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AMTA Submission

Australian Communications & Media Authority

IFC 10/2022—Proposed spectrum re-
allocation declaration for the 3.4 GHz
and 3.7 GHz bands—Consultation
paper



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

AMTA welcomes the opportunity to provide comments on the proposed spectrum re-allocation declaration for the 3.4 GHz and 3.7 GHz bands within the broader 3.4-4.0 GHz frequency range. We understand that the ACMA will receive different views and preferences for where, when and how spectrum is to be re-allocated for spectrum licensing (or not), even from within the mobile community itself. As such, we wish to present a common set of principles—which we believe the ACMA would already largely agree with, based on the content of the discussion paper—intended to help guide the ACMA in its upcoming decision-making process in relation to the 3.4-4.0 GHz band.

Overarching AMTA Principles

I. Maximise opportunity for band defragmentation by implementing unified geographical boundaries over as wide a frequency range as possible.

Band defragmentation relies heavily on, or at least is facilitated greatly by, the ability to trade licences in accordance with section 72 of the *Radiocommunications Act 1992*. Where the area of one spectrum licensee is different to the area of another spectrum licensee with which trading is desired, this presents a major obstacle to secondary trading because of the potentially different values of the two different licensed areas. As such, achieving common areas across the band—to the maximum extent practicable—is a key priority.

II. Maximise the quantum of spectrum-licensed spectrum.

The ACMA's Option 3 is undesirable as MNOs lose 15 MHz of spectrum-licensed spectrum in Regional Area 2 and 50 MHz in Major Regional Centres 1. The quantum of spectrum-licensed spectrum within 3400-3800 MHz should be maximised, noting that AWLs will be provided 200 MHz of spectrum above 3800 MHz.

III. Minimisation of boundaries (frequency and geographical) between SL and AWL, by limiting the allocation to AWLs on one end of the band.

AWLs need to be allocated in spectrum either abutting 3400 MHz (potentially requiring a swap with NBN Co in certain regional areas) or above the top of the portion of spectrum-licensed spectrum available for MNOs. MNOs do not wish to synchronise with AWL licensees. The ACMA understands this, reason for which it has adopted a more stringent device boundary criterion

(DBC) in the draft RALI MS 47 (to address co-channel cross-border interference), and restricted use bands (to address adjacent-channel interference).

IV. 3.4-4.0 GHz should be optimised for 5G.

3.4-4.0 GHz C-band spectrum is the pioneer/flagship band for 5G NR. Persisting arrangements to facilitate new 4G LTE deployments is inefficient and not in line with the Government policy around the advent of 5G, including the Ministerial Policy Statement (MPS) for the 3.4-4.0 GHz band, which explicitly mentions 5G as a new and innovative technology which must be supported¹.

V. NBN Co must be required to restack and consolidate their spectrum holdings.

We note that in certain areas, NBN Co has very large spectrum holdings (over 100 MHz in some areas). Furthermore, there are certain regional areas where NBN Co spectrum holdings are fragmented across the 3.5 GHz portion of the band which is currently apparatus-licensed. To maximise the efficiency of the regional 3.4 GHz auction and the subsequent use of the band thereafter, we believe there are steps that can be taken to including:

- an evolution to 5G;
- re-evaluation of spectrum needed to provide FWA services;
- consolidation and restack to the lowest part of the band practical; and
- relinquish excess/unused spectrum.

VI. Re-allocation periods to be as short as possible below 3575 MHz.

Noting the important restacking and consolidation activity that needs to be carried out, the potential obstacle posed by incumbent apparatus licences should be removed as soon as possible.

¹ Department of Infrastructure, Transport, Regional Development and Communications, 10 February 2022, *Ministerial policy statement for the 3.4-4.0 GHz spectrum band*, available here: <https://www.infrastructure.gov.au/departments/media/news/ministerial-policy-statement-34-40-ghz-spectrum-band>

AMTA position on frequency arrangements within the 3.4-4.0 GHz band

AMTA strongly supports the comments made by the ACMA that:

- a) spectrum-licensing is the most appropriate licensing mechanism for supporting wide-area wireless broadband (WA WBB) in metro and regional areas;
- b) re-allocating for spectrum licensing the spectrum space that's not currently spectrum-licensed will provide much greater opportunities for defragmentation of the band in future, ensuring the most efficient use of the spectrum²; and
- c) this will also reduce restricted bands in spectrum designated for AWLs.

The comments in the preceding paragraph might seem to lean towards support for the ACMA's Option 3, in which the spectrum space that isn't currently spectrum-licensed, will be re-allocated for spectrum licensing. However, with Option 3, AMTA opposes the allocation of 3750-3800 MHz for apparatus-licensed area-wide licences (AWLs) in regional areas. Rather, AMTA requests that this spectrum also be re-allocated for spectrum licensing³.

We understand that through Option 3 the ACMA seeks to carry out somewhat of a 'swap' of spectrum holdings at 3.5 GHz⁴ with the 50 MHz in 3750-3800 MHz, to maintain some spectrum provisions for AWLs below 3800 MHz. However:

- a) The ACMA has not really justified the need for this in its consultation paper;
- b) In some of the more populated areas, the spectrum that would be re-allocated for spectrum licensing at 3.5 GHz (under Option 3) would be less than the 50 MHz that would otherwise be available in 3750-3800 MHz;
- c) The dead zones and potential fragmentation that arises from having AWL immediately surrounding metro areas is simply shifted from 3475-3510 MHz to 3750-3800 MHz.

As such, AMTA opposes any spectrum being made available for AWLs, in metro and regional areas, in any part of the band 3400-3800 MHz. Rather, we request that the entire band be spectrum licensed (in metro & regional areas)⁵.

² "There are benefits in using the same licence type for spectrum optimised for WA WBB use across the frequency range 3400–3800 MHz. Specifically, it will allow licensees to deploy services under similar regulatory arrangements, reduce or remove the effect of orphaned spectrum and facilitate the defragmentation of their spectrum holdings."

³ Pivotal has a separate view on this matter, which will be reflected in its own individual submission.

⁴ "3.5 GHz" refers collectively to the spectrum proposed to be made available for AWL under Option 1, i.e. 3492.5–3542.5 MHz (Major Regional Centres 2), 3475–3542.5 MHz (Regional area 1) and 3475–3510 MHz (Regional area 2).

⁵ Pivotal has a separate view on this matter, which will be reflected in its own individual submission.

Arguments in support of an “all-SL” approach

The ACMA’s proposal to set aside 35-65 MHz spectrum at 3.5 GHz for AWLs in (certain) regional areas was first made in April 2019, in IFC 12/2019⁶. In this paper, the ACMA presented options which intended to maintain provisions for localised, apparatus-licensed WBB operations—licensed under Fixed Point to Multipoint (P-MP) licences—while consolidating them at 3.5 GHz to facilitate a restack of NBN Co’s holdings to the bottom of the 3.4 GHz Band. Later that year, the 3400-3575 MHz Planning decisions and preliminary views paper was released in November 2019, at which point it was still unknown how much AWL spectrum would be made available above 3800 MHz.

In short, the spectrum provisions for apparatus-licensed WBB services around 3.5 GHz were consulted on (and even *decided on*) well before the consideration of 200 MHz of spectrum for local area (LA) WBB operations above 3800 MHz, which came much later in July 2020 with IFC 22/2020⁷ (noting that IFC 27/2019⁸ of August 2019 only presented potential band-planning options for “new services” including both WA and LA WBB).

In the ACMA’s paper, it states that *“Recent consideration of technical arrangements for the 3.4 GHz and 3.7 GHz bands, and alignment between the 3400-3700 MHz and 3700-4200 MHz processes, has provided an opportunity for a holistic assessment of arrangements across the broader 3400-4200 MHz band”*. We agree with this statement, and now that the possible spectrum provisions can be considered holistically across 3.4-4.0 GHz, we don’t believe that the ACMA needs to remain wedded to the decision to provide 35-65 MHz of spectrum for LA WBB at 3.5 GHz, so these decisions can and should be re-evaluated. Compromising the quality of spectrum-licensed spectrum for wide-area 5G MNO networks below 3800 MHz for the sake of providing an additional 35-50 MHz⁹ of spectrum for AWLs, is no longer necessary considering 200 MHz of spectrum is being dedicated to AWL above 3800 MHz.

While we do acknowledge that 4G LTE cannot operate above 3800 MHz, we agree with the view expressed in the consultation paper that “5G equipment is becoming increasingly available that can operate in the 3300–4200 MHz frequency range”. Following “the year of 5G”, we believe all new services should be looking towards 5G, and that there is no reason that spectrum arrangements should be planned with any focus on continued support for 4G in the flagship 5G spectrum band of 3.4-4.0 GHz.

The exception is the presence of a handful of incumbent P-MP licensees—which may indeed have existing proprietary or 4G equipment with tuning range limitations below 3600 (3GPP Band 42) or 3800 MHz (3GPP Band 43)—but which are small in number and limited to Regional Areas 1 and 2.

⁶ ACMA, April 2019, Optimising arrangements for the 3400-3575 MHz band—Options paper

⁷ ACMA, July 2020, Replanning of the 3700-4200 MHz band—Options paper

⁸ ACMA, August 2019, Planning of the 3700-4200 MHz band—Discussion paper

⁹ 35 MHz in “Regional 2” representing the NBN Co wireless access coverage areas plus buffer zones; 50 MHz in Major Regional Centres 2 i.e. Cairns, Townsville, Rockhampton, Albury/Wodonga, Launceston & Hobart. 65 MHz is only available for AWLs in the rural “Regional 1” Areas.

These incumbent services can be addressed separately, either with longer re-allocation periods (to allow return-on-investment) or with support from the Government to migrate to newer 5G solutions above 3800 MHz in the near future.

Minimum requirements for 3.4-4.0 GHz re-allocation

Further to our support for the entire band 3400-3800 MHz to be spectrum-licensed (SL) in metro & regional areas, we note that the ACMA's intended 'swap' of AWL and SL spectrum leaves MNOs "short-changed" in certain regional areas:

- **Major Regional Centres 1:** Under the Planning decisions of Nov 2019, 3492.5-3542.5 MHz was to be made available to "major regional centres", although perhaps it was an oversight that the Major Regional Centres 1 and 2 were not considered separately. As per Option 1, Major Regional Centres 1 is currently spectrum-licensed and therefore there is no apparatus-licensed spectrum that could be made available for AWLs ~3.5 GHz in these areas. Under Option 3, MNOs would lose 50 MHz of SL spectrum in 3750-3800 MHz, which was never available for apparatus licences to begin with.
- **Regional Area 2:** Only 35 MHz is available for new SL in 3475-3510 MHz, which is less than the 50 MHz of SL spectrum in 3750-3800 MHz.

Furthermore—either in 3475-3510 MHz or 3750-3800 MHz—Regional Area 2 allocated for AWLs immediately surrounding SL metro areas is very problematic, as it creates dead zones for operators (both AWL and SL) in more highly-populated areas, and would prevent MNOs from consolidating their metro & regional spectrum to facilitate continuous coverage across the metro/regional border.

These two issues must be addressed, and as such, as a minimum, we would request that both:

- **Major Regional Centres 1; and**
- **Regional Area 2**

be spectrum-licensed across the entire frequency range 3400-3800 MHz¹⁰.

We note that there are only two incumbent P-MP licensees in Regional Area 2 which would be affected by re-allocation of Regional Area 2 to spectrum-licensing: Mach Mount Pleasant Operations Pty Ltd (in Muswellbrook NSW), and Loy Yang Power Management Pty Ltd (in Loy Yang VIC). All the remaining incumbent P-MP licensees are in Regional Area 1 only.

In the consultation paper, the ACMA notes that not re-allocating 3750-3800 MHz for spectrum licensing in regional areas would preserve options for point-to-point links and earth stations in regional areas. We note that in the band 3750-3800 MHz, most existing Earth Receive licences are

¹⁰ 35 MHz in "Regional 2" representing the NBN Co wireless access coverage areas plus buffer zones; 50 MHz in Major Regional Centres 2 i.e. Cairns, Townsville, Rockhampton, Albury/Wodonga, Launceston & Hobart. 65 MHz is only available for AWLs in the rural "Regional 1" Areas.

in metro and remote areas, with only one licence held by the Preparatory Commission for the CTBTO in Canberra. There is also an Earth Receive licence in Uralla NSW, but this would be protected by its ESPZ anyway. As such, we do not wish for the benefits to earth stations to be overstated. We do however acknowledge that Digital Distribution Australia's (DDA's) fixed links would be impacted.

Lastly, if the ACMA does make provisions for AWL in Regional area 1, these should be at the bottom of the band, with the New SL to be made between a lower allocation edge of 3475-3505 MHz and an upper allocation edge of 3542.5 MHz. It is inefficient for the "New SL" to be allocated below NBN Co's holdings and therefore fragmented below NBN and above AWL. It makes more sense for AWL to be fragmented across NBN Co. NBN Co should then be required by ACMA to re-stack up to abut New SL and consolidate AWL at the bottom of the band. We note that this will have an accompanying requirement for NBN Co to restack up before AWLs are made available in the band.

AMTA views on other matters

AMTA views on geographical areas for 3.4 GHz and 3.7 GHz re-allocation

As per our AMTA Principle I, band defragmentation is heavily reliant on geographical areas being uniform over as much of the band as is practicable. We have some different views within our membership on the specific areas that should be auctioned in specific parts of the broader 3.4-4.0 GHz frequency range, and these will be expressed in individual member submissions.

However, there is a unified AMTA view that the 3.7 GHz auction (3700-3800 MHz) should use the same areas as those that were used in the 3.6 GHz auction of 2018¹¹.

AMTA position on Urban Excise

Please refer to AMTA's October 2021 submission in response to IFC 31/2021: Planning for wireless broadband use in urban areas in the 3400–3475 MHz band—Options paper. In line with the views expressed in that response, we agree with the ACMA's Option A: **to re-allocate for spectrum licensing the band 3400-3475 MHz in the Urban Excise areas.**

Furthermore, AMTA supports the segmentation approach with the top portion of the band designated for restricted cell (RC) use. We do not have a common view on the split between macro-cell and RC segments (currently 150/50 in the ACMA's discussion paper), and members will express their views in their individual submissions. As a result, the ACMA may wish to revise the numbers of the split. We note the following from some of our internal discussions:

- The macro-cell/RC split could be adjusted to facilitate uniform channel sizes across the 3800-4000 MHz band, e.g. 160/40 MHz.
- In terms of equipment, there are some devices that have tuning ranges that only reach 3980 MHz. As an example, for these devices, a 50 MHz RC segment would still provide 30 MHz usable spectrum for those RC applications, but anything smaller may make the segment unusable.

Earth station protection zones (ESPZ)

We don't see a need to excise ESPZs from any spectrum licence area in regional 3.4 GHz, since the fixed-satellite service (FSS) is secondary below 3600 MHz. Beyond that, we acknowledge that the excision or otherwise of ESPZs depends on the geographical areas adopted by the ACMA for the spectrum to be auctioned in the regional 3.4 GHz offering. For example, existing spectrum licences in 3442.5-3475 MHz and 3542.5-3575 MHz do not have ESPZs excised.

¹¹ The only exception to this consensus is that TPG Telecom seeks further modification to the Brisbane metro area, which will be expressed in its individual submission.

However, since we support the alignment of geographical areas across the band, at least above 3575 MHz, we do agree with the excision of ESPZs in the 3.7 GHz band, to align with the existing spectrum-licensed areas in the 3.6 GHz Band.

Re-allocation period

We note the ACMA's statement that *"The spectrum in the following frequency ranges and geographic areas [over 3475-3575 MHz] is currently occupied by a mix of FSS, amateur, and PMP services."* We don't agree that the inclusion of FSS is correct, as the only Earth Receive licences in this range are at Mingenew WA, outside the proposed re-allocation areas.

As such, below 3575 MHz, the only existing sited apparatus licences to consider are incumbent P-MP licences. To facilitate important restacking activities that need to be carried out ASAP—to achieve band de-fragmentation—and full utilisation of spectrum-licensed holdings, these should be subject to a shorter re-allocation period of 2 years. While we understand that these were only recently required to restack, we believe that they could be migrated to newer 5G solutions with government assistance, funded by auction proceeds if necessary.

The Amateur service is permitted under the Advanced Amateur Licence, but existing spectrum licensed areas are currently excluded in the Amateur LCD. The WIA Band Plan (9 cm Band) clarifies that amateur operation is permitted in country & remote areas outside the restricted areas. As such, the Amateur service is indeed also an incumbent service that would need to cease operation.

As such, we support the making of two separate re-allocation declarations:

- One with a 2-year re-allocation period for Regional 3.4 GHz; and
- Another with different re-allocation periods for the 3.7 GHz band (2 years *in metro areas*).

Note that AMTA does not have a view on the re-allocation period for 3.7 GHz *in regional areas*—members will provide their individual views on this in their own submissions.

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