

**Before the  
Federal Communications Commission  
Washington, D.C. 20554**

In the Matter of	)	
	)	
Petitions for Waiver to Deploy 700 MHz Public Safety Broadband Networks	)	
	)	PS Docket No. 06-229
Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band	)	

To: The Commission

**REPLY COMMENTS OF ALCATEL-LUCENT**

Alcatel-Lucent welcomes this opportunity to respond to the Federal Communications Commission’s (“FCC/Commission”) *Public Notice* on the 13 “petitions for waiver filed by various entities (“Petitioners”) seeking authority to deploy public safety broadband systems on a local or regional basis in the 10 MHz of 700 MHz public safety broadband spectrum currently licensed to the Public Safety Spectrum Trust (“PSST”) (763-768/793-798 MHz).”<sup>1</sup>

Alcatel-Lucent remains steadfast in support of nationwide interoperable broadband public safety communications, but it respectfully asks the FCC to act now and enable Petitioners to deploy Long Term Evolution (“LTE”) 700 MHz broadband systems. Despite the Commission’s significant efforts, the timeline for 700 MHz public-private broadband network deployment remains uncertain and, in any event, several years away; meanwhile, Petitioners are ready to put

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<sup>1</sup> *Public Safety and Homeland Security Bureau Seeks Comment on Petitions for Waiver to Deploy 700 MHz Public Safety Broadband Networks, Public Notice*, PS Docket No. 06-229, DA 09-1819, ¶ 1 (rel. Aug. 14, 2009) (“*Public Notice*”).

this spectrum to use and deploy public safety broadband systems that would later be integrated into a nationwide broadband solution. The Commission should take this opportunity to enable such early deployments.

## **I. INTRODUCTION**

Over the last few years, the Commission has taken significant steps to advance nationwide interoperable public safety broadband communications. Despite these efforts, Auction 73 did not result in a winning bidder for the Upper 700 MHz D Block license. Yet there is an urgent need to provide wireless broadband to our first responders. The Petitioners stand ready to commit the resources to put this critical 700 MHz spectrum to use and deploy interoperable LTE public safety broadband systems that could later be integrated into a nationwide public safety broadband solution.

Today there is overwhelming unanimity amongst all public safety agencies and associations that the technology of choice should be LTE, which is an open standard technology that has been adopted by the major global commercial mobile service providers for deployment in the United States within the next year. In addition, APCO International (“APCO”), the National Emergency Numbering Association (“NENA”), the Public Safety Spectrum Trust (“PSST”), and the National Public Safety Telecommunications Council (“NPSTC”) have all publicly endorsed LTE for use in the public safety 700 MHz spectrum space. Thus, the Commission should seize this opportunity to harness precious resources by modifying its current 700 MHz early build-out rules to enable early deployments and choose LTE as the air interface. Specifically, the Commission should allow state or local jurisdictions to deploy LTE networks that meet the technical specifications proposed in the *Third Further Notice* and the September 4, 2009 NPSTC 700 MHz Broadband Task Force Report and Recommendations (“NPSTC

Recommendations”),<sup>2</sup> and can be integrated into a future network.

In the *Second Report & Order*, the Commission recognized the need to balance two important goals as it crafted the 700 MHz public safety broadband policy: (1) foster a public-private solution to develop nationwide interoperable public safety broadband communications; and (2) enable jurisdictions with available resources to deploy public safety broadband systems on an accelerated basis in some circumstances.<sup>3</sup> As to the second goal, though the Commission granted the D Block licensee the “exclusive right” to build out the 700 MHz commercial/public safety broadband network (the “Shared Wireless Broadband Network”),<sup>4</sup> it created two exceptions to this policy: (1) public safety entities were permitted to undertake an earlier build-out than would be provided for in the Network Sharing Agreement (“NSA”), with the public safety entities entitled to compensation up to the amount the D Block licensee would have incurred if had it constructed the network itself; and (2) public safety could build their own broadband networks in areas not included in the NSA.<sup>5</sup> Thus, the current early deployment options are premised on D Block licensing and adoption of the NSA. With no D Block licensee and no NSA, and in any event with deployment years away, today there is no clear path for public safety entities in need of broadband solutions.

To that end, the Commission should clarify that jurisdictions may begin early deployments so long as they meet the technical requirements for 700 MHz public safety systems and a commitment is made to facilitate, along with the eventual D Block licensee in its region,

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<sup>2</sup> See NPSTC 700 MHz Broadband Task Force Report and Recommendations, (Sept. 4, 2009)(“NPSTC Recommendations”).

<sup>3</sup> *Service Rules for the 698-746, 747-762 and 777-792 MHz Bands*, Report and Order, 22 FCC Rcd 15289 (2007) (“*Second Report & Order*”).

<sup>4</sup> *Id.* at ¶ 470.

<sup>5</sup> *Id.* at ¶¶ 471-84.

migration to the national Public Safety Broadband Network.

## **II. THE COMMISSION SHOULD MODIFY ITS EARLY DEPLOYMENT RULES.**

The Commission has made every effort to advance a public-private broadband solution in the 700 MHz band but uncertainty continues to surround this proceeding. Despite these significant efforts, the failure of Auction 73 creates uncertainty regarding the D Block re-auction. Even with successful D Block licensing, however, it could be years before the contemplated Shared Wireless Broadband Network is ready for public safety use. Some areas will be subject to buildout commitments up to 15 years after licensing and thus will not gain access to broadband capabilities for several years. Still other areas may simply not be built.

While America waits for nationwide interoperable public safety broadband, Petitioners seek to seize the opportunity to solve the broadband interoperability crisis in their state and local jurisdictions today. FCC promotion of early deployment will produce a “win-win” situation:

- First responders will benefit from having earlier access to interoperable broadband services that can save lives and protect property; and
- Potential D Block licensee(s) will be able to “hit the ground running” with an already-deployed infrastructure and existing public safety customer base.

Where state and local jurisdictions have identified public safety interoperable broadband as a priority, it is incumbent on the Commission to find a way to allow deployment to happen. Especially in these current economic times, the Commission should be eager to leverage any sources of funding for deployment.

As part of the U.S. Government’s stimulus package, Congress has acted to partially address this situation by adopting a \$4.7 billion broadband grant program, the new Broadband Technology Opportunities Program (“BTOP”) that directs NTIA to issue grants for the purpose

of, among others, improving access to, and use of, broadband service by public safety agencies.<sup>6</sup> Consistent with Congressional intent related to public safety and BTOP, the Commission should act to make the necessary spectrum available so that first responders will be able take advantage of public safety broadband services while the Commission and other stakeholders work through the issues remaining to be resolved in the pending 700 MHz rule making proceeding.

### **III. THE COMMISSION SHOULD BE STEADFAST IN ITS CONSIDERATION OF TECHNOLOGY NEEDS AS EXPRESSED BY THE PUBLIC SAFETY COMMUNITY AND ITS REPRESENTATIVES**

Alcatel-Lucent believes that selection of a common air interface technology for use in the public safety 700 MHz band to be an essential first step to achieving the goal of nationwide interoperability. Alcatel-Lucent plans to build commercial and public safety 700 MHz LTE systems. LTE deployed in the Public Safety Broadband Block would meet the technical specifications proposed by the Commission in its *Third Further Notice*, as well as the NPSTC recommended requirements identified in the NPSTC Recommendations.<sup>7</sup> In particular:

- *Capacity, Throughput, and Quality of Service.* With user peak data rates of 31.7 Mbps (downlink) and 9.1 Mbps (uplink) when deployed on 2x5 MHz channels and quality of service support for real-time and non-real-time IP-based applications, LTE will support all the applications listed in Table 1 of proposed Section 27.1305 of the Commission's rules. Networks will be designed with effective cell edge data rates exceeding those listed in Table 2 of proposed Section 27.1305. In addition, the systems will provide QoS mechanisms and priority levels consistent with LTE standards.
- *Security and Encryption.* LTE is highly secure in view of its use of a variety of robust authorization and authentication mechanisms employing standard encryption techniques for both media and signaling traffic. IPsec is supported. The system will comply with commercial best practices.
- *Availability, Robustness, and Hardening.* Public Safety LTE networks will be designed for robustness and reliability. Using LTE, public safety networks exceeding 99.6% availability metric excluding radio signal coverage and scheduled maintenance downtime can be deployed. Furthermore, network equipment can be deployed at

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<sup>6</sup> See American Recovery and Reinvestment Act, Pub. L. No. 111-5, § 6001(b)(4) (2009).

<sup>7</sup> See NPSTC Recommendations *supra* at 2.

existing public safety Land Mobile Radio sites, which have been typically hardened to meet the needs of mission-critical public safety communications.

Over the past several months, public safety, equipment manufacturers and commercial wireless service providers under the auspices of the NPSTC's Broadband Task Force have worked to develop minimum recommendations for LTE-based systems, to ensure roaming and interoperability among the Petitioners who plan to build ahead of the national network. As an active contributor to the process, Alcatel-Lucent supports the NPSTC Broadband Task Force recommendations as they are useful guidelines for achieving roaming and interoperability.<sup>8</sup> In developing its set of technical recommendations, the task force took into account the roaming scenarios that would be encountered by state and local jurisdictions seeking to deploy 700 MHz LTE systems via a waiver, including: roaming between 700 MHz public safety LTE networks, roaming between private 700 MHz public safety LTE and D block shared LTE network, roaming between 700 MHz public safety LTE networks to commercial 700 MHz LTE networks, and roaming between 700 MHz public safety LTE networks to commercial and private broadband networks (3GPP and non-3GPP) in other bands.

The NPSTC Recommendations provide a sound set of requirements and technical implementation guidelines to support interoperability among public safety agencies deploying LTE-based systems via a waiver. The technical implementation guidelines take into account the evolution of LTE technology, as well as public safety users' immediate-term application needs. The report's proposed recommendation for a public safety broadband roaming exchange is a sensible and pragmatic approach to support inter-regional roaming.

The majority of Petitioners stand ready to commit the resources to put this critical 700

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<sup>8</sup> See NPSTC Recommendations *supra* at 2.

MHz spectrum to use by deploying LTE-based public safety broadband systems. Such systems will operate on a paired assignment of 5 MHz wide channels in the public safety interoperability broadband block between 793-798 MHz for mobile transmission and 763-768 MHz for base station transmission. LTE equipment operating in that band will be compliant with Band Class 14 as specified in the 3GPP standards and therefore, would support 2x5 MHz<sup>9</sup> or 2x10MHz<sup>10</sup> modes of operation. For example, Alcatel-Lucent plans to build LTE equipment that will be software configurable for either 2x5 MHz or 2x10 MHz operation.

#### **IV. THE COMMISSION SHOULD GRANT PETITIONERS' WAIVERS AND EXPAND THE USER BASE TO NON-TRADITIONAL ENTITIES THAT ALSO PROTECT THE SAFETY OF LIFE, HEALTH, OR PROPERTY**

Currently, the Public Safety Broadband Licensee must broadly represent the public safety radio user community, including the various levels (*e.g.*, state, local, county) and types (*e.g.*, police, fire, and rescue) of public safety entities.<sup>11</sup> Expansion of the definition to include hospitals, health care facilities, and emergency medical service departments is warranted, along with critical infrastructure. The Commission should also grant a waiver allowing Federal users the ability to use the broadband portion of the 700 MHz spectrum via Petitioners' waiver request.

This expanded user group clearly protects the safety of life, health or property of United States citizens and should be allowed the use of next generation broadband applications and services. Moreover, an expanded public safety user group will drive down infrastructure and device costs as more users will be on the network, making the network more affordable for public safety deployment. Thus, Petitioners' waiver requests should be granted with the ability to allow more users on the network, as this is clearly in the public interest. Finally, the

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<sup>9</sup> When operating in the Public Safety Broadband Block.

<sup>10</sup> When operating over the Public Safety Broadband Block and upper 700 MHz D block.

<sup>11</sup> *See* 47 CFR § 90.523

Commission should reinterpret Section 337 of the Communications Act of 1934, as amended, as the current Commission rule limits the number of public safety entities that can use the broadband portion of the public safety 700 MHz spectrum to reflect the aforementioned expanded user group.<sup>12</sup>

## V. CONCLUSION

The Commission can strike an appropriate balance that will ensure both the flexibility for public safety entities to engage in early deployment, and the achievement of the Commission's goals of nationwide interoperability. As demonstrated above, such a balance is achievable. The public interest therefore requires that the Commission amend its early deployment rules along the lines suggested by Alcatel-Lucent to allow Petitioners to build out local interoperable broadband networks immediately. Alcatel-Lucent urges the Commission to act now to ensure that the 700 MHz spectrum can be put to use where local needs and resources are available today.

Respectfully submitted,



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<sup>12</sup> 47 U.S.C. §337(f)(1)(a)