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

In the Matter of

Emission Mask Requirements for Digital Technologies on 800 MHz NPSPAC Channels; Analog FM Capability on Mutual Aid and Interoperability Channels	)))))	PS Docket No. 13-209 RM-11663

COMMENTS
OF
NEW JERSEY TRANSIT CORPORATION

Introduction

NJ TRANSIT is New Jersey's public transportation corporation. Its mission is to provide safe, reliable, convenient and cost-effective transit service with a skilled team of employees, dedicated to our customers' needs and committed to excellence.

Covering a service area of 5,325 square miles, NJ TRANSIT is the nation's largest statewide provider of bus, rail and light rail transit, linking major points in New Jersey, New York and Philadelphia.

The agency operates a fleet of 2,027 buses, 711 trains and 45 light rail vehicles. On 236 bus routes and 11 rail lines statewide, NJ TRANSIT provides nearly 223 million passenger trips each year.

NJ TRANSIT administers several publicly funded transit programs for people with disabilities, senior citizens and people living in the state's rural areas who have no other means of transportation. In addition, the agency provides support and equipment to privately-owned contract bus carriers.

NJ TRANSIT also supports its own law enforcement agency, The NJ TRANSIT Police Department (NJTPD), whose primary mission is to ensure a safe and orderly environment within the transit system, promoting the confidence of the riding public and enhancing the maximum use of the transit system. Their fundamental duty is to safeguard lives and property; protect against deception, intimidation and violence; and to uphold, without prejudice, the Constitutional rights of all people.

NJTPD is the only transit policing agency in the country with statewide authority and jurisdiction. The Department was created on January 1, 1983, and it evolved as a result of the passage of the Public Transportation Act of 1979 and subsequent legislation on the state and federal levels. At that time, the original complement included thirty-nine Commissioned Rail Police Officers. On January 12, 1990, NJSA 27:25-15.1 was enacted into law, and it established the NJ Transit Police Department as a sworn law enforcement agency with the "general authority, without limitation, to exercise police powers and duties, as provided for police officers and law enforcement officers, in all criminal and traffic matters at all times throughout the State..." The current, authorized strength of the Department includes 220 sworn officers and 67 non-sworn members (which include Fare Enforcement Inspectors) serving the more than 400,000 commuters who use the NJ Transit system daily. In addition, the NJ TRANSIT Police are responsible for policing the Hudson-Bergen and RiverLINE Light Rail systems.

As the vehicle that connects New Jerseyans with employment, education, health care and recreational opportunities in and around the Garden State, NJ TRANSIT is vital to the state's economic and social well-being, as well as its quality of life.

Background

To support NJ TRANSIT's communications needs, NJ TRANSIT has a professional land mobile radio staff with well over 100 cumulative man-years of applied professional and technical experience in the field of public safety, railroad, transit, and industrial land mobile radio communications as well as commercial wireless operations. Staff has worked for companies such as Motorola Solutions, Sprint-Nextel Communications, Bell Laboratories, AT&T Wireless, as well as having served in the U.S. armed forces in various communications roles. This depth of experience has enabled NJT staff to support the very unique mission-critical communications needs of NJ TRANSIT and the NJ TRANSIT Police Department.

NJ TRANSIT's LMR staff are highly experienced public safety and industrial/land transportation communications veterans who very well understand mission-critical public safety communications requirements, interoperability, incident management and response, as well as radio frequency engineering issues related to frequency planning and interference management. Staff has participated in major trade events and has had their opinions on critical industry matters published in leading industry journals. Further, staff has successfully completed incident management/response training in the National Incident Management System (NIMS) and the Incident Command System (ICS).

NJ TRANSIT's professional LMR staff opinions on public safety/first-responder interoperable communications matters and land mobile radio frequency

engineering are relevant and credible based on years of direct technical experience, as well as through our active participation in many local, regional, and national public safety interoperable communications forums.

Currently, NJ TRANSIT's LMR staff represents NJ State Agency users of the NJ Interoperable Communications System (NJICS) on the State of New Jersey's Public Safety Communications Council (PSCC). Staff is also extremely active in the planning efforts for Super Bowl 48 as part of an interoperable communications working group jointly headed by the NJ State Police (NJSP) and the Federal Bureau of Investigation's (FBI) Newark Field Office. Staff participates in RPC Regions 8 & 28 on regulatory and coordination matters and the NY Interagency Communications Committee (NYICC). Staff regularly participates in many other public safety interoperable communications forums and committees.

NJ TRANSIT has trained COM-L and COM-T personnel who actively participate in local and regional emergency response exercises, and NJ TRANSIT operates an advanced mobile operations center incorporating the latest radio-over-IP (RoIP) interoperable communications technology. NJ TRANSIT actively funds incident response training for internal personnel as well as local and regional partners having recently sent numerous personnel to the Texas A&M "TEEX" facility in College Station, TX to receive world-class training in Jurisdictional Crisis Incident Management.

NJ TRANSIT, operationally and technically, is well-positioned and competent to address the Commission's NPRM that addresses whether the "H" mask should be applied to all digital technologies operating in the National Public Safety Planning Advisory Committee (NPSPAC) spectrum between 851 – 854 MHz; as well as, whether FM should be designated as the common mode for operating on mutual aid channels and whether FM mode of operation should be a mandated feature for all equipment marketed for public safety operation.

Emission Masks

NJ TRANSIT very much appreciates the Commission's concern over interference and the protection of the NPSPAC spectrum. It is extremely important for First Responders to enjoy reliable communications with the necessary levels of coverage and voice quality to ensure vital, mission-critical information passes without the impairments that could be imparted by interference from adjacent channel systems.

Fortunately, public safety licensees who use, or intend to use, NPSPAC spectrum have their local Regional Planning Committees (RPCs), with their skilled coordinators and advanced computer modeling tools, to ensure that users of NPSPAC spectrum in the respective regions co-exist with levels of adjacent

channel interference that do not impair adjacent public safety system users. They have been doing this successfully for many years and have built up a significant level of technical expertise in this area.

NJ TRANSIT believes that the Commission should consider whether the coordination process, currently and successfully, followed by RPCs to support co-existing dissimilar technologies, is adequate, whatever the mix of technology is within the NPSPAC band vs. the rather narrow question of whether B-Mask or H-Mask should apply to digital equipment used in the NPSPAC spectrum.

The current rules permit technologies with an occupied bandwidth of up to 20 KHz. There is no difference, from a coordination process perspective, coordinating a 20 KHz occupied bandwidth technology from that of a technology that occupies, for example, 16 KHz. The process is the same. The RPC will apply appropriate technology-based criteria, do the calculations and, as they always do, they will deconflict spectrum use such that interference protection parameters are met between any and all technologies used in NPSPAC. They will provide concurrence only when license designs meet the Regions' strict application of sound engineering principles to ensure an interference free environment. There is no greater chance that a system with a TETRA-based waveform, for example, would interfere with a system using a non-TETRA based waveform - as long as the engineering is done properly. This is the case with any technology. A P25- or analog–based system would also cause adjacent channel interference if improperly designed and not in concurrence with the coordination granted by the governing RPC Region.

The RPC will apply the proper technical criteria using their computer tools to factor in the design parameters and characteristics of systems in the region to ensure a continued interference free environment irrespective of technology. Elements such as power, antenna pattern design, height, and geographic separation would all be addressed – as they always are with any coordination request. As long as a TETRA-based system adhered to the coordinated design, there would be no greater chance of interference than any other system. There is no data to suggest that a 20 KHz TETRA waveform is somehow so unique that it defies applying standard practices for engineering and frequency coordination.

NJ TRANSIT has had direct communications with representatives of both RPC Regions 8 & 28 who are involved in frequency coordination and they stated that coordinating a 20 KHz occupied bandwidth technology, along with its mask and/or adjacent channel coupled power, is easily accommodated with the modern computer-based tools and techniques they use every day for frequency coordination. Allowing a 20 KHz technology would impose no extra burden on the Region. Any extra burden would be on the licensee who would have to adhere to, perhaps, stricter spacing requirements, lower power, directional antenna patterns, etc. – all normal issues when coordinating dissimilar technologies.

RPCs are currently dealing with much more challenging coordination issues with narrowband digital technologies adjacent to analog systems in VHF spectrum. Coordinating a system based upon, for example, a 20 KHz TETRA-based waveform with an adjacent system using a 16 KHz proprietary waveform is a much easier task, one that RPCs are fully capable of handling – and willing to do so.

Interference management should be left in the local hands of our highly capable and professional RPC coordinators who have done an excellent job managing NPSPAC spectrum in their respective regions and will continue to do so even with the advent of TETRA-based or other yet-to-be-developed technology.

NJ TRANSIT believes no additional rule changes are necessary to protect NPSPAC spectrum. The current rules, as they are applied and interpreted for the application of B & H-masks, are sufficient to protect NPSPAC spectrum users from harmful interference when combined with the excellent coordination work done by the Regional Planning Committees. If anything, the Commission should consider doing away with the emission masks and standardizing on adjacent channel power metrics as was done in other portions of the 700 and 800 MHz band.

NJ TRANSIT is very concerned that the Commission's proposal to allow only H-Mask to apply for digital technologies used in NPSPAC spectrum will unnecessarily lead to the deprivation of choice for public safety-eligible licensees. Enacting this proposal will result in forcing users, who would like to take advantage of the spectral efficiency, data capability, and competitiveness of, for example, D-LMR(e.g. TETRA 0.2), to choose less capable, non-competitive, and, for many agencies, unaffordable digital technologies. Further unintended effects may be to block future innovative digital technologies that have yet to be fielded - but could be prohibited - if this rule is adopted.

Radios using TETRA-interoperable technology (TETRA 0.2), that achieved Part 90 equipment certification, cannot meet H-mask, whether this rule is adopted or not. Certifications were based upon B-Mask since the equipment contained, as determined by the certification laboratory, the equivalent of a low-pass audio filter. The current rules permit this and the Commission is asking the question whether this is proper; or, that the low-pass filter criteria should only be available on technology that uses analog FM.

NJ TRANSIT believes this is a non-issue when proper coordination and system engineering is accomplished and implemented – as is necessary for any technology. Two improperly coordinated P25 systems on adjacent channels could cause harmful interference. There is nothing so unique about a TETRA-based waveform that prohibits our RPCs from successful coordination of adjacent systems where one or both systems use a TETRA-based waveform.

NJ TRANSIT believes that, perhaps, adjacent channel power requirements, not B or H-masks, be applied as they have been for ETSI TETRA under the recent Part 90 rulemaking allowing TETRA to operate in certain bands.

Local RPCs should be given the task to coordinate adjacent systems and technologies, whatever they may be. A single technology should not be singled out, as it would be if this proposal was adopted, and taken out of the hands of our RPC coordinators as something beyond their capabilities to manage.

Doing so would only serve to diminish the role of the local RPC coordinators as well as take away valuable choices for current or future public-safety eligible licensees interested in NPSPAC spectrum.

Interoperability

NJ TRANSIT appreciates the Commission's concern about following a policy that promotes interoperable communications between first-responder agencies. This is exemplified by the establishment of national interoperability channels in VHF, UHF, 700, and 800 MHz spectrum. While these national interoperability "pool" channels exist, jurisdictional interoperability is coordinated on a local level and may or may not include the use of national interoperability channels.

NJ TRANSIT absolutely believes that all first responders should be equipped with equipment that is compatible with the interoperable communications plan(s) established by the respective geographic area or jurisdiction that encompass those first responders' area(s) of operation. In the case of the State of New Jersey, there are frequencies used by the State of NJ Interoperable Communication System (NJICS) that are not national mutual aid channels referred to in this NPRM. Federal interoperability within the New York City metro area between federal, local, county, and state agencies in the same area are specifically conducted on Federal NTIA spectrum in the VHF band (160 MHz) using P25 mode of operation. The State of NJ has state-defined interoperability spectrum in the 450 MHz band.

NJ TRANSIT would like to emphasize that 800 MHz (or 700 MHz) national mutual aid channels are not the only means of interoperable communications. In most cases, there are channels available on all common public safety bands used by jurisdictions for interoperable communications according to local plans. These plans specify what frequencies are used and what modes. Local agencies make informed purchasing decisions on how to properly equip themselves to participate. Mandating a common mode to be built into a radio doesn't necessarily promote interoperability at a local level. This is what this proposed rule-change would require for radios to gain certification to operate in NPSPAC spectrum. Further, for agencies that have a requirement for public-safety grade equipment but are not first responders with interoperable communications

requirements, this proposal could unnecessarily increase the cost of their equipment to meet a requirement they do not have.

NJ TRANSIT police have the capability to operate on VHF and 800 MHz mutual aid channels through the use of two radios. Another large New Jersey law enforcement agency operates their primary system in the 700/800 MHz band. However, they employ a second radio to maintain the capability to operate on a non-national interoperability channel used by local jurisdictions. They do this because a single radio that has both capabilities does not support their technical and operational requirements. Further, there are distinct benefits of having two radios vs. a single unit that has multiple modes.

Many public safety/first responder agencies operate with two mobile radios in their vehicles. These radios are not usually multifunction or multimode due to the extreme cost of such units. NJ TRANSIT is very concerned that the proposal to mandate a common mode in each and every radio used by public safety first responders, as a requirement for equipment certification, will only translate into much more expensive equipment that is unnecessary as there are many approaches to interoperability that do not include forcing analog mode into every NPSPAC-capable radio. It will surely cost end-users more if this proposed rule-making is adopted. A second, value-priced radio could be used for 800 MHz analog FM should an end-user decide that's how they'd like to implement interoperable communications in the NPSPAC band.

If a second (or third) radio provides the necessary capability to operate on the local mutual aid system, that may or may not use national mutual aid channels, NJ TRANSIT asks why they, or any other agency, should be compelled to buy what will, no doubt, be a more expensive second radio, with features that will be unnecessary and redundant, if an agency already has a radio with mutual aid capability that was bought with knowledge and forethought about the need to participate in local and regional interoperable communications systems.

Forcing a common mode into each and every radio is unnecessary and burdensome for users and would only create more expensive multi-mode equipment to meet a local requirement that could be met with much less funding through the use of a simpler, more cost-effective second radio. Public safety agencies understand technology; understand the need for interoperable communications capability; and, know how to make sound procurement decisions based on the needs of the local agency to participate in local mutual aid plans.

NJ TRANSIT feels the existing rules are sufficient and need not be clarified or changed regarding radio equipment certificated for operation in the NPSPAC band to be capable of operating on mutual aid frequencies. Local public safety first responders already participate in mutual aid operations and do so by making local technology and solution decisions to best fit the agencies' requirements and

limitations. The solution for participating in mutual aid systems should be left to the local agencies and not through mandating a solution to be built into each and every radio certificated for NPSPAC operation.

First-responder interoperable communications requirements are determined at a local level and may be accomplished in a number of ways to include multiple radios, single radios with multiple bands and modes, or through the use of permanent or tactical gateways. Forcing capabilities to be included within radios drives up cost and removes choice for agencies that are already aptly managing interoperable communications.

If a responder chooses to meet an interoperable communications requirement by utilizing two different radios, one that supports analog and one that doesn't, it should be their choice. Anything else is unnecessary and, potentially, costly.

The public safety community completely understands the need for interoperable communications. Their ability and right to make informed decisions about what equipment they need to do their jobs and participate in interoperable communications systems must be protected. In a post-911 world, some 12 years later, public safety first responders totally understand the importance of interoperable communications and the need to have that capability. They will, and do, participate. Participation should not be through a mandate requiring them to buy more expensive radios - that will surely develop if this rule making proposal is adopted – when other, less expensive, solutions already exist.

Respectfully submitted,

NEW JERSEY TRANSIT CORPORATION

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