

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of)	
)	
Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band)	PS Docket 06-229
)	
Development of Operational, Technical, and Spectrum Requirements for Meeting Federal, State and Local Public Safety Communications Requirements Through the Year 2010)	WT Docket 96-86
)	

COMMENTS OF ALCATEL-LUCENT

Pursuant to Section 1.415 of the rules of the Federal Communications Commission (“Commission”),¹ Alcatel-Lucent (“ALU”)² respectfully submits the instant comments in the above-captioned proceeding.³ ALU commends the Commission for its continued efforts to ensure that our nation’s first responders have access to interoperable wireless communications. As set forth more fully herein, the use of commercial broadband technologies will best allow the

¹ 47 C.F.R. § 1.415.

² Alcatel and Lucent Technologies, Inc., two leading global telecommunications equipment manufacturing companies, merged on November 30, 2006 to create Alcatel-Lucent (“ALU”). A global leader in fixed, mobile and converged broadband networking, IP technologies, applications, and services, ALU operates in more than 130 countries and has one of the largest research, technology and innovation organizations in the telecommunications industry. ALU provides solutions that enable service providers, enterprises and governments worldwide to deliver voice, data and video communication services to end-users and achieved adjusted pro forma revenues of 23.9 billion dollars in 2006.

³ In the Matter of Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band, PS Docket No. 06-226, *Ninth Notice of Proposed Rulemaking*, 21 FCC Rcd 14837 (2006) (“*Ninth NPRM*”).

Commission to accomplish its public interest objective of improving emergency responsiveness by achieving nationwide communications interoperability for public safety agencies.⁴ Regardless of whether this goal ultimately is achieved by adoption of a nationwide broadband network managed by a single licensee, as proposed by the Commission in the instant proceeding, or by some other means, the Commission should act expeditiously to enable our nation's first responders to benefit from the most advanced communications technologies and to respond effectively to the next major catastrophe that they face.

I. RAPID DEPLOYMENT OF NATIONWIDE INTEROPERABLE BROADBAND COMMUNICATIONS CAPABILITIES FOR PUBLIC SAFETY AGENCIES IS ESSENTIAL TO OUR NATION'S FIRST RESPONDERS

Mobile consumers worldwide increasingly enjoy the benefits of advanced data communications and multimedia interoperability provided by commercial wireless providers operating broadband networks. By contrast, our nation's first responders lack reliable access to many of the data applications that they need to perform their duties effectively. Similarly, first responders have been struggling with the challenges of interoperability for many years and yet basic public safety voice interoperability remains lacking throughout much of the country. Indeed, the cross-jurisdictional interoperability of public safety communications today is not significantly different nationwide—or even regionally—than it was six years ago, when the issue first received widespread attention following the September 11, 2001 terrorist attack.⁵ As

⁴ *Ninth NPRM*, at ¶ 3.

⁵ See 9/11 Commission Report: Final Report of the National Commission on Terrorist Attacks Upon the United States, 396 (2004) (“The inability to communicate was a critical element at the World Trade Center, Pentagon, and Somerset County, Pennsylvania crash sites, where multiple agencies and multiple jurisdictions responded. The occurrence of this problem at three very different sites is strong evidence that compatible and adequate communications among

discussed below, commercial broadband technologies offer a cost-effective way to facilitate interoperable public safety communications and to ensure that first responders have continued access to the most technologically advanced data applications. Accordingly, the Commission’s proposal to mandate the use of broadband technologies nationwide in a portion of the 700 MHz public safety band is warranted and will enhance the safety and security of the American public.

A. Standardized Commercial Broadband Technologies Offer Superior Performance Compared to Public Safety Wideband Technologies

The need for the public safety community to have access to the most advanced data applications has become increasingly apparent in recent years.⁶ Modern public safety tools—including full motion and high-resolution video, bulk file transfers, high-speed/high-resolution imaging, access to multimedia platforms, web browsing, and web-based applications—require the high data rates and other benefits provided by broadband technologies.⁷ Broadband technologies also are capable of supporting far higher aggregate throughputs than wideband data technologies using equivalent spectrum resources. As a result, higher numbers of public safety personnel can be supported at the scene of an emergency with a broadband network.

public safety organizations at the local, state, and federal levels remain an important problem.”); *see also* 153 Cong. Rec. S1071 (daily ed. Jan. 24, 2007) (statement of Sen. Daniel Inouye) (“Mr. President, I rise today to call attention to an important issue that the Congress has not adequately addressed since the painful events of September 11, 2001. That issue is the inability of our first responders to speak to each other, a problem especially troubling during an emergency, when the ability to quickly and effectively communicate saves lives.”).

⁶ *See* Comments of Lucent Technologies, Inc., WT Docket No. 96-86, at 18-19 (June 6, 2006) (“Lucent Comments”) (describing public safety needs as set forth in the Department of Homeland Security’s Statement of Requirements for Public Safety Wireless Communications & Interoperability).

⁷ *See* Lucent Comments, at 13-30 (discussing advantages of broadband technologies).

In addition, broadband technologies allow increased spectral efficiencies, thereby enabling public safety entities to make better use of scarce spectrum resources.⁸ Specifically, broadband technologies enable all assigned channels to be used in every cell throughout a broadband network, *i.e.*, a frequency reuse of one. Such tight frequency reuse allows as much as ten times more data to be carried using broadband technologies compared to a patchwork of wideband networks utilizing the same spectrum resources.

B. Commercial Broadband Technologies Offer Seamless and Cost-Effective Interoperability

There is broad consensus that public safety agencies must be able to communicate seamlessly across jurisdictional boundaries and between various types of first responders (*i.e.*, police, firefighters, emergency medical personnel and others).⁹ In addition, the public safety community deserves access to the best and most advanced communications capabilities as they are developed. Commercial broadband technologies are capable of satisfying each of these needs. Moreover, the use of commercial broadband technologies by the public safety community will enable first responders to expend their limited financial resources more cost effectively by

⁸ See Lucent Comments, Exhibit B (System Spectral Efficiency Comparative Analysis).

⁹ See, *e.g.*, Independent Panel Reviewing the Impact of Hurricane Katrina on Communications Networks, *Report and Recommendation to the Federal Communications Commission*, 5-31, at ii (June 12, 2006) (“Hurricane Katrina . . . highlighted the long-standing problem of interoperability among public safety communications systems operating in different frequency bands and with different technical standards.”); NCR, National Capital Region Coordination First Annual Report to Congress (2005), at 10 (“Interoperability and exchange of information continues to be a challenge which will require investments in fixed and mobile communication infrastructure, data sharing mechanisms, equipment and training.”); McKinsey & Company, *Increasing FDNY’s Preparedness*, at 95 (2002) (“The FDNY needs to ensure that it can effectively and rapidly communicate with other agencies.”).

leveraging the research and development and manufacturing economies of scale of the commercial markets.

II. THE COMMISSION SHOULD MODIFY ITS PUBLIC SAFETY SPECTRUM MANAGEMENT POLICY AS NECESSARY TO FACILITATE THE DEPLOYMENT OF NATIONWIDE INTEROPERABLE BROADBAND COMMUNICATIONS CAPABILITIES FOR PUBLIC SAFETY

A. The Commission Should Consider Reducing its Reliance on De-Centralized Public Safety Spectrum Licensing

To date, the Commission has relied upon regional planning committees (“RPCs”) to coordinate spectrum use among public safety agencies. The current RPC system was created to coordinate the assignment of narrowband and wideband channels among agencies in a region.¹⁰ Such an approach, made feasible by the relatively large number of narrowband and wideband channels available in the public safety spectrum pool, allows de-centralized planning of public safety spectrum by multiple RPCs. Although this approach provides flexibility to individual public safety agencies, such flexibility has had unintended consequences. Specifically, de-centralized coordination of public safety spectrum has restrained the development of interoperable networks across geographic deployments and between various agencies. Indeed, as the Commission has acknowledged, the current spectrum allocation model has resulted in the “uneven build-out across the country in different bands, balkanization of spectrum between large numbers of incompatible systems, and interoperability difficulties, if not inabilities.”¹¹

The Commission should ensure that its proposal to adopt broadband technologies for public safety communications is not undermined by reliance on existing spectrum management

¹⁰ See *Ninth NPRM*, at ¶ 7, note 11.

¹¹ *Id.* at ¶ 11.

policies that hinder, rather than promote, interoperability. Given the small number of broadband channels available for public safety use, the Commission should adopt a new public safety broadband spectrum management policy to accomplish the use of networks shared among public safety agencies. Absent such a change in the Commission's spectrum management policies, public safety agencies likely will continue to face the obstacles to interoperability discussed above. In short, a shift in the manner in which broadband public safety spectrum is managed is necessary to promote interoperability, support broadband applications, and allow the public safety community to make the most efficient use of its limited spectrum resources.

ALU is sensitive to the fact that a significant change in the Commission's spectrum management policy to support interoperable broadband technologies also will require a paradigm shift in the way public safety networks are funded, deployed, and managed. However, the adoption of a 700 MHz public safety band plan and licensing regime that requires shared broadband networks will serve as a catalyst to such a broad change in the funding and management of public safety networks.

B. Public Safety Networks Shared Across Multiple Jurisdictions Have Been Demonstrated to be Effective

The regional broadband wireless network to be implemented by the National Capital Region ("NCR") demonstrates that it is possible for multiple public safety agencies across multiple jurisdictions to achieve cost-effective broadband interoperability in a spectrally efficient manner through the deployment of a single, shared network.¹² NCR is currently deploying a

¹² See National Capital Region for Waiver of the Commission's Rules to Allow Establishment of a 700 MHz Interoperable Broadband Data Network, WT Docket No. 96-86, *Order*, DA 07-454 (rel. Jan. 31, 2007) (describing 700 MHz regional broadband network to be

state-of-the art, shared public safety network in the public safety 700 MHz band using interoperable, commercial open-standard broadband technologies. NCR's use of open-standard technologies and architectures will facilitate integration with future nationwide or regional public safety broadband networks, leveraging NCR's current investment. As such, it is a model for the public safety broadband wireless network of the future and ALU applauds NCR's efforts. Further, statewide narrowband public safety networks serving multiple agencies are already deployed in Michigan and Utah and are planned for other states such as Virginia, Maryland and New York. These statewide networks have been funded and managed so as to ensure that the needs of rural, suburban and urban public safety agencies are met.

Although such inter-jurisdictional interoperable networks currently are the exception rather than the rule, they clearly demonstrate that shared use of public safety spectrum and network facilities between multiple public safety agencies can meet public safety needs and additionally serves the public interest. Accordingly, the Commission should ensure that its approach to public safety spectrum management facilitates, rather than inhibits, interoperability and thereby promotes the most efficient use of spectrum and limited public funds while ensuring that first responders in rural, suburban and urban areas have the tools that they need to communicate effectively. Such benefits only will increase as the scope of network sharing between first responders increases to a nationwide scale.

deployed across the national capital region). The NCR includes eighteen local jurisdictions, including the District of Columbia and counties in Maryland and Virginia, which have a combined population of over four million people and house all three branches of the federal government as well as two major international airports.

C. Regulatory Certainty Is Essential to Deployment of Interoperable Public Safety Networks

The Commission should be commended for its efforts to address the root causes of the painstakingly slow deployment to date of interoperable communications for first responders. Expeditious action in the instant proceeding is vital to resolve this matter and avoid perpetuating the same problems that have plagued the public safety community for years, *i.e.*, lack of interoperability, spectrum fragmentation, and continued reliance on outdated technologies and equipment.

Public safety organizations that are proactively attempting to deal with the obstacles posed by the current lack of public safety communications interoperability should be provided as soon as possible with firm and stable guidance regarding the Commission's 700 MHz public safety band policies. Only a limited number of 700 MHz RPCs have thus far submitted plans to the Commission for approval and many of these plans deferred adoption of a channel scheme for the data portion of the 700 MHz band until Commission action in the 700 MHz proceeding. Accordingly, prompt Commission action will enable most of the public safety community to realize the substantial interoperability benefits of broadband technologies without significant costs or disruption. By contrast, delayed action by the Commission could hamper the public safety community's ability to respond effectively to the next significant or widespread emergency event.

D. Reconfiguration of the 700 MHz Public Safety Band Will Enable the Most Efficient Use of Spectrum for Voice and Data Communications

The Commission noted in the *Ninth NPRM* that its consideration of a nationwide, interoperable broadband network should not preclude consideration of alternative band plans, “including rearrangement of the channels within the public safety allocation.”¹³ It is crucial that reconfiguration of the 700 MHz public safety band be accomplished in the short term to prevent additional deployment of equipment by first responders that will be required to be modified to accommodate such reconfiguration. Accordingly, ALU continues to support a review of the channelization of the public safety spectrum allocation in the upper 700 MHz band.¹⁴ Consolidating narrowband channels on one end of the band (rather than sandwiching the data portion of the band between two blocks of narrowband channels as is the case with the existing 3+6+3 band plan), for example, could reduce the amount of spectrum that is required to be attributed to guard bands thereby increasing overall spectrum efficiency. Such a rearrangement, coupled with spectrally-efficient technologies, appropriate deployment guidelines between broadband and narrowband public safety services, and improvements in the radiofrequency (“RF”) selectivity of narrowband receivers,¹⁵ would provide the best protection for narrowband public safety services deployed in the 700 MHz band. Thus, the Commission should adopt a

¹³ *Ninth NPRM*, at ¶ 31.

¹⁴ See Lucent Comments, at 37; Reply Comments of Lucent Technologies, Inc., WT Docket 96-86, at 17-18 (filed Jul. 6, 2006); Comments of Lucent Technologies, Inc., EB Docket No. 06-119, at 9-10 (filed Aug. 7, 2006).

¹⁵ See Lucent Comments, Exhibit G-6 (discussing RF selectivity of the narrowband receivers), note 73 (drawing parallels between 700 MHz and 800 MHz interference issues).

revised 700 MHz public safety channelization plan as soon as possible to enable the public safety community to incorporate the reconfigured band into their communications planning.

III. CONCLUSION

As set forth herein, our nation's first responders require immediate access to interoperable broadband communications capabilities and the best way to accomplish this is through the deployment of commercial broadband technologies. The Commission's proposal in this proceeding represents an effective means of accomplishing this objective, although other equally effective means may exist. Ultimately, however, irrespective of the regulatory mechanism used by the Commission to accomplish this goal, expeditious adoption of a stable 700 MHz public safety band plan and licensing policy to permit deployment of a commercial broadband technology and a reconfiguration of the 700 MHz band should be the Commission's highest priority.

Respectfully Submitted,

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