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

In the Matter of	)	
	)	
Implementation of Sections 309(j) and 337 of the Communications Act of 1934 as Amended	)	WT Docket No. 99-87
	)	
Promotion of Spectrum Efficient Technologies on Certain Part 90 Frequencies	)	RM-9332

PETITION FOR RECONSIDERATION OF THE CITY OF NEW YORK

The City of New York, on behalf of the Police Department, Fire Department, and Department of Information Technology and Telecommunications, submits this Petition for Reconsideration of the Commission's *Third Report and Order* addressing the transition to 6.25 kHz narrowband technologies in the 150-174 MHz or 421-512 MHz bands.[1] The Commission's intention to establish expeditiously a transition date for users to convert to 6.25 kHz technology once it determines that sufficient equipment is available for testing presents significant risks to public safety officers and overall emergency response. This order affords agencies no opportunity to plan and implement a reasoned migration path consistent with public safety standards. It will strand investment in communications networks to the detriment of local and state government public safety operations. Nationwide interoperability initiatives will be seriously impaired. New York City urges that prior to any 6.25 kHz mandate the Commission initiate a *Further Notice of Proposed Rulemaking* to reevaluate the mandate and address how the interests of

[1] Implementation of Sections 309(j) and 337 of the Communications Act of 1934 as Amended; Promotion of Spectrum Efficient Technologies on Certain Part 90 Frequencies, *Third Report and Order WT Docket* No. 99-87, RM-9332, FCC 07-39 (March 26, 2007) 72 Fed. Reg. 19387 (April 18, 2007).

public safety communications can best be promoted.

The City of New York

New York City has a growing population of more than 8 million residents. Our emergency 911 system received approximately 11 million calls for service in 2006 and dispatched Police, Fire and Medical responders to over 6.4 million 911 calls. To this end, New York City maintains extensive equipment, infrastructure and spectrum resources to support emergency service communications. The most extensively used resources are in spectrum bands 450-488 MHz. This spectrum has been invaluable, as it provides the most effective coverage and performance for police and firefighter communications in New York City's dense in-building, on-street and underground urban environment.

New York City has made an enormous financial investment in this band to provide interoperable radio communications among public safety agencies both within the City and in neighboring jurisdictions. New York City's capital investment and operating expenses, involving hundreds of millions of dollars, encompass extensive planning and financing prior to construction. The City is at various stages of implementing existing 25 kHz system realignments, new 12.5 kHz infrastructure build-outs as well as several years of extensive planning in support of existing 25 kHz infrastructure migrations to 12.5 kHz. These projects involve building out new systems and reconfiguring legacy systems to meet the 2013 mandate that equipment use 12.5 kHz narrowband technology.

These investments will improve the quality of communications, enhance features and applications and expand the ability to communicate across agencies and jurisdictions.

The transition entails detailed requirements analysis, engineering, testing and training to migrate agency operations without disruption to emergency communications. The projects reflect federal government guidelines and directions regarding regional and local interoperability.

The lengthy planning and deployment times in public safety communications are due in part to the financing and approval processes. The overwhelming effort, however, is committed to ensure that systems work in an emergency. In contrast to commercial systems, the diversity and redundancy characterizing public safety infrastructure is preceded by the same qualities in deploying systems. Experience shows that to do otherwise creates unacceptable risks to emergency response. The Commission's intention to mandate 6.25 kHz narrowband technology without allowing agencies to structure reasoned migration paths creates this risk. The result will also strand investment in infrastructure and equipment and undermine national interoperability priorities. These ramifications serve as the basis for this Petition for Reconsideration.

The Commission's *Third Report and Order*

Previously, the Commission established a January 1, 2013 deadline for migration to 12.5 kHz technology, or technology achieving the narrowband equivalent, for public safety and industrial/business licensees operating at frequencies in the 150-174 MHz and 421-512 MHz bands. Under these rules all Public Safety Radio Pool and Industrial/Business Radio Pool licensees must migrate to 12.5 kHz narrowband technology by 2013. The Commission's *Third Report and Order* addressed a subset issue -- when manufacturers must provide 6.25 kHz capability in their equipment. The decision requires manufacturers to provide 6.25 kHz technology in their radios by

January 1, 2011. The Commission declined to set a fixed date when users must commence using 6.25 kHz technology.

In the *Third Report and Order*, the Commission described the circumstances when it would mandate 6.25 kHz technology. It stated that 12.5 kHz technology is but a transitional step in the eventual migration to 6.25 kHz efficiency. It committed to monitor closely the progress made by standards-setting organizations and equipment manufacturers to develop more spectrum-efficient systems. When that technology matures to the point that sufficient equipment is available for testing, the Commission stated that it "will expeditiously establish a transition date...." The Commission strongly urged licensees to consider migrating directly from 25 kHz technology to 6.25 kHz technology prior to January 1, 2013, suggesting that such a course will be more efficient and economical than first migrating to 12.5 kHz technology.[2]

Without a Reasoned Migration to 6.25 kHz Technology, the Commission's Decision Creates Significant Risk to Public Safety Communications, Threatens Ongoing Investment and Undermines Interoperability

While recognizing that no public safety technology standard has yet to emerge in 6.25 kHz, the Commission urges public safety and other land mobile users to transition directly to such equipment. To motivate licensees, the Commission states that once a standard emerges, it will expeditiously establish a mandate that all equipment be 6.25 kHz and urges agencies to transition there directly from 25 kHz.

The development of and consensus around a public safety technology standard drives interoperability and other public safety requirements in land mobile infrastructure and equipment. Although 6.25 kHz technologies exist, a standard is crucial to public

[2] Third Report and Order at paragraph 11.

safety, as it commences the planning, testing and field experience that must transpire before deployment decisions are made. Public safety systems cannot be experimental, only viable and proven systems are deployed. Response to an incident cannot be postponed if there is a failure. In contrast to commercial systems, a communications failure for a police officer or firefighter is fatal. It is an unacceptable risk. The expeditious mandate to 6.25 kHz technology promised by the Commission will cut short the comprehensive efforts ensuring that equipment works in an emergency.

The Commission's decision ignores this premise of public safety communications and the reality that equipment and infrastructure must be modernized now. The market offers no realistic alternatives in 6.25 kHz public safety technology -- equipment demonstrating approved standards and proven field experience in the public safety environment.[3] Public safety agencies are not in a position to move directly to 6.25 kHz without encountering significant risk.

The danger of proceeding without a reasoned migration is sharply illustrated by the case of interoperability. Until a public safety technology consensus emerges, a 6.25 kHz interoperability standard is stalled. With interoperability a pressing objective of local, state and federal governments, a public safety technology standard exists for 12.5 kHz. A standard for 6.25 kHz technology remains under development. By imploring agencies to consider transitioning directly to 6.25 kHz, the Commission stifles ongoing efforts pursuing interoperability platforms. It undermines investment already committed

[3] See *Urgent Request for Clarification* filed by Kenwood USA Corporation. Kenwood states that the Commission, in urging licensees to migrate directly from 25 kHz to 6.25 kHz, has caused users to freeze their migration plans in fear of 12.5 kHz equipment becoming obsolete. Letter of Christopher D. Imlay, Esquire, Regulatory Counsel for Kenwood to Mr. Fred Campbell, Chief Wireless Telecommunications Bureau, Federal Communications Commission (May 9, 2007) contained in WT Docket 99-87.

to 12.5 kHz technologies where a standard exists.

The record is unchallenged that a public safety technology standard, including interoperability, exists only with regard to 12.5 kHz technologies. Based on this standard, New York City's projects are deploying networks at 12.5 kHz technologies. Frequency channel coordination, ease of migration and extensive field testing are but some of the extensive work being performed prior to deployment. A fundamental aspect of managing an effective transition entails incorporating 25 kHz with the new 12.5 kHz technology into dual mode radios. Backwards compatible equipment reduces transition risk because it allows operations on legacy channels until the new network is proven. While the Commission urges agencies to migrate directly from 25 kHz to 6.25 kHz equipment, there is no dual mode equipment, thereby raising unacceptable risks and undermining public safety zero tolerance standards.

Capital investment and maintenance costs of New York City systems envision long life cycles (including planning and construction) of a minimum 15 years. If confronted with a mandate to transition to 6.25 kHz technologies, New York City, like other state and local governments, in contrast to the commercial sector, cannot recoup the stranded investment or the additional operating costs from subscribers but must rely on tax revenues. A Commission technology mandate ignoring these life cycles will harm investment in public safety communications to the detriment of the taxpayer. More significant is the risk to operations if there is no reasoned migration path. The reliability factors that migration encompasses ensure that equipment meets public safety standards.

The Commission cannot intend that agencies alter the national policy of

modernizing equipment and broadening interoperability. These improvements are being designed and deployed based on 12.5 kHz technology. Determining and understanding the current deployment of 12.5 kHz interoperable systems nationwide, many of which are federally funded, and how a 6.25 kHz mandate will affect this effort is critical. Yet no record has been developed. The Commission's intention to establish expeditiously a 6.25 kHz mandate will only lead to delaying current projects, many of which have been in planning for several years.

Interoperability initiatives are being pursued at all government levels. The federal Department of Homeland Security (DHS) has designated interoperability as a critical element of improving emergency preparedness, requires it to be addressed in regional security plans and conditions access to grant monies on demonstrated progress. Congress has authorized $1 billion from the sale of 700 MHz spectrum to assist state and local interoperability projects. Its importance was addressed at the Commission's Public Safety and Homeland Security Bureau's recent First Responder Summit. With no interoperability standard developed at 6.25 kHz, the Commission's direction that agencies moves expeditiously to 6.25 kHz conflicts with this national priority to improve interoperability now.

The complexity of the transition to 6.25 kHz is reflected in the effect the narrower bandwidth will have on current channel plans, which determine a licensee's guaranteed service area. Protecting the service area from interference involves the frequency coordination process that commences with channel size and the equipment operating rules. An already complex process becomes infinitely more so when channels are narrowed. A 6.25 kHz mandate will present significant challenges to the Commission's

licensing regime. It will require analyzing current and future alignments, the transition to new plans and encompass freezing licenses and applications. There is no record of the complexity the process will entail.

The transition to 6.25 kHz allows for incompatible technologies -- conventional analog, trunked digital and data only modes. This incompatibility presents challenges to mitigating adjacent and co-channel interference, how a licensee's own channels will coexist and the ability of an agency to continue to operate within its coverage areas. For example, to achieve 6.25 kHz digital technology, many agencies may opt for Time Division Multiple Access (TDMA) technology. TDMA invokes trunking operations and the accompanying more stringent regulations entailing greater distances between adjacent and co-channel operations as compared to analog conventional operations and rules. The coexistence between conventional and trunked operations and the overall interference environment will be severely challenged and must be addressed prior to any mandate. As licenses will have to be modified to accommodate the increased distances between channels, further complexities will be imposed on this process, particularly with regard to preserving an agency's guaranteed license area.

Additionally, with adjacent and co-channel operations required to be at greater distances, systems will need to be more tightly designed -- lower architectures, reduced power levels and more transmitter sites. The increased technical design, engineering, logistic challenges, such as locating and obtaining approval to use additional sites and obtaining the financial resources, are all presented in a 6.25 kHz mandate. The Commission's 800 MHz Reconfiguration recognized the enormous challenge associated with minimizing interference when dissimilar architectures are closely located. It noted

that extensive engineering, modulation analysis and logistic challenges must be undertaken to preserve coexistence between co-channel and adjacent licensees.[4] Yet the *Third Report and Order* fails to address the challenge.

There are also the complexities accompanying public safety communications operating in varying environments, often within the same jurisdiction. There is a normal lag in communications enhancement technologies, such as Bi-Directional Amplifiers (BDAs) and similar solutions that enhance coverage in buildings and below ground systems. An industry that has yet to mature in 25 kHz equipment will be severely challenged to perform at 12.5 kHz and 6.25 kHz in the near future. The availability of such equipment is a major factor in formulating a migration.

New York City and other jurisdictions, whose communications systems are predominantly in the UHF band, face enormous operational challenge in any transition to new technology. New York City has upwards of 350 sites and 80,000 subscriber units. Equipment must operate in tunnels, subways, skyscrapers, on bridges and across waterways. The breadth of the equipment and infrastructure and the likelihood that 6.25 kHz will require more sites at additional costs entails analyzing agency requirements, engineering and development of system specifications. A preliminary step is ascertaining adequate timeframes to move legacy systems and their infrastructure while ensuring communications integrity. Any time period must accommodate local government's need to plan and finance the transition.

With 12.5 kHz technology itself still maturing, the Commission must recognize

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[4] In the Matter of Improving Public Safety Communications in the 800 MHz Band, et al, *Report and Order, Fifth Report and Order, Fourth Memorandum Report and Order* WT Docket No. 02-55, ET Docket No. 00-258, ET Docket No. 95-18, FCC 04-168 (August 6, 2004) at para 22.

that agencies must be afforded an opportunity to structure comprehensive and reasoned migration paths, which include adequate timeframes. Public safety requirements must be developed before 6.25 kHz is mandated. The metropolitan areas involved represent the most congested spectrum regions and high profile terrorist targets. This reiterates the need for the Commission to allow time and opportunity for agencies to analyze the challenges and formulate plans. Yet under the *Third Report and Order,* there is no plan.[5]

Progress toward a 6.25 kHz standard is tempered by a process several years away from a consensus. Agencies will then have the challenge of designing a migration path from 12.5 KHz technology, including those related to tactical operations.[6] A mandate without reasoned migration paths will do more damage than abandon equipment and infrastructure long before its completed life cycle. It will cause irreparable harm. It will force equipment and infrastructure, not adequately field tested and proven, to be placed in service, raising a real risk to emergency response.

New York City's planning for its next generation public safety systems has now been altered by the Commission's message, conveyed in the *Third Report and Order,* not to rely on 12.5 kHz equipment reaching its life cycle before 6.25 kHz is mandated. New York City urges the Commission to step back from its intention to

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[5] In the 700 MHz band, the Commission recognized the challenge of moving to 6.25 kHz. It did not assume agencies could flash cut to 6.25 kHz equipment but methodically weighed how best to balance the competing factors, including accommodating the lifespan of legacy equipment.
The Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Agency Communication Requirements Through the Year 2010, WT Docket No. 96-86, *Fifth Report and Order* at paragraphs 2, 8 and 9, FCC 02-216 (August 2, 2002).

[6] The Commission's rules at section 90.355(a) comprehend and accommodate the challenges tactical operations face in digital modulation, necessary in 6.25 kHz technology. The Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Agency Communication Requirements Through the Year 2010, WT Docket No. 96-86, Third Memorandum Opinion and Order, Third Report and Order, FCC 00-348 (October 10, 2000) at paragraphs 35-40.

mandate 6.25 kHz technology across the 150-174 MHz or 421-512 MHz bands once it believes that equipment is available. Instead, the Commission should examine how best agencies can structure a reasoned migration path to 6.25 kHz technology. It should initiate a *Further Notice of Proposed Rulemaking* where it reevaluates the mandate and seeks comments on the technical, financial and other challenges that 6.25 kHz technology presents and how best to promote improved public safety communications reflecting the national priority of pervasive interoperability.

Conclusion

New York City urges the Commission to reconsider its decision to mandate 6.25 kHz technology with regard to public safety communications once it determines there is adequate equipment available. With agencies unable to pursue reasoned migration paths, the current direction raises substantial risk to public safety operations. It threatens the

enormous investment by local and state governments in public safety networks to deploy pervasive interoperability and improve communications. The Commission should examine how agencies can best pursue a reasoned migration to 6.25 kHz technology that promotes vibrant and robust public safety communications.

Respectfully submitted,

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