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

In the Matter of	)	
	)	
Petition for Rulemaking to Amend the	)	RM
Band Plan for the 764-776 MHz and	)	
794-806 MHz Public Safety Bands	)	
	)	

To the Secretary of the Federal Communications Commission:

PETITION for RULEMAKING of
THE NATIONAL PUBLIC SAFETY TELECOMMUNICATIONS COUNCIL

The National Public Safety Telecommunications Council (NPSTC) submits this Petition for Rulemaking recommending that the Commission amend its rules addressing the band plan and channel assignments for the 700 MHz public safety service. The proposed amendments evolve from the Commission's recent changes to the 700 MHz band structure and the need to respond to increased public safety on scene operational requirements.

The National Public Safety Telecommunications Council

The National Public Safety Telecommunications Council is a federation of public safety organizations dedicated to improving emergency service communications and has participated throughout the Commission's 700 MHz band proceedings. Its member organizations and those who participate in its deliberations have plenary responsibility for the range of emergency communications networks dedicated to assisting the citizen in need.

NPSTC pursues a role of resource and advocate for public safety organizations on matters relating to public safety telecommunications. NPSTC has promoted implementing the Public Safety Wireless Advisory Committee (PSWAC) and the 700 MHz Public Safety National Coordination Committee (NCC) recommendations. NPSTC explores technologies and public policy involving public safety agencies, analyzes the ramifications of particular issues, and submits comments to governmental bodies with the objective of furthering public safety communications. NPSTC serves as a standing forum for the exchange of ideas and information for effective public safety telecommunications.

The following 15 organizations participate in NPSTC:

American Association of State Highway and Transportation Officials

American Radio Relay League

Association of Fish and Wildlife Agencies

Association of Public-Safety Communications Officials-International

Forestry Conservation Communications Association

International Association of Chiefs of Police

International Association of Emergency Managers

International Association of Fire Chiefs

International Municipal Signal Association

National Association of State Chief Information Officers

National Association of State Emergency Medical Services Officials

National Association of State Foresters

National Association of State Telecommunications Directors

National Emergency Number Association

National Sheriff's Association

Several federal agencies are liaison members of NPSTC. These include the Department of Homeland Security (the Federal Emergency Management Agency, the Office of Emergency Communications, the Office of Interoperability and Compatibility and the SAFECOM Program), Department of Commerce (National Telecommunications and Information Administration), Department of the Interior, and the Department of Justice (National Institute of Justice, CommTech Program). NPSTC also has a liaison relationship with the Telecommunications Industry Association.

The 700 MHz Public Safety Band

The public safety segment of the 700 MHz band evolved from the transition of television broadcasters to digital operations at other locations in the spectrum. Under the original 1996 upper 700 MHz band plan structure, the 24 MHz of spectrum allotted to four television channels (63, 64, 68, and 69) was reallocated to provide spectrum for public safety narrowband voice and data, and wide band data use. The reallocation provided 12 MHz (TV Channels 63 & 64) for base-to mobile communications, and 12 MHz (TV Channels 68 & 69) for mobile-to-base communications. The near-term availability of the spectrum in the 700 MHz band for public safety use in any particular area depended upon the presence or absence of nearby operating co-channel or first adjacent channel TV broadcast facilities.

With the then-varied and unknown schedules of television broadcasters to transition out of the new public safety band, the Commission properly assumed that one or more of the four 6 megahertz TV channels would be unavailable to public safety during the DTV transition period. As a result, the allocations of narrowband and wideband operations within the 12 MHz blocks were bifurcated, with a portion of each 6 MHz TV channel containing some narrowband and some wideband usage.

The 700 MHz Public Safety Narrowband Channels

The Commission's 700 MHz public safety rules originally delineated four band segments designated for use with narrowband emissions and set forth how each segment was to be used. Each of these segments consists of 3 MHz of spectrum divided into 480 channels with a channel bandwidth of 6.25 kHz.[1] These segments were further designated for use as State License Channels, Narrowband Interoperability Channels, Narrowband Reserve Channels, General Use and Narrowband Low Power Channels Subject to Regional Planning, and Narrowband Low Power Itinerant Channels.

The pool of interoperability channels was split, putting half of the interoperability channel pairs into each of the band segments, ensuring that some interoperability channels would be available as soon as an incumbent television licensee vacated that spectrum. Among other interoperability allocations, two sets of interoperability channels for nationwide calling were established, as well as two sets for low speed data interoperability.

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[1] Section 90.531(b) of the Commission's rules.

These were reasoned decisions as the near-term availability of the spectrum in the 700 MHz band for public safety use in any particular area depended upon the presence or absence of nearby operating TV broadcast facilities.

The Congress has established February 17, 2009, as the final date for broadcast television stations to vacate this spectrum. The Commission's recent Second Report and Order addressing the 700 MHz band subsequently made several changes to the structure of the commercial and public safety bands.[2] These changes include relocating and consolidating the existing public safety narrowband allocations to the upper half of the 700 MHz Public Safety Band. This structural change affords opportunity to reexamine how the segment's channel alignment and a channel's designated purpose can best promote effective public safety communications. Timely action will allow improvements to be in place prior to the February 19, 2009, television broadcast transition date when the 700 MHz spectrum is completely cleared for public safety use nationwide.

NPSTC Recommendations for 700 MHz Narrowband Channels

1. *A Single National Interoperability Calling Channel*

The varied and unknown schedules of television broadcasters to transition to digital operations served as the premise behind establishing the two sets of nationwide interoperability calling channels. With the Commission's recent consolidation of the narrowband channels, two sets of Nationwide Interoperability Calling Channels are no longer necessary. In fact, NPSTC believes that having two sets of Calling Channels

[2] In the Matter of Service Rules for the 698-746, 747-762 and 777-792 MHz Bands et al., *Second Report and Order*, FCC 07-132 (August 10, 2007).

would be detrimental to nationwide interoperability because local/state agencies would not know which channel to monitor and/or use in any particular area of the country.

NPSTC thus recommends that there be a single set of 700 MHz nationwide interoperability calling channels. NPSTC proposes that Section 90.531(b)(1)(ii) should be amended to designate the lower pair of channels, 39/99 and 40/1000, for nationwide interoperability calling. With the relocation of the 700 MHz public safety narrowband channels and an established television broadcast transition date, one pair of channels is adequate for this purpose. This proposal is visually shown in Figure 1 of the attached slides.

2. *Redesignate the Remaining Calling Channel as a "Travel Channel"*

NPSTC proposes that the upper set of channels currently reserved for Interoperability Calling, 681/1641 and 682/1642, be reassigned and designated as a "Nationwide Interoperability Travel Channel." This proposal is visually shown in Figure 1 of the attached slides.

At incidents requiring additional resources, particularly those of a specialized character, assets and personnel must be transported, often at significant distances, into the area. Frequently this movement is by ground transportation in vehicle convoys. Coordination with and among these units would be enhanced by a designated travel channel. The channel could permit first responders and equipment to be deployed to an area directly instead of having to first travel to a staging area. It will provide Incident Commanders advanced notice of the resources arriving at a particular time so that areas

most in need of assistance can receive relief immediately. Such a reserved designation and use will enhance flexibility, efficiency and speed in deploying resources.

3. *Relax Use Restriction on One Narrowband Data Interoperability Channels*

Relocation of the 700 MHz narrowband channels and the definitive broadcast transition date similarly tempers the need for two nationwide narrowband data interoperability channel sets. With the demand for communications supporting tactical operations continuing to expand, NPSTC recommends that Section 90.531(b)(1)(i) of the Commission's rules be amended to allow tactical voice communications on a secondary basis on channels 921/1881 and 922/1882. This will promote more effective and extensive use of the channels while preserving their prime purpose when required for data use. This proposal is visually shown in Figure 1 of the attached slides.

4. *Designate Reserved Channels for Deployable Trunked Systems*

Responding to the need to deploy communications capability expeditiously when legacy infrastructure has been overloaded or devastated, NPSTC recommends that the current 700 MHz narrowband reserve channels be designated to promote deployment of mobile trunked infrastructure that can be transported into the incident area.

The Commission extensively examined Hurricane Katrina and the challenges encountered when a region's entire infrastructure is destroyed. It has emphasized the critical need to restore communications expeditiously.[3] The ability to transport

[3] In the Matter of Recommendation of the Independent Panel Reviewing the Impact of Hurricane Katrina on Communications Networks, *Notice of Proposed Rulemaking*, EB Docket No. 06-119, FCC 06-83 (June 19, 2006) at paragraphs 2, 6 and 8.

deployable infrastructure capable of operating for more than a temporary time over a wide area is a reality. The Commission's designation of the current 700 MHz narrowband reserve channels would assist these operational initiatives immeasurably and meet a prime objective the Commission itself has established.

Several federally supported state and local emergency response plans now envision transporting wireless infrastructure with trunking capability to the incident area with other emergency equipment and supplies. These preparedness initiatives frequently provide for infrastructure and equipment to be air lifted to the scene. The assets are staged and maintained in a ready state for swift deployment. These "trunking systems on wheels" reflect already committed public resources that will make a tangible difference. Alternatively, mounting these trunking systems aboard an aircraft would allow for immediate use in an impacted area as soon as the aircraft reached the scene above the disaster. NPSTC envisions such air support being offered in the states through the National Guard and nationally through the Federal Emergency Management Agency or by other Federal assets.

This predesignation of trunking channels would allow 700 MHz subscriber radios across the country to be programmed with these systems at all times, negating the need during a disaster to reprogram radios in the field or distribute cached radios, both of which are time consuming and may be impossible depending upon the nature of the emergency.

Readiness will thus be enhanced significantly if channels were designated to assist this purpose.

As shown in Figure 2 of the attached slides, the reserve channels referenced in Section 90.531(b)(2) should be designated as Interoperability Channels for use in Deployable Infrastructure. NPSTC proposes that these 24 channels be grouped into four sets of 6 channels each, allowing for the nationwide designation of four 6-channel deployable trunking groups.

These channels must also meet the challenge of ensuring that the subscriber equipment is compatible with the infrastructure. As required for all 700 MHz voice interoperability channels, the infrastructure equipment should comply with ANSI/TIA-102 (Project 25) standards so communications across agencies is possible. NPSTC proposes that mobiles and portables would be licensed by rule. Transportable "fixed" (base / relay) stations would be individually licensed as "temporary" with the owner of the infrastructure designating an area of operation, up to and including nationwide.

Technical coordination of these systems on a nationwide basis presents a challenge. NPSTC has already presented this concept to the Project 25 Steering Committee and the Private Radio Section of the Telecommunications Industry Association (TIA), both of whom are involved in developing the ANSI/TIA-102 standards series with significant public safety user input and review. If this deployable system concept is approved by the Commission, NPSTC will work expeditiously with these organizations to address issues and standards related to unique system IDs, identification of subscriber radios, and related technical requirements. Importantly, we

recommend that the Commission seek the counsel of these technical groups before making the specific designation of which sets of six channels are associated with which of the four trunking systems, and potentially other technical parameters that must be established before finalizing the rules for these deployable systems.

5. ***Revise Rules on Low Power Itinerant Interoperability Channels***

Finally, the Commission's rules addressing low power itinerant operations should be revised to allow agencies, particularly fire service users encountering high noise levels, to have the communications capability the rules envisioned.

In Sections 90.531(b)(3) and 90.531(b)(4), the Commission designated channels for low power operations to be coordinated by the regional planning committees as well as for itinerant operations. The Commission recognized that low power capability contributed to effective and flexible communications at an incident scene, particularly for fire service operations. The Commission's rules recognized and broadly accommodated the technical challenges digital modulation encountered in such environments.[4]

Since release of the original 700 MHz rules, it has been found that the vocoder in digital radios becomes overloaded in high ambient noise environments, such as those encountered in fire ground operations, often resulting in severe transmission distortion. The distortion is so significant that it renders the radios unusable in their native digital mode during times of critical communications need. Thus, a number of fire departments

[4] The Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Agency Communications Requirements Through the Year 2010, *Third Memorandum Opinion and Order, Third Report and Order*, WT Docket 96-86, FCC 00-348 (October 10, 2000) at paragraphs 35-40.

have refused to use digital radios. This is problematic for the 700 MHz band where the only usable choice for systems is currently digital modulation. An extensive study of this problem is underway,[5] and while it may be possible to reduce the level of noise interference with audio and radio design modifications, initial findings are that such interference is to some degree inherent with digital radio design and is not present with analog modulation.

Further, since the narrowband low power rules where analog modulation is permitted were promulgated for the 700 MHz band, experience has profiled that current power levels are inadequate to provide effective communications in several on scene environments, fire ground operations being one of those.

As shown in Figure 1 of the attached slides, NPSTC thus recommends that the Commission amend Sections 90.531(b)(3) and 90.531(b)(4) to permit analog (11K3F3E) operations at power levels of 20 Watts ERP on channels 1–8/961–968 (Narrowband low power channels subject to regional planning), and 9–12/969–972 (Narrowband low power itinerant channels) for on-scene incident response purposes using mobiles and portables only (no base/fixed stations). This revision would allow the Commission's rules to preserve the value of low power analog operations by providing power levels that ensure effective on-scene communications in critical life-safety environments.

[5] A special study group has been convened by the International Association of Fire Chiefs (IAFC) to further identify this issue and propose alternatives, solutions and best practices for mitigation. Members of the group include users, manufacturers and technology experts from the Department of Commerce Institute for Telecommunications Sciences.

Conclusion

The Commission's important work addressing the 700 MHz band and improving public safety communications has been vital. As it moves to implement its recent decisions, NPSTC recommends that it pursue several amendments to the current 700 MHz public safety band segment that will enhance first responder on scene communications.

Respectfully submitted,

Vincent R. Stile, Chair
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February 8, 2008

Attachment

On February 8, 2008, an Original and Four Copies of the above *Petition for Rulemaking* of the National Public Safety Telecommunications Council was filed with the Secretary of the Commission at its offsite facility. A copy was also filed electronically in Commission proceedings addressing the 700 MHz Band, WT Docket 96-86, WT Docket 06-150, and PS Docket 06-229.

/S/ John E. Logan

Figure 1: Interoperability Channel Changes

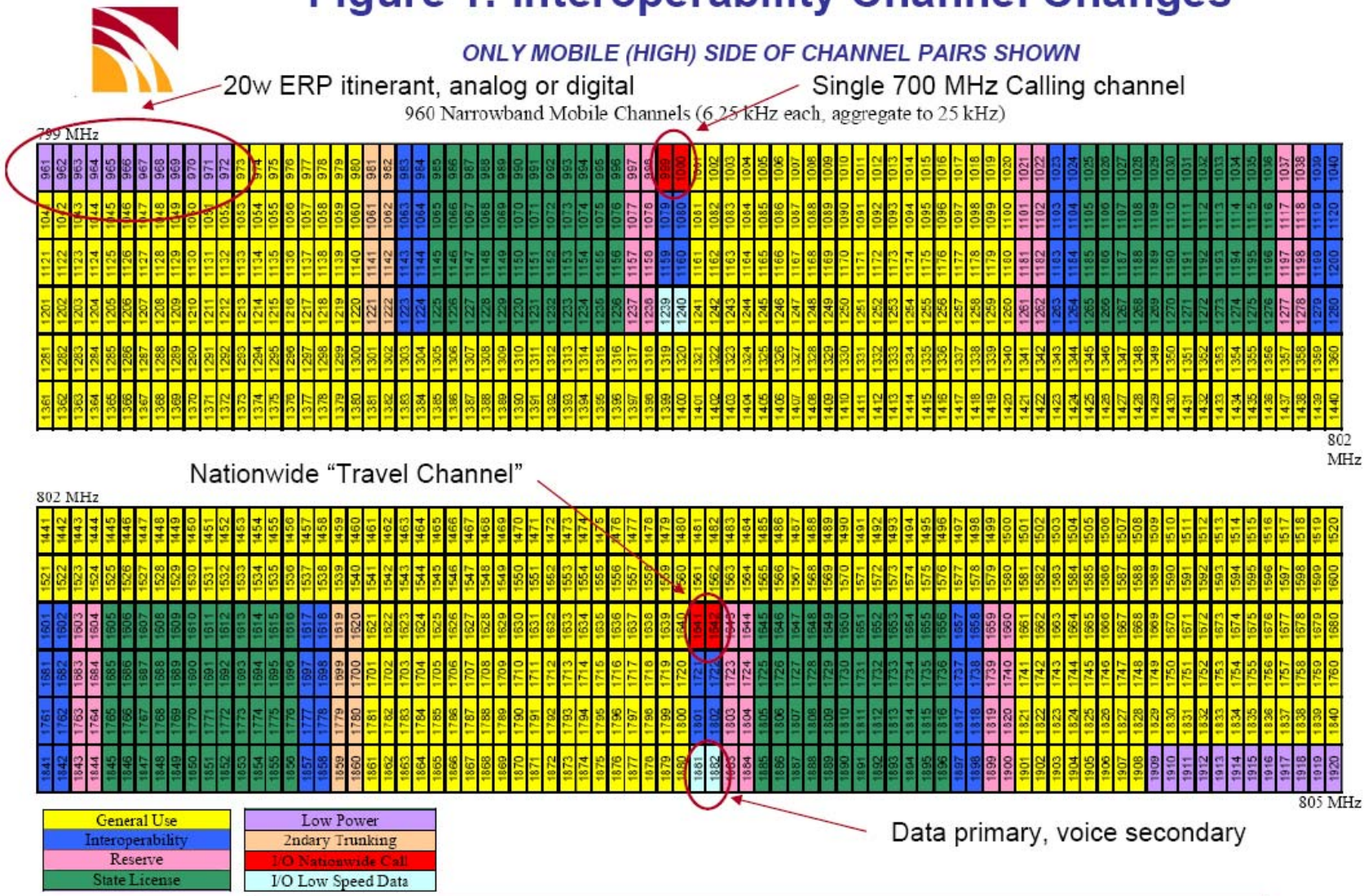

Figure 2: Deployable Trunking Systems

ONLY MOBILE (HIGH) SIDE OF CHANNEL PAIRS SHOWN