

**Before the  
Federal Communications Commission  
Washington, D.C. 20054**

In the Matter of	)	
	)	
Service Rules for the 698-746, 747-762 and 777-792 MHz Bands	)	WT Docket No. 06-150
	)	
Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band	)	PS Docket No. 06-229
	)	
Amendment of Part 90 of the Commission's Rules	)	WP Docket No. 07-100
	)	

**REPLY COMMENTS OF THE COMMONWEALTH OF VIRGINIA  
IN RESPONSE TO COMMENTS ON THE THIRD REPORT AND ORDER  
AND FOURTH FURTHER NOTICE OF PROPOSED RULEMAKING**

The Commonwealth of Virginia Department of State Police (“Commonwealth”), by its counsel, hereby submits Reply Comments on behalf of its Statewide Agencies Radio System (“STARS”) in response to the Comments received on the Third Report and Order and Fourth Further Notice of Proposed Rulemaking (FCC 11-6) in the above matter (“Fourth Notice”) inviting comments on the implementation of a nationwide, broadband interoperable “public safety” network in the 700 MHz band.

**INTRODUCTION**

STARS is a new, statewide, narrowband, interoperable land mobile radio integrated voice and data network designed to support public safety, public service and homeland security needs. STARS provides twenty-one Virginia state agencies with a public safety grade statewide integrated voice and data communications system. STARS utilizes 700 MHz portable radios, VHF mobile radios and cross-band vehicular repeaters in approximately 3,000 public safety vehicles, which constitutes an incumbent “legacy” narrowband 700 MHz system. Without

federal funding, STARS has no available financial resources to reband its current 700 MHz spectrum use.

## **REPLY COMMENTS**

### **A. LMR Voice Applications**

The State of Maryland's Comments noted that while land mobile radio (LMR) voice applications may be supported by broadband in the distant future, the practical application is years away. Maryland's Comments also noted:

Maryland supports the DHS SAFECOM dual-path strategy that continues the reliance of voice systems while working towards the convergence of voice with broadband including the full set of LMR features over time. To that end, Maryland urges the FCC not to propose any changes in Part 90 Subpart R that would diminish the availability of 700 MHz spectrum for voice operations.

The Commonwealth agrees with Maryland's implementation strategy of broadband. Having a dual-path strategy will give LTE the opportunity to mature into a technology that supports law enforcement operations, with a full set of LMR features (preferably based upon Project 25 research and development).

The Association of Public-Safety Communications Officials International, Inc. ("APCO") offered Comments urging the Commission not to address voice applications in its rulemaking. The Commonwealth agrees with APCO that the LTE standards need mission-critical voice features. Therefore, narrowband private land mobile radio channels and spectrum allocations will need to remain operational for many years to provide mission-critical capability for public safety users. Since the transition to narrowband is not yet complete, the federal government should not expect agencies to transition to broadband for voice until they have had a return on our investments for the new narrowband systems. In the case of STARS, broadband would need to offer a comparable system (in terms of reliability, features, grade of service, and coverage)

before it is appropriate for the Commonwealth to transition. Deferral of any transition to broadband should include the VHF, UHF, 700 MHz, and 800 MHz bands. Multiband interoperability channels functioning within all our systems' infrastructure and digital audio switches installed for the coverage overlap between jurisdictions is cost efficient and sufficient in the near term for law enforcement interoperability functionality.

The "APCO" Project 25 statement of requirements is a very good place to start for LTE planners to determine public safety radio needs.

**B. Funding for Legacy Public Networks**

The State of Maryland's Comments noted that the financial inability of the Commonwealth to reband effectively is blocking deployment of Maryland's proposed broadband system, blocking broadband deployment to over 10 million people.

Maryland concluded that "...we believe that federal relief is justified to pay for the 700 MHz rebanding costs of the Commonwealth."

The Commonwealth appreciates Maryland supporting Virginia's need to reconfigure its existing 700 MHz equipment with a federal resolution (i.e. funding) so Virginia can relocate to the Consolidated Band. STARS was properly deployed under the then-existing rules and Virginia should not be financially penalized for the FCC having changed the band structure after STARS was already contracted and implementation had started.

**C. Use of Public Safety Frequencies**

The Commonwealth has carefully considered APCO's comments on eligible users and agree that there is presently not adequate spectrum to accommodate non-governmental entities. APCO's Comments also noted:

“APCO believes that the current 10 MHz allocated for public safety is inadequate to meet basic public safety requirements. Therefore, absent a reallocation of the D Block, there will not be sufficient “excess” spectrum to accommodate non-governmental entities, such as utilities and critical infrastructure.”

While interoperability planning is a desirable goal, the Commission needs to focus on core public safety users whose lives may be jeopardized while performing their jobs.

Users such as local, state, and federal law enforcement officers must be reserved adequate system capacity, and given access to the communications network, during the busiest moment of caller activity, commensurate with the urgency their mission and the degree of personal risk with which they serve. When the Commonwealth implemented a statewide interoperable integrated voice and data land mobile radio network, in many cases the needs of law enforcement dominated the specifications, design, and cost because of their unique requirements. The Nationwide Broadband Interoperable Public Safety Network should not be any different when voice communication becomes a consideration.

The Commonwealth is not opposed to any jurisdiction sharing the communications network in the future with all who actively participate in the mission of public safety provided it does not in any way degrade the service to create an officer safety issue. Capacity may need to be reserved today to facilitate networks transitioning from data only, to include voice, to mission critical voice as the technology matures. Paragraph 20 of the NPRM states the following:

As the LTE standard progresses, the network must become capable of supporting both mission-critical voice and data communications. Support for both is necessary to ensure a baseline level of operability and interoperability across the country.

Reserving capacity is particularly true if a long range goal is to transition from disparate private LMR networks to the Nationwide Broadband Interoperable Public Safety Network.

If a city, county or region is deploying a public safety network that must later be used by state providers of law enforcement, then appropriate consideration of state law enforcement needs to be provided in the network implementation. This is true for public or private implementations and also public – private partnerships that use public safety designated frequencies. If ultimately state level law enforcement use of the Nationwide Broadband Interoperable Public Safety Network is required, then the Commission should require state level consent to a particular local or regional network implementation. Authorizing network access by so many diverse users (for a given technology and bandwidth) needs a detailed mathematical worst case analysis. The Commonwealth would recommend that the Commission undertake or require grade of service analysis because otherwise such an analysis may not occur (or even be considered) in all cases. Even if the selected broadband technology supposedly allows some network use to be prioritized, ensuring that the most critical uses are pushed to the front of the queue, the Commonwealth would urge the Commission to thoroughly test and analyze the reliability of such a prioritization system. An officer under fire cannot wait too many seconds or waste attention while attempting to communicate.

To guard against unnecessary risks to public safety officers, the Commonwealth believes that the Commission should adopt the following access standards for any network using public safety frequencies:

1. 95% geographic voice coverage for the territory served by the network, which includes many miles from major roadways and both inland waterways and coastline out to ten miles at sea. State law enforcement officers such as State Police, Conservation Police, and Marine Resources require voice and data coverage across the entire state geographically and at sea.

2. A channel (or “talk-path”) shall be made available to the user depressing their PTT button. In order to achieve “law enforcement grade” service, the network shall be designed to provide access to a voice “channel” during the “busy hour” in less than 1 second for at least 99% of the calls attempted. So the maximum acceptable call delay = 1 second (after PTT), and the call completion rate shall be => 99% in less than 1 second during the busy hour. The “busy hour” is defined as the hour with the highest call rate and usage (in Erlangs) during a typical week (or month).
3. The Delivered Voice Quality (DAQ) shall meet a 3.4, as defined by TIA/EIA TSB-88.1-C as shown in Table 2-1: “Speech understandable with repetition only rarely required; some noise and distortion; SINAD equivalent intelligibility : 20dB”.

**CONCLUSION**

The Commonwealth urges the Commission to fully protect narrowband incumbents from potential interference until federal funds for rebanding become available, and otherwise protect the public safety spectrum as suggested by the Commonwealth.

Respectfully submitted,

COMMONWEALTH OF VIRGINIA  
DEPARTMENT OF STATE POLICE

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**CERTIFICATE OF SERVICE**

I hereby certify that on this 5<sup>th</sup> day of May, 2011, a copy of the foregoing Reply Comments of the Commonwealth of Virginia was sent by email to Jennifer.Manner@fcc.gov and to fcc@bcpiweb.com.

  
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