

11/02/2022



AMTA Submission

Australian Communications & Media Authority

# Exploring the future use of the 1880- 1920 MHz band Discussion 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 of WBB in the 1.9 GHz Band

For the Australian mobile industry, in the face of exponential growth in mobile data, the allocation of spectrum for wireless broadband (WBB) is always of potential interest. However, in the 1.9 GHz Band, multiple inter-service considerations stack up: the presence of class-licensed DECT services—already operating in 1880-1900 MHz for many years—and the importance of having sufficient guard bands and/or power limitations to protect adjacent-band 2 GHz base station (BS) receivers above 1920 MHz, along with any competing interests to access the band. Together, these mean that the 1.9 GHz Band is likely not suitable for any wide-area WBB network.

However, one AMTA member believes that the 1.9 GHz Band could be used to provide WBB to particular premises/customers **on an opportunistic basis** and to serve customers where interference can be managed and/or other spectrum options are lacking. Where members have specific suggestions, they will convey them through their individual submissions.

AMTA lists the following factors that should be taken into account in any future planning of the 1.9 GHz band, which we consider is best served by the ACMA's proposed "Scenario 5":

- AMTA stresses the importance of (a) the protection of adjacent-band 2 GHz BS receivers; (b) no harmful interference, nor undue constraint, to 1.8 GHz or 2 GHz networks; and (c) protection of, and continued support for, P-P links. More detail on each of these issues is provided below.
- Class-licensed DECT cannot share reliably with outdoor fixed links or outdoor WBB, and should therefore remain in 1880-1900 MHz only.
- In low demand areas, fixed P-P links and WBB services can both be accommodated on a "first-come, first-served", coordinated basis. P-P links can be authorised by the existing licence type (Fixed Point to Point). The ACMA could consider elevating the status of P-P links to co-primary status, in a revision to the *1900-1920 MHz Frequency Band Plan 2012* (more detail in the final section of this response).

Other observations that the ACMA may wish to consider:

- Metro areas could potentially be made available for WBB; either under Area-Wide Licences (AWLs) (including smaller areas) or City-wide spectrum licences (SLs).
- MulteFire is designed to operate in bands where WiFi operates. As such, one could expect that MulteFire could be accommodated in the same spectrum space as other class-licensed systems like DECT.

- Private WBB networks limited to the operator’s premises—“*Private Enclosed WBB*”—could also conceivably share with DECT, since the premises owner would be able to control what systems are operated on his/her premises. This might need to be facilitated by very small AWLs with pfd limits at the boundary. Alternatively, this sort of operation could also be class-licensed with pfd limits applicable outside the walls or limits of the premises. Having both DECT and Private WBB class-licensed might increase the potential for interference to an unacceptable level, since neither service would know where the other is located. Having at least one of the two systems registered can serve to flag its presence to the other to facilitate negotiation and/or coordination.
- The ACMA has also added WBB in Regional Areas in 1880-1900 MHz (shared with DECT). For example, if there was no DECT at a remote mine site, then conceivably a higher-power<sup>1</sup> WBB could be operated at the mine in this lower sub-band, without having to satisfy the “Private Enclosed WBB” condition that would apply in areas of higher DECT usage. A pfd limit at the premises boundary, as applied to “Private Enclosed WBB”, might be too difficult to meet with a higher-power BS<sup>1</sup>, causing undue restriction to that operation. As such, there might be merit for another type of WBB service in lower-demand Regional and/or Remote areas, on the basis that it is unlikely that DECT will be operating in a sparsely-populated area. This has actually been implemented in the past, with similar frequency arrangements outlined in RALI FX 18 (since retired).

All the above observations in the dot points are underpinned by the highest-priority consideration—to ensure protection of adjacent-band 1.8 GHz and 2 GHz networks, and to avoid imposing any additional constraints to the further development and evolution of those networks.

---

<sup>1</sup> i.e. higher power than what would otherwise be permitted under the “Private Enclosed WBB” model.

## Protection of adjacent-band 2 GHz and 1.8 GHz networks

AMTA stresses that any new uses of the 1.9 GHz Band would need to ensure protection of 2 GHz base station (BS) receivers, currently operating as part of extensive WBB networks and authorised by spectrum licences in metro areas and under PTS apparatus licences in regional and remote areas—at least for the 1920-1960 MHz portion of the 2 GHz lower sub-band, above which there are also spectrum licences in regional areas in 1960-1980 MHz. Furthermore, any new uses introduced in the 1.9 GHz Band should not impose any deployment restrictions for 2 GHz networks in the future. These requirements—of no harmful interference nor undue constraint—should also be extended to 1.8 GHz networks.

It is noted that all of the potential new uses highlighted in the Discussion Paper operate in a time-division duplex (TDD) in which both the BS/access points and UE/user terminals operate on the same frequency. In the case of any Private networks or WBB more broadly, these would likely make use of 3GPP Band n39 equipment. That means that both BS and UE would operate within the 1880-1920 MHz range. As such, there is potential for interference from 1.9 GHz transmitters—both BS and UE due to the TDD operation—to adjacent-band 2 GHz BS receivers, both:

- Out-of-band emissions (OOBE) falling within the 2 GHz channels; and
- In-band emissions causing BS receiver blocking.

To address the OOBE interference, any 1.9 GHz Band transmitters satisfying the unwanted emission limits of 3GPP (in the case of 3GPP Band n39 equipment) may need to be separated from 1920 MHz by a significant guard band or be subject to OOBE limits more stringent than 3GPP.

To address the 2 GHz BS receiver blocking, it is unlikely that any higher-power 1.9 GHz transmitters would be able to operate without a significant guard band (*at least* 10 MHz). For any operation within the required guard band—thereby making part of the guard band a “restricted cell block” (RB)<sup>2</sup>—this would be subject to stringent in-band power limits, potentially limiting the operation to a small cell architecture (i.e. as opposed to macrocell).

In any planning activity seeking to facilitate the introduction of new services in the 1.9 GHz Band, it should be borne in mind that the new 1.9 GHz Band usage is made available on an opportunistic basis, and as such it is in no way on equal footing with the long-established and densely deployed 2 GHz carrier networks. The 2 GHz BS receivers that form part of existing and vast networks should be protected from harmful interference *without any additional requirement* to be modified—e.g. implementation of additional BS filtering—beyond 3GPP specifications, as part of accommodating this new, opportunistic use. Incumbent 2 GHz operators should only be required to meet the conditions of their spectrum licences, including for new (i.e. second-in-time) site deployments, to receive protection from any operators in the 1.9 GHz Band. This concept should also extend to the

---

<sup>2</sup> As per the terminology used by the ACMA in consultations within the frequency range 3.4-4.0 GHz.

1.8 GHz band spectrum licences and also to PTS licences in the 2 GHz Band—at least those held by the 3 major telcos, due to the extensive networks they operate under PTS in regional areas.

## Protection and preservation of fixed P-P links

AMTA calls for continued support for new fixed point-to-point (P-P) links in regional & remote areas. We recognise that 1800 MHz spectrum licences and restrictions in the 2.1 GHz Band arrangements of RALI FX 3 significantly constrain the ability to deploy new P-P links on channels overlapping 1900-1920 MHz in regional areas, and largely limit them to remote areas in practice. However, in the case of a review of the 1.9 GHz Band, provisions for P-P links should apply to both regional & remote areas (as per the ACMA's Scenario 5).

Furthermore, AMTA stresses that any new use cases introduced into the 1.9 GHz Band should be required to protect existing P-P links. For compatibility between new use cases and P-P links, coordination on a first-in-time basis should be maintained, as is the *status quo*.

To ensure the continued protection of P-P links and facilitate their continued rollout where required (and where possible), we consider that the secondary status of fixed P-P links with respect to fixed point-to-multipoint and mobile services—as currently specified in the *1900-1920 MHz Frequency Band Plan 2012* (“the Band Plan”)—should be removed. And since the sole purpose of the Band Plan appears to be to state this hierarchy between primary and secondary services, we recommend that the Band Plan should be repealed.

Australian Mobile  
Telecommunications Association

PO Box 1507, North Sydney, NSW 2059

50 Berry St, Suite 504, Level 5, North Sydney NSW 2060

[www.amta.org.au](http://www.amta.org.au)