

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

In the Matter of)	
)	
Proposed Amendments to the Service Rules)	PS Docket No. 13-87
Governing Public Safety Narrowband Operations in)	
the 769-775/799-805 MHz Bands)	
)	
The Development of Operational, Technical and)	WT Docket No. 96-86
Spectrum Requirements for Meeting Federal, State)	
and Local Public Safety Communications)	
Requirements Through the Year 2010)	
)	
National Public Safety Telecommunications)	RM-11433
Council Petition for Rulemaking on Aircraft Voice)	
Operations at 700 MHz)	
)	
National Public Safety Telecommunications)	RM-11433
Council Petition for Rulemaking to Revise 700)	
MHz Narrowband Channel Plan)	
)	
Region 24 700 MHz Regional Planning)	WT Docket No. 96-86
Committee Petition for Rulemaking)	PS Docket No. 06-229
)	
State of Louisiana Petition for Rulemaking)	RM-11577

COMMENTS OF MISSION CRITICAL PARTNERS

Mission Critical Partners, Inc. (“MCP”) submits the following comments in the above captioned matter. MCP provides executive consulting to clients with public and life safety communications missions throughout North America. With a professional staff of more than 70 employees, the MCP team provides services in 9-1-1 planning, networking, and system analysis; facility and technology integration; public safety consolidation/shared services transitions; radio communications; broadband deployment; and emergency management communications.

MCP recognizes the importance of this Notice, and applauds the Commission for taking a proactive approach and position on these critical rules.¹ MCP has drawn on its extensive experience with both current and future 700 MHz licensees on the county, city, and state levels.

A. December 31, 2016 Deadline for Narrowbanding Transition to 6.25 kilohertz Bandwidth Technology

MCP has participated in large-scale land mobile radio system procurements over the last three years that have been greatly influenced by the impending 700 MHz 6.25 kHz efficiency requirement. With the upcoming deadline, construction of systems in the 700 MHz spectrum that do not satisfy the channel efficiency requirement or do not have subscriber equipment capable of being upgraded to meet the requirement would naturally be a frivolous investment. This deadline has resulted in procurements with limited competition due to the small pool of system and subscriber vendors capable of providing equipment which satisfies the equivalency requirement.

P25 Phase II is the dominate technology available that will meet the spectrum requirement and permit subscribers to operate on the 700 MHz interoperability channels in the P25 mode. Only recently have additional Phase II compliant system and subscriber options begun to become available in the marketplace, yet there are far fewer options compared to P25 Phase I (FDMA) options. The financial impact for Phase II compliant systems is significantly larger than that of their Phase I counterparts, a reality that is magnified even more due to the limited availability of alternative subscriber models which are capable of Phase II operations.

For agencies that implemented Phase I systems in the 700 MHz band, the upcoming deadline presents a significant risk as many agencies do not have the funding necessary to permit an upgrade to Phase II. Much of the fielded Phase I compliant infrastructure and subscriber equipment is not capable of being upgraded to Phase II, and will therefore require replacement

¹ *Proposed Amendments to the Service Rules Governing Public Safety Narrowband Operations in the 769-775/799-805 MHz Bands*, FCC 13-40, released April 1, 2013, 78 Fed. Reg. 23529, released April 19, 2013.

within the next four years if the current deadline remains. Most of these systems have been constructed within the last two to eight years when 700 MHz spectrum has been available, yet Phase II compliant equipment has not been available for a corresponding period of time. Satisfying the current deadline will require the replacement of subscriber equipment that may have as much as a decade of useful life remaining.

MCP has worked with agencies across the country, and has seen that the need for 6.25 kHz efficient systems varies from region to region. In highly populated, spectrum-deficient regions, 700 MHz spectrum is in great demand. However, only in limited circumstances have the CAPRAD assigned frequencies been insufficient to meet the needs of applicants. The agencies with the greatest need for spectrum are those agencies that previously operated VHF or UHF systems. It is these cases where the 6.25 kHz efficiency is most needed, not because of a shortage of spectrum throughout the region, but because of operational necessity for one given entity. Re-assigning out-of-pool or “orphan” channels to these entities is not a simple task due to co-channel and adjacent-channel interference limitations created when frequencies are allocated outside of the primary assigned CAPRAD County.

In contrast, most regions across the US enjoy bountiful 700 MHz spectrum and may take many years to fully exhaust the totality of spectrum assigned to the region. In these areas all agencies with need can easily be accommodated with systems operating in the P25 Phase I mode. The cost of current 6.25 kHz capable equipment is deterring many agencies from constructing 700 MHz trunking systems, even though trunking would clearly be the most advantageous solution for first responders.

We feel that the FCC 6.25 kHz spectrum efficiency requirement should be lifted from the FCC rules completely, and delegated to the RPCs. RPCs have the greatest knowledge of the spectrum environment within a region, and are best positioned to invoke the 6.25 kHz requirement when required. This will permit regions to enforce the requirement where it is most

needed to ensure the spectrum needs of all agencies are met, and also permit a greater level of equipment availability and competition where 6.25 kHz systems are not required.

In our opinion, the greatest spectrum inefficiencies in the 700 MHz band are not the result of technology, but rather poor spectrum planning. The assignment of 25 kHz channel blocks in a market dominated by 12.5 kHz P25 systems has resulted in almost half of the available 700 MHz channels being rendered useless. Adjacent channel limitations render the assignment of two adjacent channels within a single county nearly impossible, and reassigning “orphans” to other jurisdictions is extremely difficult due to infringement on other CAPRAD co-channel and adjacent-channel allotments. To remedy this problem, MCP recommends the FCC encourage or require the development of equipment with better adjacent channel rejection requirements and filtering to permit the assignment of 12.5 kHz adjacent systems in a single geographic area. This approach has already been accomplished successfully on a limited basis. Alternatively, a complete resort of the CAPRAD database with 12.5 kHz channels and excluding already licensed agencies would greatly expand access to channels that would otherwise lie vacant.

B. 2010 NPSTC Petition – Air-Ground Communications on Secondary Trunking Channels

MCP has not seen widespread use nor deployment of resources that operate on the secondary trunking channels throughout its engagements in the US. Quite to the contrary, however, the issue of airborne communications on communications systems – in all bands – has been one that is frequently revisited. Further, the issues related to interference to tightly spaced trunked systems from airborne assets are real, and have been addressed in the waiver petition filed by the State of Maryland.² MCP supports the assertions of the Maryland petition entirely, and concurs with the State that a the use of the secondary trunking channels for aircraft operations

² See Petition for Waiver of Rules, State of Maryland, RM-11433 (filed Feb. 24, 2012) (Maryland Petition).

represents the most practical choice in order to limit interference to incumbents. We recommend that the coordination of these allotments, however, should be delegated to the Regional Planning Committees.

The Regional Planning Committees are an ideal governance structure to coordinate the allocation and use of airborne communications on secondary trunking channels. We feel that the Commission should modify the rules to permit operation of airborne equipment on these channels as a secondary use, subject the approval of the primary Regional Planning Committee and the concurrence of those adjacent regions that may reasonably have the potential to receive interference.

C. 2008 NPSTC Petition – Proposed Revisions to 700 MHz Narrowband Channel Plan

1. Nationwide Interoperability Travel Channel

MCP concurs with the NPSTC Petition on this item and acknowledges that this modification would simply codify the current environment rather than enable a new use of the spectrum.³ That is, users are currently operating on the spectrum in a manner that supports their life safety operation, e.g. communicating while traveling rather than at the scene of an incident.

Modifying the rules to permit the current operational use is prudent, and further improves the interoperability environment by setting a standard for this type of operation rather than allowing the user to make ad-hoc decisions.

2. Tactical Voice Communications on Data Interoperability Channels

MCP concurs with the NPSTC Petition on this item given the fundamental fact that the primary use of the spectrum in question is for “data interoperability,” yet no such widespread use has occurred.⁴ With the advent of the Nationwide Public Safety

³ 2008 NPSTC Petition at 6.

⁴ *Id.* at 7.

Broadband Network, a regional or national interoperable data network will be developed on other allocations, and thus the need for narrowband, low speed data interoperability is outweighed by the more likely use of tactical voice communications.

3. Reserve Channels

We concur with the NPSTC petition that the reserve channel spectrum should be introduced into the general use pool, with some exceptions. There is no question that in major urban areas, in particular those designated as 470-512 MHz T-Band regions, a substantial need for additional spectrum exists and will be exacerbated by the impending migration of T-Band incumbents. To that end, the need for additional spectrum extends far greater than to just deployable systems, and should be made available to any applicant or incumbent with a demonstrated need.

We recommend that the Commission make the reserve channel spectrum available as general use, with a recommendation that Regional Planning Committees consider the developing needs of incumbent T-Band users as they evaluate new applications. While some T-Band incumbents are taking proactive steps to mitigate the potential impact of the impending transition, many are not. Should the changes of the Notice relative to T-Band come to fruition, many T-Band incumbents will struggle to compete for a limited amount of spectrum in areas that are already spectrally-deficient.

4. Power Limit for Low Power Channels

MCP supports the modification of the rules to support a maximum 20W ERP on the low power channels subject to regional planning only. By their very nature, these channels are often used on the scene of an incident, and their assignment is typically coordinated either prior to the incident by policy or at the time of the incident by the incident commander. As a result, the possibility for harmful interference from the increased ERP is limited, and the actions to mitigate or alleviate such interference would

likely be taken on the part of the users who are already in close coordination.

Moreover, a need exists for users to be able to communicate from mobile to mobile in order to coordinate operations, and in some cases for routine vehicle-to-vehicle communications. In these cases, the Regional Planning Committees can evaluate the proposed uses and ensure that assignments prevent harmful interference to co-channel users throughout the Region.

The use of vehicular repeaters on channels 1-8 should also be permitted with a maximum of 20W ERP, however in many cases the limitations of the equipment prevent close, in-band spacing.

We do not support an increase to 20W ERP on the Nationwide Itinerant Operations channels. By their nature these channels are not subject to the regional planning process, and the possibility for harmful interference to life safety operations is very real if such an increase were permitted. As a compromise, the Commission should consider increasing the power limit on the Nationwide Itinerant Operations channels to 3W in order to harmonize the 700 MHz band rules with the 800 MHz band rules.

D. Miscellaneous Issues

1. Project 25 Compliance Assessment Program

The Project 25 Compliance Assessment Program (CAP) is an important factor in maintaining consistent features and functionality across a variety of subscriber equipment and manufacturers. The program allows both users and system operators to choose equipment that has undergone and passed a defined set of operational tests utilizing standardized parameters. MCP supports CAP testing of all P25 equipment, and encourages users and system operators to seek equipment that has passed the CAP testing process.

Nonetheless, the scope of the Commission's enforcement of subscriber

equipment should be limited to type acceptance rather than to feature and functionality compliance. While we recognize that some equipment in use may be “nominally compliant,” the decision to allow specific subscriber unit equipment on a system should remain with the system owner and/or operator rather than with the Commission.

Much like the Commission’s decision to decline to act on mandating standard display labeling, mandating P25 CAP testing is a similar decision that should be left to system operators and end users. The Commission should not put itself in a position in which it must define what is “nominally compliant” and therefore not approved versus what is “operationally acceptable” and meets the needs of the end user. The needs of public safety users vary widely throughout the country, and are influenced by many factors that similarly vary widely. While we acknowledge the importance of a standard and compliance with said standard, it should be the responsibility and right of the user and system operator to make the final decision.

2. Narrowband Power Limits

We fully concur with the Commission’s move to harmonize the rules between Sections 90.541 and 90.545(b) and support the simplification into a more comprehensive Section 90.541. Additionally, we concur with the Commission that the use of ERP is preferable to that of TPO, as ERP is much more representative of the actual interference potential versus TPO.

Similarly, the Commission should remove all references and requirements to protect DTV stations, as suggested in the Notice.

3. Interoperability Network Access Code

The Department of Homeland Security has made recommendations relative to this topic for field users in its January, 2011 document entitled, “National Interoperability Field Operations Guide, Version 1.4” In the section titled “Regulations and Guidelines

for National Interoperability,” the guide defines the following for Network Access Codes:

3. *Digital P25 operations on non-Federal interoperability channels should transmit the default Network Access Code (NAC) \$293, and receive with NAC \$F7E (accept any incoming NAC). Specify talkgroup \$FFFF, which includes everyone.*

Many first responder agencies and regional authorities have implemented the recommendations and guidelines of the National Interoperability Field Operations Guide during the design and deployment of communications networks. While this issue may be considered operational, decades of interoperability problems persist due to “recommendations” and “guidelines.” MCP recommends that the Commission take an affirmative position on interoperability by implementing – at the very least – the use of Network Access Codes that are consistent with the National Interoperability Field Operations Guide.

4. User Access to Interoperability Channels

Unlike Network Access Codes, the design and implementation of programming changes to subscriber equipment must be a parameter that is entirely determined by the system operator in coordination with the users. With the advent of numerous additional manufacturers of subscriber equipment in P25 systems, the capabilities of the diverse choices vary considerably. By mandating the programming of interoperability channels in all subscriber equipment, the Commission may, in some cases, severely limit the capacity of some equipment to support the primary mission of the user.

Subscriber equipment should be mandated to be *capable* of programming and operation on the interoperability channels, but users should maintain the final decision relative to the implementation of some or all of those channels as their operational needs dictate.

5. Analog Operation on the Interoperability Channels

The benefits of interoperability are achieved through the use of standard protocols and modes. To that end, the use of a single mode should be adopted for the interoperability channels rather than allowing mixed mode operation. We concur that the need to retain analog operation on some low power channels exists in order to support users operating in high ambient noise conditions, however the current rules permit analog operation in other spectrum allocations within the 700 MHz band.

For those operations which require analog operation, we recommend that they are conducted on channels other than those designated for interoperability purposes. For interoperability, we recommend that the Commission adopt rules which require a single, standard mode of operation – specifically P25 digital operation.

Conclusion

Mission Critical Partners thanks the Commission for its progressive and timely response to these important issues. We greatly appreciate the opportunity to provide comments on the issues at hand, and the ability to offer insight based on the experiences of clients throughout the country which would otherwise not file comments on their own. We look forward to our continuing active and engaged partnership with the Commission on the important issues such as 700 MHz.

Respectfully submitted,

/s/

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