

## AMTA submission to the ACMA IFC 45/2018

*Proposed updates to class licensing  
arrangements supporting 5G and other  
technology innovations* Dec 2018

**22 February 2019**



**Australian Mobile  
Telecommunications  
Association**

### Introduction

The Australian Mobile Telecommunications Association (AMTA) welcomes the opportunity to comment on the Australian Communications and Media Authority's (ACMA) proposed updates to arrangements supporting 5G and other technology innovations under the *Radiocommunications (Low Interference Potential Devices) Class Licence 2015* (the LIPD Class Licence).

AMTA notes that the *Radiocommunications Act 1992* (the Act) has been under review since 2014, and while the Government's legislative reform processes seem to have stalled, there is still an expectation that a new licensing framework will replace the existing one over the next couple of years. We recognise that this poses a challenge for the ACMA as the detail of the new licensing framework remains undefined, so proposed updates must be made cautiously and in the context of anticipated regulatory and legislative reforms.

AMTA strongly recommends that the ACMA adopt a cautious approach where technology is in the early stages of development or roll-out and the relevant bands of spectrum are still under consideration in international forums such as the WRC.

Class licences have an important place in the regulatory framework, however, they do not provide the ability for effective enforcement or monitoring of use and we strongly believe that class licences should only be used when technologies are mature to market and the interactions with existing uses of the band are well understood. To do otherwise, involves too high a risk or potential interference issues that cannot be appropriately managed or resolved.

For example, the range of differences in overseas regulations for GPR/WPR indicates that the interactions are not yet well understood. With regard to GPR, in the USA the FCC are only now relaxing their requirement from an extremely restrictive arrangement where only law enforcement could just use them and other users had to apply for a waiver with strict reporting and accreditation requirements. However, the FCC is not yet moving to the equivalent of a class licensing approach, rather, they are maintaining a level of monitoring of use to enable interference investigations.

AMTA therefore believes that a similar approach would be useful in Australia, otherwise we run the risk of not having the ability to properly investigate and manage any interference issues. This is particularly true where device locations are not static or may potentially be improperly used or where there is the possibility of faulty units in use.

We also support:

- That outdoor fixed point-to-point links should be apparatus licensed under extended arrangements of RALI FX20
- That class licensing arrangements should not be introduced into the band 66-71 GHz, with further consideration required following the outcomes of WRC-19 Agenda item 1.13.

## Issues for comment

In this section, AMTA provides direct responses to questions posed by the ACMA in the consultation paper.

### ***1. Whether the arrangement for fixed point-to-point links from the United States Federal Communications Commission (FCC) or the United Kingdom Office of Communications (Ofcom) should be adopted.***

AMTA doesn't agree that fixed point-to-point links should be class-licensed in the band, rather that apparatus licensing arrangements (specified in RALI FX20) should be extended to the range 59-66<sup>1</sup> GHz.

By the ACMA's own admission, features of applications which can contribute to "low interference potential" (and hence be covered by the LIPD Class Licence) include low power and operation over short distances; low duty cycle of transmissions; low spectral density; and indoor-only use. None of these characteristics apply to outdoor fixed point-to-point links. The only characteristic that might apply is that "interference can be self-managed by users", for example, WiFi (IEEE 802.11) networks which are not particularly low power but the system's contention protocols are used to minimise interference between networks. Fixed point-to-point links in the 70 GHz band are said to be "self-coordinated", but in practice these undergo detailed coordination by Accredited Persons—as is the case for microwave links—except that they carry a "no interference, no protection" condition and a much lower licence tax.

Apparatus licensing will allow better control of this new usage while these systems proliferate and co-existence with class-licensed services for wireless access (below 66 GHz) can be gauged. It is important for the ACMA to have a handle on the spectrum so as to avoid the possibility of losing control to a sub-optimal use in the band. This is also important considering the very low popularity of 58 GHz links to date, intended to use "equipment-based" "self-coordination".

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<sup>1</sup> With appropriate guard band TBD.

With a low licence tax as is the case with mmWave self-coordinated link arrangements, apparatus licensing is unlikely to deter use of this technology—and the associated innovation—if it is indeed useful. Furthermore, class-licensing<sup>2</sup> could be prepared relatively quickly if (a) equipment self-coordination was shown to be able to work in practice and (b) device popularity/proliferation grew beyond the levels of current 58 GHz “self-coordinated” links.

It should be noted that Europe continues to authorise fixed P-P links in 54-66 GHz under “light licensing” arrangements, and this should be reflected in Table 2 of Appendix A of the ACMA’s consultation paper.

As explained further in this response, AMTA prefers that no new licensing arrangements be introduced in 66-71 GHz at this time, pending further consideration following the outcomes of WRC-19 Agenda item 1.13. However, if the ACMA insists on permitting outdoor fixed point-to-point links in 66-71 GHz, our strong preference would be for these to be introduced by apparatus licensing arrangements (e.g. extension of RALI FX 20 or Scientific licences), rather than through the LIPD Class Licence.

**2. The proposal that, in general, any change to arrangements should not adversely affect data communications systems operating under existing arrangements. Consequently, no changes are proposed to existing arrangements for:**

**a) apparatus licensed fixed point-to-point (self-coordinated) links that operate in the 58 GHz band (57.2–58.2 GHz)**

**b) outdoor data communication transmitters (59–63 GHz) that operate under item 64 of Schedule 1 to the LIPD Class Licence.**

AMTA agrees with this principle, and in fact believe that apparatus-licensed arrangements—i.e. those in RALI FX20—should be extended into 58.2-66<sup>3</sup> GHz while proliferation of these outdoor fixed point-to-point systems, as well as coexistence with class-licensed services, can be gauged.

## Other comments

In this section, AMTA provides additional comments on the proposals outlined in the ACMA’s consultation paper.

### Comment on Executive Summary

The summary of the proposed updates in the Executive Summary of the consultation paper is slightly misleading. It lists:

- > Updating and expanding existing 60 GHz arrangements (57-66 GHz) for data communication systems, including 5G. Specifically:
  - > Adding 66–71 GHz

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<sup>2</sup> Class-licensing may be replaced by “spectrum authorisations” under the future spectrum management legislative framework.

<sup>3</sup> With appropriate guard band TBD. As explained in response to Question 1, AMTA prefers no new licensing arrangements in 66-71 GHz, but prefers apparatus licensing arrangements (FX20 or Scientific) into 66-71 GHz over class-licensing of this band.

- > Updating existing arrangements in 57–66 GHz regarding indoor and outdoor data communications systems.

This second dot point implies that there are updates to proposed arrangements for indoor and outdoor data communications systems, when in fact the only proposed update in 57-66 GHz relates to outdoor fixed point-to-point links. As such, AMTA proposes a more accurate reflection of the proposed updates is:

- > Updating and expanding existing 60 GHz arrangements (57-66 GHz) for data communication systems, including 5G. Specifically, adding 66–71 GHz.
- > Additional arrangements in 57–71 GHz for outdoor fixed point-to-point links.

#### [Comment on extending provisions for data communication transmitters into 66-71 GHz](#)

AMTA believes it would be wise to wait until WRC-19 to see the level of international harmonisation/interest in the band and what ‘vision’ different administrations have for use of the band. As pointed out by the ACMA, the US/Canada and the UK have allocated 66-71 GHz for unlicensed/licence-exempt use, but that doesn’t necessarily have to be the case here in Australia.

AMTA understands that there may be considerable interest, from organisations other than MNOs, in making this spectrum available as a ‘sandbox’ for experimentation and innovation, however class licensing is not the only way to facilitate this. There’s no reason why the band can’t be made available on a temporary/provisional basis for apparatus licences (including low-cost Scientific licences).

International developments should continue to be monitored so that Australia can strike the appropriate balance between efficient spectrum use, robust and reliable high-speed communications, economies of scale for commercial devices and feasibility to enforce compliance.

Class licensing arrangements (or equivalent arrangements under the future legislative framework) in this unused band could be prepared relatively quickly if the need arose, but it would be very difficult to wind these back if they are not the ideal solution.

Lastly, it should be noted that the provisions of FCC Rules Title 47 Part 15 Section 255 do not support the outdoor hotspot models that feature in sharing and compatibility studies of ITU-R Task Group 5/1 (TG 5/1). The deployment characteristics of Document ITU-R 5-1/36 would require up to 53 dBm/(100 MHz) for a 29 dBi beam. For a beam of this gain, the FCC Rules only allow up to 40 dBm/(100 MHz), considerably less radiated power. As such, AMTA is opposed to the FCC s255 rules being enshrined in legislation.

#### [Comment on radars in 76-77 GHz](#)

The band 71-76 GHz is being considered for identification for use by IMT under WRC-19 Agenda item 1.13. Currently one of the principal issues surrounding the viability of the use of the band for IMT is compatibility with adjacent-band radars above 76 GHz. This is

explicitly expressed in the public Australian Preliminary View (APV) on the band under Agenda item 1.13:

*Australian support for the 71-76 GHz band is on the basis that suitable unwanted emission limits are applied to IMT to protect automotive radar operating in the 76-81 GHz band.*

The issue of compatibility between IMT in 71-76 GHz and automotive radars in 76-77 GHz was studied in TG 5/1, and published in Annex 12 (Part 2) of the TG 5/1 Chairman's Report in Doc. ITU-R 5-1/478.

Two studies (A and B) consider protection of adjacent-band automotive radars conforming to the characteristics of "Radar A" described in Recommendation ITU-R M.2057—*Systems characteristics of automotive radars operating in the frequency band 76-81 GHz for intelligent transport systems applications*. According to this Recommendation, this "Radar A" is "for adaptive cruise control (ACC) and collision avoidance (CA) radar, for ranges up to 250 m. Such radars are considered to add additional comfort functions for the driver, giving support for more stress-free driving", and as such is not considered a "safety-of-life" application. On the other hand, other radar types considered in the Recommendation are shorter-range, high-resolution radar directly contributing to traffic safety, but these only operate above 77 GHz—i.e. there would be at least 1 GHz guard band between IMT in 71-76 GHz and these high-res automotive radars.

Both studies A and B conclude that reductions in unwanted spurious emissions—below -13 dBm/MHz, equivalent to -20 dBW/(200 MHz)—are required to protect automotive radars in 76-77 GHz. However, both studies then arrive at different conclusions:

- Study A concludes that a reduction in unwanted emissions of 11.5 dB is required for base stations (BS), no reduction required for user equipment (UE).
- Study B concludes that even a reduction in 17 dB is insufficient, for both BS and UE.

While the above quantitative results are reflected in the text of the CPM Report intended to provide guidance to administrations participating at the WRC in November 2019, the report on Study B attached to the TG 5/1 Chairman's Report reflects a conclusion from the contributing administrations (Germany, Switzerland and Russia) that "IMT cannot be used in 71-76 GHz" on the basis of the study's results.

AMTA disagrees with the conclusions drawn from the results of Study B, but these are nonetheless the views of administrations, with strong delegations, that will actively participate in the WRC. As such, AMTA does not agree that it is an opportune moment to facilitate introduction of 76-77 GHz in Australia when it could unnecessarily conflate the Australian position and discussions at (and leading up to) the WRC.

As for data communication systems in 66-71 GHz, the class-licensing of automotive radar in 76-77 GHz should be left until after WRC-19.

## Comment on ground-penetrating radar

The ACMA is proposing an amendment to the LIPD Class Licence allowing the operation of ground-penetrating radar and wall-probing radar (GPR/WPR) over the very broad frequency range 30 MHz to 12.4 GHz.

To support this amendment, the ACMA states that:

1. “[GPR/WPR] are intended for use by professionals”
2. “[the proposal] aligns with overseas arrangements”
3. “[the proposal] decreases regulatory burden through class licensing rather than authorisation under the apparatus licensing system”.

AMTA’s main concern is—as pointed out by the ACMA—that the proposed frequency range covers spectrum used by a variety of different industries and interference caused by misuse of this equipment could have a widespread impact across the frequency domain.

### ***GPR/WPR users***

Firstly (point 1) in Australia GPR/WPR are expensive equipment that are often hired rather than bought. While the rates for hire are indicative of equipment used by construction companies rather than “do-it-yourself” use at home, the fact that these can be operated by a different person on any given day, makes questionable the assumption that all users will be technically competent in operating radiocommunications devices.

### ***Alignment with overseas arrangements***

Under point 2 above, it is not clear if the ACMA is referring to *class licensing* of GPR/WPR itself aligns with overseas arrangements, or if just the *technical operating conditions* align with those imposed overseas (e.g. FCC Rules Title 47 Part 15.509 and ETSI EN 302 066).

There are requirements associated with unlicensed/licence-exempt (equivalent to Australian class licensing) overseas are not part of the ACMA’s proposal. For example, in FCC Title 47 Part 15.509, section (b)(1) limits parties operating GPR/WPR to those eligible for licensing under the provisions of Part 90, while section (b)(2) imposes the coordination requirements of Part 15.525. These coordination requirements mandate the user to, *inter alia*, coordinate through the FCC and supply operational areas to the FCC Office of Engineering and Technology. The Part 90 Rules are about Private Land Mobile Radio Services, and eligibility requirements are specified for each band addressed in that Part.

Since the proposed amendment to the LIPD makes direct reference to Part 15.509, which in turn makes direct reference to requirements that mention the FCC, how are Australian users meant to comply with this LIPD condition? If section (b) of Part 15.509 is explicitly excluded from the LIPD condition, then that would make the Australian conditions far more relaxed than those in the US, thereby not really aligning with overseas approaches.

In Europe, ETSI EN 302 066 only specifies technical characteristics of the devices rather than regulatory requirements. The ACMA has referred to ECC Decision (06)08, which does note that there have been no reported instances of interference due to GPR/WPR. However, it does not recommend a class licensed approach, rather that GPR/WPR “shall be subject to an appropriate licensing regime” to be implemented by each European administration. As part

of an informative recommendation in Annex 2 of the Decision, the ECC recommends “it is recommended that the national licensing regime include the three individual requirements: Operator registration; Notification prior to use in the vicinity of sensitive sites; Yearly log file to be kept by the user for inspection by the [National Regulatory Authority]”.

From an overview of the overseas arrangements above, it can be seen that the existing Scientific Non-Assigned apparatus licensing arrangement in Australia is already less onerous than what is required overseas.

If the ACMA is focussed on aligning emission limits with those in the arrangements of the US and Europe, then the FCC Rules (technical aspects only) and ETSI standard can be referenced in an amendment to the *Radiocommunications Licence Conditions (Scientific Licence) Determination 2015*. However as explained above, the class licensing of these systems is not actually in step with what is being adopted overseas.

Under point 3 above, AMTA agrees that class licensing would further reduce licensing requirements, however we note that the existing process is not burdensome. Under a Scientific Non-Assigned licence, the licensee is not required to register the location of use of each GPR/WPR every time it is moved and/or hired out. The cost to establish and maintain the apparatus licence is very low (\$54 to set up and annual renewal thereafter is \$44). The benefit is that, through the apparatus licensing system, the ACMA has a record of these radars that could be in operation throughout Australia and a contact that could assist in tracking down the device if required for interference investigation and resolution.

As such, AMTA opposes the addition of GPR/WPR Radiodetermination transmitters to the LIPD Class Licence.

## Contact

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