel satellite systems (particularly small satellites)" as a priority. The SSWG believes this should be rewritten as "support the introduction of innovation and modern satellite systems which bring high capacity and mobility to the market pace, and catering for other novel small satellites".

The SSWG commends the ACMA for its work on updating the Space Objects subordinate legislation and adds its full support to further development which is required of these instruments.

Updating regulatory arrangements for space-based communications systems

The SSWG fully supports the initiative of including 10.7-11.7 GHz in the Space Objects Class Licence to support pending demand for further ubiquitous usage of Ku-band. The SSWG looks forward to the foreshadowed discussion paper which is to be released by the end of Q4 2018-19. The SSWG believes that the ACMA should prioritise the release of this discussion paper and stands ready to support the initiative.

The ACMA may care to also consider increasing the uplink capability in 12.75 – 13.25 GHz for expansion in the future, using the FSS allocation, and subject to Appendix 30B of the RR.

Updating of procedures for submission of Australian satellite networks to the ITU

The SSWG notes the slippage in this area and that the work will not be progressed until after WRC-19. In a sense this should avoid addressing the matter both before and after the WRC-19 meeting.

The forward allocation work plan

Some SSWG comments in this -

- The SSWG supports initiatives in "defragmentation", especially in the 28 GHz band – and achieving this with exclusive FSS usage is recommended.
- The 1.5 GHz band should bear a caveat of satisfactory levels of interference/coexistence with the adjacent extended MSS band above 1518 MHz.

28 GHz

This is dealt with in detail in the SSWG submission to the concurrent ACMA Consultation on *Replanning the 28 GHz band*.

In terms of timing and priorities, the SSWG believes that 28 GHz should be given the highest priority, given the amount of investment involved by the satellite industry in this band, and the commitment to Australia which should be given the greatest degree of certainty.

The time lapse between the ACMA next steps of a planning decision and proposed allocation timing should be shortened so that the benefits can be delivered to Australia at the earliest possible time.

Spectrum management practice improvements

The delayed implementation of the Spectrum Pricing Review is a source of some pent-up frustration and the SSWG recommends that the ACMA proceed with some alacrity, adapting what it can within the current legislation in order to set apparatus licence taxes at a level which better suit market value, new and innovative services, and different styles of services e.g. ubiquitous services.

The SSWG looks forward to involvement with the guiding principles to be consulted on during Q1 2019-20 and with the development of a new formula(s) in Q4 2019-20. These consultations need to occur sooner rather than later in order to encourage investment and implementation.

New/ongoing activities planned for 2019-20

In terms of small cell deployments, the SSWG notes related activity of the ACMA chairing an APG Correspondence Group on the definition of Total Radiated Power. This could be of value to assessing the aggregate interference generated by future small cell structures and their potential to cause harmful interference. The SSWG looks forward to the outcomes of this work.

ISSUES FOR COMMENT – SUMMARY

The ACMA has itemised a list of specific questions for comment. The SSWG responses are largely dealt with throughout this submission and are summarised in brief below as follows -

1. What further improvements to the FYSO would make it easier for stakeholders to engage with the ACMA on its spectrum management work program?

A: There are many, but a very important improvement would be a more holistic approach to addressing compatible bands rather than conducting consultations on one band at a time.

2. Are there other technology developments or sources of spectrum demand that the ACMA should be aware of in considering spectrum management over the next five years?

A: More attention should be given to new and mainstream innovative high capacity satellite systems and terminal mobility.

3. Do you have any comments about the ACMA's planned international engagement activities?

A: Role responsibilities need to be cleared up with the Department, to minimise any duplicated effort or representation.

4. Do you have any feedback on the ACMA's plans for monitoring, initial investigation, preliminary replanning or re-farming of bands?

A: Several suggestions are made in the text of the submission.

5. Do you have any feedback on optimising established planning frameworks?

A: These are an important feature of the ACMA's and the Department's work to ensure efficiency in spectrum usage.

6. Do you have any comments about the ACMA's approach to the forward allocations, or the prioritisation and timing of allocations?

A: Priority and timing are not absolutely guaranteed (to assist investment) and little is said of industry's priorities.

7. Do you have any feedback on the ACMA's approach to improving how we manage spectrum?

A: As well as the institutionalised approach by the ACMA, a number of suggestions have been made as to how to incorporate more valuable principles in the modern epoch of spectrum management.

8. Do you have any comments about the ACMA's planned activities for licensing and licensing systems, pricing, and compliance and enforcement?

A: All proposals for review look good. The stand-out issue needing more rapid progress is spectrum pricing.

ANNEX 1: SSWG PRIORITIES

These are appended to provide SSWG feedback to the ACMA's published timing and priorities.

Table 2: Planning—major band planning and replanning activities

Planning stage	Project priorities	Proposed timelines
Monitoring	600 MHz (617–698 MHz) 3.3 GHz (3300–3400 MHz) 4.5 GHz (4400–4500 MHz) 4.8 GHz (4800–4990 MHz) Bands being studied under WRC-19 agenda item 1.16 Bands being studied under WRC-19 agenda item 1.13	Continue to monitor domestic and international developments in these bands to identify usage trends
Initial investigation	Extended MSS L-band (1518–1525 MHz and 1668–1675 MHz)	Q3/4 2019–20: Options paper <i>Welcome addition – timing is significant with WRC-19. High priority</i>
	2 GHz (1980–2010 MHz and 2170–2200 MHz)	Q4 2018–19: Discussion paper on planning issues Q3/4 2019–20: Possible options paper, dependent on outcomes of discussion paper <i>Also a welcome addition influenced by WRC-19. High priority</i>
	3.8 GHz (3700–4200 MHz)	Q4 2018–19: Discussion paper on planning issues <i>Likely to be a charged debate. This band is of high priority to the satellite industry</i>
Preliminary replanning	1.5 GHz (1427–1518 MHz)	Q3/4 2019–20: Options paper
	1710–1785 MHz and 1805–1880 MHz (1800 MHz) in remote areas	Q4 2018–19: Discussion paper on planning issues
	3.4–3.575 GHz	Q4 2018–19: Reconfiguration options paper <i>Await with interest. Medium interest</i>
	28 GHz (27.5–29.5 GHz)	Q4 2018–19: Options paper on planning arrangements in the band Q1 2019-20: Planning decision <i>High priority. Lot riding on this band</i>

Planning stage	Project priorities	Proposed timelines
Replanning	850 MHz expansion band (809–824 MHz and 854–869 MHz)	Band is being cleared progressively. ACMA continues to consider options for optimising its use. Allocation timeframes tied to those of the 900 MHz band
	900 MHz (890–915 MHz and 935–960 MHz)	Further consultation on configuration options for the band will be conducted in Q4 2018–19
	5.6 GHz (5600–5650 MHz)	In Q1/2 2019–20 the ACMA plans to finalise the release of the 5.6 GHz band, including transitional arrangements for 3.6 GHz band point-to-multipoint licensees including fixed wireless access
	26 GHz (24.25–27.5 GHz)	Q4 2018–19: Planning decision On time and dependent on WRC-19 outcomes

Table 3 :Planning—optimising established planning frameworks

Planning area	Project priorities	Proposed timelines
Broadcasting analog and digital radio	Finalise outcome of the consultation on AM to FM conversion for Scottsdale, Tasmania	Q1 2019–20
	Develop and consult on proposals for AM to FM conversion for Bega, Cooma and Goulburn, New South Wales	Q3 2018–19
	Consult on AM to FM conversion proposals for Murray Bridge, Spencer North and Port Lincoln, South Australia	Consult Q4 2018–19 Finalise Q1 2019–20
	Develop and consult on proposals for AM to FM conversions in Taree and Grafton, New South Wales	Consult Q4 2018–19 Finalise Q1 2019–20
	Develop and consult on the potential for replanning analog radio services in Perth following the clearance of Band II TV in Bunbury	Q3/4 2019–20
	Complete engineering and consult on digital radio channel plans for Bathurst, Cooma, Goulburn and Warragul	Q1 2019–20

Planning area	Project priorities	Proposed timelines
	Determine whether specified community radio licence areas should be deemed the same as the Hobart RA1 commercial radio licence area for the purpose of digital radio	Q4 2018–19
	Determine whether specified community radio licence areas should be deemed to be the same as the Bathurst RA1, Cooma RA1, Goulburn RA1 and Warragul RA1 commercial radio licence areas for the purpose of digital radio	Q2 2019–20
Satellite	Consider feasibility of inclusion of 10.7–11.7 GHz in Radiocommunications (Communication with Space Object) Class Licence 2015	Q4 2018–19 High priority
	Review regulatory arrangements for earth stations in motion in Ku-band	Q3 2018–19 High priority on target
	General review of licensing procedures for space-based communications systems	Q4 2018–19 Slippage, Medium priority
	Review spectrum arrangements for small satellites	Q4 2018–19 High priority Rather neglected to date
	Consider applications for test and demonstration purposes in the 2 GHz band	Ongoing
	Manage filing and coordination of Australian satellite systems	Ongoing
Low interference potential devices (LIPD)	Completion of consideration of proposed update of the LIPD class licence to respond to industry requests (IFC 45/2018)	Q1 2019–20 Maintenance. Medium priority
Internet of Things	Facilitation of early access to the 928–935 MHz band for low-power wide-area IoT applications	Ongoing
Spectrum Licence Technical	Commence discussion with industry on a potential program of work for the review of spectrum licensing	Q1 2019–20 Timely

Planning area	Project priorities	Proposed timelines
Framework reviews	technical arrangements in relation to new technology developments	
Amateur service in the frequency band 5351.5–5366.5 kHz	Discussion paper on implementation issues	Q3 2019–20

Table 4: Forward allocation work plan

Project priorities	Proposed timelines—next steps
26 GHz	Q4 2018–19: Planning decision Q4 2018–19: Consultation on draft recommendation to Minister
850/900 MHz	Q4 2018–19: Further consultation on configuration options for 900 MHz band
1.5 GHz	Q3/4 2019–20: Options paper High priority
3.4–3.575 GHz	Q4 2018–19: Reconfiguration options paper Medium priority
28 GHz	Q4 2018–19: Options paper High priority

Table 5: Spectrum management practice improvements

Project priorities	Proposed timelines
Annual work program	Q4 2018–19: Consult on draft work program Q1 2019–20: Publish final program Q4 2019–20: Consult on draft work program for next year
Planning and technical frameworks	Consult on revised arrangements following the release of 2nd Exposure Draft Radiocommunications Bill package
Licensing and licensing transition	Consult on revised arrangements following the release of 2nd Exposure Draft Radiocommunications Bill package. Could be far reaching and needs great transparency. High priority
Pricing review implementation	Q1 2019–20: Consult on draft spectrum pricing guidelines and new cost recovery proposals High priority. Critical to investment Q4 2019–20: Consult on draft new spectrum pricing formula High priority. Critical to investment appeal

Project priorities	Proposed timelines
Equipment rules	Consult on revised arrangements following the release of 2nd Exposure Draft Radiocommunications Bill package
Accreditation arrangements	Consult on revised arrangements following the release of 2nd Exposure Draft Radiocommunications Bill package
Shorter-term improvements in spectrum management	Commenced in 2018–19, continuing throughout 2019–20

Table 6 :Licensing and licensing systems

Project priorities	Proposed timelines
Consideration of changes to amateur licence conditions	Q4 2018–19: Commence consultation
VHF marine radio use	Q4 2018–19: Based on the outcome of the consultation paper released in 2018, the ACMA will consider making changes to the current VHF maritime mobile regulatory arrangements and work with industry on what future changes should be considered
400 MHz band	Preparation for the final milestone period of the 400 MHz implementation project in 2019–20
Monitor licensing arrangements for drones, and prohibitions and exemptions for drone jamming	The ACMA will continue to monitor licensing arrangements and prohibitions in 2019–20 The ACMA will consult on any required changes to regulatory arrangements for counter-drone equipment in 2019–20
Review non-assigned amateur and outpost licensing arrangements	Q2 2019–20: Further consultation on non-assigned amateur and outpost licensing arrangements

Table 7 : Pricing

Project priorities	Proposed timelines
Commercial broadcasting tax arrangements	Ongoing assessment of taxes throughout 2019–20
Preparation for review of <i>Commercial Broadcasting (Tax) Act 2017</i>	Q4 2018–19: Information to be issued about planned arrangements for the review required to be conducted after 1 July 2019
400 MHz opportunity-cost pricing	Continued semi-regular monitoring of band use
Consultation on the adjusting of apparatus licence taxes for inflation and	Q1/2 2019–20

Project priorities	Proposed timelines
removing the freeze on taxes for fixed services in remote-density areas below 960 MHz	
Implementation of spectrum pricing review	Consultation on draft guidelines in Q1 2019–20 High priority.

Table 8: Compliance and enforcement

Project priorities	Proposed timelines
Licensing integrity	Q4 2018–19: Results from 400 MHz monitoring activity to be used in next stage of the priority compliance area to target field-based compliance activities.
Interference management	Q4 2018–19: Finalise feedback on interference management principles

Table 9: Future consultation plans

This table summarises future consultations flagged throughout the draft FYSO. The list of consultations here is subject to change.

Issue	Proposed timelines
28 GHz (27.5–29.5 GHz)–options paper	Q4 2018–19 High priority
Spectrum arrangements for small satellites–discussion paper	Q4 2018–19 High priority
Future delivery of radio services in Australia–issues paper	Q4 2018–19 High priority
Potential changes to amateur licensing conditions, following a review of arrangements	Q4 2018–19
2GHz (1980–2010 and 2170–2200 MHz)	Q4 2018–19 (discussion paper) Q3/4 2019–20 (possible options paper) High priority
3.8 GHz (3700–4200 MHz)–discussion paper	Q4 2018–19 High priority
26 GHz (24.25–27.5 GHz)–consultation on draft recommendation to minister	Q4 2018–19 High priority
1710–1785/1805–1880 MHz (1800 MHz) in remote areas–discussion paper	Q4 2018–19

Issue	Proposed timelines
3.4–3.575 GHz–reconfiguration options paper	Q4 2018–19: Medium priority
900 MHz (890–915 MHz and 935–960 MHz)–further consultation on configuration options	Q4 2018–19
AM to FM conversion consultations for Murray Bridge, Spencer North and Port Lincoln	Q4 2018–19
AM to FM conversion proposals in Taree and Grafton	Q4 2018–19
Feasibility of inclusion of 10.7–11.7 GHz in Radiocommunications (Communication with Space Object) Class Licence 2015–discussion paper	Q4 2018–19 High priority
General review of space licensing procedures–consultation paper	Q4 2018–19 Medium priority
Exploration of a spectrum space apparatus licence type–commence consultation	Q4 2018–19 Medium priority
Annual work program	Q4 2018–19: consultation on draft High priority Q4 2019–20: consultation on draft High priority
Digital radio channel plans for Bathurst, Cooma, Goulburn and Warragul	Q1 2019–20
Determine whether specified community radio licence areas should be deemed to be the same as the Hobart RA1 commercial radio licence area for the purpose of digital radio	Q4 2018–2019
Consultation on spectrum pricing guidelines	Q1 2019–20 High priority
Consultation on the adjusting of apparatus licence taxes for inflation and removing the freeze on taxes for fixed services in remote density areas below 960MHz	Q1/2 2019–20
Determine whether specified community radio licence areas should be deemed to be the same as the Bathurst RA1, Cooma RA1, Goulburn RA1 and	Q2 2019–20

Issue	Proposed timelines
Warragul RA1 commercial radio licence areas for the purpose of digital radio	
Non-assigned amateur and outpost licensing arrangements	Q2 2019–20
Amateur service in the frequency band 5351.5–5366.5 kHz–discussion paper on implementation issues	Q3 2019–20
1.5 GHz (1427–1518 MHz) options paper	Q3/4 2019–20 High priority
Potential for replanning analog radio services in Perth, following the clearance of Band II TV in Bunbury–consultation paper	Q3/4 2019–20
Any further required changes to regulatory arrangements for counter-drone equipment	2019–20



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