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The Manager
Major Spectrum Allocations Section
Australian Communications and Media Authority
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Draft spectrum re-allocation recommendation for 850/900 MHz band – IFC 14/2020

Motorola Solutions is pleased to provide our comments on the ACMA's *"Draft spectrum re-allocation recommendation for the 850/900 MHz band- consultation 14/2020"*, attached.

Please let me know if you have any questions about this response.

Yours sincerely



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Draft spectrum re-allocation recommendation for the 850/900 MHz band IFC: 14/2020

Motorola Solutions Inc. (MSI) thanks the ACMA for the opportunity to comment on its public consultation document “*Draft spectrum re-allocation recommendation for the 850/900 MHz band*”.

MSI is a global leader in mission-critical communications. Our platforms in communications, command center software, video security and analytics, and managed and support services make cities safer and help communities and businesses thrive. We serve more than 100,000 customers in more than 100 countries, with 17,000 employees and an install base of more than 13,000 systems around the world. We have been a leader in the field of radiocommunication for over 90 years.

We refer to our June 7, 2020 response to ACMA’s previous consultation on “*803–960 MHz band: Implementation of arrangements to support Milestone 3 - consultation IFC 12/2020*”. In that response, which is attached for convenience, we recommended that the frequency ranges 809–825 MHz and 854–870 MHz proposed for spectrum licensing should be amended to 814-824 MHz and 859-869 MHz, for the following reasons:

- 1) MSI believes it is more appropriate for ACMA to designate a public safety mobile broadband (PSMB) allocation consistent with the 3GPP Band 26 arrangement than the 3GPP Band 27 arrangement. The uplink band of 3GPP Band 27 is 807-824 MHz, and the downlink is 852-869 MHz. Base stations and mobile handsets supporting Band 27 are required to operate in the 850 MHz expansion band, in particular sub-band at 809-814 MHz. However, Band 27 is not widely (if ever) implemented in LTE equipment: it was specified in 3GPP for Latin America, but not used.
- 2) The 3GPP Band 27 is not specified as an operating band in 3GPP’s NR (5G) standards. However, 3GPP Band 26 (814-849/859-894 MHz) is specified for NR as 3GPP Band n26. Thus, there is a clear migration path from 4G to 5G for Band 26 users that is not available for Band 27, making it unlikely that operators will invest in Band 27. Therefore, the market size is too small to deploy PSMB economically in Band 27, since it is not used anywhere in the world, and has not been prioritized for migration to 5G.
- 3) 2 MHz of the 850 MHz expansion downlink band, 852-854 MHz, is spectrally located inside 3GPP Band 27 downlink, 852-869 MHz. This means base stations of the land mobile service (LMS) will be transmitting inside the passband of the Band 27 duplexer. Consequently, out of band (OOB) emissions from high power LMS base stations transmitting in frequencies adjacent to 854 MHz may cause interference (blocking) to LTE mobile terminals receiving above 854 MHz. The OOB emissions of LMS base stations transmitting below 852 MHz, outside the downlink of Band 27, will be attenuated by the Band 27 duplexer in the LTE terminal.

To preserve long-term value of the 850 MHz expansion band, we recommend that allocation of this band should be revised to 814-824/859-869 MHz, with 2x5 MHz for a PSMB network, and 2x5 MHz for spectrum licensing. We also recommend that 806-814/851-859 MHz be reallocated for use by trunked land mobile services. To mitigate interference between narrowband and adjacent broadband networks, we recommend a 1 MHz guard band at 813-814 and at 858-859 MHz, to protect noise limited land mobile radio (LMR) systems from OOB emissions of adjacent broadband networks. Transmit power from LTE terminals (UE) leaking into the adjacent channel can cause a rise in the noise floor of a LMR base station operating inside the adjacent channel. The guardband also serves to protect broadband systems from OOB emissions of high power LMR transmitters.

With respect to the 900 MHz band, we recommend that 5+5 MHz be reserved for apparatus licensing or geographically restricted licensing for verticals. To enable business and mission critical broadband applications for automated operations, we propose that regulatory provision be made to



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facilitate spectrum access and cost effective deployment of private LTE/5G networks. We recommend that one slot of 5+5 MHz in the 900 MHz band, in the range 890 - 895 MHz / 935-940 MHz, should be reserved for industrial, enterprise and mining applications, based on apparatus licensing.
