

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

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

**COMMENTS OF HARRIS CORPORATION**

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**COMMENTS OF HARRIS CORPORATION**

Harris Corporation (Harris) respectfully submits these comments in response to the Federal Communications Commission’s (Commission) Notice of Proposed Rulemaking to modify rules governing the 700 MHz public safety narrowband spectrum (769-775/799-805 MHz).<sup>1</sup>

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<sup>1</sup> See Proposed Amendments to the Service Rules Governing Public Safety Narrowband Operations in the 769-775/799-805 MHz Bands, PS Docket No. 13-87, Notice of Proposed Rule Making, FCC 13-40 (2013) (700 MHz Narrowband NPRM).

## **I. SUMMARY.**

As the Commission initiates its laudable effort to examine holistically the rules for operation of first responder communications in the 700 MHz public safety narrowband spectrum, it is crucial that interference protection, interoperability, and effective spectrum management be the core values that drive any rule changes or augmentation. To that end, in examining current rules governing the narrowbanding deadline for the 700 MHz public safety narrowband spectrum, care must be taken not to broadly extend this effective policy that well balances the goals of public safety and sound spectrum management. Technological advancements in recent years suggest that narrowband transition consistent with Commission rules is technically possible; no absence of 6.25 kHz technology or P25 Phase 2 standards exists to justify the delay. Moreover, given the recent plans set by Congress to relocate public safety T-Band operations, and given that many of those current T-Band public safety users will need use of the 700 MHz public safety narrowband spectrum, delaying the narrowband deadline comprehensively will hinder the use of this spectrum for those forced into the spectrum due to the T-Band transition. Nonetheless, there may be unique circumstances among current public safety users that warrant a waiver of the current rules. To the extent such circumstances exist, the Commission should establish a waiver policy similar to that established for Part 90 VHF & UHF licensees concerning compliance with the January 1, 2013 narrowbanding mandate.

To further sound spectrum management, the Commission should embrace proposals to allow permanent use of the 700 MHz narrowband reserve channels. Permanent, nationwide reallocation of the 48 700 MHz narrowband reserve channel pairs can maximize use of this spectrum and assist in meeting the needs of T-Band users required to relocate to the 700 MHz

public safety narrowband spectrum. Additionally, as the Commission seeks to ensure effective, interoperable use of public safety spectrum, the Commission should examine P25 Compliance Assessment Program (CAP) certification in a separate proceeding applicable to all public safety spectrum. P25 equipment and systems are available in all assigned Land Mobile Radio (LMR) spectrum, and various configurations are created for each LMR band. Thus, in order to fully assess the viability and benefits of a P25 CAP certification requirement, the technical parameters of such a certification must be assessed in the context of all LMR bands and related P25 configurations. Thus, this proceeding may not be the suitable forum for a review of a P25 certification requirement that takes all aspects of such a proposal into context.

The Commission's historic efforts to protect first responders from interference have been very successful. To continue this effort, it is important for the Commission to recognize that exemption of Class B signal boosters will create the potential for interference in the 700 MHz public safety narrowband spectrum. However, the Commission's proposal to harmonize the requirements of Sections 90.541 and 90.545 will drive interference protection. Thus, the Commission should examine establishing Section 90.541 requirements in terms of ERP rather than transmitter output powers. Further, the Commission should adopt a rule requiring terminal radio capability to be reprogrammed for operation on all 12.5 kHz 700 MHz interoperability channels, but allow individual first responder entities decide what specific interoperability channels beyond the designated nationwide calling channels must be immediately available for user selection. Finally, in order to increase interoperability for first responders, the Commission should restrict analog mode operation on the 700 MHz interoperability channels.

These policies correspond to the Commission's ongoing efforts to maximize spectrum use, enhance first responder interoperability, and drive public safety communications free from interference. Harris greatly appreciates the Commission's efforts on this matter, and looks forward to further partnering with the Commission to enhance first responder communications.

**II. THE COMMISSION SHOULD EXTEND THE NARROWBANDING DEADLINE ONLY ON A CASE-BY-CASE BASIS WHEN THERE IS COMPELLING PUBLIC INTEREST.**

The Commission seeks comment on the vital issue of whether to extend its December 31, 2016 deadline for 700 MHz narrowband licensees to complete the narrowbanding process,<sup>2</sup> and as an adjunct, whether the Commission should concurrently extend the January 1, 2015 deadline for new general use and statewide set-aside license applications to utilize 6.25 kHz technologies. For the reasons set forth below, the Commission should not adopt a blanket extension of the January 1, 2015 deadline applied to new general use and statewide set-aside license applications, nor should the Commission adopt a blanket extension of the January 1, 2017 deadline when all operations in the general use and statewide setaside spectrum are required to utilize equipment operating with 6.25 kHz or equivalent efficiency. The Commission should consider establishing a waiver policy for the January 1, 2017 date similar to that used concerning the January 1, 2013 Part 90 VHF/UHF narrowbanding mandate, to accommodate the unique operational, technical and financial considerations of licensees who have been early implementers of 700 MHz narrowband general use and statewide set-aside systems.<sup>3</sup>

**A. Blanket Narrowbanding Extensions Do Not Serve the Public Interest of Effective Spectrum Management.**

Commenters supporting a broad extension of the narrowband deadline raise important issues regarding the need for the narrowbanding mandate to public safety and the need to ensure that

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<sup>2</sup> See 47 C.F.R. § 90.535(d)(2). See also Narrowbanding NPRM at ¶ 86.

<sup>3</sup> See, e.g., Petition for Waiver of the Commission's Rules, State of Louisiana, Order, PS Docket No. 06-229, WT Docket No. 96-86 (Oct. 15, 2012).

the process is not hindered in the early stages in a way that sets a precedent for widespread variance from the Commission's rules. Harris supports the Commission's long-term goals to ensure efficient use of spectrum; the required timeline for achieving 6.25 kHz equivalent efficiency in the 700 MHz narrowband spectrum is reasonable and predicated upon careful consideration of public safety needs, and should be enforced. The narrowbanding mandate allows for continued progress and furthers the universal goals of spectral efficiency, better coverage, and enhanced responsiveness during times of disaster or crisis.

Further, while there have been technical limitation arguments made in support of extending the narrowbanding deadline, recent advancements in technology make these arguments far less viable. Additionally, as current public safety T-Band users will likely need the 700 MHz narrowband spectrum upon the statutorily-mandated T-Band transition, it may not be in the public interest to delay a narrowbanding deadline that will facilitate a T-Band transition for many first responders.

#### B. T-Band Incumbent Relocation Requires Retention of the Narrowband Deadlines.

As the Commission knows, Section 6103 of the Middle Class Tax Relief and Job Creation Act of 2012 calls for reallocating the T-band spectrum (470-512 MHz).<sup>4</sup> An implementation of this provision will inevitably increase the demand for licenses in the 700 MHz narrowband allocation by those T-Band first responders being relocated. In light of the fact the 700 MHz narrowbanding spectrum is the likely relocation spectrum for many of these licensees in a few short years, the mandated dates for moving to 6.25 kHz technologies for new licensees and for

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<sup>4</sup> See Middle Class Tax Relief and Job Creation Act of 2012, Pub. L. No. 112-96, 126 Stat. 156 (2012), § 6103 (Spectrum Act).

incumbents should not be delayed on a blanket basis; such a blanket delay would limit the availability of this spectrum for those needing to relocate from the T-Band. Thus, this new legislative requirement again bolsters the need for retention of the current narrowbanding deadlines for both users and manufacturers alike.

C. There is No Lack of 6.25 kHz Technology or P25 Phase 2 Standards Justifying Delay in the Narrowbanding Deadline.

As the Commission has noted, some commenters have stated that a delay in the narrowbanding deadline is justified due to a lack of available 6.25 kHz technology.<sup>5</sup> In reality, many 6.25 kHz efficiency technologies suitable for the 700 MHz narrowband general use and state-wide set aside spectrum have been available for a number of years. In fact, these technologies have been successfully implemented in 700 MHz narrowband general use and state-wide set aside systems across the country. Thus, assertions claiming a lack of available 6.25 kHz technology equipment and/or the lack of upgradeable equipment are no longer accurate and do not justify blanket extensions of the 6.25 kHz technology mandates for the 700 MHz narrowband general use and state-wide set aside spectrum, particularly an extension of the January 1, 2015 deadline for new narrowband general use and statewide set-aside license applications.

Moreover, the assertions about lack of P25 Phase 2 equipment and standards are also dated and no longer correct. First, the necessary standards defining P25 Phase 2 have been completed and published by the Telecommunications Industry Association (TIA). Further, a number of manufacturers are currently implementing systems that are compliant with the P25 Phase 2 standards. For example, Motorola Solutions indicated it planned to begin shipping P25, Phase 2

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<sup>5</sup> See Narrowbanding NPRM at ¶ 83.

equipment in August 2011.<sup>6</sup> Similarly, Harris is under contract to implement P25 Phase 2 systems in over a dozen jurisdictions across the country. A number of those systems are scheduled to be operational by year end. Again, despite arguments to the contrary, P25 Phase 2 equipment is available for purchase and the necessary standards have been completed. Claims otherwise should not be the basis to justify any delay in the 6.25 kHz mandates for the 700 MHz narrowband general use and state-wide set aside spectrum.

With regard to the Commission's inquiry as to the current status of the development of the Phase 2 standard,<sup>7</sup> Harris lauds the Commission for seeking factual information on this vital issue. The issue of standards or standardized equipment, however, is irrelevant in the 700 MHz narrowband general use and state-wide set-aside spectrum. The only portion of the 700 MHz narrowband spectrum where discussion regarding compliance with such standards is relevant concerns the designated interoperability channels identified in Part 90.531(1)(i) and (ii). Part 90.548 requires transmitters when operating on those channels only must comply with a defined subset of the P25 Phase 1 standards. The 6.25 kHz efficiency mandate does not apply to the channels identified in 90.531 (1)(i) and (ii); thus, the entire discussion about P25 Phase 2 standards and standardized equipment is superfluous and misleading when applied to the 700 MHz general use and statewide set-aside channels.

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<sup>6</sup> See Donny Jackson, Urgent Communications, "Motorola announces shipping plans for P25 Phase 2 TDMA," (Mar. 9, 2011) (available at: <http://urgentcomm.com/project25-news/motorola-announces-shipping-plans-p25-phase-2-tdma>) (noting that, " Motorola Solutions today announced plans to begin shipping its ASTRO 25 systems with P25 Phase 2 TDMA trunking in August [2011].").

<sup>7</sup> See id. at ¶ 87.

In lieu of delaying the January 1, 2017 date for licensees in the 700 MHz narrowband general use and state-wide set-aside spectrum, the Commission should establish a waiver policy similar to the policy established for Part 90 VHF & UHF licensees concerning compliance with the January 1, 2013 narrowband mandate. Part 90 VHF & UHF licensees knew about the January 1, 2013 mandate for many years, as have the 700 MHz narrowband general use and state-wide set-aside spectrum licensees known about the January 1, 2017 date from the time of initial licensing, yet the Commission established a liberal waiver policy accommodating the unique financial, technical and operational circumstances of each particular Part 90 VHF/UHF licensee's situation. There is no reason why the Commission cannot establish a similar policy that will appropriately accommodate the unique financial, technical and operational circumstances of individual 700 MHz narrowband general use and state-wide set-aside licensees while still assuring the public safety community utilizes the spectrum in the most efficient manner available to accommodate relocated T-Band licensees in a timely manner.

### **III. THE COMMISSION SHOULD ALLOW PERMANENT REALLOCATION OF THE 700 MHz NARROWBAND RESERVE CHANNELS.**

The Commission seeks input on the proper use of the 700 MHz narrowband reserve channels. Specifically, the Commission wishes to determine if temporary or permanent use of the reserve channels should be allowed.<sup>8</sup> Harris strongly supports the concept advanced by LA-RICS to allow permanent use of the reserve channels.<sup>9</sup> In fact, Harris believes the 48 700 MHz narrowband reserve channel pairs should be reallocated to the general use spectrum on a

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<sup>8</sup> See *id.* at ¶ 118.

<sup>9</sup> See Request for Waiver of Section 90.531(b)(2) filed by Los Angeles Regional Interoperable Communications System Joint Powers Authority (Dec. 7, 2012) (LA-RICS Waiver Request).

permanent, nationwide basis in order to satisfy the increasing demand for 700 MHz narrowband spectrum expected as a result of the T-Band reallocation required under the Spectrum Act.

In addition to meeting this spectrum demand, permanent reallocation of this spectrum to general use spectrum will obviate the coordination and interference concerns the Commission notes are expressed by NPSTC and Motorola Solutions in the context of allowance of temporary use of the reserve channels. As general use channels, the reserve channel pairs would be under the jurisdiction of the Regional Planning Commissions (RPC), who have succeeded historically in assuring the highest interference protection and best use of the spectrum available in light of all adjacent and co-channel operations. Thus, to maximize spectral efficiency and mitigate interference concerns, the reserve channels should be permanently reallocated to general use.

#### **IV. MANDATING A P25 CAP SHOULD BE CONSIDERED AS PART OF A HOLISTIC P25 TECHNICAL AND PRACTICAL INTEROPERABILITY RULEMAKING.**

The Commission seeks comment on its proposal to require all 700 MHz narrowband equipment to be P25 CAP-certified.<sup>10</sup> While Harris has long worked with the Commission and all stakeholders to advance narrowband interoperability, Harris cautions against speeding toward a Commission-mandated CAP program without evaluating such a program in the broader context of a comprehensive rulemaking on P25 compliance from a technical and implementation standpoint.

It is vital to note that interoperability/interchangeability of narrowband equipment across vendors is not simply a technical issue. Historically, it can be observed that achieving interoperability

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<sup>10</sup> See Narrowbanding NPRM at ¶ 127.

depends upon both technical solutions from manufacturers and management and planning activities by entities other than device manufacturers. Simply requiring CAP certification may partially address some of the technical aspects of achieving interoperability/interchangeability. However, without also addressing the numerous aspects of the management and planning efforts needed in an appropriate, comprehensive rulemaking, there will be no discernible benefit to 700 MHz interoperability by merely mandating the P25 CAP.

Project 25 equipment and systems are available in all LMR bands, in various configurations, i.e., trunked & conventional, encrypted & non-encrypted, with or without proprietary extensions, etc. This fact clearly demonstrates P25 CAP and interoperability warrant a separate comprehensive rulemaking to facilitate an adequate investigation/review of the many faceted technical and management aspects of this complex issue. This review must also include a Commission assessment of the CAP program requirements versus test capabilities, and whether such capabilities can be exercised or developed in a cost effective manner such that mandating CAP certification does not significantly impact equipment cost with little or no discernible interoperability or operability benefits in all bands and for all configurations. For these reasons, Harris strongly recommends that the Commission commence a Rulemaking to explore the P25 CAP certification requirement in terms of improving interoperability in all LMR spectrum and establishing implementation requirements that make a P25 CAP meaningful in practical application.

**V. THE COMMISSION'S TECHNICAL REQUIREMENTS MUST PROTECT FROM INTERFERENCE AND DRIVE INTEROPERABILITY.**

The Commission has sought comment on a number of various technical concepts, ranging from ACP requirement for Class B signal boosters to operation of mobile and portable equipment in analog mode on interoperability channels. Harris addresses several of these proposals, and urges that the Commission base its action on serving the dual interests of protection from interference and ensuring increased interoperability for first responders.

A. Exemption of Class B Signal Boosters Will Increase Interference Threats for First Responders.

The Commission seeks to determine if operation of Class B signal boosters in excess of ACP limits when transmitting multiple signals present an unacceptably high potential for harmful interference to adjacent channel users.<sup>11</sup> Harris strongly believes the Commission should not exempt Class B signal boosters from the ACP requirements of 90.543(a). Harris has witnessed numerous cases of problems caused by signal boosters when multiple signals are retransmitted. Exempting Class B boosters will simply exacerbate the situation and increase interference threat to first responders.

B. Harmonizing Parts 90.541 and 90.545 Will Provide Clarity for Narrowband Power Limits and Enhance Operability of 700 MHz Narrowband Devices.

Harris strongly supports the Commission's proposal to harmonize the requirements of Sections 90.541 and 90.545.<sup>12</sup> Subsections 90.545(a) and 90.545(c) address DTV issues that no longer

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<sup>11</sup> See id. at ¶ 132.

<sup>12</sup> See id. at ¶ 138.

persist, as the DTV transition successfully concluded 4 years ago. However, it is not clear if subsection 90.545(b) was meant to be applicable before and after DTV transition or was intended to apply only during the DTV transition period. The title of Section 90.545, “TV/DTV interference protection criteria,” implies that the requirements in Section 90.545 were all meant to expire after DTV transition ended. If that is the case, the harmonization process should include the elimination of Section 90.545 in its entirety.

Subsequently, the Commission should examine expressing the Section 90.541 requirements in terms of ERP rather than transmitter output powers and whether the ERP limits in subsection 90.545(b) are appropriate for the post DTV transition era.

At minimum, if the limits in subsection 90.545(b) are correct for the post-DTV transition era, Harris suggests that, in addition to rescinding Section 90.545 *in toto*, the Commission should delete the phrase “...and must also comply with any applicable effective radiated power limits in §90.545...” from the 1st sentence in Section 90.541 and add a subsection (e) to Section 90.541 containing the information now found in subsection 90.545(b). These actions will provide clarity in terms of rule applicability and allow stakeholders to abide by consistent power limits to ensure interference protection.

C. The Commission Should Require Device Capability for Programming to all 128-6.25 kHz 700 MHz Interoperability Channels.

Harris strongly believes the Commission should adopt a rule, similar to subsection 90.203(i) in the 800 MHz band, requiring that 700 MHz PS mobile and terminal radios “must have the capability to be programmed for operation on all 128-6.25 kHz 700 MHz interoperability

channels (64-12.5 kHz interoperability channels) as such are designated in subsection 90.531(b)(1).”

In adopting such a rule for the 700 MHz narrowband interoperability channels, the Commission must be very clear that “capability to be programmed” includes compliance with the standards specified in subsections 90.548(a)(1) and (2).

In the case of the nationwide interoperability calling channels as defined in subsection 90.531(b)(1)(ii), in addition to the radios having the capability to be programmed to those channels in compliance with the standards outlined in subsections 90.548(a)(1) and (2), such channels must be simultaneously accessible to the user. Moreover, as the Commission evaluates requirements for programming, it is vital to recognize that accessibility by the user is only required for the Nationwide Interoperability calling channels (39/999, 40/1000, 681/1641, and 682/1642). These are 2 12.5 kHz channels in the 769-775 MHz spectrum and 2 12.5 kHz channels in the 799-805 MHz part. If a public safety agency wishes to have more interoperability channels immediately accessible to the user at all times, they can choose to do so within the capabilities of the equipment chosen. Thus, it is reasonable for the Commission to only mandate that the interoperability calling channels be immediately accessible to the user at all times. This will afford flexibility to be exercised so that local public safety agencies can determine their needs and assign programming based on their individual operational needs.

D. The Commission Should Not Permit Analog Mode Operation on the 700 MHz Interoperability Channels.

The Commission seeks comment on whether to permit users to operate their mobile and portable equipment in analog mode on the interoperability channels.<sup>13</sup> Harris strongly believes there is no reasonable need to allow analog operations on the designated NB interoperability channels.

The only radios allowed to use analog modulation in other than secondary operations on the 700 MHz NB spectrum are those which are designed to exclusively operate on the designated low-power channels. Since these low-power radios are exempt from the requirement to operate on the designated interoperability channels, the question immediately rises whether there is any need to allow analog operations in any mode on the designated interoperability channels. There is no reason for the Commission to risk introduction of any additional negative effect on interoperability by allowing analog operations on the designated narrowband interoperability channels. Therefore, Harris strongly recommends the Commission not permit users to operate mobiles and portables in analog mode on the interoperability channels.

In addition, the Commission should evaluate its rules in this proceeding in the context of those for 800 MHz, given that many public safety agencies are implementing dual band 700/800 MHz systems. As the interoperability technologies for these bands are different, Harris recommends that the FCC initiate a process to harmonize 700 and 800 MHz interoperability technology requirements.

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<sup>13</sup> See id. at ¶ 147.

