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5 November, 2015

Official response from Motorola Solutions to the Australian Productivity Commission's Public Safety Mobile Broadband Cost Benefits Analysis Interim Report

Motorola Solutions appreciates the ongoing opportunity to participate in the Productivity Commission's current review of the best way to deliver Public Safety Mobile Broadband (PSMB) capability for Australia's Public Safety agencies by 2020.

We fully support the delivery of a PSMB capability to ensure Australia's public safety agencies can take full advantage of new and emerging technologies. We also see the recent interim report from the Commission as another important step toward providing the nation's agencies with the essential capability they need to keep our communities safe.

However, we also believe certain aspects and findings within the Commission's interim report highlight the need for deeper consideration and analysis to ensure PSMB in Australia does not fall short of expectations - either for our nation's agencies or the wider community.

In this response to the interim report, Motorola Solutions is highlighting the need for two critical elements in delivering a national PSMB capability which are;

- ensuring Australia's agencies have access to dedicated spectrum
- ensuring that mission critical standards are not compromised.

If these key principles are considered and reflected within the next phase of the review, the nation's public safety agencies will ultimately benefit from greater and more cost effective PSMB capability with more flexibility for broadband innovation over the long term.

1. Dedicated Spectrum for public safety

Motorola Solutions strongly recommends that dedicated broadband spectrum be allocated for public safety agency use to guarantee agencies access to the resources needed to do their jobs.

Assessing the need for dedicated broadband spectrum for public safety is not just about the economic value of the spectrum, but represents a once in a generation opportunity to give public safety agencies long term certainty of their costs, sufficient capacity, interoperability and future flexibility for the deployment of PSMB. The benefits of having dedicated spectrum for PSMB include:

- **Cost affordability**: Over the 20 year budget period modeled in the Productivity Commission's interim report, demand on commercial networks will continue to grow at exponential rates. Allocating dedicated spectrum will give public safety agencies the

certainty of cost while market forces are likely to continue to push the cost of spectrum upwards

- **Capacity**: Dedicated spectrum ensures there is a minimum level of capacity and guarantees that agencies will always be able to access the communications network regardless of the level of congestion on the public networks. Motorola Solutions recommends a minimum allocation of 10 + 10 Mhz of dedicated broadband spectrum for public safety

- **Interoperability:** Having common spectrum resources enables interoperability for all users, therefore enabling public safety agencies to procure devices that operate within their allocated band. It is important that the band chosen is supported by device manufacturers to operate on all commercial bands in Australia to avoid unnecessary manufacturing cost

- **Flexibility for deployment:** Over the next 20 years, as new threats to community safety emerge and new technologies take hold, agencies will need the flexibility to deploy PSMB capability from any of the available network options (dedicated, hybrid or commercial). Only dedicated spectrum will provide the flexibility to respond to this changing environment over time

- **Support for field deployable solutions:** Dedicated spectrum enables the use of field deployable broadband solutions to extend coverage and capacity in areas where dedicated spectrum has not been rolled out, or where it is required temporarily to manage major events including natural disasters, complex security needs or large scale sporting, social or political activities.

Finally, as the Commission continues its assessment of the best way to deliver PSMB capability by 2020, we would ask it to also consider whether valuing dedicated spectrum purely in commercial terms hinders long term innovation opportunities for public safety agencies using broadband capability

This represents a major opportunity given the maturity of Australia's emergency services sector which is well positioned to become a global leader of innovation.

2. **Definition of mission critical communications**

(Relating to draft finding 4.3)

Mission critical communications are the backbone of public safety capability and must be resilient, reliable and secure. These communications must also provide agencies with capacity, coverage and operational control. Today LMR networks are built into all Standard Operating Procedures for the protection and performance of public safety agencies and the general community. As PSMB becomes widely used as a mission critical capability it will need to meet the same mission critical requirements of LMR..   The following measures are needed to ensure this:

- Evaluating coverage needs for PSMB must be done on the basis of an agency's geographic service area as opposed to the percentage of population coverage (as specified in the Commission's interim report). LMR coverage today far exceeds the coverage footprint of cellular networks and given the costs of expanding PSMB coverage to similar levels, the need for LMR networks to provide core, mission critical communication will continue over the long term
- *Note; Public safety agencies around Australia have already made long term investments in LMR in the order of 7-15 years and that presently the primary focus of PSMB is for data communications*
- The integration of PSMB with LMR is vital to providing the full operating environment for public safety agencies.
- Rigorous security (encrypted end-to-end) must be considered as part of mission critical requirements
- Availability of the PSMB networks in critical areas should meet the same standards as hardened LMR networks with expected reliability uptimes of 99.995%.
- Motorola Solutions fully support the Commissions draft findings that:
  - Public safety agencies should be provided with priority access to (and capacity on) PSMB networks, with scope to change these arrangements in real time
  - Public safety agencies should be able to communicate with each other (within and across jurisdictions), including by accessing PSMB networks upon crossing jurisdictional borders
  - Communications over a PSMB network should always be secure.

In addition to the abovementioned key principles, Motorola Solutions submits the following additional comments on the draft report for the Commission's consideration in the final economic analysis and recommendations.

A. Information request regarding Dynamic Priority Standards

To what extent do the current LTE standards support dynamic adjustment of the prioritisation of users or applications in real time?

- The current 3GPP standards do not define the dynamic adjustment of prioritisation of users and applications in real time.
- The 3GPP standards do specify standard network and interface capabilities.
- There is no planned 3GPP activity in the current work plan to specify dynamic prioritisation so all implementations of applications that define dynamic prioritisation will not be standards based

Can dynamic adjustment of prioritisation be on the basis of a user's role, agency or location?

- Yes – Motorola Solutions provide applications to provide dynamic user control of priority based on user's role, agency, incident and location

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- Dynamic priority requires applications and device clients that use standard network interfaces and standards based network features in a unique way
- Dynamic prioritisation requires complex and detailed Interoperability testing with applications, networks and devices.

Using non-proprietary technology, is it possible for dynamic prioritisation to feature in commercial delivery approaches?

- 3GPP standards do not specify how standard interfaces are used and as such there are no non-proprietary solutions
- Dynamic prioritisation is delivered by how the users and applications utilise the standard based interfaces and network capabilities.
- Additionally, carriers define allowable policy relating to their network. Dynamic priority requests can only be actioned if the carrier agrees, configures the PCRF and their network policy to allow the request, and has the necessary network software features implemented and enabled on their network. The interface also requires the full feature set of the standards based capabilities implemented and enabled.

B. Motorola Solutions' recommends providing a hybrid network to deliver a national PSMB capability that leverages existing carrier commercial infrastructure (hardened where appropriate) and utilising dedicated PSMB spectrum in sensitive areas or where network congestion is likely to occur.
This solution will provide the greatest benefits in PSMB capability as well as an economically viable option for government.

C. In a Hybrid approach, technical complexity is increased dramatically when there are multiple carriers as opposed to a single carrier. Motorola Solutions understands public safety agencies are seeking commercial arrangements with strict mission critical SLAs. In a multi-carrier environment the ability to deliver an consistent and reliable service will be impacted by;
- Ability to ensure all network manufacturers implement the standards in a consistent manner that means the end user experience is the same. This is difficult with every carrier likely to be on different releases of software and using different manufacturer's equipment.
- Regression testing will need to be coordinated across all carriers involved and will have to be undertaken for all changes whether in a customer application, interfaces to carrier network or changes effected by the carrier. Different carriers will refresh at different rates and times thus keeping everything in synch will be costly and resource consuming across the end-to-end ecosystem of suppliers.
- The State governments will assume greater risk as it will be very difficult to establish end-to-end SLA responsibility in a commercial contract.
- Ability to integrate to multiple carriers will require multi-carrier negotiation and design if customer controlled dynamic user and application priority is to be implemented.