



**Ericsson submission to the ACMA's 1800 MHz
and 2 GHz bands –
Review of planning arrangements outside of
spectrum licensed areas – Options paper**

August 2024



Executive Summary

- Ericsson welcomes the opportunity to provide a response to the Australian Communications and Media Authority's (ACMA's) 1800 MHz and 2 GHz bands – Review of planning arrangements outside of spectrum licensed areas – Options paper (**Options Paper**).
- Ericsson:
 - Recommends the ACMA support 3GPP based emission limits, (38 series) in their entirety, for both the 1800 MHz and 2 GHz bands.
 - Considers that outside spectrum licensed areas, the drivers for more stringent than 3GPP emission limits, do not exist.
 - Supports the submission provided by the Australian Mobile Telecommunications Association (**AMTA**) in response to this consultation.

Options paper

- Ericsson's submission focuses on the "other aspects" section of the **Options Paper**.
- Ericsson supports **AMTA's** views on the main aspects of the **Options Paper**.
- Of the four replanning options listed, only Option 1 states "alignment with the relevant spectrum licensing technical frameworks in the future". Ericsson would appreciate the ACMA clarify if this also applies to Options 2, 3 and 4..
- Ericsson agrees with the ACMA's view that technical requirements in [RALI's MS33](#) and [MS44](#) need to be updated to reflect new technologies, specifically 5G, and as such need to be updated to support AAS type radios.
- However, the new technologies that Ericsson support also include smaller and lighter radios which reduce tower loading.
- That is, Ericsson is introducing wideband power amplifier radios which are more energy efficient and assist in reducing an operator's carbon gas emissions compared to earlier models. The Options Paper desired planning outcome of "technical efficiency" to "use a single physical radio and associated infrastructure so that capital costs are minimized", can also apply to Ericsson's newest radios which support both the 1800 MHz and 2 GHz bands in one radio unit.
- The **Options Paper** states "that the adoption of international standards within the technical framework mitigates the potential for interference between devices". Ericsson agrees with this comment and recommends that 3GPP 38 series standard is used in full, which supports the ACMA's desire for "technical efficiency".
- With reference to that statement in the Options Paper that "RALIs MS33 and MS34 were designed to primarily accommodate technologies like 3G (UMTS) and 4G (LTE)", Ericsson recommends the ACMA to consider that 5G is more spectrally efficient than 4G for bandwidths greater than 20 MHz. (For example, a 30 MHz 5G channel compared with 20 MHz + 10 MHz carrier aggregation of 4G channels). Therefore, the updated RALIs should also look forward, and account for wider bandwidth channels available in 5G. This is partly acknowledged in the option paper at point 83, "[t]he infrastructure sector is facing spectrum limitations for PTS licences in the 1800 MHz band in some areas, as



the 2x30 MHz of spectrum is heavily used” and where multiple licence holders provide a service to the same end users.

- While the need to update RALIs MS33 and MS44 to accommodate newer technologies is clear, Ericsson does not agree with alignment to the spectrum licenced technical framework with regard to radio emissions as this would mean emissions requirements would be under 3GPP 38.104 Cat B Option 2 limits.
- In both the 1800 MHz and 2 GHz bands, ACMA spectrum licence conditions are more stringent than 3GPP 38 series requirements. This can be by as much as 23dB.
- A comparison between RALI MS33 and the agreed emissions limits from the 2 GHz TLG, shows that changing to match spectrum licence conditions will result in emissions requirements being 12dB more stringent than currently required to be met. See **Appendix A**.
- A comparison between RALI MS34 and the current 1800 MHz spectrum licence conditions indicates that the increase in emissions proposed, will still result in the licence conditions being ~ 7.8dB more stringent than 3GPP and continue to require a bespoke solution for Australia. See **Appendix B**.
- Ericsson recommends the ACMA adopt emission limits for these bands that align with 3GPP 38 series in their entirety. To be clear, for AAS base stations, this would also follow 3GPP methods, meaning the sum of emissions of all AAS ports will be below the 3GPP Basic limits +9dB.
- This would also allow for Wideband radios that can operate over multiple bands.
- At a future date, the expiring spectrum licence process can then determine if spectrum licences can then be aligned to the updated RALI MS33 and RALI MS44, that will match international standards (3GPP) in their entirety, rather than what is currently proposed in the **Options Paper**.

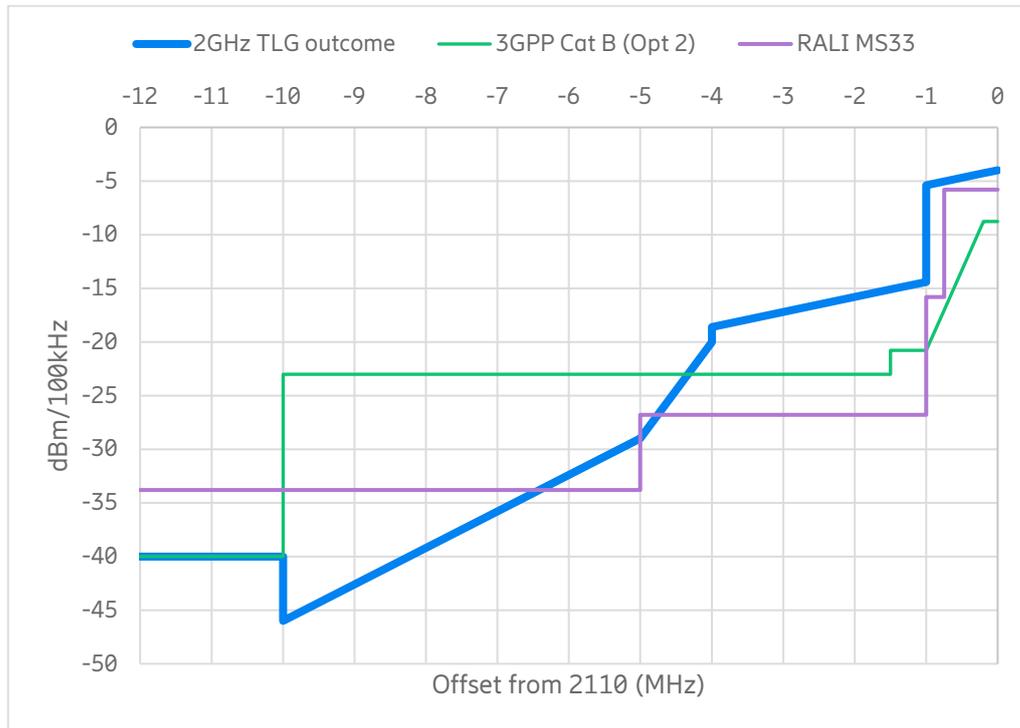
Conclusion

- The **Options Paper** states that the desirable planning outcome (“efficiency”) can be addressed in part by changes to the RALI MS33 and MS34 which allow new radio types and technologies to be used that are more efficient both spectrally and in consumed energy.
- The drivers of emission limits being more stringent than 3GPP in spectrum licensed areas do not exist outside of these areas.
- Ericsson strongly recommends that now is time to align with international standards (that is 3GPP 38 series) emission standards in their entirety.



Appendix A

Comparison of emission requirements below and offset from 2110 MHz (dBm/100kHz).



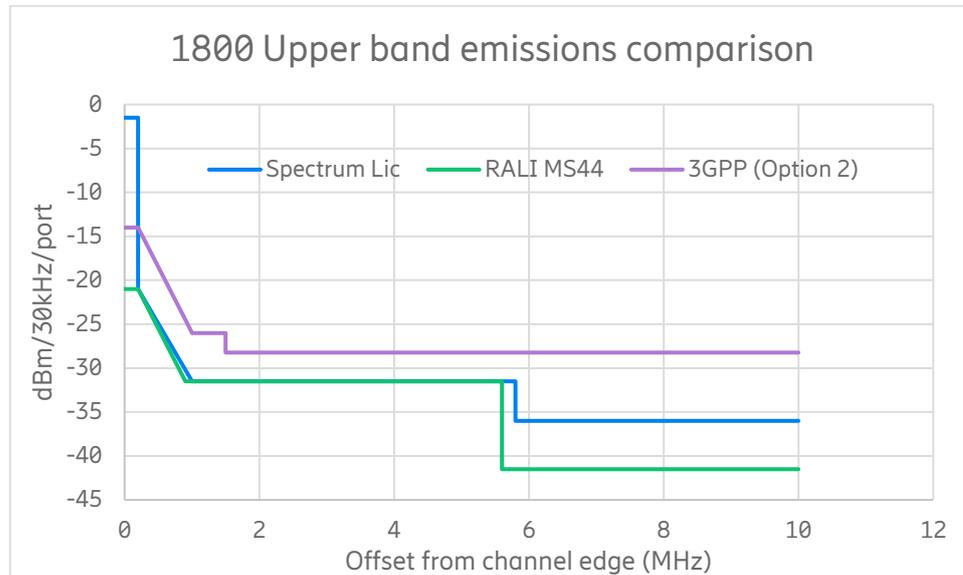
Parameters used in comparison:

- Standard 4 transmitter non-AAS radio
- Nr 20 MHz channel with centre frequency 2120 MHz
- 18dBi antenna gain
- 1dB feeder loss
- 3GPP 38.104 Wide Area BS operating band unwanted emission limits (NR bands above 1 GHz) for Category B (Option 2)
- 3GPP 38.104 General BS transmitter spurious emission limits in FR1, Category B
- Reference/measurement point is per radio port



Appendix B

Comparison of emission requirements inside 1795 – 1890 MHz (dBm/30kHz).



Parameters used in comparison:

- Standard 4 transmitter non-AAS radio
- Nr 20 MHz channel centered in the 1800 MHz upper band
- 18dBi antenna gain
- 1dB feeder loss
- 3GPP 38.104 Wide Area BS operating band unwanted emission limits (NR bands above 1 GHz) for Category B (Option 2)
- Reference/measurement point is per radio port