

21st August, 2019

Mr Hugh Clapin

Manager

Spectrum Management Outlook & Strategy

Australian Communications and Media Authority

Level 5, The Bay Centre

65 Pirrama Road

Pyrmont NSW 2009

Dear Mr Clapin

Motorola Solutions thanks the Australian Communications and Media Authority (the ACMA) for the opportunity to present our views on the proposed area-wide apparatus licence.

4G and 5G technology is expected to facilitate the digital economy and support the next generation of enterprise and industrial users. This next generation of broadband wireless technology will be key to Australia’s next phase of mega growth in manufacturing, industrial, smart grid, health, transportation systems, including drone applications. To support this new technology, new regulatory options would need to be adopted beyond what can be addressed in today’s regulatory environment. 5G calls for a new regulatory environment where innovation can thrive.

To support this new phase of economic development, industry players are tailoring their 4G and 5G solutions to meet this new and growing needs of industrial and other verticals. In order to support these solutions, we recommend that the ACMA encourage third-party industrial and enterprise users to build their own captive and dedicated 4G/5G networks. This ensures the provision of diverse services, instead of restricting usage to existing mobile operators. Motorola Solutions believes the development of the area-wide apparatus licence type is a key step in enabling this use and commends the ACMA on the proposal.

With the advent of 5G technologies, and evolution towards supporting advanced capabilities such as uRLLC and mMTC, enterprises will have the option to have full control of reliable, secure and seamless high speed data and high-fidelity voice communications across their entire operation, over private broadband.

Continued Page 2

Continued from page 1

The regulatory practice so far with respect to radio spectrum identified for IMT is to designate such spectrum exclusively for public networks. However, we believe IMT technologies and spectrum should be equally available to meet the spectrum needs of dedicated private broadband LTE networks. It is worth noting that Private LTE concept has been well accepted and is getting a lot of traction globally (e.g., in the US, UK, and Germany).

Our response to the consultation paper is enclosed. Please do not hesitate to contact the undersigned should you require additional information or clarification.

Yours sincerely,



Bharat Bhatia

Head of International Spectrum & Regulatory, Motorola Solutions

President, ITU-APT Foundation of India

Chair, APT Task Group on Public safety and Disaster Relief (PPDR)

Chair, ITU Study Group WP5D SWG on PPDR

President ITU-APT Foundation of India[[1]](#footnote-1)

Table of Contents

Item Page No.

[Summary of Major Points 4](#_Toc17277491)

[Statement of Interest 5](#_Toc17277492)

[Q1. Motorola Solution’s Views and Comments: 6](#_Toc17277493)

[Q2. Motorola Solution’s Views and Comments: 6](#_Toc17277494)

[Q3. Motorola Solution’s Views and Comments: 7](#_Toc17277495)

[Q4. Motorola Solution’s Views and Comments: 8](#_Toc17277496)

[Conclusion 9](#_Toc17277497)

# Summary of Major Points

1. 4G and 5G technology is expected to facilitate the digital economy and support the next generation of enterprise and industrial users. This next generation of broadband wireless technology will be key to Australia’s next phase of mega growth in manufacturing, trading and services industries.
2. To support this new technology, new regulatory options - beyond those that can be addressed in today’s regulatory environment – are essential.
3. Private 4G/5G systems call for a new regulatory environment where innovation can thrive. Industry players are tailoring their 4G and 5G solutions to meet these new and growing needs of industrial and other verticals. In order to support these solutions, we recommend that the ACMA encourage third-party industrial and enterprise users to build their own captive and dedicated 5G networks. This ensures the provision of diverse 5G services, instead of restricting usage to existing mobile operators.
4. The evolution towards advanced capabilities such as uRLLC and mMTC in 5G, enterprises will have the option to have full control of reliable, secure and seamless high speed data and high-fidelity voice communications across their entire operation, over private broadband.
5. The regulatory practice so far with respect to radio spectrum identified for IMT is to designate such spectrum exclusively for public networks. However, we believe that 4G and 5G technologies and spectrum should be equally available to meet the spectrum needs of dedicated private broadband LTE and NR networks. It is worth noting that Private LTE concept has been well accepted and is getting a lot of traction globally. Regulators in the US, UK and Germany (among other nations) have instituted regulatory support for customized private networks, which can meet the particular capacity, coverage, and capability needs of users.
6. While network slicing technology using operator networks can meet some of the industrial needs, there will remain a need for small, localised, independent, private broadband networks for specialised users including critical infrastructure, industrial, utilities and enterprises. This may include networks where higher reliability or cybersecurity needs are present (e.g., for critical infrastructure networks).
7. The adoption of technology neutral rules and inclusive licensing will enable all parts of the 4G and 5G ecosystem to be supported (including satellite systems, mobile broadband systems). The development of area-wide apparatus licence type is a welcome step in this regard.

**Statement of Interest**

Motorola Solutions is a leading global provider of mission-critical communications. Our technology platforms in communications, software, video, and services make cities safer and help communities and businesses thrive.

At Motorola Solutions, we are ushering in a new era in public safety and security. Public safety and commercial customers globally depend on our solutions to keep them connected, from everyday to extreme moments. We serve more than 100,000 customers in more than 100 countries and have a rich heritage of innovation spanning more than 90 years.

***Question 1: Do you think the proposed characteristics of the AWL type will support your current or intended network deployments? Are there any other kinds of deployments that you believe the AWL type should support?***

# Q1. Motorola Solution’s Views and Comments:

The primary use case of 4G and 5G in Australia will be based on Industries and enterprises. As such, it is critical that industry players tailor their broadband solutions across industrial and other verticals. We also recommend that the ACMA encourage third-party industrial and enterprise users to build their own private and dedicated networks. This ensures the provision of diverse broadband services, instead of restricting usage to existing operators.

While network slicing technology in 5G enables mobile operators to provide different sets of services for different types of users, there will remain a continued need for small, localised, independent, private broadband networks for specialised users including public safety, critical infrastructure, industrial, utilities and related. There may be a need for roaming between mobile operator’s networks and the small private broadband networks.

Such inclusive licensing, moreover, enables all parts of the 5G ecosystem to be supported (including satellite systems, mobile broadband systems, etc.). We further emphasize flexibility as the key enabler of innovation in network services. We recommend that the Government refrain from policies that restrict the deployment of available spectrum or repurposing of sites for 5G. Flexible arrangements can ensure that service providers remain responsive to changes in technology, services or usage patterns.

Technological innovations and development in 4G, 5G, and beyond, will be optimised with the availability of private and public broadband access to cater for all needs.

***Question 2: Which bands and/or geographic areas do you believe would be conducive to the use of an AWL?***

# Q2. Motorola Solution’s Views and Comments:

With the WRC-19 identifying gigahertz of spectrum for the delivery of 5G services, MSI believes that new regulations encouraging the adoption of mobile technology across verticals to spur innovation and digital transformation across industries is key to the success of 5G network deployment. To accelerate the process, we encourage a licensing framework that enables enterprises to access mobile spectrum through localised network licensing. We encourage the ACMA to designate spectrum in some part of the band 3.4-3.8 GHz (called mid band) for localised private licensing in small geographic areas. In addition we encourage the adoption of technology neutral rules to allow access to shared spectrum in the range 5-6 GHz and in millimetre wave bands where localised network licensing can be more efficient. We propose either a spectrum split between carriers and verticals in key bands where 5G is expected to be deployed, similar to that of Germany or being planned in Sweden, or localised licensing rules for all applicants with spectrum caps to limit spectrum hoarding in the mid bands.

***Question 3: What technical and other matters do you believe the ACMA should consider in deciding to use AWL licensing in a particular band?***

# Q3. Motorola Solution’s Views and Comments:

Technical parameters for the 3.5 GHz band

To benefit from economies of scale we recommend that the ACMA consider harmonising some technical parameters for private broadband network with those used by FCC for the Citizens Broadband Radio Service.

For example:

• Channel bandwidths of 10-20 MHz for private broadband network;

• Power limit of end user device at a maximum EIRP of 23 dBm/10 MHz; and

• Power limit of base stations at a maximum EIRP of 30 dBm/10 MHz in restricted spectrum and 47 dBm/10 MHz in unrestricted spectrum.

We further propose that private broadband networks be allowed to use 4G LTE technology initially as LTE is a proven and mature technology with a roadmap to 5G.

Guard Band

Currently, the band 3400-3600 MHz is the subject of sharing studies in the APT Wireless Group (AWG) and we believe that the input document, AWG-25/INP-95 COEXISTENCE ANALYSIS BETWEEN 5G NR AND FSS IN DIFFERENT SCENARIOS IN THE 3300 – 4200 MHZ BAND, may provide insights on the size of guard band to apply for different usage scenarios. In many cases, no guard band will be needed by following industry best practices (e.g., TDD frame synchronization).

***Question 4: Do you have any other comments on the AWL concept?***

# Q4. Motorola Solution’s Views and Comments:

Spectrum is a scarce natural resource. There is increasing demand for new wireless applications in frequency bands already allocated to mobile services for provision of local private networks for manufacturing, enterprises, logistics, utilities, mining, oil exploration and extraction, etc. In particular, there is growing interest in the use of mobile technologies such as 4G LTE, 5G New Radio, CBRS, etc for wireless applications beyond consumer mobile broadband. This interest is further influenced by the availability of global harmonized standards for the development of radio chipsets that can be adapted for different wireless connectivity solutions. Regulators worldwide (including the US, UK and Germany) are allocating spectrum for localised broadband deployments that support customized private networks.

Spectrum where commercial mobile broadband technology can be used has generally been licensed on a national basis to enable operators to offer mobile services to meet consumer demand for mobile broadband. However, in order to meet the needs of local private networks for manufacturing, enterprises, logistics, utilities, mining, oil exploration and extraction, etc, dedicated spectrum needs to be made available to support the rollout of new wireless applications addressing local broadband connectivity needs through localized access. We consider that this is the most efficient way to meet this requirement and that the proposed area-wide apparatus licence type will be well suited to these situations. We consider that access to spectrum in bands where mobile technology is supported could offer important benefits to such industries and enterprises, complementing the benefits from the award of national cellular operator licences. Specifically, we consider that this could unlock opportunities for innovation and facilitate new investment models.

# Conclusion

4G and 5G wireless applications are expected to expand into new market segments to facilitate the digital economy, e.g. manufacturing, smart grid, health, transportation systems, including drone applications, which would bring requirements beyond what can be addressed in today’s regulatory environment. The primary broadband use cases in Australia will be based on industries and enterprises and there is a need for an environment where innovation can thrive and new capabilities achieved.

It is essential that industry players be able to tailor their broadband solutions across industrial and other verticals and the ACMA should make provisions for these players to build their own private and dedicated 4G/5G networks.

We propose that some spectrum in the band 3400-3800 MHz be allowed for localised private broadband network licensing based on an area-wide apparatus licence, as well as the adoption of technology neutral and service neutral rules, to enable all parts of the broadband ecosystem to be supported.

.

=====END OF RESPONSE=====

1. [↑](#footnote-ref-1)