



**Police Federation
of Australia**
The National Voice of Policing

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3 August 2011

Mr. Stephen Palethorpe
Secretary
Senate Environment and Communications References Committee
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Dear Committee members

POLICE FEDERATION OF AUSTRALIA SUPPLEMENTARY SUBMISSION

With the Committee's indulgence and due to the time which has elapsed since our submission of 21 April, the PFA would like to provide the Committee with a supplementary submission which complements and updates our original submission.

Yours sincerely

Mark Burgess
Chief Executive Officer

PFA SUPPLEMENTARY SUBMISSION:

INTRODUCTION

1. It is encouraging that the Australian Government, and we think all parties, want to see Australia become a leading digital economy by 2020, and that this extends not just to Australian households, but also to businesses, the health sector, schools and higher education and non-government organisations.¹
2. It is also clear that while the NBN will bring this on-line capability direct to households and businesses, high speed **mobile** broadband will be an essential part of this digital world of the near term. For many it already is.
3. When you think of the 'workplace' of police and emergency services such as fire and ambulance authorities and the emergency services like the SES, all their front-line services are **mobile**. As a case in point, a good proportion of Australia's 55,000 police officers are on the road, and on the street, and they are there 24/7. I think you can see why we are convinced that police and Australia's other public safety agencies (PSAs) need **high speed mobile broadband** to join the digital age.
4. The reliance, largely still the case today, on narrowband radio communications that are limited to voice communications, is currently the norm for our police services and other PSAs, mostly in the 400 MHz and 800 MHz bands. This voice-only means of communicating cannot continue because it seriously narrows the range of information, facts and figures, and data and pictures and scenarios that public safety agencies can access and send in the gruelling process of keeping people safe and protecting life and property in a huge variety of situations – natural disasters, crime scenes, police pursuits, terrorist incidents, and big events like New Years Eve and grand finals.
5. So, this is the challenge – to 'make adequate provision of spectrum for use by agencies involved in the defence or national security of Australia, law enforcement or the provision of emergency services'². We deliberately quote the Act here because we are having this debate because that object of the Act has, to date, not been met by the government or the Australia Communications and Media Authority (ACMA) if you accept that '**adequate' spectrum**, in 2011 and beyond, must include mobile broadband for public safety agencies.
6. There are, in the PFA's view, five essential questions to be answered.

¹ Senator Conroy, Media Release, *Australia to become a leading digital economy by 2020*, 31 May 2011.

² *Radiocommunications Act 1992*, Section 3 (b).

- **Is it agreed that PSAs need high speed mobile broadband communications?**
- **Should that broadband be a dedicated network for PSAs i.e. separate from the networks of commercial communications carriers?**
- **How much spectrum do the PSAs need for mobile broadband for the foreseeable future?**
- **Where is spectrum of that kind available?**
- **Will the PSAs still need to roam using commercial carriers, and are spectrum conditions needed to make sure this can happen?**

IS IT AGREED THAT PSAs NEED HIGH SPEED MOBILE BROADBAND COMMUNICATIONS?

7. The Police Federation is convinced that this capacity for police and emergency services is essential, not just a nice thing to have. At paragraphs 15 and 16 of our written submission to the recent Senate inquiry we set out just what capabilities this will ensure for PSAs.
8. Uniquely, all of Australia's Police Commissioners, Federal, State and Territory, are united in this view that mobile broadband is essential. So are the fire and ambulance authorities of Australia.
9. The Australia Government has also recognised how important this is and is considering PSA requirements for 'a reliable and resilient mobile broadband capability'³. The Attorney-General and Senator Conroy acknowledged this when they convened a forum in May 2011 to 'discuss the development of a national mobile broadband capability for police and emergency services'⁴.
10. I think it is fair to say that this is also agreed by the communications industry and the key public safety suppliers in the region.
11. Of course Australia is not alone. The very same issues are hot issues in the USA and Canada and being pursued also in Europe. The same competition for spectrum is also evident there. We believe that the need for PSAs to have high speed mobile broadband communications is universal and accepted.

SHOULD THAT BROADBAND BE A DEDICATED NETWORK FOR PSAs I.E. SEPARATE FROM THE NETWORKS OF COMMERCIAL COMMUNICATIONS CARRIERS?

³ Attorney-General and Senator Conroy, Media Release, *Discussion on National Broadband for Police and Emergency Services*, 10 May 2011.

⁴ Ibid

12. Police Commissioners and other PSAs are satisfied that a dedicated network is necessary. The PFA agrees. We explain in our recent submission to the Senate inquiry at paragraphs 12, 13 and 14 why this is so. In a nutshell they need secure, hardened, high capacity for critical incidents systems that commercial carriers do not have, because it is not in their commercial interests to develop such redundant capacity. They do not develop their networks to importance level 1 which police do for example.
13. Some of the key manufacturers that operate in this field also support the PSAs need for dedicated spectrum and a dedicated network, and I understand that you have a submission from Motorola which is evidence of this.
14. The Attorney-General and Senator Conroy are supporting the need for PSAs to 'build their mobile broadband capacity'⁵.

HOW MUCH SPECTRUM DO THE PSAs NEED FOR MOBILE BROADBAND FOR THE FORESEEABLE FUTURE?

15. Spectrum is a scarce resource for which demand is growing, so it is legitimate to want to know how much police and emergency services need to operate their mobile broadband communications now and over the next 15 years, the usual term for spectrum licences.
16. The PFA needs to be guided on this by the technical communications experts. We are advised that in Australia we need, for the more than 26 Commonwealth, State and territory agencies involved, 20 MHz in total, i.e. 2 X 10 MHz to enable upload and down load across the country.
17. There are some in DBCDE, for example, who question whether 20 MHz is needed. NSW Police Force and Motorola agree that 20 MHz are necessary. In a submission to ACMA on the digital dividend in December 2010 Motorola said 'After conducting bandwidth requirements studies it is generally agreed amongst internationally based emergency services organisations that the minimum useful bandwidth for emergency services LTE (Long Term Evolution) network is 20 MHz of paired spectrum. That is 10 MHz + 10 MHz'⁶. It should be noted that the ACPO Global Alliance has adopted LTE as the international public safety standard for mobile broadband networks⁷.
18. A recent Canadian report confirms that 20 MHz is the minimum reasonably required by PSAs⁸.

⁵ Ibid.

⁶ Motorola submission to ACMA, 6 December 2010, page 12.

⁷ ACPO Australia, 20 April 2011.

⁸ *700MHz Spectrum Requirements for Canadian Public Safety Interoperable Mobile Broadband Data Communications*, Defence Research and Development Canada, 28 February

It found that PSAs' needs for spectrum for mobile broadband are "greater than 20MHz in the near-to-mid term, and likely to exceed 20MHz in the long term, despite advances in technology."

While the report focuses on the 700 MHz band it would appear reasonable to presume the technical arguments for "quanta of spectrum" from either the 700 MHz band or 800 MHz band would/should be virtually identical (given their comparative technical characteristics).

The Abstract of the report follows:

In response to a request for technical advice by Public Safety Canada on behalf of national public safety stakeholders, the Centre for Security Science conducted a technical assessment of the 700 MHz spectrum requirements for broadband mobile data communications for public safety and security. The impetus to this assessment relates to the Industry Canada call for consultation SMSE-018-10. The goal was to determine how much spectrum is required to meet the needs of the public safety community for mobile broadband wireless data communications within a 20-year time frame. The data demand for recurring emergency situations was modeled through an interactive process with active participation from Canadian public safety stakeholders. In addition, the capabilities of LTE technology to support the data demands were also modeled. The results show that the amount of bandwidth required to satisfy the needs of public safety is greater than 20MHz in the near-to-mid term, and likely to also exceed 20MHz in the long term, despite advances in technology. This result is based on an analysis that applies relatively conservative estimates for the growth in demand for mobile data communications for public safety and security applications, and relatively aggressive estimates for the rate of technological improvement of spectrum efficiency projected into the future.

19. That research finding should settle the issue of how much spectrum PSAs need, recognising that the 20 MHz estimate is conservative. Motorola estimates that there are approximately 100,000 users Australia-wide amongst the PSA community. The USA is also adopting 20 MHz by adding an additional 10 MHz to the 10 MHz that their PSAs already have in the 700 MHz band.

WHERE IS SPECTRUM OF THAT KIND AVAILABLE?

20. Paragraph 18 of our submission to the Senate inquiry sets out the characteristics PSAs are seeking – able to carry communications at high speed, over long distance, and through buildings and able to carry data and video.
21. The 700 MHz band is top quality in this regard, hence it being called the 'waterfront property' of spectrum. We know it will shortly be available as analogue TV is relocated to other bands and the Digital Dividend released for new uses. We understand it could be freed up as early as 2012. We have made a number of submissions to the Government, MPs and Senators, and Parliamentary inquiries setting out the case for PSAs to be allocated 20 MHz of the Digital Dividend, approximately 18 % of the available 126 MHz. Police Commissioners, giving the best advice they could provide, unanimously recommend that 700 MHz band spectrum be made available. They continue to hold this view.
22. An alternative of spectrum in the 800 MHz band has been suggested by the Attorney-General and Senator Conroy in their media release of 10 May 2011 and in the Attorney-General's subsequent media release of 6 June 2011,

Steering Committee on National Broadband Capability for Police and Emergency Services.

23. On the face of it there appear to be a number of serious drawbacks in connection with the 800 MHz band for PSAs including -

- We are advised that the 800 band is narrowband, not broadband and narrow and broadband communications cannot be carried by the same spectrum
- We are advised that 88% of the 800/900 bands are already occupied by the three major telecommunications companies – Telstra, Optus and Vodafone Hutchison. A number of police and emergency services also occupy the 800 band for narrowband voice communications and they will continue to need this spectrum for that purpose
- We are advised that there are more than 1,000 licensees in the 800 band and 20,000-30,000 users in the 820-825/865-870 MHz band. Clearing that spectrum to provide 20 MHz for PSA broadband would be a long difficult job, taking decades, and that it appears that the same 800 band is being held out to four or more different interests at the same time
- We are advised that a spectrum allocation in the 800 MHz bands for public safety would isolate Australia from the Asia Pacific Region, and the rest of the world. We understand that the International Telecommunications Union (ITU) Public Safety and Disaster Relief (PPDR) spectrum in 800 MHz is intended for narrow band (less than 25 kHz) applications, and that at its June 2011 meeting it recommended the adoption of 700 MHz for public safety agency broadband services in our region.
- Industry suppliers are advising that there will be limited supply of public safety broadband devices in the 800 MHz band. All development of public safety is currently planned for the 700 MHz bands, and so can more easily be adapted to harmonise with the Region 3 Digital Dividend
- We are advised that any chipsets and devices coincidentally developed that could potentially cover the 800 MHz PPDR bands would most likely not roam onto the other public networks in Australia. This is because the market for the limited selection of chipsets developed for commercial operators will be for other regions, with different spectrum bands and technologies deployed to that of Australia.
- We understand that the implementation schedule for 800 MHz public safety broadband will be extended significantly. This is due to the uncertain future plans for the 800 MHz band, the time required for clearance of sufficient spectrum and to minimise disruption to

potentially thousands of other users displaced by such a plan.

24. In a two page attachment to this supplementary submission we provide a summary which compares the 800 MHz spectrum with the 700 MHz spectrum. Based on the facts set out, it is clear to the PFA that our recommendation for a reservation of 700 MHz spectrum is sound and valid.

WILL THE PSA'S STILL NEED TO ROAM USING COMMERCIAL CARRIERS, AND ARE SPECTRUM CONDITIONS NEEDED TO MAKE SURE THIS CAN HAPPEN?

25. Meanwhile as far as we know there are no current moves to apply serious conditions to any commercial carriers that acquire spectrum in the 700 MHz band such that public safety agencies could access their networks if neither 700 MHz nor 800 MHz band spectrum is made available for PSAs, i.e. if there is no broadband spectrum made available for police and emergency services.
26. Similarly, even with their own spectrum, the PSAs may need roaming capacity over the commercial carriers' networks and you would expect ACMA to be ensuring that suitable conditions are imposed on carriers in the 700 MHz and 800-900 MHz bands. The Committee way wish to seek further information on this aspect from some of the police and other technical experts giving evidence.

ATTACHMENT: SUMMARY OF 800 MHZ SPECTRUM COMPARED TO 700 MHZ



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SUMMARY OF 800 MHz SPECTRUM COMPARED TO 700 MHz

Public safety has a requirement for dedicated broadband spectrum to enable their rapidly growing demand for access to next generation wireless broadband technology to compliment their existing mission critical narrow band voice and data networks.

On the 10th May 2011, Attorney-General Robert McClelland and Minister for Broadband, Communications and the Digital Economy Stephen Conroy announced the possible 'earmarking' of spectrum from the 800 MHz band for potential use by public safety agencies to build their mobile broadband capability.

Many Australian public safety agencies and suppliers have responded and expressed concerns that allocating the 800 MHz spectrum for public safety Broadband would not be as viable as an allocation from the 700 MHz digital dividend for the following main reasons:

- The 800 band is narrowband, not broadband and narrow and broadband communications cannot be carried by the same spectrum
- 88% of the 800/900 bands are already occupied by the three major telecommunications companies – Telstra, Optus and Vodafone Hutchison. A number of police and emergency services also occupy the 800 band for narrowband voice communications and they will continue to need this spectrum for that purpose
- There are more than 1,000 licensees in the 800 band and 20,000-30,000 users in the 820-825/865-870 MHz band. Clearing that spectrum to provide 20 MHz for PSA broadband would be a long difficult job, taking decades, and that it appears that the same 800 band is being held out to four or more different interests at the same time
- A spectrum allocation in the 800 MHz bands for public safety would isolate Australia from the Asia Pacific Region, and the rest of the world. We understand that the International Telecommunications Union (ITU) Public Safety and Disaster Relief (PPDR) spectrum in 800 MHz is intended for narrow band (less than 25 kHz) applications, and spectrum in the region is mostly occupied.
- Industry suppliers are advising that there will be limited supply of public safety broadband devices in the 800 MHz band. All development of public safety is currently planned for the 700 MHz bands, and so can more easily be adapted to harmonise with the Region 3 Digital Dividend
- Any chipsets and devices coincidentally developed that could potentially cover the 800 MHz PPDR bands would most likely not roam onto the other public networks in Australia. This is because the market for the limited selection of chipsets developed

for commercial operators will be for other regions, with different spectrum bands and technologies deployed to that of Australia.

- The implementation schedule for 800 MHz public safety broadband will be extended significantly. This is due to the uncertain future plans for the 800 MHz band, the time required for clearance of sufficient spectrum and to minimise disruption to potentially thousands of other users displaced by such a plan.

Alternatively, an allocation from the 700 MHz digital dividend will provide key benefits over the 800 MHz as follows.

- The broadband 700 MHz Digital Dividend is harmonised with our Asia Pacific spectrum plan and will coexist with the 800 MHz PPDR and other narrow band networks deployed extensively in Australia and the rest of our region.
- Industry suppliers are already developing public safety broadband products in the 700 MHz band which they have advised can more easily be adapted to the Asia Pacific Digital Dividend spectrum plan. The larger market and wider availability of chipsets will provide a rich ecosystem of competitively priced devices and solutions developed for public safety applications. The performance and features of these devices will keep pace with the rapid evolution of technology.
- Because the 700 MHz chipsets will be developed for our local regions digital dividend spectrum plan, these will be compatible with other commercial networks deployed in the region allowing roaming onto the other networks.
- 700 MHz digital dividend spectrum will be released in a defined time frame, allowing public safety to commence planning and schedule deployment.

The decisions to be made regarding choice of spectrum for public safety Broadband are critical to the operations of Emergency Services Organisations for many decades to come.

