



Ericsson Submission to the Australian Communications and Media Authority's review of the 2.5 GHz band spectrum licence technical framework

July 2026



Introduction

- Ericsson welcomes the opportunity to respond to the Australian Communication and Media Authority's (ACMA's) review of the 2.5 GHz band spectrum licensed technical framework (**Consultation**).
- We appreciate the ACMA engaging with spectrum licence holders and equipment suppliers via the Technical Liaison Group (TLG) process to assess whether technical frameworks remain aligned and relevant to current and emerging technology use in specific bands.
- Ericsson supports the submission made by the Australian Telecommunications Alliance (ATA) in response to the **Consultation**.
- Provided below is Ericsson's response to selected questions raised in the **Consultation** and additional comments for consideration.

Responses to Questions

Proposal 1

We have agreed to TLG's proposal to set the in-band emission limit of: TRP of 50.2 dBm/5 MHz for all radiocommunication transmitters.

- During the TLG process, Ericsson did not agree with the proposed TRP limit of +50.2dBm/5 MHz. The newly referenced proposed limit is affectively unchanged to current licence conditions, which current radios could exceed in certain configurations.
- We believe the proposed limit provides no scope to employ future radios with higher output capability. We note that spectrum licences in the 2.5 GHz band are Australia wide and therefore, same frequency, adjacent area issues do not exist.
- Ericsson agrees with **Proposal 1** for now, however, we strongly recommend that the in-band emissions limit should be increased to align with international standards, such as ECC Decision (05)05, which states a minimum of +53dBm/5 MHz when technical conditions are reviewed under the Expiring Spectrum Licence (ESL) process in Q1 2027.

Proposal 2

We have agreed with the TLG recommendation and the propose the limits for unwanted emissions falling within the range 2620–2690 MHz, for non-AAS and AAS transmitters in the upper 2.5 GHz band, as detailed in Table 1 and 2, respectively.

- Ericsson agrees with Proposal 2, that is, the emission limits proposed in this frequency range, (2620 – 2690 MHz) which follow 3GPP 38.104 Category B Option 1 standards.

Proposal 3

We have agreed with the TLG's recommendations and propose the limits for unwanted emissions falling within the range 2690–2700 MHz, for non-AAS and AAS transmitters in the upper 2.5 GHz band, as detailed in Table 3 and 4, respectively.

- Ericsson's recommendation for the 2690 – 2700 MHz band is to follow international standards already in use globally. We consider the ACMA proposal as workable for now, however note this is still bespoke to Australia therefore bears the risk that can exclude global variants of radios being offered to Australian mobile network operators.



- In 3GPP terms, this frequency range is part of the 3GPP delta fOBUE. This is the +/- 10 MHz to the upper band referenced in the introduction, which has the same emissions requirements as the ACMA's **Proposal 2** above.
- ECC Decision (05)05 considers the Radio Astronomy Service in this frequency range and states that reduced coordination can occur with a TRP limit of +3dBm/10MHz for AAS devices. Ericsson recommends this frequency range is reviewed under the **ESL** technical review process in Q1 2027 to see if alignment with Europe can occur. Further detail is provided in the '**Other Comments**' section below.

Proposal 4

We have agreed with the TLG's recommendations and propose the limits for unwanted emissions falling within the range 2615–2620 MHz, for non-AAS and AAS transmitters in the upper 2.5 GHz band, as detailed in Table 5 and 6, respectively.

- Ericsson agrees with **Proposal 4**, for non-AAS base stations, which was negotiated during the TLG process. ECC Decision (05)05 proposes a slightly different limit and reference point, which when converted, may be better for adjacent spectrum holders. We therefore suggest that this is reviewed under the **ESL** process in Q1 2027.
- For AAS base stations, ECC Decision (05)05 is more stringent than 3GPP. In the 3 to 5 MHz offset range (2615 – 2617 MHz), comparing ECC Decision (05)05 to the ACMA **Proposal 4** (Table 6) shows that Australian spectrum licence conditions will be 9dB more stringent under this proposal. Due to size restrictions, adding additional filtering to each of the 32 or 64 RF filters inside an AAS radio is not always possible. AAS radios cannot have external RF filtering added to them to meet the bespoke Australian emission limits and therefore they require a reduction in total power, or power spectral density, or bandwidth used. These restrictions impact spectrum licence holders adjacent to 2620 MHz more than those higher in the band.
- Ericsson strongly advises these limits are reviewed during the **ESL** process in Q1 2027 to align with international standards so restrictions on AAS radio configuration is not needed and all 2.5 GHz spectrum licenced frequencies have the same value.

Proposal 5

We have agreed with the TLG's recommendation and propose the limits for unwanted emissions falling within the frequency ranges 2490–2615 MHz and 2700–2800, for non-AAS and AAS transmitters in the upper 2.5 GHz band, as detailed in Table 7 (unchanged from current licence) and 8, respectively.

- Ericsson agrees with the requirement for AAS base stations (Table 8, **Consultation**) that mostly aligns with ECC Decision (05)05 in the 2490 – 2615 MHz range.
- In the frequency range 2700 – 2800 MHz we note that there is not a requirement for lower than 3GPP emissions limits in ECC Decision (05)05 but there may be similar requirements in the UK. Whilst we can accept the stringent limits in the 2700 – 2800 MHz range, our preference is to align with Europe and ECC Decision (05)05.
- For non-AAS base stations, Ericsson sought clarification on this limit and reference point during the TLG process, however, the ACMA summary of the TLG work undertaken did not mention this discrepancy. We believe the limit of -45dBm / 1MHz (Table 7) should be referenced the same as ECC decision (05)05 which states "*Maximum mean e.i.r.p. limit per*



antenna". An early version of this ECC Decision was updated later to state *per antenna* which was not included in ACMA's updated proposed spectrum licence.

- **Proposal 5** creates a bespoke Australian technical requirement more stringent than Europe requires. Ericsson strongly recommends this table reference is updated to align with European standards, which are already much more stringent than 3GPP requirements.

Proposal 6

We agree with the TLG's recommendation and propose the limits for unwanted emissions falling outside the frequency range 2490–2800 MHz, for non-AAS and AAS transmitters in the upper 2.5 GHz band, as detailed in Table 9 and 10, respectively.

- Ericsson agrees with the requirements in Tables 9 and 10 of the **Consultation**, which mostly align with 3GPP 38 series spurious emission limits. We note however that in ECC Decision (05)05, this would be for outside 2500 – 2700 MHz instead.

Proposal 10

We have agreed with the TLG's recommendation and propose the unwanted emission limits for receivers in the lower 2.5 GHz band, as detailed in Tables 14, 15 and 16.

- Ericsson agrees in principle to the limits described in Tables 14, 15 and 16. However, the lower 2.5 GHz band receiver unwanted emissions should be clarified for Tables 15 and 16 as being outside 2490 – 2800 MHz to reflect that Table 15 is the same as Table 9 and Table 16 is the same as Table 10 as described in the **Consultation**.
- There is reference made in the **Consultation** of limits specified in 38.101-1 which Ericsson believes is an error. 38.101-1 refers to User Equipment, (**UE**), however the source of receivers in the lower band are base stations and their 3GPP specification are defined at 38.104.

Question 2

Do you have comments on the proposed change to the Radiocommunications Advisory Guidelines (Managing Interference from Spectrum Licensed Transmitters – 2.5 GHz Band) 2023?

- Ericsson agrees that the proposed changes to the *Radiocommunications Advisory Guideline (RAG) (Managing Interference from Spectrum Licensed Transmitters – 2.5 GHz Band)* which specify a maximum emission level of -119dBm/MHz at the input connector of the fixed receiver, (radar receiver) were agreed during the TLG process and that no additional checks for receiver blocking are required.

Question 3:

Do you have comments on the effect the proposed changes to the 2.5 GHz band technical framework may have on incumbent services in and adjacent to the 2.5 GHz band?

- Ericsson welcomes the addition of a new condition that will support radios with wideband amplifiers. We believe this addition will have no impact on incumbent services.
- Emission requirements in the range 2690 – 2700 MHz, which is immediately adjacent to downlink transmissions are more stringent than 3GPP and the allowance for RAS in Europe noted in ECC Decision (05)05. If licensees, as described in the Consultation, must continue to comply with ITU R RA.769 2 protection criteria for receivers in 2690–2700 MHz, then Ericsson does not consider that the licence should require more stringent emission



requirements than Europe require, as detailed in our response to **Proposal 3**. By definition, if *Licensees must continue to comply with ITU R RA.769 2 protection criteria for receivers in 2690–2700 MHz*, then there will be no impact to incumbent RAS services.

- With regards to Space Services in the 2690 – 2700 MHz range, we seek the ACMA's advice on why Australia would be different to Europe. We note that space research service (SRS) and earth receive stations are protected by ITU R SA.609 which then ensures no impact to these adjacent services.

Other comments:

Deployments in the 2.5GHz band

- The 2.5GHz band is the last of the spectrum licensed bands to be reviewed, with mobile network operators deploying new radios in the band, which are currently restricted in their capability until the Spectrum Licence Technical Frameworks (**SLTF**) updates are finalised.
- That is, the new radios deployed in the 2.5GHz band provide higher capacity, smaller comparable size, lower weight, greater energy efficiency, and new features such as Advanced Antenna Systems (**AAS**). These enhancements create new design restrictions which make it difficult to employ bespoke filtering. Consequently, this often limits such radio products from operating at full potential. Therefore, we encourage the ACMA to ensure **SLTF** updates are fit for purpose and finalized as soon as possible so mobile network operators can leverage new technology, including energy efficiency, developments.
- The spectrum licensed part of the 2.5 GHz band proposed under the expiring spectrum licence process should support International Mobile Telecommunications (**IMT**). This means following international standards in full and not selecting some characteristics, which creates bespoke requirements and time and cost implications for Australian mobile network operators. While coexistence with adjacent spectrum owners is a consideration for the ACMA, this can often be managed via a Radiocommunications Assignment and Licensing Instruction (**RALI**). Ericsson supports adjacent band services protecting themselves, instead of restrictions being placed on thousands of radios.
- When technical conditions require more stringent emissions than 3GPP standards, such as not allowing +/- 10MHz either side of the base station transmitting range (upper band), then other international standards can be used such as ECC Decision (05)05 to ensure there are not bespoke requirements in Australia. This may mean changes in emissions levels to a small frequency range of adjacent services, but which follow similar scenarios in other parts of the world.

Case for Action

- The 'case for action' section of the **Consultation** recognises:
 - the need to support 5G and AAS. There is mention of how enabling support for 5G and **AAS** will also enhance an operator's network coverage and capacity. As **AAS** type radios are most often capable of higher transmit power, (compared with non-**AAS** radios) then to achieve these enhancements, Ericsson believes the licence conditions should also support higher transmit power in the upper band. Whilst this has not been agreed to in the TLG process, (**Proposal 1** of the **Consultation**), we recommend this licence condition be reviewed under the **ESL** technical review process in Q1 2027 to determine which transmitters are being deployed now and will come to market under a renewed spectrum licence in 2029.



- that aligning technical criteria with international standards helps minimise costs to manufacturers and there is no longer a need to develop Australian bespoke equipment. To this point, Ericsson believes that where a 2.5 GHz spectrum licence points to a **RAG or RALI** or *Unacceptable Levels of Interference (ULoI)* document to protect adjacent services, there is no longer a need for bespoke Australian emission requirements in the licence. As similar issues exist in Europe, ECC Decision (05)05 has captured these requirements already when required to be more stringent than standard 3GPP Cat B emission levels.

Conducted Power and Total Radiated Power

- The Consultation states:
"3GPP standards define unwanted emission limits for AAS in terms of total radiated power (TRP). TRP is equivalent to the conducted power minus the antenna efficiency" and "Mean power (the power measured at the antenna connector, often referred to as 'conducted power')."
- From the above two definitions provided in the **Consultation**, we see a difference to 3GPP that we believe should be corrected. Conducted power is the power measured from one antenna connector. TRP is the summed power of all antenna connectors. Noting also that distribution losses and antenna efficiency losses occur after this measurement point which result in lower actual TRP when measured over the air.