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AMTA Submission

Australian Communications & Media Authority

Proposed updates to RALIs LM08, FX16
and FX22



About AMTA

The Australian Mobile Telecommunications Association (AMTA) is the peak industry body representing Australia's mobile telecommunications industry. Its mission is to promote an environmentally, socially and economically responsible, successful and sustainable mobile telecommunications industry in Australia, with members including the mobile network operators and service providers, handset manufacturers, network equipment suppliers, retail outlets and other suppliers to the industry. For more details about AMTA, see <http://www.amta.org.au>.



Introduction

As expressed in multiple previous consultation processes, we are opposed to the imposition of coordination requirements on 700 MHz spectrum licences, which have the potential to significantly increase costs associated with, or even hinder outright, the deployment of 700 MHz base station infrastructure.

It is worth clarifying up-front that we understand and accept that the issue of existing apparatus licensed services that have recently migrated to, or are shortly required to migrate to, the lower 800 MHz band (between 804 and 809 MHz) cannot be ignored and has to be dealt with in a reasonable fashion such that as many of the existing apparatus licensed services can operate as required, albeit following cooperation and/or negotiation between affected licensees if required.

However, we believe that the ACMA's policy decisions over the past year or so, to continue to support new services into this spectrum—when the difficulties associated with the compatibility between services on either side of the 803 MHz boundary are now well known—are not justified, nor has the ACMA sufficiently explained how its approach, on balance, promotes the long-term public interest derived from the use of this spectrum.

As such, in this response, we implore the ACMA to take regulatory action to prevent this incompatible environment from being exacerbated.

While the ACMA has carried out a significant body of work in developing the “relaxed protection criteria” (RPC), these offer only minor improvements to the potential spectrum denial to 700 MHz spectrum-licensed base stations that can be caused by apparatus licences, and present little in the way of disincentive to prospective apparatus licence applicants—thereby allowing the continued growth of the potential spectrum denial to and impact on adjacent band 700 MHz spectrum licences.

While the RPC is a small step in the right direction, we require stronger policy barriers to new apparatus licences. Noting that the ACMA continues to allow new entrants into 804-809 MHz, we seek that *at a minimum* there be some guidance for new apparatus licence applicants to:

- A. *only* use this spectrum where absolutely necessary and where other band options have been exhausted, namely the 400 MHz Band for Trunked Land Mobile Systems (TLMS) and Fixed Point to Multipoint (P-MP) services, and the microwave bands for Fixed Point to Point (P-P) links.
- B. an expectation for apparatus licensees to cooperate with 700 MHz spectrum licensees where adjacent-band interference occurs, with a view to resolve the interference in a productive and constructive manner.

Coordination requirements to protect P-P, P-MP and TLMS receivers

ACMA’s approach undermines certainty and long-term utility of 700 MHz spectrum

AMTA appreciates that promoting the long-term public interest from the allocation and use of spectrum is a dynamic objective. This means that, in specified circumstances, spectrum-licensed services need to coexist with class- and apparatus-licensed services in adjacent spectrum space. Indeed, it is understood and expected that no licensee is entitled to operate in completely interference-free environment.

AMTA wishes to reiterate the general concern expressed in recent submissions on the 700 MHz SLTF (June and September 2022), as well as in our letter to the ACMA in May 2023¹ and in our submission to the Technical Liaison Group (TLG) on the review of the 700 MHz spectrum licence technical framework (SLTF) of August 2023, that the absence of guidance on and consideration of coordination requirements between transmitters below and receivers above 803 MHz is a costly oversight in the ACMA’s spectrum management of both the 700 MHz and 800 MHz bands.

Mobile network operators (MNOs) require a high degree of certainty that spectrum-licensed services are able to be deployed without undue spectrum denial in order to commit the significant expenditure required of network deployments. Spectrum licences have provided the requisite certainty and exclusivity to support the substantial investments in mobile telecommunications infrastructure made by MNOs.

The ACMA’s new protection criteria effectively affords apparatus- and spectrum-licensed services “co-primary” status with interference management to be decided on a “first-in-time” registration basis. These new arrangements not only introduce new administrative and resource burdens on MNOs to coordinate, but the increased cost implications of new equipment and filters—let alone potential restrictions on deployments—dilutes certainty of spectrum access, and ultimately, may undermine investment.

In this context, it remains unclear to AMTA members how the proposed arrangements promote the long-term public interest from this crucial low band spectrum. This has never been explained by the ACMA other than, for over 12 months, to stick to the planning decisions of 2015 and take them as a *fait accompli*. AMTA maintain the view that any public benefit arising from the ACMA’s support for adjacent-band apparatus-licensed receivers is highly likely to be outweighed by the negative impact of increased interference potential and coordination complexity on MNO investment incentives.

¹ AMTA CEO Louise Hyland, 2 May 2023, Letter to ACMA Authority Member James Cameron titled “Matters impacting spectrum management and value of licence rights”

The Australia-wide spectrum licences in the 700 MHz band were acquired at auction in 2013 on the basis that the band was unencumbered other than arrangements made for legacy digital terrestrial television broadcasting (DTTB) services. The relative exclusivity that this afforded spectrum licensees was key to ensuring that the 700 MHz band was then heavily-utilised by mobile carriers to deploy national 4G mobile networks, which have delivered significant public benefits to Australia.

The introduction of new protection and coordination requirements on spectrum licence holders undermines the regulatory predictability required for the deployment of national mobile networks. The clear intention is that these arrangements apply in perpetuity, thereby indicating that the ACMA intends that that 804-809 MHz will be available for use by new apparatus licensees rather than just migrated services. In AMTA's view, this is a highly concerning precedent and one which ultimately dilutes the rights of spectrum licence holders to access crucial low-band spectrum.

The ACMA has recognised that telecommunications services are essential services². The Communications Minister has noted they are *"a necessity to support ... access to critical services"*³. The Government's Statement of Expectations for the ACMA confirms that the ACMA *"has an important role to support industry and consumers in delivering and accessing essential communications services"*⁴.

Many spectrum licences, including in the 700 MHz band, are to expire during the period 2028-2032. AMTA submits that it is in the public interest that the ACMA continue to maintain the requisite degree of predictability and exclusivity in access to spectrum licensed spectrum thereby facilitating the continued investment in providing essential services for the long-term benefit of Australians.

AMTA view on protection requirements in the 700 MHz Tx RAG and RALIs

In light of the above, we consider it unacceptable that apparatus-licensed receivers could potentially deny access to 700 MHz BS over distances in the order of the required separation distances proposed by the ACMA, for example,

- 1.2 km in capital city areas where TLMS are mostly licensed;
- In the order of 60+ km in regional areas around fixed P-P link receivers (and in the direction that the receiving antenna is oriented).

² ACMA, July 2023, *What consumers want – Consumer expectations for telecommunications safeguards, A position paper for the telecommunications sector*, p.2

³ The Hon Michelle Rowland MP, Minister for Communications, 6 July 2023, *Albanese Government to improve safeguards for telco consumers experiencing financial hardship*, available at:

<https://minister.infrastructure.gov.au/rowland/media-release/albanese-government-improve-safeguards-telco-consumers-experiencing-financial-hardship>

⁴ ACMA, December 2022, *Australian Communications and Media Authority Statement of Expectations*, p.1

Therefore, we oppose the requirement to protect any *new* apparatus-licensed services in the 800 MHz band, noting that these have the potential to restrict further deployment of 700 MHz networks (e.g. new sites) and also restrict upgrades to existing sites where the interference potential may increase (e.g. higher-gain antennas, higher-order MIMO). Such deployment of additional sites and/or system upgrades are needed to deliver higher capacity, energy efficiency, spectrum efficiency and/or more coverage etc, in line with the object of the *Radiocommunications Act 1992* to promote the long-term public benefit derived from the use of the 700 MHz spectrum.

We note that for those new apparatus-licensed services for which application closer to an existing spectrum-licensed 700 MHz BS was achieved via a *voluntary* relaxation of the protection criterion, the ACMA is proposing to require that apparatus licence to carry an Advisory Note stating that it accepts an interference level worse than the protection criterion afforded by the relevant RALI. In any scenarios where spectrum-licensed 700 MHz BS are required to coordinate with apparatus licensed receivers, we accept the use of this Advisory Note approach in the draft RALIs and consider it will serve as a transparent baseline for future coordination following acceptance of higher interference levels by an apparatus licensee. At the same time, we stress again the importance of only using the 804-809 MHz band as a last resort where all other options have been exhausted.

Fixed Point to Point links

We acknowledge that the ACMA has taken on board some elements of our previous suggestions, and now proposes to introduce RPC for fixed P-P links. In any scenarios where spectrum-licensed 700 MHz BS are required to coordinate with apparatus licensed P-P receivers, we support the introduction of this RPC in the review of RALI FX 22.

Coordination details aside, and focusing on the higher-level issue, we consider it entirely unacceptable that any new fixed links that may be applied for—and for which the licence applicant would be well aware of the close proximity and therefore interference risk from adjacent-band 700 MHz BS transmitters—would be granted first-in-time priority over a spectrum-licensed BS. A new P-P link should never be first-in-time, and we strongly oppose that new P-P links could further inhibit deployment of 700 MHz networks.

We argue that the uncertainty and obstruction to 700 MHz network rollout are not outweighed by the benefits of the 800 MHz P-P link spectrum arrangements. On one hand, national mobile broadband networks, including in the 700 MHz Band, are in many locations the only (or at least *the most efficient*) way to provide broadband connectivity to the highest number of end-users. On the other hand, fixed P-P links in the 800 MHz band is just one way to connect a limited number of sites.

The benefit of continued support for fixed P-P links in the 800 MHz band is limited because fixed P-P links have ample alternative spectrum in (a) the 400 MHz Band for narrowband links and (b) microwave bands of RALI FX 3 for wideband links. In general, there is no real technical need for deploying wideband P-P links in the 800 MHz Band—it's simply a matter of costs, which we note

has been ameliorated by the ACMA's significant reduction of licence tax for fixed links above 5 GHz.

In November 2023, we reviewed all existing 800 MHz P-P links in 803-807 MHz, and found that of the 200 links licensed at the time,

- 87 had 12.5 or 25 kHz bandwidths, which can be supported in the 400 MHz band; and
- there were 102 x 200 kHz fixed links, two-thirds of which were in NSW (vast majority NSW State Government entities), and of these, only approx. 25 links were 50 km or longer, and only 15 links were 60 km or longer. Links shorter than this can readily be accommodated in the microwave fixed link bands of RALI FX 3.

As such, it appears that there are many links which have the potential of causing spectrum denial to 700 MHz spectrum-licensed BS, but that don't really need to be there. To address this, we recommend the inclusion of some guidance or recommendation in RALI FX 22 that two-frequency fixed links (TFFL) should only be applied for in this band if other band options have been exhausted.

Furthermore, the RALI should include an expectation for apparatus licensees to cooperate with 700 MHz spectrum licensees where adjacent-band interference occurs, with a view to resolve the interference in a productive and constructive manner.

Lastly, with a view to reducing the likelihood of interference in practice, we propose the following amendments to RALI FX 22:

1. A revision of the assignment priority (section 6.2.3, Table 9 of RALI FX 22) such that the assignment priority is in *Descending order* for all of 804-805.5 MHz and 849-850.5 MHz. It is clear that the greatest potential for interference in practice is at the 804 MHz boundary, rather than at the 805.5 MHz boundary, given that (a) there are very few P-MP licences in Australia (see following section), and (b) that while the vast majority of TLMS are in metro areas, there are more TFFL in regional areas, meaning that these two types of systems are not typically co-located. As such, the assignment priority should be reviewed to address the higher-risk 804 MHz boundary rather than the 805.5 MHz boundary.
2. TFFL licensees should be required—in accordance with RALI FX 22—to adopt appropriate filtering on their receivers within 804-805.5 MHz. Furthermore, specific guidance should be included to clarify that the filtering should be tuned such that the lower edge of the passband is no lower than the lower edge of the licensed channel.

Fixed Point to Multipoint (P-MP) services

We note that there are only five (5) two-frequency P-MP licences in all of Australia in the frequency range 803-960 MHz, and all but one on pre-transition arrangements—i.e., they have not migrated to the post-transition arrangements even though the compliance date was over two years ago. All of these are narrowband systems with either 12.5 or 25 kHz channel width, so there is no reason why they cannot migrate to the 400 MHz band. **As such, due to the very low**

demand, we suggest (a) retiring the P-MP arrangements in the 800 MHz band and (b) requiring the remaining 900 MHz band services to migrate to the 400 MHz band (instead of to the 800 MHz band). The one existing service in the post-transition arrangements (i.e., Pilbara Iron Company (Services) Pty Ltd Licence 11426670/1) can remain where it is.

Noting the ACMA’s calculated required separation distance of 60 km around a P-MP hub station receiver, a single P-MP licence could be applied for in a capital city and deny potentially *thousands* of 700 MHz BS registrations; the difference in the scale of the potential impact to 700 MHz networks is *massive* compared to the impact of retiring the P-MP arrangements, affecting just a handful of services.

The ACMA’s oversight in planning the 800 MHz band was an unfortunate error which now needs to be resolved, so the ACMA should not shy away from cancelling these P-MP arrangements which cause uncertainty for spectrum licensees for next to no benefit.

Coordination grandfathering clause

The preceding section highlights the risk to 700 MHz spectrum licensed services, even those existing base stations that are already deployed. In this section we present one solution to address this.

The ACMA has introduced a “grandfathering clause” in Part 12—*Transitional – radiocommunications transmitter registered before the commencement of this instrument*—of the s145 Determination for the 700 MHz band—the *Radiocommunications (Unacceptable Levels of Interference — 700 MHz Band) Determination 2023*. This clause is intended to ensure that:

- a) an existing transmitter is not deemed to be causing unacceptable interference due to revisions to the s145 Determination; and
- b) minor changes to an existing transmitter—which would not increase the interference potential of that transmitter—are permitted even though the revised s145 Determination would deem the transmitter to be causing unacceptable interference when the changes are being registered in the Register of Radiocommunications Licences (RRL).

A provision similar to the grandfathering clause described above needs to be included in the Tx RAG to ensure that:

- a) an existing* transmitter is not deemed to contravene its requirements to protect adjacent-band apparatus-licensed receivers following the introduction of these protection requirements; and
- b) minor changes to an existing* transmitter—those which would not significantly⁵ increase the interference potential of that transmitter—are not deemed to contravene the newly-introduced protection requirements.

Introducing a clause along these lines would partially resolve the issue described in the case study in the preceding section. It would allow an MNO to make minor (not significant) upgrades to their

⁵ For example, the interference potential of the transmitter is not increased by more than 3 dB in the horizontal plane.

base stations where coordination fails against an apparatus licensed device which was introduced after Milestone 1 but before coordination requirements were introduced in 2023. The proposed clause is referred to hereon as the *“coordination grandfathering clause”*.

The protection requirements (for adjacent-band apparatus-licensed receivers) were introduced into the Tx RAG in spite of heavy opposition from the mobile industry, and clear statements that the introduction of these requirements would significantly undermine the investments made in the 2013 digital dividend spectrum auction—a process during which there was no mention of protection of future apparatus-licensed receivers immediately above 803 MHz. For this reason—and to explain the asterisk next to ‘existing’ above—the coordination grandfathering clause should apply to transmitters already registered in the RRL from a future date TBD, not from the date of commencement of the 2023 Tx RAG (i.e. 16 March 2023).

Noting that the protection requirements to future new adjacent-band apparatus-licensed receivers are only just being consulted on, and to give spectrum licensees time to consider the impact on their network plans, we propose that this “future date TBD” should be 16 March 2024 (i.e. one year from the making of the 2023 Tx RAG).

Prior to the making of the Tx RAG—which notably was almost two years after the compliance date for TFFLs migrating to the lower 800 MHz band—any potential interference between spectrum-licensed transmitters and apparatus-licensed receivers simply has to be addressed as a matter of site management, and (anecdotally) there has not been a high incidence of adjacent-band interference in practice. It is critical that existing* spectrum-licensed transmitters are not deemed to be contravening the protection requirements of the Tx RAG due to the introduction of the latter, and that there is sufficient flexibility to allow for equipment upgrades.

Lastly, the coordination grandfathering clause would need to be adequately reflected in the relevant updates to RALIs FX22, FX16 and LM8.

Updates to the RRL should not reset the original site registration date

Another related issue is that an update to the RRL, regardless of whether the upgrade results in a material change or not, should not reset the original site registration date. At present, all changes in the RRL reset the registration date, making it appear that the date of upgrade is the date the site was first registered. The history of the original registration, and any subsequent changes are lost.

To be clear, we are not asking to be able to deploy changes that cause a material change in the emission characteristics without recording the date of those changes. To the contrary, we consider it important that the date of any change, material or not, is recorded in the RRL. By preserving the original site registration date, if there is an alteration or upgrade that does not materially change the emission characteristics (and hence, interference characteristics) of the base station, then there is a record of the original site registration to assist with interference investigations.

To illustrate this further with an example, consider an upgrade to a site that has a material increase in the OOB, however, the increase still falls within the OOB limits of the spectrum licence. This could occur, for example, if the OOB levels prior to the upgrade were significantly below the levels required in the licence conditions, but then because of the upgrade, the levels rise to become closer to, but still underneath the limits stipulated in the licence.

Assuming this to also be a scenario where an Accredited Person (AP) determines the upgrade can proceed, (i.e., an IIC can be issued because the change still passes the coordination tests with nearby TFFL and/or TLMS services), then the MNO will proceed to register the change in the RRL and deploy the upgrade to the base station. As noted, at present updating the RRL results in the date being reset in the RRL (complete amnesia). If, subsequent to our upgrade, the operator of an (apparatus licensed) TFFL or TLMS perceives they are getting interference, the MNO is at an automatic disadvantage, because the date-stamp on the original site registration has been lost.

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