

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

In the Matter of)	
)	
Service Rules for the 698-746, 747-762 and 777-792 MHz Bands)	WT Docket No. 06-150
)	
Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems)	CC Docket No. 94-102
)	
Section 68.4(a) of the Commission's Rules Governing Hearing Aid-Compatible Telephones)	WT Docket No. 01-309
)	
Biennial Regulatory Review – Amendment of Parts 1, 22, 24, 27, and 90 to Streamline and Harmonize Various Rules Affecting Wireless Radio Services)	WT Docket No. 03-264
)	
Former Nextel Communications, Inc. Upper 700 MHz Guard Band Licenses and Revisions to Part 27 of the Commission's Rules)	WT Docket No. 06-169
)	
Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band)	PS Docket No. 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 No. 96-86
)	

REPLY COMMENTS OF MOTOROLA, INC.

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SUMMARY

Public safety has spoken with a unified voice. More than 70 comments representing hundreds of individual state and local agencies and more than 25 public safety associations urged the Commission to adopt final rules that allow for the deployment of wideband data communications systems in a manner that would not frustrate the development of a nationwide broadband network for public safety. These agencies recognize that while the Commission's goal for a nationwide broadband network is laudable, such a network may not be able to satisfy unique and individualized needs of all agencies in a timely fashion. Cost-effective wideband networks can be deployed at the local level in ways that would not preclude the nationwide broadband network or undermine public safety data interoperability.

Motorola supports these positions. To complete the construction of a nationwide broadband network for public safety will take an extraordinary amount of effort and money from all levels of industry and government. Public safety agencies require some flexibility to address near term high speed data requirements should the national network not be able to accommodate unique needs in a timely manner.

Motorola is a leading manufacturer of broadband and wideband data technologies. Despite the unsubstantiated rhetoric of certain equipment manufacturers, wideband technologies offer public safety competitive data rates and superior coverage when compared to many existing broadband technologies. Motorola believes that public safety agencies should be able to weigh the various trade-offs associated with choosing a data technology. The selection process should be determined by public safety needs and not arbitrarily limited based on inaccurate assertions of certain manufacturers.

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REPLY COMMENTS OF MOTOROLA, INC.

Motorola, Inc. (“Motorola”) hereby submits its reply to the comments filed in response to the above-captioned Further Notice of Proposed Rulemaking (FNPRM) that addresses the use of the 700 MHz Commercial Services spectrum, the 700 MHz Guard Bands, and the 700 MHz Public Safety spectrum.¹ As discussed further below, Motorola

¹ *In the Matter of Service Rules for the 698-746, 747-762 and 777-792 MHz Bands; Revision of the Commission’s Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems; Section 68.4(a) of the Commission’s Rules Governing Hearing Aid-Compatible Telephones; Biennial Regulatory Review – Amendment of Parts 1, 22, 24, 27, and 90 to Streamline and Harmonize Various Rules Affecting Wireless*

urges the Commission to support public safety's continued request to provide some flexibility in the 700 MHz broadband licensing process to ensure that local agencies have the ability to address unique and specialized needs in a cost effective and timely manner.

I. PUBLIC SAFETY IS UNIFIED IN ITS POSITION THAT THE COMMISSION MUST ALLOW PUBLIC SAFETY THE FLEXIBILITY TO DEPLOY SYSTEMS THAT MEET THE NEEDS OF LOCAL USERS.

Throughout this proceeding, the public safety community has consistently maintained its position that wireless data networks must be responsive to public safety needs at the local level.² In the comments submitted in response to the FNPRM, an overwhelming majority of public safety agencies, regional planning committees, public safety associations and companies actively involved in the public safety industry urged the Commission to ensure that local public safety agencies have the ability to utilize at least a portion of the 700 MHz band for data networks under their direct control.³ The

Radio Services; Former Nextel Communications, Inc. Upper 700 MHz Guard Band Licenses and Revisions to Part 27 of the Commission's Rules; Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band; Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Communications Requirements Through the Year 2010, Report and Order and Further Notice of Proposed Rulemaking, WT Docket Nos. 06-150, 01-309, 03-264, 06-169, and 96-86, CC Docket No. 94-102, PS Docket No. 06-229 (rel. April 27, 2007) (hereinafter "FNPRM").

² See, e.g., Comments of National Public Safety Telecommunications Council, PS Docket No. 06-229, WT Docket No. 96-98, at 6 (Feb. 26, 2007); Comments of APCO, PS Docket No. 06-229, WT Docket No. 96-98, at 2 (Feb. 26, 2007); Comments of the Region 22 (Minnesota) Public Safety Regional Planning Committee, PS Docket No. 06-229, WT Docket No. 96-98, at 4 (Feb. 23, 2007); Comments of the Region 24 (Missouri) 700 MHz Regional Planning Committee, RM-11348, at 4 (Nov. 29, 2006); Comments of Region 39, Tennessee, 700 MHz Regional Planning Committee, PS Docket 06-229, WT Docket 96-86, at 2 (Feb. 26, 2007).

³ The following comments submitted in response to the FNPRM support the notion that data networks must be responsive at the local level: Comments of the Association of Public-Safety Communications Officials-International, Inc. (APCO) (May 23, 2007); Comments of the National Public Safety Telecommunications Counsel (May 23, 2007); Comments of the City of Philadelphia (May 23, 2007); Comments of the City of New

Indiana (Region 14) 700 MHz Region Planning Committee highlights the point, stating that “[b]y adopting a bandplan that supports both national and local spectrum control, the immediate needs of local and regional agencies could be met in the near term while a nationwide network is being developed and deployed.”⁴ This is echoed by the City of New York which states that “[l]ocal participation will remain important in broadband deployment, particularly with regard to interoperability” and “[w]ithout a mechanism for local agencies to meaningfully participate in decisions, the accountability and commitment by local agencies in these decisions will be diluted.”⁵

The public safety community is equally adamant that being responsive to local public safety means allowing local public safety entities to choose whether the nationwide broadband network will meet their specific needs for coverage and control or whether another data solution could better meet their needs, in a cost-effective manner.⁶

York (May 23, 2007); Comments of the National Association of Telecommunications Officers and Advisors, the National Association of Counties, the U.S. Conference of Mayors, and the National League of Cities (May 23, 2007); Comments of Mid-America Regional Council (May 23, 2007); Comments of the San Diego County – Imperial County, California Regional Communications System (May 23, 2007); Comments of the Indiana (Region 14) 700 MHz Region Planning Committee (May 23, 2007); Comments of Region 16 (Kansas) 700 MHz Regional Planning Committee (May 23, 2007); Comments of Region #13 Illinois 700 MHz Planning Committee (May 22, 2007); Comments of Region 43 Regional Planning Committee (May 22, 2007); Comments of the Region 33 (Ohio) 700 MHz Planning Committee (May 23, 2007); Comments of Louisiana Statewide Interoperable Communications Executive Committee (May 23, 2007); Comments of Jefferson County, AL (May 23, 2007).

⁴ Comments of the Indiana (Region 14) 700 MHz Region Planning Committee, WT Docket Nos. 06-150, 01-309, 03-264, 06-169, and 96-86, CC Docket No. 94-102, PS Docket No. 06-229 (May 23, 2007).

⁵ Comments of the City of New York, WT Docket Nos. 06-150, 01-309, 03-264, 06-169, and 96-86, CC Docket No. 94-102, PS Docket No. 06-229 (May 23, 2007).

⁶ The following comments submitted in response to the FNPRM support giving public safety a choice to implement broadband or wideband: Comments of the State of Hawaii Department of Accounting and General Services (May 23, 2007); Comments of

Time and again, public safety entities have made clear that given the cost advantages of wideband technology to leverage existing infrastructure and cover large areas, they want the choice of deploying either wideband or broadband technology.⁷ For example, the City of Fort Lauderdale, Florida stated that prohibiting wideband operations on a going forward basis “will eliminate the ability for local public safety agencies and Regional Planning Committees to opt for a cost effective high speed data solution that meets public safety requirements, especially for those agencies in lower population and/or large

the Association of Public-Safety Communications Officials-International, Inc. (APCO) (May 23, 2007); Comments of the National Public Safety Telecommunications Counsel (May 23, 2007); Comments of the City of Tacoma, WA (May 23, 2007); Comments of the City of Fort Lauderdale, Florida (May 23, 2007); Comments of the National Association of Telecommunications Officers and Advisors, the National Association of Counties, the U.S. Conference of Mayors, and the National League of Cities (May 23, 2007); Missouri State Highway Patrol Communications Division (May 23, 2007); Comments of the Region 33 (Ohio) 700 MHz Planning Committee (May 23, 2007); Comments of the San Diego County – Imperial County, California Regional Communications System (May 23, 2007); Comments of Region 9 (Florida) 700 MHz Regional Planning Committee (May 23, 2007); Comments of Mid-America Regional Council (May 23, 2007); Comments of the Indiana (Region 14) 700 MHz Region Planning Committee (May 23, 2007); Comments of Region 16 (Kansas) 700 MHz Regional Planning Committee (May 23, 2007); Comments of Region #13 Illinois 700 MHz Planning Committee (May 22, 2007); Comments of Region 43 Regional Planning Committee (May 22, 2007); Comments of Louisiana Statewide Interoperable Communications Executive Committee (May 23, 2007); Comments of the City of Philadelphia (May 23, 2007); Comments of the City of New York (May 23, 2007); Comments of Jefferson County, AL (May 23, 2007).

⁷ See, e.g., Comments of Region 16 (Kansas) 700 MHz Regional Planning Committee, WT Docket Nos. 06-150, 01-309, 03-264, 06-169, and 96-86, CC Docket No. 94-102, PS Docket No. 06-229 (May 23, 2007) (disallowing local/regional public safety technology decisions “favors Federal mandates over local/regional decisions and, if made final, would eliminate the option to deploy cost effective wideband systems or dedicated local agency broadband system”); Comments of the National Public Safety Telecommunications Counsel, WT Docket Nos. 06-150, 01-309, 03-264, 06-169, and 96-86, CC Docket No. 94-102, PS Docket No. 06-229 (May 23, 2007) (“[w]ideband operations are considerably more affordable than broadband, a circumstance that will not change dramatically soon”).

jurisdictional areas.”⁸ The Region 33 (Ohio) 700 MHz Planning Committee stated that “if [it is] not permitted the flexibility to implement what is best suited for a particular area, it will effectively cripple [its] attempt to utilize newer technology to improve [its] homeland security and essential services to [its] citizens.”⁹

Both public safety and Motorola have provided solutions that would allow public safety to have some local control and choice while not impeding or compromising a nationwide broadband network.¹⁰ Motorola has recommended that wideband devices be required to support a national broadband standard once it is adopted – thus ensuring that interoperability would not be negatively impacted.¹¹ Motorola also recommended a band plan which enables both a nationwide broadband network and local/regional decision making.¹² NPSTC and APCO suggested giving the national licensee the authority to exclude certain frequencies from the national sharing plan in certain geographic areas in

⁸ Comments of the City of Fort Lauderdale, Florida, WT Docket Nos. 06-150, 01-309, 03-264, 06-169, and 96-86, CC Docket No. 94-102, PS Docket No. 06-229 (May 23, 2007).

⁹ Comments of the Region 33 (Ohio) 700 MHz Planning Committee, WT Docket Nos. 06-150, 01-309, 03-264, 06-169, and 96-86, CC Docket No. 94-102, PS Docket No. 06-229 (May 23, 2007).

¹⁰ See Comments of Motorola, Inc., WT Docket Nos. 06-150, 01-309, 03-264, 06-169, and 96-86, CC Docket No. 94-102, PS Docket No. 06-229, at 20-25 (May 23, 2007); Comments of the Association of Public-Safety Communications Officials-International, Inc. (APCO), WT Docket Nos. 06-150, 01-309, 03-264, 06-169, and 96-86, CC Docket No. 94-102, PS Docket No. 06-229, at 20-21 (May 23, 2007); Comments of the National Public Safety Telecommunications Counsel, WT Docket Nos. 06-150, 01-309, 03-264, 06-169, and 96-86, CC Docket No. 94-102, PS Docket No. 06-229, at 18-22 (May 23, 2007).

¹¹ Comments of Motorola, Inc., WT Docket Nos. 06-150, 01-309, 03-264, 06-169, and 96-86, CC Docket No. 94-102, PS Docket No. 06-229, at 20-21 (May 23, 2007).

¹² *Id.* at 23-24.

order to accommodate state or local governments that have the need, plans and funding to construct and operate their own data networks.¹³

Neither public safety nor Motorola suggests that there be any requirement to use wideband. Rather, there is a strong consensus that public safety needs the flexibility to choose the technology that best meets its needs. Motorola is confident that, in certain instances wideband technology will provide the most appropriate and cost effective solution, while in other circumstances, broadband will be the better choice. Motorola believes that public safety should have the ability it clearly desires to choose between wideband and broadband solutions.

II. THE COMMISSION SHOULD REJECT THE SELF-SERVING AND UNSUPPORTED COMMENTS OF ALCATEL-LUCENT.

Alcatel-Lucent opposes public safety's request for technology options and instead calls for the Commission to mandate the use of broadband technology. In contrast to the public safety community's clear preference to give local entities a choice in deploying the data technologies that best fits those entities' needs and to preserve locally controlled solutions should the national network fail to develop as anticipated, Alcatel-Lucent believes that agencies should be forced into a one-size-fits-all solution. Apparently, Alcatel-Lucent has determined that it is better positioned to articulate public safety's requirements than public safety entities themselves.

¹³ Comments of the Association of Public-Safety Communications Officials-International, Inc. (APCO), WT Docket Nos. 06-150, 01-309, 03-264, 06-169, and 96-86, CC Docket No. 94-102, PS Docket No. 06-229, at 20-21 (May 23, 2007); Comments of the National Public Safety Telecommunications Counsel, WT Docket Nos. 06-150, 01-309, 03-264, 06-169, and 96-86, CC Docket No. 94-102, PS Docket No. 06-229, at 18-22 (May 23, 2007).

Although Alcatel-Lucent was quick to attack Motorola's proposed solutions, its comments did not provide any new arguments to support limiting public safety agencies to a single technology solution. Instead, it merely repeated stale arguments that Motorola has already demonstrated to be wrong,¹⁴ while ignoring the voluminous record that illuminates public safety's adamant position in support of flexibility.

By ignoring the coverage limits of broadband technology on the upstream path, Alcatel-Lucent fails to adequately support its claims that broadband offers equivalent or superior range compared to wideband. As recently demonstrated by Motorola, broadband throughput degrades significantly on the upstream for large cell deployments. Particularly for CDMA broadband technologies, the power received by the base station for all users in a cell or sector are driven to the lowest experienced by any device in the cell or sector, which drives down data rates for all users.¹⁵ In effect, a device at the edge of the cell can drive the data rate down to unacceptable levels even for users close to the cell site because for CDMA technology, the power for the entire cell or sector is limited by the weakest unit operating in the cell or sector. For a cell or a sector covering large areas, it is very likely that at least one unit will be operating far from the base station and would experience high propagation losses and low or unacceptable data performance. This, in turn, will limit all units operating in the cell or sector to the same unacceptable

¹⁴ See Reply Comments of Motorola, WT Docket No. 96-86 (Jul. 6, 2006).

¹⁵ See Letter from Steve B. Sharkey, Director, Spectrum and Standards Strategy, Motorola, Inc., to Marlene H. Dortch, Secretary, Federal Communications Commission, WT Docket No. 96-86 (Apr. 17, 2007).

performance. Conversely, wideband technology was designed to operate in large cells that leverage existing voice infrastructure and does not suffer from this problem.¹⁶

Alcatel-Lucent also claims that commercial broadband technologies are more cost effective than wideband, citing the economies of scale to be derived from the large commercial user community for broadband as compared to wideband technologies.¹⁷ In making these assertions, Alcatel-Lucent fails to acknowledge the significant savings available through the deployment of wideband because the technology is designed to use the same sites as the public safety narrowband infrastructure. One of the largest costs in deploying a system is in deploying and maintaining cell sites, as well as covering the cost of backhaul, which also expands as the number of sites increase. Coverage that provides true broadband speeds requires a far greater number of cell sites than that required for wideband technology, assuming equivalent levels of reliability. Therefore, at least in the near future, broadband may well be cost prohibitive in many areas.

Further, Alcatel-Lucent fails to consider the specialized nature of public safety devices. As described in Motorola's comments, the cost of devices is largely driven by their specialized nature – the need to operate reliably for extended periods in harsh environments – not by the underlying technology. In its comments, Motorola illustrated

¹⁶ As previously addressed by Motorola, OFDM-based broadband technologies such as LTE would also have smaller coverage areas than wideband given off-the-shelf low power devices with commercial economies of scale are deployed. However, OFDM-based broadband technologies would not suffer from the inherent requirement that CDMA-based technologies incorporate to limit the power of any unit in the system to the power of the weakest unit in the system *See id.*; Reply Comments of Motorola, Inc., PS Docket No. 06-229, WT Docket No. 96-86 at 10-11 (March 12, 2007); Comments of Motorola, Inc., PS Docket No. 06-229, WT Docket No. 96-86, at 15-17 (Feb. 26, 2007).

¹⁷ *See* Comments of Alcatel-Lucent, WT Docket Nos. 06-150, 06-169, 96-86 and PS Docket No. 06-229, at 8-9 (May 23, 2007) (“Comments of Alcatel-Lucent”).

this point with an example based on laptop computers. Consumer grade laptop computers are widely available for \$1,000 or less, however, a ruggedized computer based on the same underlying technology and components will cost 3 to 4 times that amount.¹⁸

Motorola fully supports public safety's use of commercial technologies and agrees that there can be cost savings derived by economies of scale, however, the technology must be capable of meeting public safety requirements. It is without question that public safety has unique operational needs that require the use of technologies designed to operate under extreme and even hostile conditions beyond that typically required for commercial devices. It is simply incorrect to assume that commercial off the shelf broadband devices will always provide an effective solution for public safety. While commercial technologies can be adapted with the necessary ergonomics, features and hardening for public safety environments, such products will be influenced by the smaller economies of scale of the public safety market.

The comments from public safety agencies have made it clear that they want the ability to make a fair and informed decision regarding these tradeoffs of wideband and broadband systems. In the best case scenario, the Commission's goal of a nationwide broadband system will take 8-10 years to deploy and still may not cover significant portions of the U.S. geography.¹⁹ Alcatel-Lucent, however, would have the FCC ignore

¹⁸ Comments of Motorola, Inc., WT Docket Nos. 06-150, 01-309, 03-264, 06-169, and 96-86, CC Docket No. 94-102, PS Docket No. 06-229, page 22 (May 23, 2007).

¹⁹ Comments of the National Association of Telecommunications Officers and Advisors, the National Association of Counties, the U.S. Conference of Mayors, and the National League of Cities, WT Docket Nos. 06-150, 01-309, 03-264, 06-169, and 96-86, CC Docket No. 94-102, PS Docket No. 06-229, at 7-8 (May 23, 2007) ("the proposed schedules in the FNPRM will cover about 58 to 62% of United States land mass once they achieve the build out goals. From a county by county view, it means that build out

the impact of this schedule on public safety communications capabilities and instead mandate, by regulatory fiat, that agencies be limited to a single technology solution.

Motorola believes the risks are too great to choose that course of action.

III. ALLOWING PUBLIC SAFETY THE OPTION TO DEPLOY WIDEBAND WILL NOT NEGATIVELY IMPACT INTEROPERABILITY.

Alcatel-Lucent claims that broadband technologies offer a higher level of interoperability than wideband. Motorola has proposed that wideband devices be required to be support a broadband interoperability standard once one is chosen by public safety and endorsed by the Commission. There are a number of ways in which this can be accomplished, including building multimode devices that include multiple technologies, or devices with slots or connections for cards that support other technologies. Accordingly, allowing deployment of wideband devices will not undermine interoperability for public safety data services.²⁰ In fact, a wideband device that supports broadband can actually improve interoperability in areas where public safety users with broadband portables roam into a jurisdiction that has no broadband infrastructure.

Moreover, first responders handle emergency situations in their jurisdiction on a 24-hour, 7-days-a-week basis, and operability is a higher daily priority than interoperability. If public safety is limited to broadband and broadband proves to be too

will most likely include only those counties with population densities of 10 or more people per square mile. . . . [T]his leaves most of the counties in the western half of the country, except for the west coast and a few large urban counties, and some counties in other parts of the country, questioning when – if ever – they will receive nationwide broadband network coverage”).

²⁰ Motorola notes that the need, purpose and functionality for interoperability for high speed video and data operations has yet to be established and standardized.

expensive to be deployed in some areas, there will be no data coverage at all, *i.e.*, no operability. Without operability, the issue of interoperability would be moot. Having the promise of interoperability so first responders can assist a distant jurisdiction in a rare crisis is small consolation for restrictions that can result in a lack of daily operability in a responders own jurisdiction. The NPSTC plan, coupled with Motorola's recommendations regarding interoperable capabilities for wideband devices, allows the Commission to provide both operability and interoperability.

IV. OUT OF BAND EMISSIONS LIMITS SHOULD BE MAINTAINED TO AVOID DEGRADING SERVICE TO PUBLIC SAFETY.

Alcatel-Lucent proposes that the out of band emission limit from commercial systems into the public safety data channels be relaxed from $76+10\log P$ to $43+10\log P$.²¹ Alcatel-Lucent bases this proposal on the "likelihood that similar architectures will be deployed in the commercial and public safety spectrum." Motorola disagrees with this recommendation. If the goal of a commercial/private partnership comes to fruition and a similar or combined network is deployed, the parties to the agreement should be provided the flexibility to relax the limits as appropriate. However, if the partnership proves elusive, public safety will need the existing standard.

The Commission adopted the existing emissions limit after significant analysis and debate.²² In fact, the standard ultimately adopted was already a compromise of a variety of factors and is 11 dB less stringent than the standard proposed by Motorola. In adopting the existing standard, the Commission recognized the inadequacy of the

²¹ Comments of Alcatel-Lucent at 19.

²² See *Service Rules for the 746-764 and 776-794 MHz Bands, and Revisions to Part 27 of the Commission's Rules*, First Report and Order, 15 FCC Rcd 476, ¶105 (2000).

commercial standard $43 + 10 \log P$ to adequately protect public safety. Ignoring this fact and subjecting public safety receivers to higher interference risks requires more consideration than a simple expectation that system architectures may be similar.

V. QUALCOMM MISINTERPRETS MOTOROLA'S ANALYSIS ON WIDEBAND DATA RATES.

In its comments, Qualcomm takes issue with Motorola's technical analysis presented throughout these proceedings that address the performance trade-offs between broadband and wideband technologies, such as those defined by the TIA 902(SAM) standard.²³ Qualcomm's efforts are intended to support its basic claim that broadband technologies, specifically EV-DO Rev. A, delivers data much faster than wideband technologies while also providing for much better coverage.

Motorola believes that wideband systems provide a viable alternative to broadband systems because they have better range than broadband systems and that this quality makes them attractive for certain users. Motorola does not now contend, nor has it ever contended, that wideband systems have higher capacity or peak throughput than broadband systems. However, at the 90-95 percent area coverage reliabilities required by public safety users, the wideband and broadband systems deliver similar throughputs. Furthermore, wideband can deliver those throughputs in less spectrum than required by broadband. The promise of peak upload rates of 1.8 Mbps²⁴ is overstated because this bit rate will only be available in a small fraction of the coverage area of a broadband

²³ Comments of Qualcomm, Incorporated, WT Docket Nos. 06-150, 01-309, 03-264, 06-169, and 96-86, CC Docket No. 94-102, PS Docket No. 06-229, at 15 (May 23, 2007) ("Comments of Qualcomm").

²⁴ *Id.* at 16.

system.²⁵ Broadband systems have large capacity but do not necessarily deliver high throughput to a user throughout the coverage area. The wideband system, while having lower capacity and peak throughput, reliably deliver a useable throughput over a large percentage of their coverage area.

In its technical analysis comparing EV-DO and SAM, Qualcomm chose unilaterally to assume equal transmitter powers for the two technologies. One of the significant advantages of wideband technologies is that high power mobiles are very practical and routinely deployed, whereas high power mobiles have not been produced by the CDMA ecosystem. The normalization of SAM mobiles to the EV-DO mobile transmit power removes 17 dB from the SAM link budget, which will artificially reduce the predicted performance of the SAM system compared to that a user would actually experience. Qualcomm also does not consider the impact of advances in SAM technology such as hybrid automatic repeat request (HARQ). HARQ increases range and, more importantly, allows the system to operate at a lower signal-to-noise ratio (SNR), which in turn allows for a three-cell reuse pattern.

Qualcomm force fits an “equal throughput scenario” for its analysis but in so doing ends up with one user operating 76.8 kbps and the other at 51.5 kbps.²⁶ Lost in the analysis is the fact that the user receiving only 51.5 kbps is considered to be receiving unacceptable performance since the minimum acceptable bit rate in the scenario is 76.8 kbps. Thus, only half the users in this sector are receiving acceptable performance. This

²⁵ See Letter from Steve B. Sharkey, Director, Spectrum and Standards Strategy, Motorola, Inc., to Marlene H. Dortch, Secretary, Federal Communications Commission, WT Docket No. 96-86, Attachment at 8 (Apr. 17, 2007).

²⁶ Comments of Qualcomm at 22.

highlights the difference between commercial and public safety systems. There is no guarantee of coverage or throughput for Qualcomm's analysis based on commercial system experience. However, public safety systems routinely specify guaranteed minimum coverage and throughput performance.²⁷

EV-DO and other broadband technologies are legitimate solutions for many public safety agencies that require high speed data transfers with wide area coverage. So too is SAM. Motorola believes that public safety agencies should have the ability to choose among multiple technologies to find the most appropriate solution given their unique coverage requirements and budget constraints.

²⁷ See Comments of Motorola, WT Docket Nos. 06-150, 01-309, 03-264, 06-169, and 96-86, CC Docket No. 94-102, PS Docket No. 06-229, at 32-33 (May 23, 2007) (setting forth several examples of requests for proposals (RFPs) for public safety systems).

VI. CONCLUSION.

For the foregoing reasons, Motorola urges the Commission to disregard the blatant attempts of Alcatel-Lucent to create government-mandated business at the expense of public safety. Instead, the Commission should focus on the consistent and uniform comments from public safety and implement a solution which creates a nationwide broadband network and preserves elements of local control, giving public safety the flexibility it needs to deploy broadband or wideband technologies.

Respectfully submitted,

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