

Manager, Spectrum Planning Section
Australian Communications and Media Authority
PO Box 78
Belconnen ACT 2616

Online submission

Dear Manager,

Submission to the 'Proposal to remake the Public Safety and Emergency Response Class Licence'

I am pleased to provide comment to the Australian Communications and Media Authority (ACMA), on behalf of the NSW Government Telecommunications Authority (NSW Telco Authority), on the 'Proposal to remake the Public Safety and Emergency Response Class Licence' consultation paper.

The NSW Telco Authority is constituted by, and functions under, the *Government Telecommunications Act 2018* (NSW) to operate and maintain mission-critical operational communications services for public safety and government agencies within NSW. The NSW Telco Authority holds responsibility for coordinating telecommunications services support during emergencies under the *State Emergency and Rescue Management Act 1989* (NSW), has a central role in coordinating spectrum holdings on behalf of government agencies and manages major digital connectivity programs for the NSW Government.

We note that PSMB is out of scope for this consultation; however, we submit that this is not a practical restriction and one that would lead to a limited view of the value of the PSER class licence and of its position in the field of public safety communications.

As PSMB is the largest part of future public safety communications and the PSER is intended for public safety use, the PSER class licence cannot be viewed entirely separately from PSMB. Although not considered for a complete PSMB solution, 4.9GHz may be a viable means to augment PSMB coverage. Therefore, PSMB is a major consideration for remaking the PSER class licence.

The NSW Telco Authority has consulted with emergency service organisations in NSW and equivalent entities interstate to form its position in this response. Also consulted were certain suppliers of band-specific technology and international entities using this band. NSW Telco Authority understands that certain NSW emergency service organisations are submitting responses to this consultation to highlight specific uses and needs.

1. Is the class licence still needed? Why or why not?

Preservation of the band is vital as it is the only 3GPP spectrum currently dedicated for public safety purposes. It provides the only non-commercial 3GPP spectrum option for deployments that support life-saving public safety activities, especially when outside of the range or capabilities of existing networks. This is critical for public safety use because it provides data transmission and communication solutions for specific ongoing purposes and necessary coverage for planned and unplanned ad hoc deployments.

The NSW Telco Authority is supportive of remaking the PSER class licence and is exploring opportunities for greater band use. We argue for the removal of the six-month time limit and the

coordination of ongoing use and planned and non-planned ad hoc use is to be introduced to manage the risk of interference. However, administrative controls, for example in the form of standard operating procedures governed by a coordinator, come at a cost and coordination amongst users remains an unsolved challenge. Given the current use by emergency service organisations, or, as they are identified and defined by the ACMA in the class licence, Public Safety Bodies (PSBs), does not necessitate formalised coordination, the intention is to introduce a phased coordination approach to match against the uptake in this band.

2. Is the class licence operating effectively and efficiently? Why or why not?

The flexibility of the class licence is greatly appreciated by users. It provides the ability to create networks quickly, efficiently and without limitations on location, and users are not required to go through complex or cumbersome approval, registration or recording processes. This flexibility is also the class licence's shortcoming in that there is limited recorded data of regularity of use, locations, use cases, and risks of interference. This inhibits take up of devices for the band and may prevent adoption of 5G technology.

Unlike other 3GPP bands in Australia that only authorise operations on specific frequencies and in clearly defined geographic areas, the 4.9GHz band is the only public safety band that licences authorised operation on any channel over the entire 50 Megahertz of the band across the permitted geographic area.

A 4.9GHz licence allows the operation of base stations and mobile devices and/or temporary fixed stations. A licence may operate fixed point-to-point (PTP) and point-to-multipoint (PMP) channels. As there is no formalised coordination with the band, licences can overlap with one or more geographic area licences, operations using the same spectrum, and multiple fixed-site licences operating in the same area. The likelihood of this occurring now is low as, currently in NSW, the deployment of 4.9GHz devices is often on a needs basis and limited to geographical areas. Because of the propagation properties of the band, the risk of interference with deployments in other areas of the state nearby remains low.

Standard operating procedures need to be adopted with input from public safety bodies to ensure that they can access sufficient spectrum for their operations as well as to promote efficient, robust use of the band and to prevent harmful interference to other licence holders. Operating procedures, when adopted, should be incentivising the use of latest commercially available technologies, including 5G. As indicated in the answer to question 1, the coordination of the band should be introduced in a phased way to reflect uptake in use.

As uptake increases, the operation of the class licence could be improved with a band manager specified in the licence to manage users and interference. This is further discussed under question 4. Furthermore, the scope of the licence needs to be attuned to current activities required of public safety bodies, particularly in relation to pre-emption and recovery activities. As noted below under question 10, the current definition of public safety bodies is inadequate to describe the range of agencies and groups that support public safety and emergency management.

3. How are the PSBs currently using the class licence? Are the current authorised services fit-for-purpose?

PSBs rely on 4.9GHz spectrum for day-to-day and urgent mission-critical radiocommunications and require the ongoing use of this class licence to save lives and protect property.

PSBs have invested in setting up and maintaining infrastructure that has the capability to meet the requirements to use the 4.9GHz spectrum band. There are several radio-communicative technologies that the NSW PSBs regularly use, and without these networks, relevant operational data, audio, and visual communications would not be possible. These systems include point-to-point, point-to-multipoint and mesh networks; both of which are used in fixed term and rapid deployments.

The NSW Police Force, for example, daily use the band for video uplink from helicopters, and regularly, for point-to-point connectivity during major events.

Fire and Rescue NSW (and Rail Fire & Emergency) currently use commercially available wi-fi mesh products which are used to create network connectivity and range-extending for devices in coverage limited or denied areas. Examples of this include in-tunnel repeater links, in-building coverage, and range extending from nodes, for example, vehicle or other larger/less mobile assets. The mesh utilises the 4.9GHz band for the wide area links between individual nodes. The mesh network supports data transmission which is used for mission critical voice and other data channels, including streaming.

Given investment into the 4.9GHz ecosystem, ongoing use, and development of fit-for-purpose devices for this band by manufacturers, NSW PSBs need to continue to make use of their investment. Noting that this class licence is intended to either complement other dedicated public safety and commercial options, or be used as a temporary standalone system, it is often deployed when other communication options are unavailable, providing mission-critical, life-saving communication.

4. Is the current class licencing model fit-for-purpose? Why or why not? How would any interference protection or hybrid class / apparatus licensing arrangements work?

The expectation of the ACMA for PSBs to coordinate between themselves to achieve desired levels of coexistence or interference protection adds complexity and administrative cost. Currently, users of the class licence operate independently and unbeknown to other users. Although PSBs coordinate efforts during emergencies, they may not be aware of Defence operations using the same frequencies within range of PSB deployments. This presents a risk that there may be interference to important defence or public safety activities if two or more users operate in proximity and at a high capacity. This scenario is possible during natural disasters, for example, where PSB networks are augmented by systems operating under the class licence.

As aforementioned, a nationwide coordinator for the band could address these risks through coordinating use across agencies and across geographical areas, including state or territory borders. Such a role would need to be independent, appropriately resourced and support all activities occurring under the band. The band manager could ensure that 4.9GHz deployments are coordinated, enabling effective use without interference.

This would follow a precedent set by the USA, as noted in the *Federal Communications Commission (FCC) 23-3*:

“...we assign the frequency coordination function solely to the Band Manager (as opposed to allowing competitive coordination) because we find that a single nationwide coordinator is preferable for 4.9 GHz since we are implementing a nationwide framework

for use of the band in contrast to other... bands where coordination is more local or regional.¹"

There are indications that use of the 4.9GHz band will increase, particularly with 5G deployments over the next few years and with growing awareness of the band as competition for spectrum grows with more technology available and a growing number of users. Increased use can lead to greater risk of interference, which can be managed via a band manager.

Another approach to manage both interference and longer-term deployments of more than 6 months is via a hybrid licence, with part of the band licenced under an area-wide apparatus licence (AWL). Specific public safety deployments could be licenced under an AWL across Australia. Segmentation of the band is also being contemplated as a way to manage ongoing, long term or fixed deployments with planned and unplanned ad hoc deployments.

Consultation with the users of the frequency in order to strike the right balance between permanent or regular use, such as the case with police helicopters, ad hoc use, such as with major events, and urgent and unplanned deployment to critical events, such as natural disasters or complex operations, such as surveillance or siege operations will be critical in ensuring workable and efficient administrative arrangements. Emergence Service Organisations consulted to date have indicated a willingness to consider light touch administrative arrangements. The NSW Telco Authority will work with agencies on an ongoing basis to develop these, as needed.

5. Should specific provisions for cellular mobile technologies be included in the class licence? Why or why not?

Cellular mobile technologies should be included in the class licence only if they are used for public safety purposes.

NSW PSBs are keen to explore the opportunities of 5G technology within this band which would provide the means for PSBs to share live video feed, more accurate biometric and geospatial data and have the potential to deploy drones.

The NSW Telco Authority recommends that 4.9GHz band channel plans are reviewed to ensure that 5G deployments do not consume a disproportionate amount of the spectrum and to assist in managing interference.

The class licence should support commercial 5G technologies available to public safety and public safety use cases supported by 5G and other cellular mobile technologies. However, the policy should be technology-neutral for the band and strive for operational flexibility. When advanced technologies are introduced to the band, frequency coordination and facilitation by a band manager may be necessary.

6. Are the proposed emission mask, power limit and EIRP limit for cellular mobile BS appropriate? Does emission mask P, in conjunction with other proposed measures, sufficiently mitigate the risk of adjacent channel interference to other devices authorised under the class licence?

The NSWTA recommends that the permitted bandwidth and other technical parameters as well as power levels on new applications are subject to frequency coordination by the earlier proposed band manager. The band manager may impose limits on a case-by-case basis as necessary to protect adjacent or overlapping users. Emission mask M may be sufficient for the time being.

¹ FCC 23-3 point 38, page 16.

7. Are the proposed emission mask, power limit and EIRP limit for cellular mobile user equipment appropriate?

Refer to our response in question 6.

8. Are the emission masks, power limits and EIRP limits for existing services appropriate?

The current limits are appropriate.

9. Do the technical parameters proposed in the draft class licence restrict the use of any other technologies required by PSBs?

The draft technical parameters do not restrict the use of other technologies required by PSBs, according to our current information. As indicated above, increased use may see the need for state-based or national coordination and could be achieved by segmentation of the band.

10. Do the current definitions of 'public safety bodies' and 'public safety or emergency response function' remain fit-for-purpose? Do the authorisation arrangements for other bodies remain appropriate? Why or why not?

The current definition of 'public safety bodies' does not include the range of agencies carrying out public safety, emergency management and disaster recovery activities. For example, the recently formed NSW Reconstruction Authority may provide public safety support and coordination of recovery efforts yet does not fit the definition of a PSB.

Under the *NSW State Emergency and Rescue Management Act 1989*, there are nine functional areas that support public safety and recovery activities within certain jurisdictions of expertise and are listed here to demonstrate that the current definition needs to be broadened.

functional area means a category of services involved in the prevention of, preparation for, responses to or recovery from an emergency, including the following—

- (a) agricultural and animal services,
- (b) telecommunications services,
- (b1) energy and utility services,
- (c) engineering services,
- (d) environmental services,
- (e) health services,
- (f) public information services,
- (g) transport services,
- (h) welfare services.

Some functional areas include several supporting groups that report to a functional area coordinator. The NSW Telco Authority is the functional area coordinator for telecommunications in NSW. While some of these groups may not currently use the 4.9GHz band, they may need to in future as the public safety communications ecosystem evolves and use of the band becomes a necessary part of their function.

Agencies that are part of a functional area in NSW currently use NSW's P25 Public Safety Network. When the Public Safety Mobile Broadband (PSMB) solution is the main public safety network used, functional area users will use PSMB, including in cases where PSMB coverage may be augmented by 4.9GHz solutions.

The current definition of public safety bodies in the PSER class licence could be amended at part c) as follows:

c) any body with a function under Commonwealth, State or Territory legislation to perform emergency management, public safety, disaster prevention or disaster recovery activities;

This amendment would enable legitimate use of the band by numerous groups not currently covered in the definition.

11. Is the 6-month limit for fixed point-to-point services appropriate? Why or why not? Does the 6-month limit prevent deployments of networks aligned with the purpose of the class licence?

Relaxing of the six-month fixed time would allow for greater flexibility and use of the class licence and would be more attuned to operational needs. If used to augment public safety communications during and after a natural disaster, the related deployments would often be required for longer than six months as seen with floods and bushfires over recent years.

In the case that Australian states and territories might need to use mobile network operator (MNO) spectrum and infrastructure for PSMB, there will continue to be black spots in coverage at locations where there are known risks to lives and/or property. In such locations, MNO spectrum would not be available for PSMB.

Using 4.9GHz under the PSER class licence may provide a viable solution to cover these black spots for public safety purposes. Examples include a stretch of coast where there is no MNO coverage and risks of incidents such as drowning in coastal waters and stretches of highway where there is a high rate of vehicle accidents. Such areas could benefit in the future from ongoing augmented PSMB coverage using 4.9GHz and are restricted by the current PSER class licence.

One emergency service organisation considered the 6-month limitation as inappropriate as the renewal process for certain uses creates unnecessary administrative overhead. The NSW Telco Authority supports this position and advocates for its removal, noting that the removal may result in the need for some administrative controls to manage interference, as indicated previously.

12. Which channel plan should be adopted in the class licence? Why?

NSW Telco Authority supports following Channel Plan A as it provides a clear segmentation of the available bandwidth, can be shared between agencies using various applications and two or more channels can be aggregated without overlapping to an adjacent channel.

13. Are the current interference protection measures for radio astronomy sites fit-for-purpose? Are the proposed protection measures from cellular mobile BS and user equipment appropriate?

Please refer to our response to question 6.

Thank you for the opportunity to comment on the remake of the Public Safety Emergency Response class licence. Should you wish to discuss this submission, please contact [REDACTED] [REDACTED] Chief Digital and Technology Officer, NSW Telco Authority at [REDACTED]

Yours sincerely

Kylie De Courteney
Managing Director, NSW Telco Authority

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