Ericsson submission to ACMA 2GHz SLTF consultation

December 2022

Introduction

- Ericsson welcomes the opportunity to provide a response to the Australian Communications and Media Authority's (**ACMAs**) review of the 2GHz spectrum licensed technical framework (**SLTF**) public consultation. (**Consultation Paper)**
- In summary, Ericsson:
  - Welcomes the changes made to emissions requirements to be equivalent of 3GPP standards for some licence conditions.
  - Recommends 3GPP emission limits are used between 2100 – 2110 MHz.
  - Provides further information on the impacts caused when 3GPP is not followed in its entirety.

Response

- Ericsson's response is limited to the licence conditions which govern radio emissions.
- Ericsson agrees that updates to the SLTF are needed when looking forward to how the band is and will be used.
- Ericsson supports the use of 3GPP standards when determining licence conditions and in particular the use of Total Radiated Power (**TRP**) to allow for the use of Advanced Antenna System (**AAS**) radios
- The Consultation Paper recognises 3GPP Band n1 for emissions where it states: "*For the upper 2 GHz band, 3GPP TS 38.104[2] defines out-of-band limits as applying to those emissions that fall outside the lower and upper frequency limits of the licence and within the 2100–2180 MHz frequency range (that is, the spectrum-licensed operating band on 2110–2170 MHz +/- 10 MHz either side). Spurious emissions are those emissions that fall outside the 2100–2180 MHz frequency range.*"
- However, 3GPP refers to this 2100-2180 MHz as being Operating Band Unwanted Emissions (**OBUE**) and not "out-of-band limits" as referred to in the consultation paper. This point is important as 3GPP recognises where RF filtering can start to have an effect. (i.e. outside 2100 – 2180 MHz)
- The Consultation Paper states: "*The TOB operators indicated that due to lack of directionality of the antenna on the helicopter (that is, lower antenna gain), the power received at the collection station would be lower and more susceptible to interference due to the relaxation of emission limits.*"
- Ericsson suggests **TOB** operators could use a higher powered transmitter and / or a lower 8MHz channel for this application. The spectrum above 2100MHz can be used for camera to truck operations which has been shown in the 2300 MHz TLG testing as not causing any concerns. We also have been

[2] 3GPP TS 38.104, available at: https://portal.3gpp.org/desktopmodules/Specifications/SpecificationDetails.aspx?specificationId=3202.

advised by TOB operators previously, that they share spectrum. This would allow helicopter operations to occur in the 90 MHZ of TOB spectrum below 2100 MHz without concern.

- Figure 8 of the Consultation Paper shows **TOB** operations adjacent (both above and below) to the 2GHz upper band. Ericsson has not seen any justification for more stringent emission mask to be used below this upper 2GHz band than above it and recommends following 3GPP emission level standards for both adjacent spectrum regions.
- One of the aims of the TLG is to look towards the future on how this band will be used and to "*cater for new developments such as 5G and Advanced Antenna Systems (AAS).*"
- The new statement of expectations issued by the Minister for Communications, the Hon Michelle Rowland MP to the ACMA[1] on 12 Dec 2022 requires the ACMA to "*take a proactive regulatory approach, with particular expectations the regulator promote investment, innovation* ***and the adoption of new and emerging technologies****, while continuing to safeguard the interests of consumers and small businesses*."
- Ericsson considers that this objective can be achieved by adopting 3GPP specifications in full as opposed to what has been proposed as a more stringent and bespoke Australian specific requirement between 2100 - 2110 MHz.
- RF filters need an amount of spectrum to roll-off. This is true for Base Station Tx filters and TOB Rx filters. Placing the two use cases (bands) directly adjacent does not allow the filters to fully take affect.
- Ericsson recommend following 3GPP for AAS emissions by allowing 9dB emissions relaxation due to the reduced interference created when signal are beam-formed to a user, and the practicality of fitting larger filters in to AAS devices that may require 16 or 32 filters for one radio.

[1] Australian Communications and Media Authority Statement of expectations | Department of Infrastructure, Transport, Regional Development, Communications and the Arts