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

SEVENTH REPORT AND ORDER
NOTICE OF PROPOSED RULEMAKING

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By the Commission:

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I. INTRODUCTION AND EXECUTIVE SUMMARY

1. In this *Seventh Report and Order and Notice of Proposed Rulemaking*, we implement and propose certain changes to the rules governing the 700 MHz public safety narrowband spectrum (769-775/799-805 MHz). In the *Seventh Report and Order* in WT Docket 96-86, we adopt minor changes to

those rules based on proposals from the *Seventh Notice of Proposed Rulemaking* (*Seventh NPRM*).[1] These rule changes eliminate or update outdated technical requirements and offer public safety licensees additional flexibility to operate their 700 MHz narrowband land mobile radio systems. We also address recommendations from the National Coordination Committee (NCC) for changes to the 700 MHz narrowband rules, on which we solicited comment in the *Seventh NPRM*.[2]

2. In the *Notice of Proposed Rulemaking* in PS Docket 13-87, we initiate a new proceeding to seek comment on more recent proposals to amend the Commission's rules to promote spectrum efficiency, interoperability, and flexibility in 700 MHz public safety narrowband operations. Specifically, we seek comment on whether to extend or eliminate the December 31, 2016 narrowbanding deadline for 700 MHz public safety narrowband licensees to transition from 12.5 kilohertz to 6.25 kilohertz channel bandwidth technology.[3] We also seek comment on a proposal from the National Public Safety Telecommunications Council (NPSTC) to authorize secondary use of certain channels in the 700 MHz band for public safety aircraft voice operations.[4] In addition, we seek comment on a number of other NPSTC proposals and other issues, including signal boosters, harmonizing power limits, certification of testing of and establishing a standardized Network Access Code (NAC) for operation on 700 MHz interoperability channels.

II. BACKGROUND

3. In 1998, the Commission established the initial band plan and service rules for the 24 megahertz of public safety spectrum in the 700 MHz band, which it reallocated from TV channels 60-69 in accordance with the mandate expressed in the Balanced Budget Act of 1997.[5] The Commission also divided the 24 megahertz of spectrum into narrowband (6.25 kilohertz channel) and wideband (50 kilohertz channel) segments.[6] In 2002, the Commission set forth a migration path to 6.25 kilohertz channel requirements for narrowband use.[7]

4. In 2005, the Commission adopted the *Sixth Report and Order* in this docket, which revised the Commission's rules regarding adjacent channel power (ACP) emission limits for the 700 MHz public safety band.[8] At the same time, in the *Seventh NPRM,* the Commission sought comment and

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[1] *See* Development of Operational, Technical and Spectrum Requirements for Meeting Federal State and Local Public Safety Communication Requirements Through the Year 2010, WT Docket No. 96-86, *Fifth Memorandum Opinion and Order, Sixth Report and Order, and Seventh NPRM of Proposed Rulemaking*, 20 FCC Rcd 831 (2005) (*Sixth Report and Order* and *Seventh NPRM,* respectively).

[2] *See* Letter from Kathleen M.H. Wallman, Chair, NCC, to Michael K. Powell, Chairman, Federal Communications Commission, WT Docket. No. 96-86 (July 25, 2003) (NCC Final Report); Letter from Kathleen M.H. Wallman, Chair, NCC to Michael K. Powell, Chairman, Federal Communications Commission and Attachment, WT Docket No. 96-86 (May 29, 2003) (NCC May 2003 Letter).

[3] *See infra* Section IVA.

[4] *See infra* Section IVB.

[5] *See* Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Agency Communications Requirements Through the Year 2010, WT Docket No. 96-86, *First Report and Order and Third Notice of Proposed Rulemaking*, 14 FCC Rcd 152, 155 ¶ 3 & n.5 (1998) (*First Report and Order* and *Third Notice,* respectively), citing Pub. L. No. 105-33, § 3004, 111 Stat. 251 (1997), codified at 47 U.S.C. § 337(a)(1).

[6] *See id*. at 170 ¶ 33.

[7] *See* 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,* 17 FCC Rcd 14999 (2002) (*Fifth Report and Order*).

[8] *Sixth Report and Order,* 20 FCC Rcd at 840-44 ¶¶ 19-34. ACP emission limits are transmitter performance specifications designed to minimize interference to communications systems operating on other in-band channels or

(continued....)

issued tentative conclusions regarding proposals filed by TIA-PRS, Access Spectrum, Nortel/EADS and the NCC to revise various rules governing the 700 MHz public safety narrowband spectrum, including additional proposed revisions to the ACP rules.

5. In 2007, the Commission adopted the *700 MHz Second Report and Order*, which revised the band plan and service rules governing both the commercial and public safety portions of the 700 MHz band.[9] Among other things, the Commission redesignated 10 megahertz of public safety 700 MHz spectrum (at 763-768/793-798 MHz) for broadband use and established a plan for development of a nationwide, interoperable broadband public safety communications network.[10] In order to accommodate the new public safety broadband allocation, the Commission eliminated the public safety wideband channels and consolidated the public safety narrowband channels into their current locations at 769-775 and 799-805 MHz.[11] The Commission also revised the size and location of the 700 MHz Guard Bands.[12]

6. In revising the band plan for the public safety 700 MHz band, the Commission required the 55 regional planning committees (RPCs) to submit conforming plans for narrowband operations.[13] Most of these amended plans were filed in 2008. In 2009, the Commission stayed the deadline for relocating existing narrowband operations, in light of the absence of a D Block licensee responsible for narrowband relocation financing.[14] In 2010, the Public Safety and Homeland Security Bureau sought comment on the feasibility of permitting use of public safety narrowband spectrum for broadband

(...continued from previous page)
in other bands by restricting the level of emissions that are transmitted into adjacent channels and other parts of the spectrum. *See First Report and Order*, 14 FCC Rcd at 213 ¶ 136. When establishing these limits, the Commission seeks to balance the need to provide acceptable adjacent channel protection with the need to maximize spectral efficiency and information transfer. The Commission also strives to avoid creating burdensome regulations that could hinder the development of new and innovative technologies. *Id*.

[9] Service Rules for the 698-746, 747-762 and 777-792 MHz Bands, WT Docket No. 06-150; Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems, CC Docket No. 94-102; Section 68.4(a) of the Commission's Rules Governing Hearing Aid-Compatible Telephones, WT Docket No. 01-309; Biennial Regulatory Review – Amendment of Parts 1, 22, 24, 27, and 90 to Streamline and Harmonize Various Rules Affecting Wireless Radio Services, WT Docket No. 03-264; Former Nextel Communications, Inc. Upper 700 MHz Guard Band Licenses and Revisions to Part 27 of the Commission's Rules, WT Docket No. 06-169; Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band, PS Docket No. 06-229; 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, *Second Report and Order*, 22 FCC Rcd 15289 (2007) (*700 MHz Second Report and Order*).

[10] *See id*. at 15407-08 ¶¶ 325-326.

[11] *Id.* at 15409 ¶ 329. In revising the 700 MHz band plan, the Commission spectrally shifted downward by one megahertz both of the paired twelve megahertz public safety 700 MHz spectrum blocks that originally were allocated at 764-776 MHz and 794-806 MHz in order to protect against certain interference concerns for public safety operations within the U.S./Canada border region. *See id*. at 15407 ¶ 323.

[12] The Commission relocated the Guard Band A Block from 746-747/776-777 MHz to 757-758/787-788 MHz, so that it is now situated between the Upper 700 MHz Band C Block and D Block. The Commission reduced the bandwidth of the Guard Band B Block from two megahertz to one megahertz and relocated it from 762-764/792-794 MHz to 775-776/805-806 MHz so that it is now located at the upper edge of the public safety narrowband allocation. *See id*. at 15336-37 ¶ 111.

[13] *See id.* at 15414 ¶ 346.

[14] Service Rules for the 698-746, 747-762 and 777-792 Bands; Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band, WT Docket No. 06-150, PS Docket No. 06-229, *Order,* 24 FCC Rcd 1604 (2009).

services.[15] The Bureau also sought comment on current and anticipated use of 700 MHz narrowband networks, and on potential interference and interoperability issues raised by the proposal. [16]

7. On February 22, 2012, the Middle Class Tax Relief and Job Creation Act of 2012 (Public Safety Spectrum Act) was signed into law.[17] The Public Safety Spectrum Act directs the Commission to reallocate the 700 MHz D Block (758-763/788-793 MHz) for public safety services[18] and provides for consolidation of this spectrum with the adjacent 10 megahertz of public safety broadband spectrum designated by the Commission in 2007.[19] The Public Safety Spectrum Act did not change the position or status of the 700 MHz narrowband spectrum, but Section 6102 of the Act states that "[t]he Commission may allow the [700 MHz] narrowband spectrum to be used in a flexible manner, including usage for public safety broadband communications, subject to such technical and interference protection measures as the Commission may require."[20]

8. The following figures depict the shift and consolidation of the 700 MHz public safety narrowband spectrum since 2007:

[15] *See* Public Safety and Homeland Security Bureau Seeks Comment on the Technical and Operational Feasibility of Enabling Flexible Use of the 700 MHz Public Safety Narrowband Allocation and Guard Band for Broadband Services, *Public Notice,* 25 FCC Rcd 13634 (2010).

[16] *Id.*

[17] Middle Class Tax Relief and Job Creation Act of 2012, Pub. L. No. 112-96, 126 Stat. 156 (2012) (Public Safety Spectrum Act).

[18] *See id*. § 6101. The Commission has reallocated the D Block as directed by the statute. *See* Implementing Public Safety Broadband Provisions of the Middle Class Tax Relief and Job Creation Act of 2012, PS Docket No. 12-94, *Report and Order*, 27 FCC Rcd 10953, 10956-57 (PSHSB 2012).

[19] *See* Public Safety Spectrum Act, §§ 6201(a), 6202 and 6204(a); *see also id.* § 6001(2) (defining "700 MHz D Block spectrum") and (14) (defining "existing public safety broadband spectrum").

[20] Public Safety Spectrum Act, § 6102.

FIGURE 1: 700 MHZ PUBLIC SAFETY BAND (PRIOR TO 2007 REVISIONS)

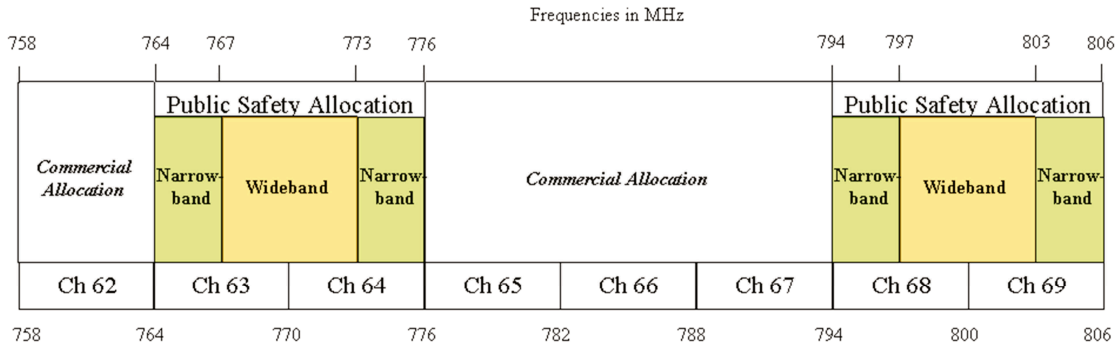
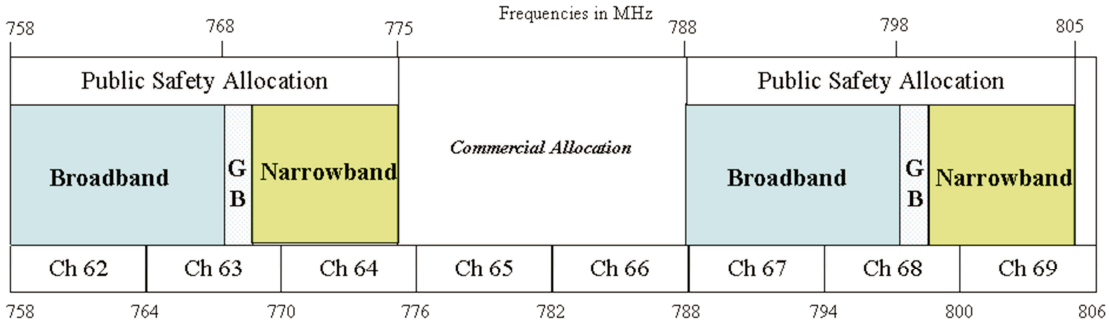


FIGURE 2: REVISED 700 MHz PUBLIC SAFETY BAND PLAN



III. SEVENTH REPORT AND ORDER

9. In this *Seventh Report and Order*, we resolve the proposals considered in the *Seventh NPRM* that affect the consolidated 700 MHz narrowband spectrum. We do not address the proposals in the *Seventh NPRM* that related to the former 700 MHz wideband channels, because the elimination of wideband channels as part of the reconfiguration of the 700 MHz band in the *700 MHz Second Report and Order* renders these portions of the *Seventh NPRM* moot.

A. 700 MHz Narrowband Spectrum

1. Technical Rules

a. Relaxing ACP Limits for Base Station Emissions into the Paired Receive Band

10. *Background*. Section 90.543(a) of the Commission's rules establishes adjacent channel power (ACP) emission limits for 700 MHz narrowband base station transmitters.[21] The ACP limits are

[21] An ACP emission limit is based upon the absolute and relative levels of coupled power as a function of frequency that ensures that the adjacent channel interference potential of transmitters at various bandwidths is consistent and predictable. *See* 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, *Sixth Notice of Proposed Rulemaking*, 17 FCC Rcd 19303, 19304 ¶ 3 (2002) (*citing First Report and Order*, 14 FCC Rcd 214 ¶ 138) (*Sixth Notice*).

designed to reduce unwanted emissions from base station transmitters operating in the 769-775 MHz band into adjacent channels and other parts of the spectrum, including emissions into the 799-805 MHz band in which 700 MHz narrowband mobile units transmit and base stations receive (paired receive band).[22] The ACP limit for 700 MHz narrowband base station emissions into the paired receive band is -100 dBc.[23] This measurement must be made at the transmitter's output port,[24] *i.e.*, without regard to whether the operator uses combiners and external filtering to further attenuate the signal.

11. In comments filed prior to the *Seventh NPRM*, TIA-PRS advocated relaxing the ACP limit for base station emissions into the paired receive band from -100 dBc to -85 dBc.[25] TIA-PRS argued that external filters could easily provide the additional attenuation beyond -100 dBc necessary for satisfactory system performance.[26] In the *Seventh NPRM*, the Commission tentatively concluded that it would retain the -100 dBc ACP limit in the paired receive band.[27] The Commission expressed concern that the TIA-PRS proposal would force public safety licensees with limited resources to purchase additional filtering equipment that otherwise might not be necessary, and that the proposal would allow certification of equipment whose capability for interference protection depends upon the purchase of additional equipment.[28]

12. In response to the *Seventh NPRM*, commenters agree on the importance of maintaining effective ACP limits but differ on whether the existing rule should be modified. The State of Arizona Department of Public Safety (Arizona) opposes relaxing the ACP limits on the basis that reduced ACP limits could create interference to public safety systems.[29] Motorola, Inc. (Motorola), however, supports reducing the ACP limit from -100 dBc to -85 dBc and urges the Commission to reconsider its tentative conclusion.[30] Motorola asserts that public safety licensees can control ACP more efficiently and cost-effectively through use of combiners and external filters.[31] Motorola observes, for example, that in a base station where ten transmitters are routed to a single antenna through a combiner, the licensee could achieve adequate ACP suppression through use of a single filter external to the transmitters, whereas complying with the existing rule would require the licensee to provision each transmitter with an integral filter and to add external filtering as well in many cases.[32] Thus, Motorola contends that the ACP limit in

[22] 47 C.F. R. § 90.543(a).

[23] The term "dBc" means decibel relative to a carrier level. *See* Harry Newton, Newton's Telecom Dictionary (2004).

[24] *See* 47 C.F.R. § 90.543(b).

[25] *Seventh NPRM*, 20 FCC Rcd at 848 ¶ 38 (*citing* Comments of the Private Radio Section of the Wireless Communications Division of the Telecommunications Industry Association, WT Docket No. 96-86 (filed Dec. 9, 2002)).

[26] *See* Letter from Wayne Leland, Chairman, Private Radio Section, Wireless Communications Division of the Telecommunications Industry Association, to Ms. Magalie Roman Salas, Secretary, Federal Communications Commission, WT Docket No. 96-86 (Jul. 10, 2002) (TIA-PRS July 2002 *Ex Parte*) at 2.

[27] *Seventh NPRM,* 20 FCC Rcd at 849 ¶ 39.

[28] *Id.*

[29] *See* Comments of Department of Public Safety, State of Arizona, WT Docket No. 96-86 (filed on May 27, 2005) at 1.

[30] Comments of Motorola, Inc., WT Docket No. 96-86 (filed May 27, 2005) (Motorola Comments) at 4.

[31] *Id*.

[32] *Id*; *see also* Letter from Steve Sharkey, Director, Spectrum and Standards Strategy, Motorola to Marlene H. Dortch, Secretary, FCC, WT Docket No. 96-86, (Mar. 31, 2006) and accompanying attachment (Motorola ACP Presentation).

the existing rule drives up system costs by requiring multiple filters and limiting system and site design options.[33]

13. *Discussion*. We share the concerns raised by Arizona regarding the potential impact of relaxing ACP emissions requirements. No commenting party suggests that the -100 dBc level of protection afforded by the existing rule is unnecessary. Nonetheless, more cost-effective methods exist that will achieve the level of interference protection equivalent to that sought by Arizona. Both TIA-PRS and Motorola describe how operators routinely apply external filters so as to minimize the impact of transmitter sideband noise on co-sited and duplex receivers.[34] Motorola observes that many licensees employ external filtering because they need to attenuate emissions in the paired receive band below the -100 dBc limit currently specified in the rules to provide adequate isolation between the transmitters and the associated receivers.[35] For instance, Motorola notes that at a ten transmitter site a licensee would still need an external filter to avoid ACP emissions that can cause interference to the associated receivers even if each of the ten transmitters were already equipped with an internal filter that met the -100 dBc ACP limit in the rules.[36]

14. Based on the record, we now believe that allowing licensees the option to satisfy emissions limits into the paired receive at the output of an external filter provides public safety licensees with the most flexibility to achieve the necessary -100 dBc level of interference protection.

15. Accordingly, we revise Section 90.543 to relax the ACP requirement for base station transmitters to -85 dBc in the paired receive band, provided that a maximum ACP of -100 dBc is achieved at either the transmitting antenna input port or the output of the transmitter combining network. This rule change will allow a licensee to use a single external filter, in lieu of integral filters for each transmitter, to meet the overall -100 dBc ACP requirement. Relaxing the individual transmitter ACP limit to -85 dBc, while maintaining -100 dBc at the transmitting antenna input port or the combiner output port, will reduce the cost and complexity of transmitters, yielding savings to public safety agencies, while at the same time maintaining the overall level of ACP protection necessary to guard against interference in the paired receive band.

b. Secondary Fixed Operations

16. *Background.* Section 90.235 of the Commission's rules permits private land mobile radio licensees to conduct secondary fixed tone signaling and alarm operations in bands above 25 MHz, subject to certain restrictions designed primarily to protect co-channel users from interference on shared channels.[37] Secondary fixed tone signaling and alarm operations traditionally have been used to verify the status of equipment, indicating the existence of an equipment malfunction, and alerting licensees to the presence of an intruder, fire or other hazardous conditions.

17. In contrast, 800 MHz systems are afforded greater leeway to conduct secondary fixed operations because they do not operate on shared channels.[38] For example, Section 90.637(c) permits these systems to conduct fixed ancillary signaling and data transmissions on a secondary basis without emission designator or transmission duration limitations.

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[33] Motorola ACP Presentation at 3.

[34] *See* TIA-PRS July 2002 *Ex Parte* at 2; Motorola ACP Presentation at 7-8.

[35] Motorola ACP Presentation at 7-8.

[36] *Id.* at 9.

[37] *See* 47 C.F.R. § 90.235. Secondary operations must not cause interference to primary operations and must accept interference from primary operations. *See* 47 C.F.R. § 90.7.

[38] *See* 47 C.F.R. §§ 90.235(l), 90.637(c).

18. Prior to the *Seventh NPRM*, TIA-PRS suggested that the more permissive rules covering secondary fixed operations in the 800 MHz band would also provide a suitable framework for 700 MHz public safety systems.[39] Accordingly, in the *Seventh NPRM*, the Commission sought comment on whether to extend the rules governing secondary fixed operations in the 800 MHz band to 700 MHz public safety operations.[40]

19. NPSTC and Motorola support this rule change.[41] NPSTC notes that "in the future many 700 MHz radios offered in the marketplace will also be capable of operating in the 800 MHz public safety bands."[42] NPSTC contends that harmonizing the rules for these two bands with respect to secondary fixed use will enhance the ability of manufacturers to develop and offer dual-band radios and will promote interoperability.[43] Motorola argues that "the regional planning process and the operational restrictions currently codified in Section 90.637 provide adequate protections to address any concerns over interference to the primary mobile services."[44] No other commenting parties addressed this issue.

20. *Discussion*. We adopt the TIA-PRS proposal and adopt a new Section 90.557 that permits secondary fixed operations on the 700 MHz narrowband General Use and State License channels, subject to the same restrictions contained in Section 90.637(c) that apply to 800 MHz operations. We find that it is in the public interest to permit 700 MHz public safety users to make greater use of secondary fixed signaling and data transmission operations. Furthermore, we believe licensees will benefit from our decision to harmonize the criteria for secondary fixed operations in the 700 MHz band with the 800 MHz band because, as NPSTC notes, this harmonization will enhance a manufacturer's ability to develop and offer dual-band radios.[45] We agree with Motorola that the regional planning process has proven to be a reliable way of avoiding interference to co-channel users, while preserving these benefits.[46] In addition, State License channels are strictly governed by the relevant State licensee. We find that these controls over the potential instances of shared use of 700 MHz General Use and State license channels provide sufficient channel use exclusivity to justify application of the less stringent restrictions on secondary fixed signaling and data transmission operations currently set forth in Section 90.637. Nonetheless, to reduce the possibility of interference to interoperability channels and low power channels, we will permit secondary fixed signaling operations only on General Use channels subject to the discretion of the regional planning committee, and on State License channels subject to the discretion of the relevant State licensee.

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[39] *See Seventh NPRM*, 20 FCC Rcd at 850 ¶ 41 (*citing* Letter from Wayne Leland, Chairman, Private Radio Section, Wireless Communications Division of the Telecommunications Industry Association, to Ms. Marlene Dortch, Secretary, Federal Communications Commission, WT Docket No. 96-86 (Oct. 6, 2004) (TIA-PRS October 2004 *Ex Parte*)). *See also* Letter, dated September 28, 2004, from Marilyn B. Ward, Chair, National Public Safety Communications Council, to John Muleta, Chief, Wireless Telecommunications Bureau, Federal Communications Commission at 3 (NPSTC September 2004 *Ex Parte*).

[40] *See Seventh NPRM*, 20 FCC Rcd at 850 ¶ 41.

[41] *See* Comments of the National Public Safety Telecommunications Council, WT Docket No. 96-86 (filed May 27, 2005) (NPSTC Comments) at 8; Motorola Comments at 6-7.

[42] NPSTC Comments at 8.

[43] *Id*.

[44] Motorola Comments at 7.

[45] NPSTC Comments at 8.

[46] We have twenty-five years of experience with the regional planning process which was originally applied in the 800 MHz band. *See* Development and Implementation of a Public Safety National Plan and Amendment of Part 90 to Establish Service Rules and Technical Standards for the Use of the 821-824/866-869 MHz Bands by Public Safety Services, *Report and Order,* 3 FCC Rcd 905 (1987).

c. Digital Base Station ID

21. *Background*. Section 90.425(a) of the Commission's rules requires Public Safety Pool licensees to transmit their call signs at least every thirty minutes by voice or International Morse Code on an analog signal.[47] Section 90.647(c) provides an exception to this rule for 800 MHz and 900 MHz band licensees, who are permitted to transmit their call signs digitally, provided they "are licensed on an exclusive basis, and normally employ digital signals."[48] This exception was adopted in 1993, before the rules contemplated public safety operations in the 700 MHz band. Thus, the exception does not apply to 700 MHz narrowband licensees, who are thus not allowed to transmit their call signs digitally despite the fact that Section 90.535(a) generally requires them to employ digital modulation.[49] Since 2005, however, they have been allowed to transmit call signs digitally pursuant to a waiver, if licensed on an exclusive basis, and subject to the outcome of this proceeding.[50]

22. In the *Seventh NPRM*, the Commission sought comment on whether the digital station identification rules for the 800 MHz band should also apply to 700 MHz public safety operations.[51] The Commission noted that TIA-PRS had filed comments indicating "industry consensus" in favor of such a rule change.[52]

23. Commenters responding to the *Seventh NPRM* uniformly support allowing 700 MHz narrowband licensees to provide digital station identification.[53] NPSTC notes that it previously recommended this rule change in another proceeding and "reaffirm[s] that support here."[54] Motorola observes that the Commission has elsewhere supported digital station identification by licensees operating primarily in the digital mode.[55] Motorola also argues that requiring 700 MHz licensees to purchase and operate equipment that includes an analog mode or Morse Code capability "would unnecessarily raise the cost of equipment."[56]

24. *Discussion*. We agree with TIA-PRS and others that the Commission's rules should permit 700 MHz narrowband licensees to transmit their station identifications digitally when their transmitters normally operate in a digital mode. Given that we require all public safety 700 MHz narrowband transmitters, except for certain mobile and portable transmitters, to operate primarily using digital modulation, we find no basis to maintain the analog identification requirement.[57] We find that this decision will lead to reduced equipment costs for licensees.[58] Furthermore, licensees will benefit from

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[47] *See* 47 C.F.R. § 90.425.

[48] *See* 47 C.F.R. § 90.647(c).

[49] *See* 47 C.F.R. § 90.535(a). Mobile and portable transmitters may have analog modulation capability as a secondary mode to the primary digital mode. *Id*.

[50] *See* Motorola, Inc., *Order*, 20 FCC Rcd 16545 (WTB PSCID 2005).

[51] *See Seventh NPRM*, 20 FCC Rcd at 850 ¶ 41.

[52] *See* TIA-PRS October 2004 *Ex Parte* at 3.

[53] *See* NPSTC Comments at 7-8, Motorola Comments at 6-8.

[54] NPSTC Comments at 7-8 (*citing* NPSTC September 2004 *Ex Parte*).

[55] Motorola Comments at 7 *citing* Amendment of Parts 2 and 90 of the Commission's Rules to Provide for the Use of 200 Channels Outside the Designated Filing Areas in the 896-901 MHz and 935-940 MHz Bands Allotted to the Specialized Mobile Radio Pool, PR Docket No. 89-553, *Report and Order*, 8 FCC Rcd 1469, ¶¶ 48-49 (1993).

[56] Motorola Comments at 7.

[57] *See* 47 C.F.R. § 90.535(a).

[58] *See* Motorola Comments at 7.

our harmonizing the station identification requirements of the 700 MHz band with the 800 MHz band, because doing so will enhance manufacturers' ability to develop and offer dual-band radios.

d. Offset Frequency Values

25. *Background*. As noted previously, Section 90.543(a) of the Commission's rules contains the ACP tables indicating the maximum power a transmitter may radiate into adjacent bands.[59] The maximum permitted power decreases as spectral separation from the center frequency increases. The rule's tables also delineate the bandwidth over which the power limits must be measured at specific offsets from the center frequency. For instance, the first ACP measurement for a transmitter operating with a 12.5 kilohertz channel bandwidth is made at an offset of 9.375 kilohertz from the center frequency using a measurement bandwidth of 6.25 kilohertz.[60]

26. In comments filed in 2002, Nortel and EADS jointly proposed changing the offsets specified in these ACP tables.[61] Specifically, they proposed adjusting the first offset value for a 12.5 kilohertz bandwidth transmitter from 9.375 kilohertz to 9.55 kilohertz, and reducing the measurement bandwidth for this first offset from 6.25 kilohertz to 5.9 kilohertz.[62] Nortel/EADS asserted that these changes would permit use of more spectrally efficient technologies in the 700 MHz band.[63] They proposed similar changes to the 6.25 kilohertz and 25 kilohertz bandwidth tables, but proposed no specific values.[64] The Commission sought comment on these proposals in the *Seventh NPRM*, asking whether the change proposed by Nortel/EADS would promote the use of spectrally efficient technology without increasing interference potential, and whether similar changes should be made to the first offset in the 6.25 kilohertz and 25 kilohertz bandwidth tables.[65]

27. Commenters are divided on this proposal. M/A-COM asserts that the adjustment proposed by Nortel/EADS would result in a 1 dB improvement in link budget performance, thereby increasing the radius of a service area by seven percent.[66] EADS contends that the typical receiver filter for a Project 25 receiver will provide "significant attenuation to the interfering signal," implying that a Project 25 receiver will not be hampered by the increase in adjacent channel interference resulting from the recommended measurement changes.[67] On the other hand, Motorola opposes Nortel/EADS's proposed changes on the grounds that the existing ACP values and measurement procedures were developed within the TIA based on industry consensus.[68] Motorola observes that the "relaxation sought by Nortel/EADS … was considered by the TIA and rejected … because it reduces adjacent channel protection."[69]

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[59] 47 C.F.R. § 90.543. *See also supra* ¶ 10.

[60] *See* 47 C.F.R. § 90.543(a).

[61] *See* Joint Comments of Nortel Networks Inc. and EADS Telecom North America to *Sixth Notice of Proposed Rule Making*, WT Docket No. 96-86 (filed Dec. 9, 2002) (Nortel/EADS Joint Comments).

[62] *Id*. at 3.

[63] *Id*. at 2-3.

[64] *Id*. at 2 note 5.

[65] *See Seventh NPRM*, 20 FCC Rcd at 851 ¶ 47.

[66] *See* Comments of M/A-COM, Inc., WT Docket No. 96-86 (filed May 31, 2005) (M/A-COM Comments) at 4.

[67] *See* Reply Comments of EADS Public Safety, Inc., WT Docket No. 96-86 (filed June 13, 2005) (EADS Reply Comments) at 6.

[68] Motorola Comments at 9.

[69] *Id*.

28. *Discussion.* We do not believe that the record supports relaxing the ACP standards as recommended by Nortel and EADS. In declining the Nortel/EADS recommendations, we give weight to the fact that the current ACP measurement procedures in the Rules were developed through the TIA standards setting process by consensus among industry experts,[70]and that the changes recommended by Nortel and EADS were considered but not adopted during the standards setting process.[71] Should a similar industry consensus develop in the future, proposing changes in line with those proposed by Nortel/EADS, we will consider revising the ACP measurement procedures.[72] Until then, however, we retain the ACP offset values and measurement procedures, because there is insufficient record evidence (a) that Nortel/EADS proposed changes could be implemented without increasing the potential for adjacent channel interference, and (b) that the changes are necessary to achieve greater spectrum efficiency in the band.[73]

e. Trunking Rule Clarification

29. *Background*. The Commission established trunking requirements for narrowband systems in the 700 MHz band in order to ensure efficient use of the spectrum.[74] Section 90.537 of the Commission's rules codifies this requirement to specify that all systems using six or more narrowband General Use channels must operate in the trunked mode.[75]

30. In the *Seventh NPRM*, the Commission noted that the original version of Section 90.537 included the State Channels and specifically exempted the low power channels from the trunking requirements, but that these provisions of the rule were removed in a subsequent update of the rule.[76] The Commission believed that these changes to Section 90.537 were unintentional.[77] Therefore, it proposed to

[70] We note that Nortel/EADS is a member of TIA "and a participant in the TIA TR8 Mobile and Personal Private Radio Standard subcommittee." Nortel/EADS Joint Comments at 2.

[71] Motorola claims the change sought by Nortel/EADS "was considered by the TIA and rejected by a majority of the participants." *Id*. Nortel/EADS, however, states that "a majority of TIA members (7) voted in favor of adopting the modified ACP requirement" but that the "TIA did not move the proposal forward." Nortel/EADS Joint Comments at note 8.

[72] We note that Nortel "agrees with Motorola's suggestion that development of ACCP levels is an activity best achieved in a standards setting body such as the Telecommunications Industry Association (TIA) rather than a regulatory body such as the Commission." *Ex Parte* Comments of Northern Telecom Inc., WT Docket No. 96-86 (filed Mar. 30, 1999).

[73] Nortel/EADS Joint Comments at 2, citing "spectrally efficient," but otherwise unidentified, two-slot TDMA "technologies for deployment in the 700 MHz band" that could be accommodated with Nortel/EADS' proposed changes.

[74] *See First Report & Order*, 14 FCC Rcd at 211 ¶ 131. A trunked system uses multiple channel pairs in conjunction with a computer which automatically assigns a user the first available channel or places the user in a queue to be served in turn. By permitting idle channels to be assigned on an as-needed basis, a trunked system can increase the utilization of radio channels. Trunking ensures highly efficient use of available radio spectrum and virtually eliminates the delay traditionally experienced when trying to obtain a clear radio channel using a non-trunked system.

[75] 47 C.F.R. § 90.537(a).

[76] *See Seventh NPRM*, 20 FCC Rcd at 861 ¶¶ 76-78. The deletions occurred in the *Fourth Report and Order and Fifth Notice of Proposed Rulemaking* in this docket, when the Commission updated Section 90.537 to permit trunking on certain interoperability channels. *See* Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Agency Communications Requirements Through the Year 2010, WT Docket No. 96-86, *Fourth Report and Order and Fifth Notice of Proposed Rulemaking*, 16 FCC Rcd 2020, 2036-37 ¶ 45 and 2070 (2001).

[77] *See Seventh NPRM*, 20 FCC Rcd at 861 ¶¶ 77-78.

restore these provisions to clarify that: (1) State License channels are subject to the trunking requirements and (2) low power channels are exempt from the trunking requirements.[78] Commenters uniformly support this proposal.[79]

31. *Discussion*. We restore the original provisions in Section 90.537 to make clear that the trunking requirements set forth therein apply to the State License channels and that low power channels are exempt from the trunking requirements. Commenters agree the restoration of trunking requirements for State License channels will promote efficient use of the radio spectrum while an exemption for the low power channels is appropriate.[80]

2. NCC Recommendations

32. The National Coordination Committee (NCC) was established by the Commission pursuant to the Federal Advisory Committee Act for the purpose of addressing and advising the Commission on the operational and technical parameters for use of the 700 MHz band. The NCC made a set of recommendations to the Commission prior to and in its 2003 Final Report,[81] and the Commission sought comment on these recommendations in the *Seventh NPRM*.[82] We act on these recommendations as discussed below.[83]

a. 700 MHz System Design Parameters

33. *Background*. In May 2003, prior to its Final Report, the National Coordination Committee (NCC) recommended that system planners design 700 MHz public safety systems so that the minimum signal at the edge of the operational area is no less than 40 dBμ/V (forty decibels above one microvolt per meter).[84] For systems operating in "unfavorable interference environments" or requiring in-building coverage, the NCC recommended the minimum coverage design criterion be a signal ten times stronger, *i.e.*, 50 dBμ/V.[85] The NCC also suggested that system designers follow the procedures set out in TIA Technical Services Bulletin No. 88 (TSB-88) when considering co-channel and adjacent channel assignments.[86] The NCC did not recommend codification of the foregoing recommendations or standards but instead sought only to make designers aware that systems designed to lesser criteria might be vulnerable to harmful interference.[87]

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[78] *Id.*

[79] M/A-COM supports a trunking requirement for narrowband State License channels because it "would further its objective of promoting efficient use of the radio spectrum." M/A-COM Comments at 9-10. M/A-COM also asserts there was "no basis for removing the low-power channel trunking exemption in Section 90.537," and therefore M/A-COM "supports the Commission's proposal to reinsert the exemption language into the rule." *Id*. at 10. Motorola supports the proposal to exempt low power channels available under Section 90.531(b)(4) from trunking requirements. Motorola Comments at 13. Motorola argues that "the use of trunking will limit the flexibility and utility of these channels." *Id*.

[80] *Id.*

[81] *See* NCC Final Report. *See also supra* note 2.

[82] *See Seventh NPRM* 851-860 at ¶¶ 48-75.

[83] We delayed final action on the NCC recommendations because many of the NCC recommendations involved the wideband channels which the Commission later removed from the band. *See supra* ¶¶ 5, 9.

[84] NCC May 2003 Letter at 3. *See also supra* note 2. For the purposes of this recommendation, the operational area is the jurisdictional area plus three miles in rural areas, and the jurisdictional area plus five miles in urban areas.

[85] NCC May 2003 Letter at 3.

[86] *Id*.

[87] *Id*.

34. In the *Seventh NPRM*, the Commission indicated its view that specific design parameters are best left to licensees, but agreed with the NCC that recognizing (without codifying) certain general system design parameters might be beneficial.[88] Accordingly, the Commission sought comment on whether and to what extent it should promote use of NCC-recommended design parameters for the 700 MHz public safety band.[89]

35. Motorola agrees with the Commission's tentative conclusion not to codify the NCC recommended design criteria but recommends that we cite the NCC recommended design parameters on our web site.[90] Region 8 contends that "it is not within the purview of the Commission to set recommended practices regarding the deployment of public safety systems," asserting that we should instead "leave such recommendation to other bodies such as the frequency coordinators, and the Telecommunication Industry Association (TIA)."[91]

36. *Discussion*. We affirm the Commission's earlier-stated position that specific system design parameters for 700 MHz narrowband systems are best left to licensees, and we refrain from mandating adherence to the NCC's system design parameters. However, we find that Motorola's proposal to cite the NCC recommended design parameters on our web site has merit. Although many system designers are already aware of these technical specifications, we instruct the Bureau to post the NCC recommended design parameters on its website as convenient reference tools for public safety system designers.

b. Encryption Standard

37. *Background*. Section 90.553 of the Commission's rules permits licensees in the 700 MHz band to encrypt communications on any narrowband channel in the band except the two nationwide calling channels.[92] The rule further states that if licensees employ encryption they should use the Project 25 Digital Encryption Standard (DES) protocol as the encryption standard.[93]

38. In its Report, the NCC contended that the DES standard "has been compromised and no longer is suitable for encrypting sensitive public safety communications."[94] Accordingly, the NCC recommended that the Commission update its rules to reference the Annex C-Advanced Encryption Standard (AES) approved by TIA in June 2002.[95] In the *Seventh NPRM*, the Commission "agree[d] with the NCC that our rules should reflect the latest standard."[96] Consequently, it tentatively concluded that it would update Section 90.553 to incorporate the AES standard by reference, as proposed by the NCC, and sought comment on this tentative conclusion.[97]

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[88] *Seventh NPRM*, 20 FCC Rcd at 856 ¶ 63.

[89] *Id*.

[90] Motorola Comments at 12.

[91] Comments of the FCC Region 8 700 and 800 MHz Regional Planning Committees, WT Docket No. 96-86 (filed May 27, 2005) (Region 8 Comments) at 6.

[92] 47 C.F.R. § 90.553(a).

[93] 47 C.F.R. § 90.553(b).

[94] NCC Final Report at 6.

[95] Telecommunications Industry Association, ANSI/TIA/EIA-102.AAAD-2002, Annex C-Advanced Encryption Standard. TIA-PRS also recommends updating the encryption rule to reference the AES standard. *See* TIA-PRS October 2004 *Ex Parte* at 2.

[96] *See Seventh NPRM*, 20 FCC Rcd at 854 ¶ 56.

[97] *Id.*

39. Motorola and New York State support updating the 700 MHz rules to incorporate the most current encryption standard.[98] Motorola observes that an industry consensus has adopted the AES standard and that it has been tested successfully in the field.[99] No commenting party presented an alternative standard that could be implemented into existing equipment designs.

40. *Discussion*. We agree with the NCC, Motorola, and New York State that Section 90.553 should reference the latest encryption standard for secure communications of sensitive information on 700 MHz narrowband channels. Our decision to update Section 90.553 will benefit licensees because the current rule section references an outdated encryption standard.[100] Moreover, because radio manufacturers have already adopted AES as an encryption standard and have successfully tested it in the field,[101] we conclude that our decision to update Section 90.553(b) to reflect this standard for radios manufactured after the effective date of this order should not cause manufacturers or licensees to incur additional costs. Accordingly, we amend Section 90.553(b) to incorporate the AES standard by reference. Until 2030, we permit new radios to include DES, in addition to but not in place of AES. Continuing to include DES during this transitional period will promote compatibility with legacy radios that lack AES capability, until all such legacy radios reach the end of their useful life.[102] Also, to accommodate future updates of the encryption standard, we delegate rulemaking authority to the Chief of the Bureau to address such future updates in Section 90.553 of the rules, to the extent the Bureau considers appropriate.

c. Technical Standards Referenced in Section 90.548

41. *Background*. The Commission's rules require transmitters designed to operate on the narrowband spectrum in the 700 MHz band to meet certain technical standards established by TIA when operating on the interoperability channels and to satisfy certain frequency stability requirements when operating on any narrowband channel in the band.[103] Section 90.548 codifies the interoperability standards,[104] and Section 90.539 sets forth the frequency stability requirements.[105]

42. The NCC stated that the 1998 standard for automatic frequency control currently referenced in Section 90.548 (ANSI/TIA/EIA-102.BAAA-1998) fails to meet the frequency stability requirements set forth in Section 90.539.[106] Consequently, the NCC recommended that Section 90.548

[98] *See* Motorola Comments at 12; Comments of the New York State Office for Technology Statewide Wireless Network, WT Docket No. 96-86 (filed May 20, 2005) (New York State Comments) at 3.

[99] *See* Motorola Comments at 12.

[100] NCC Final Report at 6.

[101] *See* Motorola Comments at 12.

[102] Both of these algorithms are now published in ANSI/TIA/EIA-102.AAAD-A – Project 25 Digital Land Mobile Radio – Block Encryption Protocol (August 2009). We will make copies of this document available to the public consistent with Section 90.553(c) of our rules. 47 C.F.R. § 90.553(c). The 2009 version of the AES algorithm is unchanged from the 2002 version. We note that this 2009 document also includes the Triple Data Encryption Algorithm (TDEA), which applies the DES algorithm currently codified in our rules three times, thereby increasing the encryption key size (and resulting security) without inventing a new algorithm. Our new rule will also permit (but not require) new radios to use this updated version of DES during the foregoing transitional period (in addition to and not in place of AES), for the same purposes of compatibility with legacy radios.

[103] *See Fourth Report and Order*, 16 FCC Rcd 2020, 2070 Appendix C ¶ 8; *First Report and Order*, 14 FCC Rcd at 214-15 ¶ 139.

[104] 47 C.F.R. § 90.548.

[105] 47 C.F.R. § 90.539. Frequency stability is an equipment design parameter that affects adjacent channel interference, and can thus impact efficient use of the spectrum. *See First Report and Order*, 14 FCC Rcd at 214-15 ¶ 139.

[106] NCC Final Report at 5.

should instead reference the 2003 revised TIA standard (ANSI/TIA/EIA-102.BAAA-A-2003,[107] which now specifies a frequency stability that comports with our rules.[108] TIA-PRS also states that it has revised or updated several additional standards referenced in Section 90.548 and that the Commission should update these references as well.[109]

43. In the *Seventh NPRM*, the Commission tentatively concluded that it would amend Section 90.548 to incorporate by reference several revised technical standards for transmitters operating on 700 MHz narrowband interoperability channels, and it sought comment on this tentative conclusion.[110] Motorola, NPSTC, and New York State support modification of Section 90.548 to adopt the most current TIA standards.[111] Motorola and NPSTC also urge the Commission to grandfather existing equipment, given that these standards are backward compatible.[112]

44. *Discussion*. We agree with the NCC and others that Section 90.548 should reference the latest TIA standards in order to keep our rules up to date and to maintain internal consistency between the technical standards listed in Section 90.548 and the frequency stability requirements detailed in Section 90.539. Therefore, we amend Section 90.548 accordingly. Moreover, the updated TIA standards are backward compatible,[113] so equipment certified under the new standards will be compatible with devices built according to the old standards. Consequently, we grandfather existing equipment certified under the old standards, thus obviating the need for manufacturers to recertify equipment previously approved. Nonetheless, we will require new equipment to comply with the updated standards upon the effective date of the revisions we adopt to Section 90.548.

d. Display Labeling (Nomenclature)

45. *Background*. The NCC recommended that the Commission require mobile units certified for use under Part 90 to be capable of displaying standardized interoperability channel labels alphanumerically if the radios are equipped with alphanumeric displays.[114] Specifically, the NCC proposed a list of channel names for interoperability spectrum in the public safety bands below 900 MHz.

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[107] Project 25 FDMA Common Air Interface—New Technology Standards Project—Digital Radio Technology Standards, Telecommunications Industry Association, ANSI/TIA/EIA-102.BAAA-A-2003, Project 25 Vocoder Description.

[108] NCC Final Report at 5.

[109] *See* TIA-PRS October 2004 *Ex Parte* at 1-2, referencing (1) Project 25 FDMA Common Air Interface, ANSI/TIA/EIA-102.BAAA-A-2003 (Revision A published September 2003); (2) Project 25 Vocoder Description ANSI/TIA/EIA-102.BABA-2003 (reaffirmed December 2003); (3) Project 25 Data Overview-New Technology Standards Project-Digital Radio Technical Standards ANSI/TIA/EIA-102.BAEA-A-2004 (revised June 2004); and (4) Project 25 Radio Management Protocol ANSI/TIA/EIA-102.BAEE-A-2004 (renamed and revised June 2004 replacing Radio Control Protocol (RCP) - New Technology Standards Project – Digital Radio Technical Standards ANSI/TIA/EIA-102.BAEE-2000). Additionally, TIA-PRS updated the following standard after their comments were filed: Project 25 Packet Data Specification, ANSI/TIA/EIA-102.BAEB-A (adopted March 2005); Project 25 Radio Management Protocols—New Technology Standards Project—Digital Radio Technical Standards, Telecommunications Industry Association, ANSI/TIA/EIA-102.BAEE-B-2010 (adopted May 2010); Project 25 Data Overview—New Technology Standards Project—Digital Radio Technical Standards, Telecommunications Industry Association, ANSI/TIA/EIA-102.BAEA-B-2012 (adopted June, 2012).

[110] *See Seventh NPRM*, 20 FCC Rcd at 854 ¶ 55.

[111] Motorola Comments at 11; NPSTC Comments at 7; New York State Comments at 5.

[112] Motorola Comments at 11; NPSTC Comments at 7.

[113] *See* TIA website at http://www.tiaonline.org/standards/technology/project_25/.

[114] NCC Final Report at 4 and Attachment. The Attachment is a chart designating a unique name for each public safety interoperability frequency.

The NCC asserted that adoption of these rules would allow for the establishment of a nationally standardized format for identifying interoperability channels.[115]

46. In the *Seventh NPRM*, the Commission noted that it had previously declined to codify requirements for channel labeling and tentatively concluded that it should not overturn its earlier decision.[116] While acknowledging the importance of common nomenclature, the Commission stated that it did not have the expertise to tell public safety licensees what radio channel nomenclature to use, particularly in critical tactical situations.[117]

47. NPSTC argues that while this issue "may appear to be an operational issue outside the responsibility of the Commission, it is an issue that the Commission can address through the type certification process."[118] Other commenters also urge the Commission to mandate standardized channel nomenclature.[119]

48. *Discussion*. We decline to mandate a channel nomenclature listing for interoperability channels largely for the same reasons the Commission has declined to do so in the past.[120] We observe that after it submitted comments on this matter, NPSTC produced a Channel Naming Report which "is currently in the process of becoming a standard within the American National Standards Institute (ANSI) process."[121] Given this development and after carefully considering the record, we find no need to adopt a separate standard channel nomenclature. Nonetheless, we do recommend that the public safety community follow the latest ANSI-approved channel nomenclature standard wherever possible, and as made publicly available on the Internet.[122]

e. State Interoperability Executive Committees (SIECs)

(i) Committee Designation and Composition

49. *Background*. The NCC suggested that the Commission refer to the committees that administer 700 MHz interoperability channels in certain states as "Statewide Interoperability Executive Committees" rather than "State Interoperability Executive Committees."[123] According to the NCC, use of the term "State" incorrectly implies that there is no role for county and local governments in the process

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[115] *Id*.

[116] *See Seventh NPRM*, 20 FCC Rcd at 856 ¶ 60.

[117] *Id*.

[118] NPSTC Comments at 9.

[119] *See* New York State Comments at 5; Comments of the FCC Region 8 700 and 800 MHz Regional Planning Committees, WT Docket No. 96-86 (filed May 27, 2005) (Region 8 Comments) at 6; Comments of the Missouri State Highway Patrol, WT Docket No. 96-86 (filed May 27, 2005) (Missouri State Highway Patrol Comments) at 9.

[120] *See supra* note 116.

[121] http://www.npstc.org/channelNaming.jsp (last revised Jun 15, 2009). *See also* http://apcointl.org/new/commcenter911/documents/APCO-NPSTC-ANS1-104-1web.pdf (approved Jun 9, 2010 by ANSI).

[122] *Id*.

[123] NCC Final Report at 4. When the NCC first proposed the SIEC concept, it envisioned that all levels of government would participate in the development and administration of the interoperability channels, including both the technical and operational parameters. *See* Public Safety National Coordination Committee, Recommendations to the Federal Communications Commission for Technical and Operational Standards for Use of the 764-776 MHz and 794-806 MHz Public Safety Band Pending Development of Final Rules, dated Feb. 25, 2000, Appendix E at 1 (NCC February 2000 Report).

of administering the interoperability channels.[124] The NCC also recommended that the Commission clarify that such committees must be broadly representative of all potential users within the state.[125]

50. In the *Seventh NPRM*, the Commission tentatively concluded that no action is required on this issue because the term "State Interoperability Executive Committee" (SIEC) does not appear in the Commission's rules.[126] On the broader issue of committee composition, the Commission noted that it had empowered states to administer the interoperability channels "given the central role they play in managing large-scale emergencies and their enhanced ability to coordinate with the Federal Government."[127] However, the Commission observed that while the rules provide for state-level administration of the interoperability channels,[128] the Commission "would expect states to look favorably, whenever possible, on applications for Interoperability channels from any eligible public safety user (*e.g.*, county and local government entities) within the state."[129]

51. Some commenters urge the Commission to reverse its tentative conclusion on this issue. New York State argues that SIECs "should have a statewide all-inclusive nature."[130] Region 8 contends "[d]ue to the increased need to marshal resources in times of emergency to large geographic or urban areas, . . . there is indeed a statewide character to the SIEC."[131] The Missouri State Highway Patrol asserts that the revision in terminology "was intended to address an issue where in several states, SIEC's have become a body that is controlled by state government, rather than administered by the state, which was the Commission[']s original intent."[132]

52. *Discussion*. We see no reason to alter the role of states or state committees in administering 700 MHz interoperability channels as provided under our current rules. We have no evidence that county or local governments have been hampered by the existing process. We reiterate, however, our expectation that states look favorably, whenever possible, on applications for interoperability channels from all eligible public safety users, including county and local government entities, within the state. We likewise encourage states to include the pertinent Regional Planning Committee (RPC) in forming interoperability plans.[133] The rules require RPCs to represent all eligible public safety licensees in order to ensure that each agency's future spectrum needs are considered in the allocation process.[134] We note that many SIECs and RPCs are already participating in each other's meetings to increase the effectiveness of interoperability planning.[135]

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[124] NCC Final Report at 4.

[125] *Id*.

[126] *See Seventh NPRM*, 20 FCC Rcd at 857 ¶ 64.

[127] *Id.* at 857 ¶ 65.

[128] *See* 47 C.F.R. § 90.525.

[129] *See Seventh NPRM*, 20 FCC Rcd at 857 ¶ 65.

[130] New York State Comments at 6.

[131] Region 8 Comments at 7.

[132] *See* Missouri State Highway Patrol Comments at 11.

[133] *See Fourth Report and Order*, FCC Rcd 2027 ¶ 16.

[134] *See* 47 C.F.R. § 90.527.

[135] *See, e.g.*, http://www.siec.id.gov/meetings/agenda.htm (Idaho SIEC March 23, 2006 agenda includes update of 700 MHz Regional Planning efforts); Region 8 (New York – Metropolitan Area) Public Safety Planning Committees to Hold 700 MHz Regional Public Safety Planning Meeting and NPSPAC 800 MHz Regional Public Safety Planning Meeting, Gen. Docket. No. 88-476, *Public Notice*, 20 FCC Rcd 20567 (WTB PSCID 2005) (agenda including review of SIEC Report).

(ii) Mandating Formation of SIECs

53. *Background*. The NCC recommended that, for homeland security purposes, the Commission should require each state to: (1) have an identified point of contact for information on the state's interoperability capabilities, (2) be given jurisdiction over all interoperability channels regardless of band (*i.e.,* 150, 450, 700 and 800 MHz), and (3) have an interoperability plan that is available to adjacent states and the Federal Government, and updated at least every three years.[136] The NCC recommended that the Commission require each state to create an interoperability plan and file it with the Commission, update the plan whenever substantive changes are made or, in any event, at least every three years, and store the plan in an electronic database accessible by authorized officials.[137]

54. In the *Seventh NPRM*, the Commission tentatively concluded that it would not require states to create SIECs, and by extension, would not grant these entities jurisdiction over all public safety bands.[138] In arriving at this tentative conclusion, the Commission reiterated its earlier-stated position that states, rather than the Commission, are best suited to determine how to manage their resources in the most efficient, effective and expeditious manner.[139] While the Commission agreed with the NCC that states should have a periodically updated interoperability plan that is available to other entities, including adjacent states and the Federal Government, it concluded that a Commission-mandated plan could be repetitive or potentially counterproductive relative to other ongoing Federal efforts concerning interoperability and Homeland Security initiatives.[140]

55. Wisconsin asserts that each state should have an SIEC and a state interoperability plan.[141] Wisconsin supports "an extension of the SIEC's authority to include administration of all interoperability channels."[142] Wisconsin also contends that "a certain amount of control is necessary in order to minimize interference and facilitate a seamless, coordinated interoperability communications capability."[143] Region 8 argues that the jurisdictional reach of SIECs should be considered due to the increased roles that SIECs play in Homeland Security.[144] Region 8 asserts that its "ability to respond to crisis requires the SIEC to have an expanded role and therefore necessitates their jurisdiction over interoperability channels."[145]

56. *Discussion*. We adopt our tentative conclusion on this matter and retain our existing rules. Although we encourage use of SIECs, we will not require states to establish SIECs, nor will we extend SIEC jurisdiction to interoperability channels in all public safety bands. Our rules afford each state the flexibility to determine how best to administer the 700 MHz interoperability channels. In this regard, states have established various mechanisms for administering the interoperability spectrum within their jurisdictions. Many states have established SIECs,[146] while some states have established alternative

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[136] NCC Final Report at 5.

[137] *Id*.

[138] *See Seventh NPRM*, 20 FCC Rcd at 858 ¶ 68.

[139] *Id*. at 858 ¶ 67.

[140] *See id*. at 858 ¶ 68.

[141] State of Wisconsin Brief Comment, WT Docket No. 96-86 (filed May 19, 2005) (Wisconsin Comments) at 1.

[142] *Id*.

[143] *Id*.

[144] Region 8 Comments at 7.

[145] *Id*.

[146] *See* Public Safety 700 MHz Band - Interoperability Spectrum Announcement of Administration Decisions, WT Docket No. 96-86, *Public Notice*, 17 FCC Rcd at 15694 (WTB 2002) (*SIEC PN*). An updated list of SIEC contacts is maintained at: http://transition.fcc.gov/pshs/public-safety-spectrum/700-MHz/interoperability.html.

mechanisms or have designated the relevant 700 MHz RPC to perform these functions.[147] Absent any evidence that the current system of administering interoperability channels is deficient, we conclude there is no benefit to mandating that every state form a SIEC. Moreover, adding new requirements in this area would be counterproductive, duplicative of other interoperability and Homeland Security initiatives,[148] and overly burdensome to states.[149]

57. We also decline to require the creation of an electronic database of interoperability plans. We encourage SIECs and similar state entities, as well as RPCs, to provide periodic updates to adjacent states, the Federal Government, and other entities regarding changes to their interoperability plans.[150] These entities may also explore the possibility of creating an electronic database as a means to access interoperability plans. Access to interoperability plans can be obtained from existing 700 MHz interoperability spectrum administration points of contact, a list of whom is available on the Bureau's web site.[151] Finally, we note that the Clearinghouse section of the Bureau's website contains links to several state interoperability plans, and other states are free to make their interoperability plans available.[152]

f. Regional Planning

(i) Mandatory Use of Pre-Coordination Database

58. *Background*. In its 2003 Final Report, the NCC urged the Commission to require RPCs to use the Computer Assisted Pre-Coordination Resource and Database System (CAPRAD)[153] in the regional planning process.[154] In the *Seventh NPRM*, the Commission agreed that a pre-coordination database can be a very valuable planning tool, but noted that neither the States nor the RPCs had endorsed such a mandate and that it was unclear how such a database would be used in connection with Interoperability and State Channels. The Commission also questioned the need for a mandate, since the

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[147] *Id*.

[148] We observe that the Office of Emergency Communications within the Department of Homeland Security is authorized to "review, in consultation with the Assistant Secretary for Grants and Training, all interoperable emergency communications plans of Federal, State, local, and tribal governments, including Statewide and tactical interoperability plans, developed pursuant to homeland security assistance administered by the Department, but excluding spectrum allocation and management related to such plans." 6 U.S.C. § 571(c)(12). DHS may prohibit any State, local, or tribal government from using homeland security assistance administered by the DHS "to achieve, maintain, or enhance emergency communications capabilities, if such government has not complied with the requirement to submit a Statewide Interoperable Communications Plan" as required by the Intelligence Reform Act of 2004. 6 U.S.C. § 574 (b)(1); 6 U.S.C. § 194(f).

[149] *See Seventh NPRM*, 20 FCC Rcd at 858 ¶ 68.

[150] We observe that NPSTC has developed a National Interoperability Information eXchange (NIIX) database, which is a free, secure online tool available to public safety agencies for sharing, posting, and reviewing Statewide Communications Interoperability Plan (SCIP) plans and other valuable documents. *See* http://www.npstc.org/documents/NIIXBrochureFINAL.pdf.

[151] *See* http://www.fcc.gov/pshs/public-safety-spectrum/700-MHz/interoperability.html.

[152] *See* http://publicsafety.fcc.gov/pshs/clearinghouse/index.htm?section=Interoperability%20Plans. Parties may submit documents (such as state interoperability plans) to the Bureau's Clearinghouse for inclusion on the website by following the instructions at http://publicsafety.fcc.gov/pshs/clearinghouse/index.htm.

[153] Computer-Assisted Pre-coordination Resource and Database System (CAPRAD) is administered by the National Law Enforcement and Corrections Technology Center-Rocky Mountain Region (NLECTC-RM). The NLECTC-RM is a program of the National Institute of Justice, a division of the U.S. Department of Justice, and is sponsored by the University of Denver through the Denver Research Institute. The CAPRAD system is available at http://caprad.nlectc.du.edu/cp/index.jsp.

[154] *See* NCC Final Report at 6.

four coordinators certified to coordinate 700 MHz public safety spectrum had already committed to use the CAPRAD database.[155] Nonetheless, the Commission sought comment on the NCC's recommendation.[156]

59. The Missouri State Highway Patrol supports mandatory use of CAPRAD on the grounds that such use "is essential to the continuation and development of the regional planning resources and conclusions that resulted from the NCC process."[157] It argues that "[t]he requirement for a region to post their current plans on CAPRAD is no real burden to a region and will make a region's plans available to a wider audience than exists currently."[158] Wisconsin also supports the required use of a national pre-coordination database and contends that CAPRAD is "useful to track the use of state and interoperability channels."[159]

60. *Discussion*. When the Commission established the 700 MHz regional planning process, it stated that the Commission's role relative to the RPCs would be limited.[160] In the PLMR bands below 512 MHz, the Commission left it to the coordinators to select a database to make frequency selections rather than mandate a particular database.[161] We see no reason to depart from the Commission's established practice of permitting RPCs to adopt their own approaches to such operational questions and decline to mandate use of a pre-coordination database, such as CAPRAD. Although we encourage use of CAPRAD, and note that many RPCs are already using it,[162] we believe that decisions regarding database use for regional planning purposes should be left to the RPCs.

(ii) Regional Planning Process

61. *Background*. Currently, the Public Safety and Homeland Security Bureau (Bureau) reviews and approves all proposed 700 MHz Regional Plans and plan amendments. As part of the review process, the Bureau places proposed plans and amendments on public notice for comment. The Bureau also notifies the public following the approval process by issuing a public notice announcing approval of plans and amendments.[163]

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[155] *See Seventh NPRM*, 20 FCC Rcd at 858-59 ¶ 70 & n.164. *See* Letter from the Public Safety Communications Council (PSCC), Al Mello, Chairman, to Marilyn Ward, Chairperson, National Public Safety Telecommunications Council (dated May 24, 2001). The PSCC letter states that the four FCC-certified public safety frequency coordinators (American Association of State Highway and Transportation Officials (AASHTO), APCO, Forestry Conservation Communications Association (FCCA) and the International Municipal Signal Association (IMSA)/ International Association of Fire Chiefs (IAFC)) are committed to using the CAPRAD pre-coordination database.

[156] *See Seventh NPRM*, 20 FCC Rcd at 859 ¶ 70.

[157] Missouri State Highway Patrol Comments at 12.

[158] *Id*.

[159] Wisconsin Comments at 1.

[160] The Commission's role in relation to the RPCs is limited to (1) defining the regional boundaries; (2) requiring fair and open procedures, *i.e.*, requiring notice, opportunity for comment, and reasonable consideration; (3) specifying the elements that all regional plans must include; and (4) reviewing and accepting proposed plans (or amendments to approved plans) or rejecting them with an explanation. *See First Report & Order*, 14 FCC Rcd at 193-95 ¶ 87.

[161] *See* Frequency Coordination in the Private Land Mobile Radio Services, *Report and Order*, 103 FCC 2d 1093 (1986).

[162] For example, the Region 3 channel allocation plan, which we approved in November 2006 was developed using CAPRAD. Public Safety and Homeland Security Bureau Action Approval of Region 3 (Arizona) 700 MHz Regional Plan, *Public Notice*, DA 06-2364 n. 11 (PSHSB 2006).

[163] Modification to Regional Plans must be submitted in writing to Commission staff. *See* 47 C.F.R. § 90.527(b).

62. In its 2003 Final Report, the NCC recommended streamlining the process for approval of amendments to 700 MHz Regional Plans.[164] It suggested that 700 MHz RPCs be permitted to make minor changes to Regional Plans without prior approval.[165] For major amendments, the NCC suggested that such changes be deemed automatically approved if no comment is received within thirty days of a public notice announcing the proposed amendments.[166] Finally, the NCC proposed permitting RPCs to change committee members without prior approval, provided such changes are served on adjacent regions.[167] The Commission sought comment on these recommendations in the *Seventh NPRM*.[168]

63. Region 8 generally supports streamlining the procedures for minor plan amendments although it also urges the Commission to solicit input from the regional planning community on what type of changes require "involvement from the FCC or adjacent Regions."[169] Wisconsin also supports the NCC recommendation that minor plan amendments be made without prior Commission approval.[170] No other commenting parties address regional planning issues.

64. *Discussion*. We modify our internal process for staff review of amendments to Regional Plans as suggested by the NCC and supported by the commenters. We agree with the NCC and commenters that the changes suggested by the NCC will streamline the regional plan approval process. Additionally, these changes should reduce delays in licensing public safety systems as well as burdens on Commission staff.

65. First, Bureau staff will no longer place minor amendments to Regional Plans on public notice for comment. Staff will simply acknowledge receipt of the amendment by email. Amendments will be considered minor if, as suggested by the NCC, the amendment only involves changes to the channel allotments and (a) the proposed channel change or channel addition involves a facility that is located more than seventy miles from the adjacent region border, (b) the co-channel or adjacent channel interference contour of the facility changing or adding the channel does not intersect the border of an adjacent region, or (c) the proposed channel change or channel addition has been coordinated in writing with any affected adjacent region.

66. Second, we agree with the NCC that Bureau staff should continue to provide advance notice via public notice of major amendments involving changes in the way channels are allocated, allotted or coordinated. Consistent with the NCC proposal, however, Bureau staff will now approve any major amendment without further action if no party raises any objection during a short commenting period.

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[164] NCC Final Report at 6-7. *See also* 47 C.F.R. § 90.527 (detailing the requirements for each regional plan).

[165] NCC Final Report at 7. The NCC considers a change minor if: (a) the proposed channel change or channel addition involves a facility that would be more than seventy miles from the adjacent region border; (b) the co-channel or adjacent channel interference contour of the changed or added channel does not intersect the border of an adjacent region; or, (c) any adjacent region affected by the proposed channel change or channel addition has concurred in writing.

[166] *Id.* The NCC considers a change major if it impacts the way frequencies are allocated, allotted or coordinated.

[167] *Id.*

[168] *See Seventh NPRM*, 20 FCC Rcd at 860 ¶¶ 72-75.

[169] Region 8 Comments at 7-8.

[170] Wisconsin Comments at 1.

67. Third, Bureau staff has always considered changes in RPC membership or leadership positions as administrative in nature and will continue to accept these changes without placing them on Public Notice for comment.[171]

68. Consequently, we amend Section 90.527(b) of our rules to define major and minor modifications and note that staff will only place major modifications on public notice unless otherwise requested by the RPC. Nonetheless, we emphasize that, although we adopt the NCC's proposals to streamline our process for internal review of regional plan modifications, RPCs shall continue to notify the Bureau and adjacent regions of any proposed modification to their Commission-approved regional plan as required under Section 90.527(b) of our rules.[172] This requirement ensures transparency and integrity in the regional planning process.[173]

69. Finally, on our own motion, we update Section 90.527(b) of the rules to replace the phrase "Wireless Telecommunications Bureau" with "Public Safety and Homeland Security Bureau." This amendment (1) comports with the purpose and functions of the Bureau,[174] (2) more accurately reflects that the Bureau, not WTB, approves regional plans and plan modifications consistent with its delegated authority under Sections 0.191(f) and 0.392 of the rules,[175] and (3) is otherwise ministerial in nature.[176]

B. Guard Band Spectrum

1. ACP Limits for Guard Band Base Station Transmitters

70. *Background*. Section 27.53(e) of the Commission's rules requires commercial transmitters operating in the Guard Band B Block spectrum (775-776/805-806 MHz bands) to satisfy emission limits identical to those set forth in Section 90.543(a), which governs public safety transmitters in the 700 MHz band.[177] In establishing these limits, the Commission indicated that its primary goal was

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[171] Section 90.527(a)(1) requires RPCs to identify chairpersons and members in regional plans submitted for Commission approval. 47 C.F.R. § 90.527(a)(1).

[172] Section 90.527(b) requires RPCs to submit written modification requests to the Bureau along with a certification that the proposed change was successfully coordinated with adjacent regions. 47 C.F.R. § 90.527(b).

[173] The Commission determined that its role in relation to the RPCs was limited to, among other things: "requiring fair and open procedures" and "reviewing and accepting requests for modification of the plans, or rejecting them with an explanation." *See* Development of Operational, Technical and Spectrum Requirements For Meeting Federal, State and Local Public Safety Agency Communications Requirements Through the Year 2010; Establishment of Rules and Requirements of Priority Access Service, WT Docket No. 96-86, *First Report and Order and Third Notice of Proposed Rulemaking*, 14 FCC Rcd 152, 196 ¶ 87 (1998). The Commission emphasized that "'fair and open procedures' require notice, opportunity for comment, and reasonable consideration." *Id*.

[174] *See* Establishment of the Public Safety and Homeland Security Bureau and Other Organizational Changes, *Public Notice*, 21 FCC Rcd 10867 (2006) *amended in part by* Amendment of Part 0 of the Commission's Rules to Delegate Administration of Part 4 of the Commission's Rules to the Public Safety and Homeland Security Bureau, *Order*, 23 FCC Rcd 1611 (2008).

[175] *See* 47 C.F.R. §§ 0.191(f) (the PSHSB administers all authority previously delegated to the Wireless Telecommunications Bureau relating to RPCs) and 0.392.

[176] Because this rule change pertains to agency organization, procedure and practice, the notice and comment provisions of the Administrative Procedure Act contained in 5 U.S.C. § 553 are inapplicable.

[177] *See* 47 C.F.R. § 27.53(e). Prior to October 23, 2007 (the effective date of the rules adopted in the *700 MHz Second Report and Order*), the guard band emission limits were listed in 47 C.F.R. § 27.53(d) and applied to the old 700 MHz Guard Bands at 746-747 MHz, 762-764 MHz, 776-777 MHz, and 792-794 MHz. *See* 47 C.F.R. § 27.53(d) (2007). In 2007, the Commission redesignated 47 C.F.R. § 27.53(d) as 47 C.F.R. § 27.53(e). *See 700 MHz Second Report and Order*, 22 FCC Rcd at 15523 Appendix B ¶ 21. Guard Band B block licensees are permitted the

(continued....)

to ensure that 700 MHz public safety operations are protected from harmful interference from commercial systems operating in adjacent bands.[178]

71. In the *Seventh NPRM*, the Commission sought comment on conforming the emission limits in Section 27.53(e) to the narrowband and wideband changes proposed by TIA-PRS for Section 90.543(a) (*i.e*., to relax the ACP limits for base station emissions in the paired receive band), which we have adopted herein for narrowband channels.[179]

72. Motorola supports the Commission's tentative conclusion to conform Section 27.53(e) to Section 90.543(a),[180] stating that "the additional flexibility and clarity that TIA's recommendations offer will be equally applicable in the 700 MHz Guard Band Service."[181] No other commenting party addresses this issue.

73. *Discussion.* We will harmonize the ACP limits listed in Section 27.53(e) for Guard Band B Block transmitters with the limits listed in Section 90.543(a) for public safety transmitters. The Commission has previously harmonized the 700 MHz Guard Band emission limits to the emission limits for public safety transmitters,[182] and we note support for maintaining this approach.[183] Our decision to harmonize the ACP limits should reduce the cost and complexity of Guard Band B Block transmitters, yielding savings for Guard Band B Block licensees, while at the same time maintaining the overall level of ACP protection necessary to guard against interference in the paired receive band.[184] Accordingly, we make the same revisions to Section 27.53(e) that we made to Section 90.543 concerning the ACP limit in the paired receive band for base station transmitters.[185]

2. Access Spectrum Proposal

74. *Background.* In the *Seventh NPRM*, the Commission sought comment on a proposal by Access Spectrum to clarify that ACP limits for 700 MHz Guard Band licensees apply only at the boundaries of the Guard Band licensee's authorized allocation.[186] Access Spectrum argued that if a Guard Band licensee uses contiguous, narrow channels over the entire Guard Band, ACP limits should

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option of complying with the ACP limits listed in paragraphs (e)(6) to (e)(9) or the out-of-band emission limits listed in paragraphs (e)(1) to (e)(5) of Section 27.53.

[178] *See* Service Rules for the 746-764 and 776-794 MHz Bands, and Revisions to Part 27 of the Commission's Rules, WT Docket No. 99-168, *First Report and Order*, 15 FCC Rcd 476, 490 ¶ 33 (2000).

[179] *See Seventh NPRM*, 20 FCC Rcd at 849 ¶ 40. *See also supra* note 25. At the time the *Seventh NPRM* was released, prior to the elimination of wideband channels in the *Second Report and Order,* Section 90.543 included 150 kHz transmitters. *See Seventh NPRM,* 20 FCC Rcd at 880-85. Also at that time, the emission limits for Guard Band licensees were codified in § 27.53(d). These limits are now codified in Section 27.53(e) as a result of the 2007 reconfiguration of the 700 MHz band. *See supra* note 177.

[180] Motorola Comments at 6. At the time of Motorola's comments, the emission limits were codified in Section 27.53(d).

[181] *Id*.

[182] *See Sixth Report and Order*, 20 FCC Rcd at 845 ¶ 34.

[183] *See*, *e.g.*, Motorola Comments at 6.

[184] *See supra* ¶ 15.

[185] As suggested by TIA, we adopt the same rule change for wideband as well as narrowband base transmitters in the Guard Band.

[186] *See Seventh NPRM,* 20 FCC Rcd at 850 ¶ 43. *See also* Comments of Access Spectrum, LLC, WT Docket 96-86 (filed Dec. 9, 2002) (Access Spectrum Comments) at 2 (referring to the ACP tables of 47 C.F.R. § 27.53 (2002)).

not apply for each individual channel within its block, but rather only at the upper and lower band edges of the Guard Band where it has the potential to interfere with adjacent allocations. The Commission also sought comment on an Access Spectrum proposal to make the ACP requirements for Guard Band licensees scalable to "any authorized bandwidth."[187]

75. *Discussion*. The reconfiguration of the 700 MHz band since 2007 has rendered the Access Spectrum proposals moot. Guard Band licensees in the upper A Block (757-758/787-788 MHz) are now subject to the commercial 700 MHz out-of-band emissions limits and are no longer required to comply with ACP limits.[188] Guard Band B Block licensees (775-776/805-806 MHz) now have the choice of using either the ACP limits (which are the same as the Part 90 public safety narrowband limits) or the commercial out-of-band emissions limits.[189] The latter limits apply only outside of the Guard Bands[190] (*i.e.*, only where emissions have the potential to affect systems operating in adjacent allocations) and are applicable to any bandwidth.

IV. NOTICE OF PROPOSED RULEMAKING

76. In this *Notice of Proposed Rulemaking*, we initiate a new proceeding to seek comment on further proposals to amend the Commission's rules governing 700 MHz public safety narrowband operations. First, we seek comment on whether to extend or eliminate the December 31, 2016 narrowbanding deadline for 700 MHz public safety narrowband licensees. Next, we seek comment on a proposal from NPSTC to authorize secondary use of certain 700 MHz narrowband channels for public safety aircraft voice operations. Finally, we seek comment on other proposals made by NPSTC in an earlier petition and issues raised on our own motion.

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

77. *Background.* In 2002, the Commission adopted narrowbanding rules requiring 700 MHz public safety narrowband licensees to migrate from a 12.5 kilohertz voice efficiency standard to a 6.25 kilohertz voice efficiency standard.[191] The Commission set December 31, 2016, as the deadline for 700 MHz narrowband licensees to complete the narrowbanding process.[192] The Commission established this timetable based upon its assessment at the time of the future availability of 6.25 kilohertz-capable equipment, and specifically noted that several equipment manufacturers indicated in the record that they would be able to manufacture 6.25 kilohertz-capable equipment for the 700 MHz band by the end of 2006.[193] The ten-year transition reflected comments supporting "a reasonable equipment life of ten years."[194]

78. The Commission also established December 31, 2014 as an interim deadline for manufacturers to cease marketing, manufacture, or import of 700 MHz narrowband equipment not capable of operating at 6.25 kilohertz efficiency.[195] The interim date also serves as the deadline after

[187] Access Spectrum Comments at 2.

[188] *See Second Report and Order*, 22 FCC Rcd at 15386 ¶ 262. *See also* 47 C.F.R. § 27.53(c).

[189] 47 C.F.R. § 27.53(e).

[190] 47 C.F.R. § 27.53(e)(1)-(3).

[191] *Fifth Report and Order* at 15000-01 ¶¶ 1-2.

[192] 47 C.F.R. § 90.535(d)(2).

[193] *Fifth Report and Order* at 15004-05 ¶ 11.

[194] *Id.* at 15007 ¶ 16 & n.54.

[195] 47 C.F.R. §§ 90.203(m)-(n).

which applicants will no longer be allowed to apply for new 12.5 kilohertz bandwidth systems. After this date, applications for new systems proposing to operate on the General Use or State License channels will only be accepted if the applicant proposes to employ 6.25 kilohertz bandwidth technology.[196]

79. In 2009, the 700 MHz Region 24 Planning Committee (Region 24) and the State of Louisiana (Louisiana) each submitted a petition for rulemaking seeking to delay the December 31, 2016 deadline for transition to 6.25 kilohertz-capable equipment.[197] Region 24 requested that the Commission extend the December 31, 2016 narrowbanding deadline to June 12, 2019, in order to provide a 10-year interval following the June 12, 2009 DTV transition.[198] According to Region 24, "while some radios are being marketed that can operate in the 700 MHz band today and can be upgraded to operate with a channel efficiency of 6.25 [kilohertz], none are ready for delivery."[199] Region 24 further asserted that the lack of available 6.25 kilohertz equipment has caused public safety agencies to purchase equipment that cannot be upgraded to operate at efficiencies equating to 6.25 kilohertz per voice channel.[200] Consequently, such equipment "may have to be replaced before its intended life cycle will be met."[201]

80. Louisiana requested that the Commission extend the December 31, 2016, narrowbanding deadline to December 31, 2024.[202] In support of its request, Louisiana similarly asserted that 6.25 kilohertz equipment is currently unavailable and that while some manufacturers are marketing upgradeable radios, "none are currently available for delivery."[203] Consequently, Louisiana argued that any equipment purchase "will be obsolete on December 31, 2016, thus shortening its lifecycle."[204] Louisiana also contended that "[d]ue to difficulties in identifying funding mechanisms, it is not unusual for Public Safety agencies to plan on utilizing [their] equipment for more than 10 years."[205] Louisiana argued that the "cost associated with purchasing soon-to-be obsolete equipment is not fiscally prudent and does not allow us to be good stewards of government funds."[206]

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[196] 47 C.F.R. § 90.535(d)(1).

[197] Petition for Rulemaking of the Region 24 700 MHz Regional Planning Committee, WT Docket 96-86 (filed May 15, 2009) (Region 24 Petition); Petition for Rulemaking of the State of Louisiana, RM-11577 (filed Oct. 5, 2009) (Louisiana Petition). In its petition, Region 24 also sought to update the five- and ten-year substantial service deadlines applicable to state-licensed 700 MHz public safety narrowband channels. We previously resolved this issue in a separate order. *See* Service Rules Governing Public Safety Narrowband Operations in the 769-775/799-805 MHz Bands, *Declaratory Ruling*, 26 FCC Rcd 10895 (FCC 2011).

[198] Region 24 Petition at 5.

[199] *Id*.

[200] *Id.*

[201] *Id*.

[202] Louisiana Petition at 1. In July 2012, Louisiana filed a separate waiver request for extension of the 700 MHz narrowbanding deadline until December 31, 2024 for the state's 700 MHz narrowband network. After seeking public comment on the Louisiana waiver request, the Public Safety and Homeland Security Bureau granted this request on October 15, 2012. State of Louisiana Request for Waiver of the December 31, 2016 700 MHz Narrowbanding Deadline, *Order*, 27 FCC Rcd 12952 (PSHSB 2012). The Bureau expressly stated that the waiver is subject to the outcome of any broader proceeding that the Commission may undertake with respect to Louisiana's rulemaking petition. *Id.* at 12952 n.1.

[203] Region 24 Petition at 3.

[204] *Id*.

[205] *Id*.

[206] *Id*.

81. The Consumer & Governmental Affairs Bureau placed both the Region 24 and the Louisiana petitions on public notice.[207] Most commenting parties support extension of the 6.25 kilohertz narrowbanding deadline as advocated by Region 24 and Louisiana. The Ohio Fire Chiefs Association, Ohio State Firefighters Association, and Ohio Association of Professional Firefighters (Ohio Fire Alliance Leadership or OFAL), for example, contend that "the Commission[']s estimation of the lifespan of public safety equipment to be only 10 years is unrealistic in today's fiscal and technological environment."[208] OFAL states that its agencies expect to use their equipment for "12 to 15 years or more," and assert that the 2016 narrowbanding deadline will force them to discard equipment prematurely and impose potentially "devastating" replacement costs.[209] Other public safety commenters express similar concerns.[210]

82. The Association of Public-Safety Communications Officials-International, Inc. (APCO) contends that "[d]ue to the digital television transition, the 700 MHz public safety spectrum was unavailable in much of the nation until June 12, 2009, much later than originally contemplated when the FCC adopted Section 90.535."[211] APCO further states that "[o]ur understanding is that 6.25 kHz equipment is not currently available for the 700 MHz narrowband channels."[212] Accordingly, APCO argues that unless the current December 31, 2016 deadline is extended, "licensees will be forced to deploy soon-to-be obsolete equipment, wasting scarce public funds."[213]

83. Motorola also supports extending the narrowbanding deadline. Motorola asserts that manufacturers have deferred development of 6.25 kilohertz-capable equipment due to "legislative and regulatory uncertainty" regarding the DTV transition and a lack of customers for 700 MHz equipment.[214] Motorola further suggests that 6.25 kilohertz equipment availability has been hampered because manufacturers are waiting for completion of the Project 25 "Phase 2" 6.25 kilohertz equipment efficiency standard.[215] Motorola does indicate, however, that it is shipping 700 MHz dual mode equipment capable

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[207] *See* Consumer & Governmental Affairs Bureau Reference Information Center Petition for Rulemakings Filed, *Public Notice*, Report No. 2893 – Corrected (rel. Jul. 31, 2009) (CGB 2009); Consumer & Governmental Affairs Bureau, Reference Information Center, Petition for Rulemakings Filed, *Public Notice*, Report No. 2902 (rel. Oct. 19, 2009) (CGB 2009).

[208] Comments of the Ohio Fire Alliance Leadership, RM-11577 (filed Nov. 19, 2009) at 2.

[209] *Id*. at 3.

[210] *See*, *e.g*., Comments of the State of Colorado, Office of Information Technology, Communication Services, RM-11577 (filed Nov. 19, 2009) at 1 ("State of Colorado has similar issues: Equipment is not yet available, equipment recently purchased would be obsolete before end of life and current budget environment makes replacement an unrealistic possibility."); Comments of Delaware County, Ohio, RM-11577 (filed Nov. 19, 2009) at 1 ("Delaware County has a fleet of more than 1,000 radios which range in age from one day to six years old in which none of the radios [sic] are able to operate on 700MHz at 6.25[k]Hz spacing, and [] would have to replace all our radios and not be able to utilize the radios [sic] for their full life cycle expectancy, and [] it would cost the taxpayers of Delaware County more than 5 million dollars to replace all of our radios."); Comments of the Region 33 Planning Committee, RM-11577 (filed Nov. 18, 2009) 2-3; Comments of Region 49, RM-11577 (filed Nov. 17, 2009) at 1.

[211] Comments of APCO, RM-11577 (filed Nov 18, 2009) (APCO Louisiana Comments) at 2.

[212] *Id*.

[213] *Id*.

[214] Comments of Motorola, Inc., WT Docket 96-86 (filed Aug 31, 2009) (Motorola Region 24 Comments) at 4. *See also* APCO Louisiana Comments at 2.

[215] Motorola Region 24 Comments at 4. The Project 25, Phase II standard is a 2-slot TDMA signal that fits inside a 12.5 kilohertz wide channel. *See* http://www.tiaonline.org/standards/technology/project_25/. Motorola asserts that, "[w]ithout completion of this 6.25 kHz equivalent efficiency standard, system and radio manufacturers would be required to develop public safety equipment that is proprietary and will require subsequent modification to meet the

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of operating at both 12.5 kilohertz and 6.25 kilohertz efficiency. This equipment uses proprietary technology, but Motorola indicates that it can be modified through a software upgrade once the Phase 2 standard is finalized.[216]

84. On the other hand, Harris Corporation (Harris) opposes extending the narrowbanding deadline.[217] Responding to the Louisiana Petition, Harris states that it "recognizes the inherent difficulties that jurisdictions, such as Louisiana, face when they are required to meet new efficiency mandates and migrate to new technology."[218] Harris, however, asserts that the Commission should take a case-by-case approach to individual licensees that believe they will be unable to meet the 2016 deadline.[219] Harris also challenges Louisiana's contention that 6.25 kilohertz equipment is unavailable commercially, asserting that "over the past four . . . years 6.25 kHz equipment has continued to be developed, tested, and deployed."[220]

85. In March 2012, the Regional Wireless Cooperative (RWC), which includes the 700 MHz Region 3 Planning Committee (Arizona) as well as numerous public safety agencies in Arizona, filed a petition for rulemaking seeking to extend the December 31, 2016 narrowbanding deadline to December 31, 2020, or a yet to be determined date.[221] RWC states that work remains on the "complete suite of testing and compliance documents" for the Project 25 "Phase 2" 6.25 kilohertz standard.[222] Although these documents may be complete by 2012, RWC argues that "beginning the financial planning process for an upgrade with unfinished standards requires system planners and technologists to take a risk."[223] Because RWC believes the current deadline is "simply an unreachable goal for a majority of the public safety agencies within [Region 3],"[224] it supports delaying the narrowbanding deadline to either December 31, 2020 or a date determined by the Regional Planning Committee in Region 3.[225]

86. *Discussion.* Based on the record before us, we find that further examination of the 700 MHz narrowbanding deadline for transition to 6.25 kilohertz technology is warranted. Consequently, we seek comment on whether to extend the December 31, 2016 deadline as proposed by Region 24, Louisiana, RWC, and the majority of commenting parties. If so, and in light of the various proposals, what is the most appropriate deadline for licensees operating on 700 MHz narrowband channels to transition to 6.25 kilohertz technology? What factors should we consider in setting a new deadline? We previously concluded that the deadline should be driven by equipment availability, and not by the DTV

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standard upon completion. Most manufacturers have been unwilling to take that risk, not knowing [the] final standard." Motorola Region 24 Comments at 4..

[216] Motorola Region 24 Comments at 5.

[217] Comments of Harris Corporation, WT Docket No. 96-86 (filed Nov 18, 2009) (Harris Louisiana Comments).

[218] *Id*. at 3-4.

[219] *Id*. at 2.

[220] *Id*. at 11.

[221] *See* Petition for Rulemaking of Region 3 Public Safety Regional Planning Committee, PS Docket No. 06-229 (filed Mar. 21, 2012) (Region 3 Petition) at 1; Petition for Waiver and Expedited Action of Region 3 Public Safety Regional Planning Committee, PS Docket No. 06-229 (filed Feb. 21, 2012).

[222] Region 3 Petition at 5.

[223] *Id.*

[224] *Id.* at 4.

[225] *Id.* at 6.

transition.[226] Does that conclusion warrant revisiting, and if so, why? Should we revisit our determination in 2002, based on the comments of APCO and others, that "[t]en years is currently the generally accepted life span for many elements of a radio system"?[227] Should present or anticipated future funding limitations be relevant, or would it be more appropriate to address such cases through a waiver process? If we extend the December 31, 2016 deadline, should we also extend the interim December 31, 2014 deadline, and if so, should the interim deadline again be set to two years prior to the final deadline?

87. To better evaluate these alternatives, we encourage public safety agencies and manufacturers to update the record with respect to the current status of the development of the Phase 2 standard and the commercial availability of dual-mode and 6.25 kilohertz equipment that is fully tested and ready for deployment in the 700 MHz band. Is such equipment, as Motorola suggests, subject to future modification to render it compliant with the Project 25 Phase 2 standard? We also seek comment on whether other factors, aside from the commercial availability of 6.25 kilohertz or dual-mode equipment, may have caused licensees to continue purchasing and deploying equipment that is limited to utilizing 12.5 kilohertz bandwidth. For example, has the extended DTV transition period and/or the timing of available Federal grant monies caused public safety entities to purchase and deploy 12.5 kilohertz equipment in lieu of waiting for 6.25 kilohertz equipment to become available?

88. Finally, we seek comment on whether in lieu of extending the narrowbanding deadline, we should eliminate it and no longer require 6.25 kilohertz kilohertz narrowbanding in the 700 MHz narrowband spectrum. As noted above, in 2010 the Public Safety and Homeland Security Bureau issued a Public Notice seeking comment on whether public safety should have the option of using 700 MHz narrowband spectrum for broadband services.[228] Although the Public Notice did not propose any change to the current 700 MHz narrowband rules, the Bureau sought information on the feasibility of opening the band to flexible use, both in the short term and the long term, and on potential conditions or restrictions that would be needed to prevent broadband operations in the band from causing harmful interference to narrowband operations.[229] In seeking comment on these issues, the Bureau specifically asked whether the Commission should reconsider the 700 MHz narrowbanding requirement and whether public safety resources would be better spent transitioning 700 MHz narrowband operations onto a broadband platform.[230]

89. While many commenters responding to the *700 MHz Flexibility PN* expressed strong opposition to opening up the 700 MHz narrowband spectrum to flexible broadband use,[231] one commenter stated that if the Commission were to allow flexible use of the band, it should eliminate the narrowbanding requirement.[232] Other commenters advocated extending or eliminating the narrowbanding

[226] *Fifth Report and Order* at 15004-05 ¶ 11.

[227] *Id.* at 15006 n. 48.

[228] *See* Public Safety and Homeland Security Bureau Seeks Comment on the Technical and Operational Feasibility of Enabling Flexible Use of the 700 MHz Public Safety Narrowband Allocation and Guard Band for Broadband Services, *Public Notice*, 25 FCC Rcd 13634, 13637 (*700 MHz Flexibility PN*).

[229] *Id.* at 13634.

[230] *Id.* at 13637.

[231] *See e.g.*, Comments of Arkansas Wireless Information Network, PS Docket No. 06-229 (filed Dec 3, 2010); Comments of Region 8 – 700 MHz Regional Planning Committee, PS Docket No. 06-229 (filed Dec 3, 2010).

[232] Comments of the Consolidated Communications Network of Colorado, PS Docket No. 06-229 (filed Dec 1, 2010) at 5.

requirement regardless of whether the band is opened to flexible use.[233] Some commenters supported retaining the current narrowbanding deadline.[234]

90. More recently, Congress has passed the Public Safety Spectrum Act, which expands the portion of the 700 MHz band dedicated for public safety broadband use and lays the foundation for establishment of a nationwide interoperable public safety broadband network in that spectrum.[235] Moreover, the Public Safety Spectrum Act provides that the Commission may allow the 700 MHz narrowband spectrum "to be used in a flexible manner, including usage for public safety broadband communications."[236] While the future development path for the 700 MHz public safety broadband network is not fully known, it is likely that public safety broadband use will increase over the next few years, and many observers believe that broadband technology eventually could evolve to support mission-critical voice services that currently are provided by narrowband systems.[237] If and when this occurs, it could spur greater demand for migration of 700 MHz narrowband spectrum to broadband use.

91. In light of these developments, we seek comment on whether the long-term future of the 700 MHz narrowband spectrum band would be best served by suspending or eliminating mandatory migration to 6.25 kilohertz technology. Could the spectral efficiency benefits of narrowbanding be outweighed by the potential inefficiency of requiring public safety agencies to devote resources in this band to a technological path that may not meet their long-term needs? Conversely, do the benefits derived from enhanced efficiencies of narrowband technology outweigh the costs of maintaining the current framework in the interim? If we were to eliminate mandatory narrowbanding, would there be sufficient channel capacity using 12.5 kilohertz channels to meet the needs of public safety entities? For instance, what effect would suspending or eliminating the mandatory migration to 6.25 kilohertz have on T-Band licensees (470-512 MHz) who may seek to move to the 700 MHz band as a result of the relocation required by Section 6103 of the Public Safety Spectrum Act?[238] Furthermore, could licensees' needs be addressed by encouraging narrowbanding to 6.25 kilohertz on a voluntary basis without requiring it? How would interoperability in the band be affected by such an approach? Are there other potential costs and benefits that we should consider?

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

92. *Background.* The 700 MHz narrowband channel plan designates sixteen 6.25 kilohertz bandwidth channel pairs for "secondary trunking operations" (secondary trunking channels).[239] Each of

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[233] Comments of California Statewide Interoperability Executive Committee, PS Docket No. 06-229 (filed Dec. 9, 2010) at 4; Comments of the Commonwealth of Virginia, PS Docket No. 06-229 (filed Dec. 3, 2010) at 7; Comments of Region 6 700 MHz Regional Planning Committee, PS Docket No. 06-229 (filed Dec. 3, 2010) at 6; Comments by the State of Colorado, Governor's Office of Information Technology, PS Docket No. 06-229 (filed Nov. 30, 2010) at 6.

[234] Comments of Riverside / IT Dept, PS Docket No. 06-229 (filed Nov. 30, 2010) at 4; Comments by the Region 43 700 MHz Planning Committee, PS Docket No. 06-229 (filed Dec 3, 2010) at 5. Comments of State of Delaware, PS Docket No. 06-229 (filed Dec 3, 2010) at 24.

[235] *See* Public Safety Spectrum Act, § 6102.

[236] *Id.*

[237] *See* Public Safety Communications Evolution, brochure developed by Department of Homeland Security's Office of Emergency Communications (rel. Nov. 2011).

[238] Public Safety Spectrum Act, § 6103. *See infra* ¶ 117.

[239] 47 C.F.R. § 90.531(b)(7). The channel pairs reserved for secondary trunking are: 21/981, 22/982, 101/1061, 102/1062, 181/1141, 182/1142, 261/1221, 262/1222, 659/1619, 660/1620, 739/1699, 740/1700, 819/1779, 820/1780, 899/1859, and 900/1860.

these secondary trunking channel pairs is immediately adjacent to one of the corresponding sixteen 6.25 kilohertz interoperability channel pairs in the band plan. This configuration allows the interoperability and trunking channel pairs to be aggregated to form 25 kilohertz bandwidth channels,[240] which can be used for secondary trunking operations when the interoperability channels are not needed for interoperability purposes.[241] Under our current rules, the secondary trunking channels are only to be used in aggregation with the adjacent interoperability channels for 25 kilohertz bandwidth trunking operations, *i.e.*, the rules do not allow them to be used separately for any other purpose.[242]

93. In 2010, NPSTC submitted a petition for rulemaking to allow 700 MHz public safety narrowband licensees to use the secondary trunking channels for low-altitude, low power, air-ground voice communications.[243] NPSTC recommended that the Commission limit air-ground transmissions on these channels to two watts effective radiated power, which is consistent with the power limit for 700 MHz narrowband channels reserved for low power use.[244] NPSTC based its petition on a proposal from the State of Maryland to use 700 MHz narrowband channels for air-ground communications so that it can incorporate public safety aircraft into its existing and planned 700 MHz network.[245]

94. As a general matter, Part 90 land mobile radio licensees are permitted to operate mobile transmitters aboard aircraft on any of their licensed frequencies for air-ground communications, provided such operations are limited to aircraft flying at altitudes below 1.6 kilometers (1 mile) and transmit with an output power of ten watts or less.[246] However, NPSTC stated that 700 MHz narrowband licensees cannot conduct air-ground communications under this general rule because of the risk that they will cause co-channel interference to ground-based 700 MHz narrowband communications over a wide geographic radius.[247] Further, NPSTC notes that the wide-area propagation of airborne signals means that air-ground transmissions on channels designated for state use will likely violate Commission limits on signal strength at state borders.[248]

95. To enable 700 MHz narrowband licensees to incorporate air-ground communications into their operations, NPSTC requested that the Commission specifically designate the secondary trunking channels to be available for air-ground use.[249] NPSTC asserted that designating these channels for airborne use would not create a risk of interference to ground-based operations because the channels are

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[240] A 25 kilohertz bandwidth channel is formed by combining two contiguous 6.25 kilohertz secondary trunking channels with the two adjacent 6.25 kilohertz interoperability channels.

[241] 47 C.F.R. § 90.537(b).

[242] 47 C.F.R. § 90.531(b)(7).

[243] Petition for Rulemaking of the National Public Safety Telecommunications Council, RM-11433 (filed Mar. 19, 2010) (NPSTC Air-to-Ground Petition).

[244] *Id.*

[245] *Id.* at 7.

[246] 47 C.F.R. § 90.423.

[247] NPSTC Air-to-Ground Petition at 4-5. NPSTC cites a consultant's report indicating that a signal transmitted in the 700 MHz band from an aircraft operating at 1,500 feet with an output power of 1.5 watts will propagate up to approximately 100 miles. *Id.* at 7-8.

[248] *Id.* The signal strength limit at the edge of the state for operation on the state channels is 40 dBu/m, unless adjoining states agree to alternate field strengths at their common border. *See also* 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 and Third Report and Order* (*Third MO&O and Third R&O*), 15 FCC Rcd 19844, 19873 ¶ 67 & n.207 (WTB 2000).

[249] NPSTC Air-to-Ground Petition at 2.

seldom used for their originally intended purpose of enabling 25 kilohertz bandwidth trunking operations. NPSTC also noted that these channels are increasingly unlikely to be used for 25 kilohertz trunking because "most future 700 MHz interoperability systems will use P25 technology and not require a 25 kHz wide channel."[250]

96. In June 2011, the Bureau issued a public notice in this docket seeking comment on the NPSTC petition.[251] A number of commenters support the proposal NPSTC puts forth its petition.[252] Maryland affirms that it is moving forward with plans for a statewide 700 MHz narrowband system that will support air-ground as well as ground-based communications.[253] Maryland states that it must have access to dedicated aircraft channels at 700 MHz in order to avoid interference with other states using their state-licensed 700 MHz channels.[254] It notes that it recently executed a contract for a dozen public safety helicopters that will be used to support emergency medical services involving trauma and which require access to 700 MHz narrowband channels.[255] Ohio SIEC also expresses interest in using dedicated 700 MHz channels for air-ground communications, noting that the obstacles to deploying aircraft operations under the existing rules are not unique to Maryland.[256] In this regard, Ohio SIEC indicates it "has a very active air service" but notes "there has never been a clear, concise and uniform nationwide manner in which to conduct these operations."[257]

97. Some commenters support NPSTC's air-ground proposal but emphasize the importance of advanced planning and coordination to ensure that airborne operations in neighboring jurisdictions do not interfere with one another or with ground-based communications. TIA suggests that the Commission "conduct an analysis on the interference impact of the proposed aircraft operations on other 700 MHz narrowband operations as well as on broadband operations in adjacent blocks in the band."[258] Region 39

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[250] *Id.*

[251] Public Safety and Homeland Security Bureau Seeks Comment on National Public Safety Telecommunications Council's Petition for Rulemaking to Allow Aircraft Voice Operations on Secondary Trunking Channels in the 700 MHz Band, *Public Notice*, 26 FCC Rcd 9405 (PSHSB 2011).

[252] *See* Comments of State of Maryland, RM-11433 (filed Jul 12, 2011) (Maryland Air-to-Ground Comments); Comments of National Regional Planning Council, RM-11433 (filed Jul 15, 2011) (NRPC Air-to-Ground Comments); Comments of Region 39, RM-11433 (filed Jul 15, 2011) (Region 39 Air-to-Ground Comments); Comments of National Public Safety Telecommunications Officials, RM-11433 (filed Jul 15, 2011) (NPSTC Air-to-Ground Comments); Comments of Motorola, Inc., RM-11433 (filed Jul 15, 2011) (Motorola Air-to-Ground Comments); Comments of Ohio Statewide Interoperability Executive Committee, RM-11433 (filed Jul 15, 2011) (Ohio SIEC Air-to-Ground Comments); Reply Comments of State of Maryland, RM-11433 (filed Jul 25, 2011) (Maryland Air-to-Ground Reply Comments); Reply Comments of Telecommunications Industry Association, RM-11433 (TIA Air-to-Ground Reply Comments).

[253] Maryland Air-to-Ground Comments at 3-4. In February 2012, Maryland filed a separate request for waiver to allow it to proceed with air-ground use of the 700 MHz secondary trunking channels. After seeking public comment on the Maryland waiver request, the Public Safety and Homeland Security Bureau granted a waiver to Maryland. State of Maryland Request for Waiver of 47 CFR §90.531(b)(7) to Permit Operation of Air-to-Ground Radio Equipment on 700 MHz Secondary Trunking Channels, *Order*, 27 FCC Rcd 10065 (PSHSB 2012). The Bureau expressly stated that the waiver is subject to the outcome of any broader proceeding that the Commission may undertake with respect to the NPSTC petition. *Id.* at 10065 n.1.

[254] Maryland Air-to-Ground Comments at 4.

[255] *Id.*

[256] Ohio SIEC Air-to-Ground Comments at 1.

[257] *Id.*

[258] TIA Air-to-Ground Reply Comments at 1-2.

suggests that "use of these channels in a region needs to be published on the CAPRAD database for review by neighboring regions and states to ensure [air-to-ground operation] remains effective."[259]

98. *Discussion.* We seek comment on permitting public safety air-ground voice communications on the secondary trunking channels as proposed by NPSTC. Maryland and other commenters on the NPSTC petition have indicated a strong interest in airborne use of these channels so that they can incorporate air-ground communications into their 700 MHz narrowband systems.[260] The record also indicates that the secondary trunking channels are rarely used for terrestrial communications, suggesting that they could be made available for air-ground use as proposed by NPSTC. We seek comment on this view. Should we dedicate channels in the 700 MHz band for air-ground use? If so, are the secondary trunking channels the most appropriate channels for this purpose? Are any licensees using secondary trunking channels terrestrially, and if so, are protection criteria necessary to ensure that airborne operations do not interfere with such terrestrial uses?

99. Assuming we were to allow air-ground use of the secondary trunking channels, we seek comment on what impact such use would have on terrestrial users operating on other 700 MHz narrowband channels and in adjacent bands. For example, to what extent, if any, would licensees using the adjacent interoperability channels be subject to potential interference? More generally, is there potential for interference to other 700 MHz narrowband operations or broadband use in the adjacent public safety broadband spectrum block? Could airborne transmissions on the secondary trunking channels affect licensees operating in the 800 MHz band?[261]

100. To address interference concerns, NPSTC proposes to limit airborne transmissions to two watts effective radiated power.[262] Is this sufficient to limit the interference potential, or should the power limit be lower given the wide area of propagation? What is the minimum effective radiated power necessary to provide adequate communication service from aircraft flying at altitudes of 1500 feet or less above ground level? We seek comment on this and other potential technical rules to mitigate potential interference. Is there any potential for interference to or from licensees operating on spectrum allocated for broadband systems, and if so, should we consider other channels in the band for air-to-ground communications that are more removed from the spectrum allocated for broadband systems? Should we also impose altitude restrictions on airborne use, and if so, at what altitude? Should we limit aircraft to transmitting on the base transmit side of the channel pair in the direct (simplex) mode so as to communicate directly with mobile and portable units without going through base station infrastructure?[263] Are there situations where base station repeaters would be needed to enable communication between aircraft and ground-based mobile and portable units?

101. As a number of commenters note, licensees using secondary trunked channels for air-ground communications will need to coordinate their channel use with geographically adjacent users. We seek comment on appropriate coordination procedures and on technical criteria for determining who should be considered "geographically adjacent" for coordination purposes. We also seek comment on who within each state should bear responsibility for coordination. NPSTC suggests that the State Interoperability Executive Committees (SIECs) for geographically adjacent states could develop sharing

[259] Region 39 Air-to-Ground Comments at 2.

[260] Maryland Air-to-Ground Comments at 2-3; Ohio SIEC Air-to-Ground Comments at 2; Motorola Air-to-Ground at 4; NPSTC Air-to-Ground Comments at 3; Region 39 Air-to-Ground Comments at 2; NRPC Air-to-Ground Comments at 4.

[261] Mobile stations transmit (and base stations receive) in the 806-824 MHz segment of the 800 MHz band. This band segment is immediately above the 700 MHz public safety mobile transmit band segment at 799-805 MHz and separated by a guard band at 805-806 MHz.

[262] NPSTC Air-to-Ground Petition at 1.

[263] *See* 47 C.F.R. § 90.531(a).

arrangements to minimize interference."[264] Are the SIECs – which are responsible for the administration of the interoperability channels[265] – the appropriate entities to perform such coordination? Should the Regional Planning Committees or other entities play a coordination role? Should selection of channels for airborne use in each state be incorporated into 700 MHz Regional Plans?

102. Finally, we remind commenting parties that our current agreements with Canada and Mexico for the 700 MHz band cover only terrestrial use of these frequencies.[266] Consequently, airborne operations along the borders would need to be coordinated through either special coordination procedures (SCPs) or a separate agreement with each country.

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

103. In 2008, NPSTC filed a petition for rulemaking proposing certain changes to the 700 MHz narrowband channel plan following the Commission's consolidation of the public safety narrowband spectrum.[267] NPSTC stated that the consolidation of the narrowband spectrum afforded an "opportunity to reexamine how the segment's channel alignment and a channel's designated purpose can best promote effective public safety communications."[268] Specifically, NPSTC proposed to modify the rules governing use of the designated nationwide interoperability channels, data-only interoperability channels, reserve channels, and low power channels.[269]

104. The Public Safety and Homeland Security Bureau placed the 2008 NPSTC Petition on public notice.[270] Commenting parties generally were supportive of the proposals NPSTC puts forth in its petition.[271] Accordingly, we incorporate the petition and associated comments into this proceeding, and seek comment on NPSTC's proposals below.

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[264] NPSTC Air-to-Ground Petition at 5.

[265] 47 C.F.R. § 90.525.

[266] *See* Sharing Arrangement Between the Department of Industry of Canada and the Federal Communications Commission of the United States of America Concerning the Use of the Frequency Bands 764 To 776 MHz and 794 to 806 MHz by the Land Mobile Service Along the Canada-United States Border (June 2005); Protocol Between the Department of State of the United States of America and the Secretariat of Communications and Transportation of the United Mexican States Concerning the Allotment and Use of the 698-806 MHz Band for Terrestrial Non-Broadcasting Radiocommunication Services Along the Common Border (November 2006).

[267] Petition for Rulemaking of the National Public Safety Telecommunications Council, RM-11433 (filed Feb. 8, 2008) (2008 NPSTC Petition).

[268] *Id.* at 5.

[269] The 2008 NPSTC petition included two charts depicting the 700 MHz narrowband channel plan and identifying the channel designations NPSTC proposed to modify *See* Figures 1 and 2 attached to 2008 NPSTC Petition.

[270] Public Safety and Homeland Security Bureau Seeks Comment on Petition for Rulemaking of the National Public Safety Telecommunications Council Concerning the 700 MHz Public Safety Narrowband Channels, RM-11433, *Public Notice*, 23 FCC Rcd 9395 (PSHSB 2008).

[271] *See* Comments of the American Association of State Highway and Transportation Officials, RM-11433 (filed June 30, 2008) (AASHTO Comments); Comments of Region 49, RM-11433 (filed July 16, 2008) (Region 49 Comments); Comments of the Commonwealth of Virginia, RM-11433 (filed July 16, 2008) (Virginia Comments); Comments of the International Municipal Signal Association and International Association of Fire Chiefs, Inc., RM-11433 (filed July 16, 2008) (IMSA/IAFC Comments); Comments of Motorola, Inc., RM-11433 (filed July 16, 2008) (Motorola NPSTC Petition Comments); Comments of Region 39, Tennessee, RM-11433 (filed July 16, 2008) (Region 39 Comments); Comments of State of California, RM-11433 (filed July 16, 2008) (California Comments); Comments of National Regional Planning Council, RM-11433 (filed July 16, 2008) (NRPC Comments); Reply Comments of the National Public Safety Telecommunications Council, RM-11433 (filed July 31, 2008) (NPSTC Reply Comments).

1. Nationwide Interoperability Travel Channel

105. *Background.* Section 90.531(b)(1)(ii) of the Commission's rules establishes four 6.25 kilohertz channel pairs (specifically, 39/999, 40/1000, 681/1641, and 682/1642) as nationwide calling interoperability channels.[272] Licensees may generally combine adjacent channel pairs for wider bandwidth operation, resulting in two 12.5 kilohertz bandwidth channel pairs reserved for nationwide calling.[273] The Commission reserved these channel pairs for activities such as coordination of multiple public safety entities at the scene of an incident or for requests by entities "outside the system" for help or information.[274] The rules do not permit routine administrative or day-to-day communications on these channels.[275]

106. In its 2008 petition, NPSTC proposed that the Commission redesignate the two upper 6.25 kilohertz channel pairs (681/1641 and 682/1642) as "Nationwide Interoperability Travel Channels," while retaining the lower channel pairs (39/999 and 40/1000) for nationwide calling.[276] NPSTC contended that "travel channels" would facilitate coordination of vehicle convoys transporting resources, assets, and personnel to major incidents, allowing "first responders and equipment to be deployed to an area directly instead of having to first travel to a staging area."[277] In addition, according to NPSTC, the travel channels would "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," and would thereby "enhance flexibility, efficiency and speed in deploying resources."[278] NPSTC argued that retaining both upper and lower sets of nationwide calling channels was no longer necessary because of the consolidation of the narrowband channels.[279] Furthermore, NPSTC asserted that retaining both sets of channels for nationwide interoperability could cause confusion and undermine interoperability "because local/state agencies would not know which channel to monitor and/or use in any particular area of the country."[280]

107. *Discussion.* We seek comment on NPSTC's proposal. Should the Commission designate two 6.25 kilohertz bandwidth channel pairs to be used exclusively for coordinating disaster response transportation activities? Would the potential benefits of such designation outweigh the potential adverse impact of reducing the overall channel capacity devoted to interoperability generally? We note that in the aftermath of Hurricane Katrina, the mutual aid channels in the 800 MHz band were significantly overloaded. The Panel Report observed that "[w]hen the existing infrastructure for the New Orleans system was incapacitated by flooding, communications were almost completely thwarted as too many users attempted to use the three mutual aid channels in the 800 MHz band."[281] Would reducing the

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[272] 47 C.F.R. § 90.531(b)(1)(ii).

[273] *See* 47 C.F.R. § 90.531(d).

[274] *See Fourth Report and Order*, 16 FCC Rcd at 2043 ¶ 66.

[275] 47 C.F.R. § 90.531(b)(1)(ii).

[276] 2008 NPSTC Petition at 6.

[277] *Id*.

[278] *Id*. at 6-7.

[279] *Id.* at 5-6. Motorola also voices its support for re-designation of one of the national calling channels. *See* Motorola NPSTC Petition Comments at 2.

[280] 2008 NPSTC Petition at 5-6.

[281] Independent Panel Reviewing the Impact of Hurricane Katrina on Communications Networks, *Report and Recommendations to the Federal Communications Commission,* June 12, 2006, at 25 (*citation omitted*) (Katrina Panel Report), *available at* http://www.fcc.gov/pshs/docs/advisory/hkip/karrp.pdf. Although the report refers to three mutual aid channels there are actually five mutual aid channels in the 800 MHz band. *See* 47 C.F.R. § 90.617(a)(1).

number of channel pairs in the 700 MHz public safety band devoted to nationwide calling interoperability to just two adjacent 6.25 kilohertz bandwidth channel pairs – or one 12.5 kilohertz bandwidth channel pair – similarly hamper interoperability voice communications needs?

108. We also seek comment on what impact NPSTC's proposal would have on cross-border interoperability. For example, both Canada and the U.S. have designated the 6.25 kilohertz bandwidth channel pairs identified by NPSTC (681/1641 and 682/1642) for public safety interoperability within the border region.[282] Consequently, these channels are well-suited under the current arrangement governing the U.S-Canada border region to serve cross-border coordination needs. Would these channels still be useful for cross-border coordination purposes if the U.S. re-designates these channels as proposed by NPSTC, but Canada does not do so?[283]

2. Tactical Voice Communications on Data Interoperability Channels

109. *Background.* Section 90.531(b)(1)(i) of the Commission's rules reserves four 6.25 kilohertz channel pairs (279/1239, 280/1240, 921/1881, and 922/1882) for data-only interoperability communications.[284] As with the nationwide interoperability calling channels noted above, licensees may generally combine adjacent channels for 12.5 kilohertz bandwidth operation. The Commission did not specify the types of data to be used on these channels but rather elected to permit any data applications that could support a data throughput of 9.6 kilobits per second (kbps) for a 12.5 kilohertz bandwidth channel.[285]

110. In its 2008 petition, NPSTC proposed that the Commission allow tactical voice communications on a secondary basis on the two upper channel pairs (921/1881 and 922/1882).[286] NPSTC argued that such action would help meet expanding demand for communications supporting tactical operations and would "promote more effective and extensive use of the channels while preserving their prime purpose when required for data use."[287] As with the narrowband calling interoperability channels, NPSTC contended that consolidation of the 700 MHz narrowband spectrum has made it unnecessary to maintain two separate channel sets dedicated solely to data communications.[288]

111. *Discussion.* We seek comment on NPSTC's proposal. Would such a secondary designation for tactical voice communications have any adverse impact on primary data-only interoperability communications? Is it technically feasible and/or practical to implement tactical voice communications on a secondary basis to primary data-only communications? Would adoption of this proposal have any impact on the existing base of mobile, portable, and base stations currently in use by public safety entities, such as requiring reprogramming or retrofits? Also, would secondary voice

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[282] *See* Sharing Arrangement Between the Dept. of Industry of Canada and the Federal Communications Commission of the United States of America Concerning the Use of the Frequency Bands 764 to 776 MHz and 794 to 806 MHz by the Land Mobile Service Along the Canada-United States Border (Jun. 2005) at ¶ 3.2.3(a) (Arrangement G). This document is available on the Commission's web site at http://www.fcc.gov/ib/sand/agree/files/can-nb/764_806.pdf. Note, however, that Arrangement G is based upon the pre-consolidation band plan. The United States and Canada are currently working a replacement arrangement which will maintain the sharing principles detailed in Arrangement G but reflect the current U.S. domestic channel plan.

[283] We note that we have designated no cross-border interoperability channels with Mexico in the 700 MHz band at this time.

[284] 47 C.F.R. § 90.531(b)(1)(i).

[285] *See Fourth Report & Order*, 16 FCC Rcd at 2050 ¶ 85.

[286] 2008 NPSTC Petition at 7.

[287] *Id*.

[288] *Id*. Motorola also voices its support for permitting "secondary use" of narrowband data interoperability channels. *See* Motorola NPSTC Petition Comments at 2.

communications on these channels affect the ability of licensees in the border regions to exchange data with counterpart operators in Canada?[289]

3. Reserve Channels

112. *Background.* Section 90.531(b)(2) of the Commission's rules reserves forty-eight 6.25 kilohertz bandwidth channel pairs for future designation.[290] The Commission held these channels in reserve for designation in accordance with developing needs.[291]

113. In its 2008 petition, NPSTC proposed that all 48 reserve channel pairs be designated for use by temporary deployable mobile trunked infrastructure that could be transported into an incident area to assist with emergency response and recovery.[292] NPSTC observed that deployable infrastructure has become increasingly available and noted that "[s]everal 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."[293] According to NPSTC, designating channels for deployable trunked use would allow 700 MHz licensees to pre-program these channels into their subscriber radios, 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."[294]

114. Accordingly, NPSTC proposed that the narrowband reserve channels be grouped into six sets of four 12.5 kilohertz bandwidth channel pairs, allowing for nationwide pre-designation of deployable trunking groups.[295] NPSTC further proposed that (i) equipment operated under this channel designation should comply with ANSI/TIA-102 (Project 25) standards to promote interoperability across agencies, (ii) mobiles and portables should be licensed by rule,[296] and (iii) transportable "fixed" (base and relay) stations should be individually licensed as "temporary" with the owner of the infrastructure designating an area of operation, up to and including "nationwide."[297]

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[289] The existing agreement with Canada designates channels 921/1881 and 922/1882 for interoperable data communications in the sharing zone. *See* Arrangement G at ¶ 3.2.3(a).

[290] 47 C.F.R. § 90.531(b)(2).

[291] *See First Report and Order*, 14 FCC Rcd at 170 ¶ 32.

[292] 2008 NPSTC Petition at 7.

[293] *Id*. at 8.

[294] *Id*.

[295] 2008 NPSTC Petition at 9. Although NPSTC indicates that the reserve channels should be grouped into "four sets of 6 channels each," the channel chart attached to its Petition indicates that the channels actually would be grouped into six sets of channels, with each set being composed of 8 paired 6.25 kilohertz channels (or 4 paired 12.5 kilohertz channels if adjacent 6.25 kilohertz channels are combined), as follows: (Set 1) 37/997, 38/998, 117/1077, 118/1078, 197/1157, 198/1158, 217/1237, 218/1238; (Set 2) 61/1021, 62/1022, 141/1101, 142/1102, 221/1181, 222/1182, 301/1261, 302/1262; (Set 3) 77/1037, 78/1038, 157/1117, 158/1118, 237/1197, 238/1198, 317/1277, 318/1278; (Set 4) 643/1603, 644/1604, 723/1683, 724/1684, 803/1763, 804/1764, 883/1843, 884/1844; (Set 5) 683/1643, 684/1644, 763/1723, 764/1724, 843/1803, 844/1804, 923/1883, 924/1884; and (Set 6) 699/1659, 700/1660, 779/1739, 780/1740, 859/1819, 860/1820, 939/1899, 940/1900.

[296] Any public safety entity meeting the requirements of § 90.523 may operate mobile or portable units on interoperability channels in the 700 MHz band without specific authorization from the Commission, provided it holds a Part 90 license. *See* 47 C.F.R. § 90.525(a).

[297] 2008 NPSTC Petition at 9.

115. NPSTC acknowledged that "[t]echnical coordination of these systems on a nationwide basis presents a challenge."[298] NPSTC indicated it "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."[299] NPSTC further indicated that "[i]f 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."[300] NPSTC recommended that the Commission seek input from these technical groups before making the specific designation of which sets of channels are associated with which of the trunking groups, as well as other technical parameters that must be established before finalizing the rules for these deployable systems.[301]

116. In response to the 2008 NPSTC Petition, Motorola recommends that we seek comment on how to ensure that temporary facilities adequately protect co-channel and adjacent channel incumbents.[302] Virginia agrees that the NPSTC proposal may be desirable in principle, but argues that any available 700 MHz reserve narrowband channels should be made available "solely for statewide radio systems with an ERP cap of 20 watts."[303]

117. In December 2012, the Los Angeles Regional Interoperable Communications System Joint Powers Authority (LA-RICS) filed a request for waiver to permit LA-RICS and its member public safety entities to apply for the 700 MHz reserve channels in the Los Angeles metropolitan area and integrate those frequencies into the LA-RICS system.[304] LA-RICS previously planned to use the T-Band (470-512 MHz) for voice communications.[305] However, Section 6103 of the Public Safety Spectrum Act requires public safety T-Band incumbents such as LA-RICS to eventually vacate the T-Band.[306] In light of the legislation, LA-RICS submits that the only viable approach to meet its immediate and long term communications needs is to deploy a "hybrid" system that operates on both 700 MHz and T-Band and that will facilitate eventual T-Band migration.[307] LA-RICS further states that the hybrid system will require more 700 MHz narrowband channels than are currently available and therefore requests access to all of the 700 MHz reserve channels.[308] On January 11, 2013, the Public Safety and Homeland Security Bureau sought public comment on the LA-RICS waiver request.[309]

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[298] *Id*.

[299] *Id*.

[300] *Id*.

[301] *See id*. at 10.

[302] Motorola NPSTC Petition Comments at 3.

[303] Virginia Comments at 3.

[304] 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).

[305] *Id*. at 3.

[306] Public Safety Spectrum Act, § 6103.

[307] LA-RICS Waiver Request at 5.

[308] *Id*. at 7.

[309] Public Safety and Homeland Security Bureau Seeks Comment on Request for Waiver By Los Angeles Regional Interoperable Communications System Joint Powers Authority to Apply for 700 MHz "Narrowband Reserve Channels," *Public Notice*, RM 11433, DA 13-39 (PSHSB rel. Jan. 11, 2013).

118. *Discussion.* We invite comment on potential uses of the 700 MHz narrowband reserve channels in light of both NPSTC's petition and the LA-RICS waiver request. Would designating the narrowband reserve channels for deployable mobile trunked infrastructure be a practical and efficient utilization of these channels, as NPSTC proposes? The Katrina Panel Report found that few of the public safety agencies directly responding to Hurricane Katrina had mobile trunked infrastructure that could be transported into the incident areas.[310] Is this the case for most public safety agencies across the country currently and for the foreseeable future, and if so, would it be an efficient use of scarce spectrum resources to designate all of the reserve narrowband channels for a function that only a small percentage of public safety entities could perform? Could the same benefits be achieved by simply requiring deployable equipment to operate on the narrowband channels already designated for general and/or state use in the affected area (*i.e*., using the same channels as the permanent communications facilities that were damaged and/or incapacitated by an emergency event).

119. If we were to authorize temporary use of deployable infrastructure on reserve channels, we seek comment, as requested by Motorola, on how we would ensure that these temporary facilities adequately protect co-channel and adjacent channel incumbents. We also seek comment on NPSTC's proposal that the Commission seek input from the Project 25 Steering Committee and the Private Radio Section of the Telecommunications Industry Association prior to adopting specific channel designations.[311] Finally, we seek comment on how licensees deploying temporary stations along the Mexican and Canadian borders would ensure compliance with our international obligations. For example, only some of the reserve channels are primary to the U.S. along the U.S.-Canada and U.S.-Mexico borders.[312] Thus, the actual number of channels available to the U.S. for transportable fixed stations under NPSTC's proposal would vary depending upon which border or where along the border the transportable fixed station is located.[313]

120. As an alternative to the NPSTC proposal, we seek comment on whether some or all of the reserve channels should be made available for permanent as opposed to temporary use. In light of LA-RIC's waiver request and the eventual T-Band relocation required by the Public Safety Spectrum Act, would opening the reserve channels for licensing facilitate migration in T-Band metropolitan markets other than Los Angeles? Would it help address public safety capacity needs in non-T-Band areas? Should we designate a percentage of the 48 reserve channel pairs, *e.g.*, one half, for deployable infrastructure, and designate the remainder as State channels, as suggested by Virginia?[314]

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[310] The Katrina Panel observed that commercial cellular operators successfully deployed "cellular base stations on wheels" (COWs) throughout the affected region but very few public safety agencies had deployable equipment on hand when their primary systems failed. Katrina Panel Report at ii. *See also id*. at 23.

[311] 2008 NPSTC Petition at 9-10.

[312] *See* Arrangement G, Annex A. *See also* Protocol Between the Department of State of the United States of America and the Secretariat of Communications and Transportation of the United Mexican States Concerning the Allotment and Use of the 698-806 MHz Band for Terrestrial Non-Broadcasting Radiocommunication Services Along the Common Border, Appendix II (Nov. 2006) (Mexico 700 MHz Protocol).

[313] Along the U.S.-Canada border, the availability of U.S. primary channels varies depending upon region. *See* Arrangement G, Annex A.

[314] The Public Safety and Homeland Security Bureau has permitted, on a waiver basis, the use of deployable trunked systems on the 700 MHz interoperability spectrum subject to the outcome of the NPSTC petition (*i.e.*, should the Commission authorize the use of deployable trunked systems on the reserve spectrum those waiver recipients shall relocate to the reserve spectrum). *See, e.g.*, State of Colorado, *Order*, 27 FCC Rcd 6051 (PSHSB 2012); State of Florida, *Order*, 26 FCC Rcd 7730 (PSHSB 2011); City of Mesa, Police Department, *Order*, 26 FCC Rcd 8466 (PSHSB 2011).

4. Power Limit for Low Power Channels

121. *Background.* Sections 90.531(b)(3) and (4) of the Commission's rules designate twenty-four 6.25 kilohertz bandwidth channel pairs for low power mobile-only operations, which serve various on-scene incident response applications.[315] The low power channels fall into two categories: (1) low power channels subject to regional planning (comprised of channels 1-8 paired with 961-968 and 949-958 paired with 1909-1918);[316] and (2) low power channels available for nationwide itinerant operations (comprised of channels 9-12 paired with 969-972 and 959-960 paired with 1919-1920).[317] The rules exempt transmitters designed to operate only on the low power channels from the digital modulation requirement; thus, these transmitters may operate exclusively in an analog mode.[318] The rules specify a maximum permitted power on these channels of two watts effective radiated power (ERP).[319]

122. In its 2008 Petition, NPSTC argued that the two watt power limit for low power channels should be increased to 20 watts to make these channels more functional.[320] NPSTC argued that such an increase would allow for more effective on-scene communications in critical life-safety situations, particularly for fire department radios operating in high ambient noise environments.[321] Although licensees may operate in analog mode on the low power channels, NPSTC contends that "current power levels are inadequate to provide effective communications in several on scene environments, fire ground operations being one of those."[322]

123. Motorola supports raising the power limit to 20 watts ERP for the low power channels that are subject to regional planning, but recommends an antenna height limit of 20 feet above ground for these channels.[323] Motorola has concerns, however, about increasing the power limit for the nationwide itinerant low power channels, contending that "there is a higher potential for interference between uncoordinated 20 watt ERP operations."[324] Motorola suggests the issue of increasing power on the itinerant channels "be further explored in the rulemaking proceeding to ensure the best balance between obtaining coverage for itinerant users and minimizing interference."[325]

124. *Discussion.* We seek comment on NPSTC's proposal. Would an increase to 20 watts ERP overcome the problem of communicating in high ambient noise environments described by NPSTC?[326] Are there alternative solutions to the problem? For instance, could vehicular repeater system (VRS) units operating on General Use or State channels be used to overcome the problem of

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[315] 47 C.F.R. §§ 90.531(b)(3) and (4).

[316] *See* 47 C.F.R. § 90.531(b)(3). The Commission made the Regional Planning Committees responsible for determining the most appropriate low power application(s) on these channels and made the frequency coordinators responsible for providing appropriate interference protection. *See Third Memorandum Opinion and Order*, 15 FCC Rcd 19859 ¶ 38.

[317] *See* 47 C.F.R. § 90.531(b)(4). *See* § 90.7 for a definition of itinerant operations.

[318] *See* 47 C.F.R. § 90.535(a).

[319] *See* 47 C.F.R. §§ 90.531(b)(3) and (b)(4).

[320] 2008 NPSTC Petition at 10-11.

[321] *Id*. at 10.

[322] *Id*.

[323] Motorola NPSTC Petition Comments at 4.

[324] *Id*.

[325] *Id*.

[326] 2008 NPSTC Petition at10.

communicating in noisy environments?[327] How would increasing the power limit, as proposed by NPSTC, impact the potential for interference between users of low power devices operating at or near the same incident? Is there an interference concern only for the nationwide itinerant channels, as Motorola suggests, or would this be an issue for all of the low power channels if the power limit were raised?

125. Furthermore, our existing international coordination agreement with Canada limits the maximum power on all narrowband low power channels to 2 watts ERP for operations within 140 kilometers of the U.S.-Canada border.[328] Thus, NPSTC's proposal cannot be implemented in the U.S.-Canada border region unless the U.S. and Canada negotiate an increased power limit for these channels. We seek comment on whether it is practical or desirable to implement a power limit applicable to mobile devices that would only apply outside the U.S.-Canada border region.

D. Miscellaneous Issues

1. Project 25 Compliance Assessment Program

126. *Background.* Section 90.548 of the Commission's rules requires any radio unit designed to operate on the 700 MHz narrowband interoperability channels to conform to the TIA Project 25 (P25) technical standards.[329] However, until recently, no independent testing program existed to verify that radios represented by equipment vendors to be P25-compliant in fact meet all of the P25 requirements. Instead, individual vendors self-certified their equipment using their own internal testing criteria, resulting in instances where equipment that was ostensibly P25-compliant was not interoperable across vendors.[330] To remedy this problem, Congress appropriated funds intended for the creation of an independent assessment program to test compliance of all P25 equipment.[331] In 2008, the Department of Homeland Security's Office for Interoperability and Compatibility (OIC) and the National Institute of Standards and Technology (NIST), in partnership with industry and the emergency response community, launched the P25 Compliance Assessment Program (P25 CAP).[332] P25 CAP is a voluntary program that establishes an independent compliance assessment process to ensure that communications equipment conforms to P25 standards and is interoperable across vendors.[333] The program provides emergency response agencies with a means of verifying that the equipment they buy, regardless of vendor, is compliant with the P25 standards.

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[327] A VRS is a portable repeater that extends the coverage of radio systems by receiving signals from a base station and retransmitting them, on a different frequency, for reception by nearby mobile or portable radios, and receiving signals from nearby mobile or portable radios and retransmitting them to the base station. VRS units are typically used to extend coverage into buildings.

[328] *See* Arrangement G at ¶ 3.2.3(b). There is no similar limitation for operations on these narrowband low power channels along the U.S.-Mexico border.

[329] 47 C.F.R. § 90.548.

[330] *See* Motorola Report entitled "P25 Compliance and Motorola" (Feb. 11, 2008) at 1 (stating "P25 marketplace experience has shown that even with many P25/TIA-102 Standard documents, manufacturers can interpret the written standards differently. This led to early interoperability issues between some of the P25 manufacturers."). This Motorola document is available at http://ocics.ongov.net/documents/P25_Compliance_and_Motorola.pdf. *See also* Tait Radio Communications White Paper entitled "Genuine P25 Interoperability for Public Safety Agencies" (2011) at 4 (stating "[t]he reality is that not all P25 radios work on all P25 networks as the standards allow room for interpretation."). This Tait Radio Communications document is available at http://www.alaskalandmobileradio.org/pdf/TaitWhitePaperInteroperabilityV1-Apr11.pdf.

[331] *See* Science, State, Justice, Commerce and Related Agencies Appropriations Act of 2006, Pub. L. No. 109-108, § 605, 119 Stat. 2290, 2302; *see* H. R. Rep. No. 109-241,at 81(2005); S. Rep. No. 109-088, at 45 (2005).

[332] *See* Public Safety Communications Research program website at http://www.pscr.gov/projects/lmr/p25_cap/p25_cap.php.

[333] *Id.*

127. *Discussion.* Although Section 90.548 requires 700 MHz radios to conform to P25 standards with respect to operation on the narrowband interoperability channels, the rule does not currently reference P25 CAP or require that such equipment be P25 CAP-certified. Consequently, some 700 MHz narrowband licensees may be using equipment that is nominally P25-compliant but has not been independently tested and is not interoperable with equipment from other vendors used by other licensees. We believe that requiring all 700 MHz narrowband equipment to be P25 CAP-certified would enhance interoperability in the band and would provide assurance to licensees in the band that their equipment will be interoperable across vendors regardless of which vendor they choose. We therefore propose to require all vendors of 700 MHz narrowband equipment designed to operate on the interoperability channels to obtain P25 CAP certification prior to marketing or sale of such equipment to 700 MHz narrowband licensees. We seek comment on this proposal. To what degree are vendors already submitting their 700 MHz narrowband equipment for P25 CAP testing and certification? We note that while P25 CAP is a voluntary program, some federal agencies have made P25 CAP certification a required condition for use of federal grant funds to purchase P25 equipment.[334] Would requiring P25 CAP certification in our rules for 700 MHz narrowband equipment enhance interoperability? Would it enhance competition in the equipment market by giving licensees more flexibility to choose among competing vendors? Would it impose any costs on vendors or licensees that should be taken into account?

128. We also seek comment on the appropriate timeline for implementing our proposal. We do not propose to require P25 CAP certification for equipment that 700 MHz narrowband licensees have already purchased or that is already in use. We also believe that equipment vendors should be afforded sufficient time to complete the P25 CAP testing and certification process for new or newly marketed equipment. At the same time, to the extent that vendors are already submitting their equipment for P25 CAP certification voluntarily, or may have incentive to do so in light of our proposal in this *Notice*, a prolonged transition may not be necessary. We therefore seek comment on whether we should require CAP P25 certification for all 700 MHz narrowband equipment marketed or sold as of the effective date of rules adopted in this proceeding, or whether we should adopt a different transition period.

2. ACP Requirements for Class B Signal Boosters

129. *Background.* As explained previously, Section 90.543(a) of the Commission's rules establishes adjacent channel power (ACP) limits[335] for transmitting devices operating on 700 MHz public safety narrowband frequencies.[336] These ACP limits establish in-band emission limits applicable to all 700 MHz narrowband devices, including Class A and Class B signal boosters.[337] Section 90.543(c) also specifies less restrictive out-of-band emission limits for emissions outside the 700 MHz public safety narrowband spectrum.[338] The Commission designed the ACP limits to minimize adjacent channel

[334] *See* US Dept. of Homeland Security, Office for Interoperability and Compatibility, Project 25 Compliance Assessment Program at ¶ 1.1 (Mar. 2010).

[335] *See supra* ¶ 10.

[336] 47 C.F.R. § 90.543(a).

[337] Signal boosters are devices installed at a fixed location to improve communications by automatically receiving, amplifying and retransmitting signals received from base, fixed or portable stations. 47 C.F.R. § 90.7. Signal boosters are designed to boost signals without changing the frequency of the transmitted signal or exceeding the bandwidth authorized for its transmission. *Id*. These devices are often used in public safety communications to improve radio coverage inside buildings. *See* Dekolink slide presentation, submitted June 18, 2008) (Dekolink Presentation) at 3 (on file in PS Docket 13-87).

[338] *See* 47 C.F.R. § 90.543(c).

interference while accommodating a "continuously evolving equipment market in ways that favor competition without favoring any particular technology."[339]

130. *Discussion.* Dekolink, a manufacturer of 700 MHz public safety narrowband equipment, has raised concerns with Commission staff that certain signal boosters on the market today may operate out of compliance with the ACP requirements under certain conditions.[340] Specifically, Dekolink suggests that Class B signal boosters currently authorized to operate in the 700 MHz public safety narrowband spectrum typically produce intermodulation products in excess of ACP limits when simultaneously retransmitting two or more signals.[341] Dekolink indicates that it discovered this phenomenon when it sought to obtain equipment authorization for one of its own products and was denied certification because of such effects.

131. In its presentation to Commission staff, Dekolink provided spectrum analyzer plots of its product, showing the fundamental and intermodulation peaks when retransmitting two and three signals, to delineate this phenomenon graphically.[342] Figure 3 below is a reprint of the spectrum analyzer plot provided by Dekolink for its product when retransmitting two signals (the two, higher peaks in the center of the plot are the fundamental signals, while the two lower peaks on either side of the fundamental peaks are the peaks of the intermodulation products).

[339] *See supra* note 8. *First Report and Order*, 14 FCC Rcd at 214 ¶ 138.

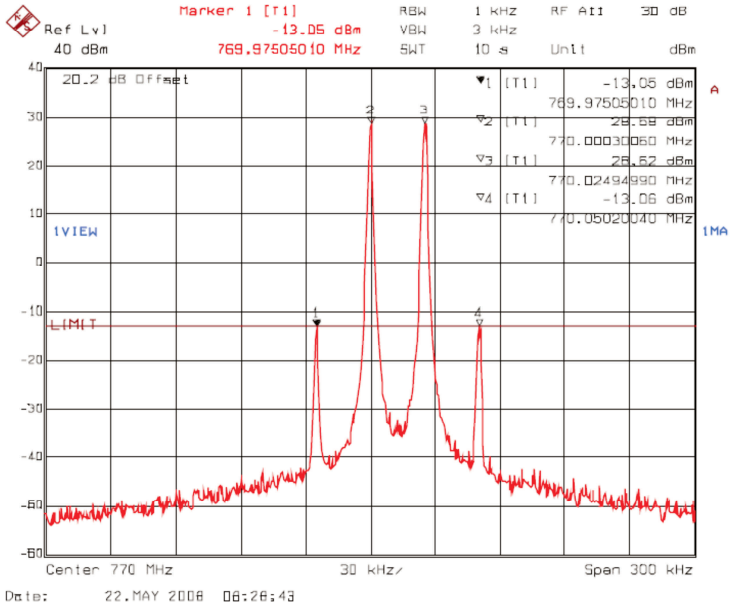
[340] Dekolink Presentation at 7-12.

[341] *See id*.

[342] Commission rules require RF emitters to be tested for spurious emissions during the equipment authorization process. 47 C.F.R. § 2.1051. Consequently, it is Commission staff policy to instruct laboratories to test Part 90 Class B signal boosters with multiple carriers for intermodulation products before an equipment authorization is granted. *See* Federal Communications Commission, Office of Engineering and Technology, Licensed Devices General Technical Requirements at 32-33 (2005), *available at* http://www.fcc.gov/oet/ea/presentations/files/oct05/Licensed_Devices_SD.pdf (setting forth intermodulation testing guidelines, which state that "[t]ransmitters and amplifiers designed to handle multiple channels must be tested with multiple carriers for each emission type to show intermodulation products") and KDB 935210 at http://www.fcc.gov/labhelp.

FIGURE 3: DEKOLINK GRAPH

PLOT#: 1 Intermodulation with 2 RF signal inputs/outputs
DownLink: Fc= 700 MHz (-36.6 dBm), Fc+25 kHz (-36.4 dBm)



132. Dekolink requests that the Commission exempt Class B signal boosters from the ACP requirements of Section 90.543(a), but only when multiple signals are retransmitted.[343] Dekolink further suggests, however, that the Commission continue to apply the less restrictive out-of-band emission limits of Section 90.543(c) in such situations.[344]

133. We seek comment on Dekolink's proposal. Does 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? Is there any evidence that these devices are creating interference problems today? Are there any technical limitations that prevent these devices from being designed and manufactured to meet the current ACP limits? Assuming harmful interference can be avoided through filters and/or other technical remedies, to what extent would the incorporation of such remedies adversely impact the cost and/or other performance characteristics of these devices?

134. More generally, given the relatively low power limits of Class B signal boosters[345] and the prohibition on their mobile use,[346] would exempting this class of devices from the ACP requirements

[343] Dekolink Presentation at 8, 13-14.

[344] *See id.*

[345] 47 C.F.R. § 90.219(d)(3) (limiting signal boosters to an effective radiated power of 5 watts). This rule becomes effective 30 days after publication in the Federal Register of the Commission's most recent order on signal boosters.
(continued....)

of Section 90.543(a) when multiple signals are retransmitted unreasonably elevate the potential for harmful interference to adjacent channel users? If we were to exempt Class B signal boosters from the ACP limits when retransmitting multiple signals, would the less restrictive out-of-band emission limits set forth in Section 90.543(c) represent a suitable alternative standard for limiting the interference potential of these devices?[347] Alternatively, rather than exempt Class B signal boosters entirely from ACP limits when they retransmit multiple signals, should the Commission instead impose less stringent limitations on these devices under such circumstances or more generally?

135. As Dekolink notes in its presentation, many local jurisdictions have adopted ordinances requiring new and renovated buildings to provide coverage for first responders, which typically requires the installation of signal boosters to overcome signal loss from building walls and other attenuating factors.[348] Would requiring compliance with the existing rule adversely impact the ability of building owners to meet their obligations in this regard?

3. Narrowband Power Limits

136. *Background*. Two sets of rules governing power limits and, by extension, antenna heights, for transmitters operating on the 700 MHz public safety narrowband channels appear to be in conflict. Specifically, Section 90.541 of the Commission's rules provides power limits for several categories of transmitters using a combination of effective radiated power (ERP) and transmitter output power (TPO) limits.[349] Section 90.545(b) of the Commission's rules, however, overlaps and conflicts in some respects with Section 90.541 by providing maximum ERP and antenna height above average terrain (HAAT) limits for mostly the same categories of transmitters.[350]

137. Section 90.541 deals strictly with power limits, whereas Section 90.545 establishes criteria for public safety licensees to protect co-channel and adjacent-channel full power TV and DTV broadcast stations from interference. We summarize each rule's limits and the categories of transmitters in the table below:

Parameter	**§ 90.541**	**§ 90.545(b)**
Base station power	§ 90.635(a), (b), and (c) (limits are in ERP)	1000 watts ERP
Base HAAT	N/A, but § 90.635 has HAAT limits	Refers to Figure B in § 90.309 for HAAT > 152 meters
Control station power	30 watts TPO	200 watts ERP

(...continued from previous page)
See Amendment of Parts 1, 2, 22, 24, 27, 90 and 95 of the Commission's Rules to Improve Wireless Coverage Through the Use of Signal Boosters, WT Docket No. 10-4, *Report and Order*, 28 FCC Rcd 1663 (2013).

[346] *See id*. at 47 C.F.R. § 90.219(d)(4).

[347] We note that any change in rules to exempt Class B signal boosters from the ACP requirements would occur without prejudice to any future enforcement action taken by the Commission with regard to manufacturers who manufactured and marketed devices out of compliance with our rules.

[348] Dekolink Presentation at 4-6. *See, e.g.*, Burbank, Cal., Code § 7-616.1, available at http://www.rfsolutions.com/Burbank_CA.pdf.

[349] 47 C.F.R. § 90.541.

[350] 47 C.F.R. § 90.545(b). The mobile station antenna height is not HAAT, but rather antenna height above ground level.

Control station HAAT	N/A	61 meters
Mobile station power	30 watts TPO	30 watts ERP
Mobile station ant. height	N/A	6.1 meters
Portable station power	3 watts TPO	3 watts ERP
Low power channels	2 watts ERP	N/A

138. *Discussion.* In accordance with our goal of harmonizing and eliminating redundant, conflicting, or unnecessary rules, we propose to consolidate Sections 90.541 and 90.545(b) into a more comprehensive Section 90.541. We seek comment on augmenting Section 90.541 to include the antenna height and HAAT limits that exist in Section 90.545(b). We tentatively conclude that we should use ERP limits from Section 90.545(b) in lieu of the TPO limits listed in Section 90.541. The Commission generally favors ERP limits over TPO limits because "ERP more accurately defines the actual operating power of the radio."[351] TPO simply describes the transmitter power without factoring other components of a radio system, such as the antenna and any cables used to connect the transmitter thereto. In contrast, ERP describes the power of the entire radio system by measuring the TPO plus the antenna gain minus any loss factors.[352] We seek comment on our tentative conclusion. Would a change in the policy from TPO to ERP for certain operations render incumbent users or previously certified equipment non-compliant?

139. In response to a NPSTC proposal, Motorola requests that we consider establishing a 3 watt TPO limit for devices designed to operate on the low power channels.[353] We tentatively conclude, however, that we should retain an ERP-only limit for these devices. As noted above, we are seeking comment on raising the ERP limit for low power devices.[354] Furthermore, the Commission has previously concluded that an additional TPO limit "serves no meaningful purpose" if power limits are already set in terms of ERP.[355]

140. We also seek comment on correcting a cross reference in Section 90.541(a). Section 90.541(a) erroneously refers to paragraphs (b) and (c) of Section 90.635 for power limits of base station transmitters. Paragraph (b) in Section 90.635, however, applies to mobile units, not base stations, and paragraph (c) does not exist. Consequently, we propose to correct the cross-reference in Section 90.541(a) to refer to paragraph (a) and the associated Table in Section 90.635 for power limits and antenna heights of base station transmitters.

141. More broadly, by consolidating all power limits into Section 90.541(a), we seek comment on deleting Section 90.545 in its entirety, including criteria for land mobile stations to protect full power TV and DTV stations. Now that the DTV transition has concluded in the U.S. and full power TV and DTV stations have vacated the 700 MHz band, we tentatively conclude that the TV/DTV protection requirements of Section 90.545 are no longer necessary. While low power TV and TV translator stations

[351] *See* Amendment of Part 90 of the Commission's Rules and Policies for Applications and Licensing of Low Power Operations in the Private Land Mobile Radio 450-470 MHz Band, WT Docket No. 01-146, RM-9966, *Report and Order*, 18 FCC Rcd 3948, 3954 ¶ 13 (2003) (*Low Power R&O*) *citing* 1998 Biennial Review-47 C.F.R. Part 90-Private Land Mobile Radio Services, WT Docket No. 98-182, *Memorandum Opinion and Order and Second Report and Order,* 17 FCC Rcd 9830, 9840 ¶ 23 (2002).

[352] *Low Power R&O*, 18 FCC Rcd 3954 ¶ 12.

[353] Motorola NPSTC Petition Comments at 4.

[354] *See supra* ¶¶ 124-125.

[355] *Low Power R&O*, 18 FCC Rcd 3954 ¶ 12.

still operate in the 700 MHz band, Section 90.545 offers no protection criteria specific to such stations.[356] We seek comment on our tentative conclusion.

4. Interoperability Network Access Code

142. *Background.* Section 90.548 of the Commission's rules requires any radio unit designed to operate on the interoperability channels at 700 MHz to conform to the TIA Project 25 technical standards.[357] Radio units employing the Project 25 standard use a pre-programmed digital address, called a Network Access Code (NAC), to "hear" only communications directed to that address from another radio. Neither the Commission's rules nor the Project 25 standard requires a user to pre-program a particular NAC when operating on the interoperability channels. Many users employ the code "$293" because it is the default code pre-programmed into Project 25-enabled radios manufactured by Motorola. Some public safety organizations, however, have attempted to standardize the NAC used on interoperability channels using an alternative designation.[358]

143. *Discussion.* We seek comment on whether the Commission should specify a standardized NAC by rule for operation on the 700 MHz interoperability channels.[359] Do users employing different NACs pose an obstacle to interoperability? If we were to specify a NAC in our rules, what code should be used? Should users employ the "$F7E" code, which enables them to hear all communications on a channel?[360] If not, what code would be most appropriate? Furthermore, we seek comment on whether multiple NACs are ever needed at the site of an incident to allow users to communicate in smaller talk groups on the interoperability channels. If so, should the NACs be left to an industry standard, which would be more flexible than codifying a single code into our rules?

5. User Access to Interoperability Channels

144. *Background.* Section 90.547(a) of the Commission's rules specifies that 700 MHz public safety narrowband mobile and portable transmitters "must be capable of operating on all of the designated nationwide narrowband Interoperability channels."[361] The rule does not specify whether it suffices if radios have the capability of being programmed to operate on any interoperability channel, or whether all interoperability channels must be simultaneously accessible to the user.

145. *Discussion.* We seek comment on amending Section 90.547(a) to require only that radios be capable of being programmed to operate on all sixty-four of the 6.25 kilohertz bandwidth interoperability channels in the 700 MHz band.[362] A similar rule applicable to radios in the 800 MHz

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[356] We note that 47 C.F.R. § 74.703(f) and (g) effectively render digital low power TV and TV translator stations secondary to existing and future commercial and public safety wireless licensees in the 700 MHz band, subject to procedures specified therein.

[357] 47 C.F.R. § 90.548.

[358] For example, the Texas Statewide Interoperability Executive Committee specifies a NAC of "$61F." *See* http://siec.wa.gov/projects/files/Standard_Channel_Nomenclature_for_the_Public_Safety_Interoperability_Channels.pdf.

[359] *See* letter from John S. Powell, Chair National Public Safety Telecommunications Council (NPSTC) Interoperability Committee to David L. Furth, Deputy Chief, Public Safety and Homeland Security Bureau,Sept. 11, 2011) (NPSTC Sept. 2011 Letter) at 3 (on file in PS Docket No. 13-87).

[360] Setting the NAC to "$F7E" will "unsquelch" the receiver allowing it to hear all incoming signals. *See* U.S. Department of Homeland Security, Office of Emergency Communications National Interoperability Field Operations Guide Version 1.4 (Jan. 2011) at 56.

[361] 47 C.F.R. § 90.547(a). Mobile and portable transmitters designed to operate exclusively on the low power or data interoperability channels are exempt from this requirement. *See* 47 C.F.R. §§ 90.547(a)(1) and (2).

[362] Contiguous interoperability channels may be combined for wider band operation. *See* 47 C.F.R. § 90.531(d).

band states that public safety 800 MHz radios "must have the capability to be programmed for operation on the [five] 800 MHz mutual aid channels."[363] Is it sufficient to allow the radio to be capable of being programmed to operate on any of the interoperability channels or should radios allow the user to access any of the interoperability channels at any time?

6. Analog Operation on the Interoperability Channels

146. *Background.* Section 90.548(a)(1) of the Commission's rules states that transmitters designed to operate on 700 MHz narrowband interoperability channels "shall include" a mode of operation conforming to the Project 25 standard.[364] Furthermore, Section 90.535(a) states that mobile and portable transmitters may be capable of operating using analog modulation as a secondary mode of operation.[365] Considered together, these two rules imply that analog operation is permitted on the interoperability channels on a secondary basis.

147. *Discussion.* We seek comment on whether we should permit users to operate their mobile and portable equipment in analog mode on the interoperability channels. We are concerned that allowing two modes of operation on these channels will impede interoperability.[366] Commenting parties in favor of allowing both modes of operation should address what benefits may accrue from allowing analog operation on the interoperability channels and whether such benefits outweigh the impairment to interoperability resulting from allowing both modes of operation. Commenting parties in favor of permitting only operations conforming to the Project 25 standard should address how the lack of analog FM capability would affect the sometimes-perceived benefits of analog FM operations, *e.g.,* intelligibility under weak signal conditions or in high ambient acoustic noise situations.[367]

V. PROCEDURAL MATTERS

A. Regulatory Flexibility Analysis

148. As required by the Regulatory Flexibility Act of 1980, *see* 5 U.S.C. § 603, the Commission has prepared a Final Regulatory Flexibility Analysis (FRFA) with respect to the *Seventh Report and Order* and Initial Regulatory Flexibility Analysis (IRFA) with respect to the *Notice of Proposed Rulemaking* of the possible significant economic impact on small entities of the policies and rules addressed in this document. The FRFA is set forth in Appendix A and the IRFA is set forth in Appendix B. Written public comments are requested on the IRFA. These comments must be filed in accordance with the same filing deadlines as comments filed in response to this *Notice of Proposed Rulemaking* as set forth herein, and they should have a separate and distinct heading designating them as responses to the IRFA. The Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, will send a copy of the *Notice of Proposed Rulemaking*, including this IRFA, to the Chief Counsel for Advocacy of the Small Business Administration (SBA).[368]

B. Paperwork Reduction Act Analysis

149. The actions taken in the *Seventh Report and Order* in WT Docket 96-86 have been analyzed with respect to the Paperwork Reduction Act of 1995, Pub. L. No. 104-13, and found to impose no new or modified recordkeeping requirements or burdens on the public.

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[363] 47 C.F.R. § 90.203(i).

[364] *See* 47 C.F.R. § 90.548(a)(1).

[365] *See* 47 C.F.R. § 90.535(a).

[366] *See* NPSTC Sept. 2011 Letter at 2-3.

[367] *See supra* ¶ 122.

[368] *See* 5 U.S.C. § 603(a).

150. The *Notice of Proposed Rulemaking* in PS Docket 13-87 solicits possible proposed information collection requirements by seeking comment on requiring manufacturers to certify 700 MHz narrowband equipment under the Project 25 Compliance Assessment Program (P25 CAP).[369] The Commission, as part of its continuing effort to reduce paperwork burdens, invites the general public and the Office of Management and Budget (OMB) to comment on the possible proposed information collection requirements contained in this document, as required by the Paperwork Reduction Act of 1995, Public Law 104-13. In addition, pursuant to the Small Business Paperwork Relief Act of 2002, Public Law 107-198, *see* 44 U.S.C. 3506(c)(4), we seek specific comment on how we might further reduce the information collection burden for small business concerns with fewer than 25 employees.

C. Comment Filing Procedures

151. Pursuant to Sections 1.415 and 1.419 of the Commission's rules, 47 C.F.R. §§ 1.415, 1.419, interested parties may file comments and reply comments on or before the dates indicated on the first page of this document. All filings related to the *Notice of Proposed Rulemaking* should refer to **PS Docket 13-87**. Comments may be filed using: (1) the Commission's Electronic Comment Filing System (ECFS), (2) the Federal Government's eRulemaking Portal, or (3) by filing paper copies. *See* Electronic Filing of Documents in Rulemaking Proceedings, 63 Fed. Reg. 24,121 (1998).

- Electronic Filers: Comments may be filed electronically using the Internet by accessing the ECFS: http://www.fcc.gov/cgb/ecfs. Filers should follow the instructions provided on the website for submitting comments.
- Paper Filers: Parties who choose to file by paper must file an original and one copy of each filing. If more than one docket or rulemaking number appears in the caption of this proceeding, filers must submit two additional copies for each additional docket or rulemaking number.

  Filings can be sent by hand or messenger delivery, by commercial overnight courier, or by first-class or overnight U.S. Postal Service mail. All filings must be addressed to the Commission's Secretary, Office of the Secretary, Federal Communications Commission.

  - All hand-delivered or messenger-delivered paper filings for the Commission's Secretary must be delivered to FCC Headquarters at 445 12th St., SW, Room TW-A325, Washington, DC 20554. The filing hours are 8:00 a.m. to 7:00 p.m. All hand deliveries must be held together with rubber bands or fasteners. Any envelopes and boxes must be disposed of before entering the building.
  - Commercial overnight mail (other than U.S. Postal Service Express Mail and Priority Mail) must be sent to 9300 East Hampton Drive, Capitol Heights, MD 20743.
  - U.S. Postal Service first-class, Express, and Priority mail must be addressed to 445 12th Street, SW, Washington DC 20554.

152. Interested parties may view documents filed in this proceeding on the Commission's Electronic Comment Filing System (ECFS) using the following steps: (1) Access ECFS at http://www.fcc.gov/cgb/ecfs. (2) In the introductory screen, click on "Search for Filed Comments." (3) In the "Proceeding" box, enter the numerals in the docket number. (4) Click on the box marked "Retrieve Document List." A link to each document is provided in the document list. The public may inspect and copy filings and comments during regular business hours at the FCC Reference Information Center, 445 12th Street, SW, Room CY-A257, Washington, DC 20554. The public may also purchase filings and comments from the Commission's duplicating contractor, Best Copy and Printing, Inc., Portals II, 445

[369] *See* ¶¶ 126-128.

12th Street, SW, Room CY-B402, Washington, DC 20554, telephone 1-800-378-3160, or via e-mail to fcc@bcpiweb.com. The public may also download this Fourth Report and Order and Fifth Further Notice of Proposed Rulemaking from the Commission's web site at http://www.fcc.gov/.

153. People with Disabilities: To request materials in accessible formats for people with disabilities (braille, large print, electronic files, audio format), send an e-mail to fcc504@fcc.gov or call the Consumer & Governmental Affairs Bureau at 202-418-0530 (voice), 202-418-0432 (tty).

154. Commenters who file information that they believe should be withheld from public inspection may request confidential treatment pursuant to Section 0.459 of the Commission's rules. Commenters should file both their original comments for which they request confidentiality and redacted comments, along with their request for confidential treatment. Commenters should not file proprietary information electronically. *See* Examination of Current Policy Concerning the Treatment of Confidential Information Submitted to the Commission, *Report and Order*, 13 FCC Rcd 24816 (1998), *Order on Reconsideration*, 14 FCC Rcd 20128 (1999). Even if the Commission grants confidential treatment, information that does not fall within a specific exemption pursuant to the Freedom of Information Act (FOIA) must be publicly disclosed pursuant to an appropriate request. *See* 47 C.F.R. § 0.461; 5 U.S.C. § 552. We note that the Commission may grant requests for confidential treatment either conditionally or unconditionally. As such, we note that the Commission has the discretion to release information on public interest grounds that does fall within the scope of a FOIA exemption.

D. Ex Parte Rules – Permit-But-Disclose Proceeding

155. This proceeding shall be treated as a "permit-but-disclose" proceeding in accordance with the Commission's ex parte rules.[370] Persons making ex parte presentations must file a copy of any written presentation or a memorandum summarizing any oral presentation within two business days after the presentation (unless a different deadline applicable to the Sunshine period applies). Persons making oral ex parte presentations are reminded that memoranda summarizing the presentation must (1) list all persons attending or otherwise participating in the meeting at which the ex parte presentation was made, and (2) summarize all data presented and arguments made during the presentation. If the presentation consisted in whole or in part of the presentation of data or arguments already reflected in the presenter's written comments, memoranda or other filings in the proceeding, the presenter may provide citations to such data or arguments in his or her prior comments, memoranda, or other filings (specifying the relevant page and/or paragraph numbers where such data or arguments can be found) in lieu of summarizing them in the memorandum. Documents shown or given to Commission staff during ex parte meetings are deemed to be written ex parte presentations and must be filed consistent with 47 C.F.R. § 1.1206(b). In proceedings governed by 47 C.F.R. § 1.49(f) or for which the Commission has made available a method of electronic filing, written ex parte presentations and memoranda summarizing oral ex parte presentations, and all attachments thereto, must be filed through the electronic comment filing system available for that proceeding, and must be filed in their native format (*e.g.*, .doc, .xml, .ppt, searchable .pdf). Participants in this proceeding should familiarize themselves with the Commission's ex parte rules.

VI. ORDERING CLAUSES

156. Accordingly, IT IS ORDERED that, pursuant to Sections 1, 4(i), 303, 316, 332 and 337 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 154(i), 303, 316, 332 and 337, this *Seventh Report and Order and Notice of Proposed Rulemaking* IS HEREBY ADOPTED.

157. IT IS FURTHER ORDERED that the amendments of the Commission's Rules as set forth in Appendix C ARE ADOPTED, effective thirty days from the date of publication in the Federal Register.

[370] 47 C.F.R. § 1.1200 *et seq*.

158. IT IS FURTHER ORDERED that pursuant to applicable procedures set forth in Sections 1.415 and 1.419 of the Commission's Rules, 47 C.F.R. §§ 1.415, 1.419, interested parties may file comments on the *Notice of Proposed Rulemaking* on or before 60 days after publication in the Federal Register, and reply comments on or before 90 days after publication in the Federal Register.

159. IT IS FURTHER ORDERED that the Commission SHALL SEND a copy of this *Seventh Report and Order and Notice of Proposed Rulemaking* in a report to be sent to Congress and the General Accounting Office pursuant to the Congressional Review Act, 5 U.S.C. § 801(a)(1)(A).

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch
Secretary

APPENDIX A

Final Regulatory Flexibility Analysis
(*Seventh Report and Order*)

160. As required by the Regulatory Flexibility Act (RFA), an Initial Regulatory Flexibility Analysis (IRFA) was incorporated into the *Seventh Notice of Proposed Rule Making* (*Seventh Notice*) of this proceeding. The Commission sought written public comment on the IRFA. The RFA[371] requires that an agency prepare a regulatory flexibility analysis for notice-and-comment rulemaking proceedings, unless the agency certifies that "the rule will not, if promulgated, have a significant economic impact on a substantial number of small entities."[372] The RFA generally defines "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction."[373] In addition, the term "small business" has the same meaning as the term "small business concern" under the Small Business Act.[374] A "small business concern" is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration (SBA).[375] The present Final Regulatory Flexibility Analysis (FRFA) conforms to the RFA.

A. Need for, and Objectives of, the Seventh Report and Order

161. In the *Seventh Report and Order,* we adopt changes to our rules covering public safety narrowband spectrum at 769-775 MHz and 799-805 MHz in order to ensure that the technical standards in our rules remain up to date so public safety users can benefit from the latest narrowband technology. The changes we adopt include updating our Adjacent Channel Power (ACP) limits, clarifying our trunking rules and incorporating by reference the most current industry encryption and interoperability standards.

B. Summary of Significant Issues Raised by Public Comments in Response to the IRFA

162. There were no comments filed that specifically addressed the rules and policies proposed in the IRFA.

C. Description and Estimate of the Number of Small Entities to Which the Rules Will Apply

163. The RFA directs agencies to provide a description of and, where feasible, an estimate of the number of small entities that may be affected by the proposed rules, if adopted.[376] The RFA generally defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction."[377] In addition, the term "small business" has the

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[371] *See* 5 U.S.C. § 603. The RFA, *see* 5 U.S.C. § 601 *et seq*., has been amended by the Contract With America Advancement Act of 1996, Pub. L. No. 104-121, 110 Stat. 847 (1996) (CWAAA). Title II of the CWAAA is the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA).

[372] *See* 5 U.S.C. § 605(b).

[373] 5 U.S.C. § 601(6).

[374] 5 U.S.C § 601(3) (incorporating by reference the definition of "small business concern" in Small Business Act, 15 U.S.C. § 632). Pursuant to 5 U.S.C. § 601(3), the statutory definition of a small business applies "unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register."

[375] 15 U.S.C. § 632.

[376] 5 U.S.C. § 603(b)(3).

[377] 5 U.S.C. § 601(6).

same meaning as the term "small business concern" under the Small Business Act.[378] A small business concern is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the SBA.[379]

164. *Public Safety Radio Licensees*. As a general matter, Public Safety Radio Licensees include police, fire, local government, forestry conservation, highway maintenance, and emergency medical services.[380] For the purpose of determining whether a Public Safety Radio Licensee is a small business as defined by the SBA, we use the broad census category, Wireless Telecommunications Carriers (except Satellite). This definition provides that a small entity is any such entity employing no more than 1,500 persons.[381] The Commission does not require Public Safety Radio Licensees to disclose information about number of employees, so the Commission does not have information that could be used to determine how many Public Safety Radio licensees constitute small entities under this definition.

165. *700 MHz Guard Band Licenses.* In the *700 MHz Guard Band Order*, the Commission adopted size standards for "small businesses" and "very small businesses" for purposes of determining their eligibility for special provisions such as bidding credits and installment payments.[382] A small business in this service is an entity that, together with its affiliates and controlling principals, has average gross revenues not exceeding $40 million for the preceding three years.[383] Additionally, a "very small business" is an entity that, together with its affiliates and controlling principals, has average gross revenues that are not more than $15 million for the preceding three years.[384] SBA approval of these definitions is not required.[385] An auction of 52 Major Economic Area (MEA) licenses commenced on September 6, 2000, and closed on September 21, 2000.[386] Of the 104 licenses auctioned, 96 licenses were sold to nine bidders. Five of these bidders were small businesses that won a total of 26 licenses. A second auction of 700 MHz Guard Band licenses commenced on February 13, 2001, and closed on February 21, 2001. All eight of the licenses auctioned were sold to three bidders. One of these bidders was a small business that won a total of two licenses.[387]

166. *Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing.* The Census Bureau defines this category as follows: "This industry comprises

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[378] 5 U.S.C. § 601(3) (incorporating by reference the definition of "small business concern" in 15 U.S.C. § 632). Pursuant to the RFA, the statutory definition of a small business applies "unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register." 5 U.S.C. § 601(3).

[379] Small Business Act, 15 U.S.C. § 632 (1996).

[380] *See* subparts A and B of Part 90 of the Commission's Rules, 47 C.F.R. §§ 90.1-90.22.

[381] *See* 13 C.F.R. §121.201, NAICS code 517210.

[382] *See* Service Rules for the 746-764 MHz Bands, and Revisions to Part 27 of the Commission's Rules, *Second Report and Order*, 15 FCC Rcd 5299 (2000).

[383] *Id*. at 5343 ¶ 108.

[384] *Id*.

[385] *Id*. At 5343 ¶ 108 n.246 (for the 746-764 MHz and 776-704 MHz bands, the Commission is exempt from 15 U.S.C. § 632, which requires Federal agencies to obtain Small Business Administration approval before adopting small business size standards).

[386] *See* "700 MHz Guard Bands Auction Closes: Winning Bidders Announced," *Public Notice*, 15 FCC Rcd 18026 (2000).

[387] *See* "700 MHz Guard Bands Auctions Closes: Winning Bidders Announced," *Public Notice*, 16 FCC Rcd 4590 (WTB 2001).

establishments primarily engaged in manufacturing radio and television broadcast and wireless communications equipment. Examples of products made by these establishments are: transmitting and receiving antennas, cable television equipment, GPS equipment, pagers, cellular phones, mobile communications equipment, and radio and television studio and broadcasting equipment."[388] The SBA has developed a small business size standard for Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing, which is: all such firms having 750 or fewer employees. According to Census Bureau data for 2007, there were a total of 939 establishments in this category that operated for part or all of the entire year. According to Census bureau data for 2007, there were a total of 919 firms in this category that operated for the entire year. Of this total, 771 had less than 100 employees and 148 had more than 100 employees.[389] Thus, under that size standard, the majority of firms can be considered small.

D. Description of Projected Reporting, Recordkeeping and Other Compliance Requirements

167. This *Seventh Report and Order* does not adopt a rule that will entail reporting, recordkeeping, and/or third-party consultation.

E. Steps Taken to Minimize Significant Economic Impact on Small Entities and Significant Alternatives Considered

168. The RFA requires an agency to describe any significant alternatives that it has considered in reaching its approach, which may include the following four alternatives (among others): (1) the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance or reporting requirements under the rule for small entities; (3) the use of performance, rather than design, standards; and (4) an exemption from coverage of the rule, or any part thereof, for small entities.[390]

169. In formulating rule changes in the *Seventh Report and Order*, we strived to ensure Public Safety Radio Licensees benefit from innovative new services. In each case cited below, we considered the alternative of leaving the rule unchanged but concluded the rule changes we adopt would reduce economic burdens and benefit Public Safety Radio Licensees, 700 MHz Guard Band Licenses, and/or Wireless Communications Equipment Manufacturers.

170. *Adjacent Channel Power*. The rule changes we adopt regarding Adjacent Channel Power (ACP) will result in cost savings to manufacturers by reducing the complexity of transmitters with a consequent savings to Public Safety Radio Licensees and 700 MHz Guard Band Licenses while at the same time maintaining the overall level of ACP protection necessary to guard against interference.

171. *Secondary Fixed Operations and Digital Station Identification*. The rule changes we adopt regarding secondary fixed operations and digital station identification will provide Public Safety Radio Licensees increased capability to meet their communications needs. Absent these rule changes, Public Safety Radio Licensees would endure increased regulatory burdens for no practical purpose.

172. *Trunking Requirement*. We clarify our trunking requirements to eliminate ambiguity in order to ensure Public Safety Radio Licensees benefit from the increased efficiency resulting from trunked operations. Absent this rule clarification, Public Safety Radio Licensees would be unable to reap the benefits of trunking on State License channels.

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[388] The NAICS Code for this service is 334220. *See* 13 C.F.R 121/201. *See also* http://factfinder.census.gov/servlet/IBQTable?_bm=y&-fds_name=EC0700A1&-geo_id=&-_skip=300&-ds_name=EC0731SG2&-_lang=en

[389] *See* http://factfinder.census.gov/servlet/IBQTable?_bm=y&-geo_id=&-fds_name=EC0700A1&-_skip=4500&-ds_name=EC0731SG3&-_lang=en

[390] *See* 5 U.S.C. § 603(c).

173. *Encryption and Narrowband Interoperability Standards*. We update our rules to reflect the most current industry standards for encryption and interoperability. To ensure a minimum impact on Public Safety Radio Licensees and Wireless Communications Equipment Manufacturers we grandfather equipment certified under the old standards, thus obviating the need for previously approved equipment to be recertified.

F. Federal Rules that may Duplicate, Overlap, or Conflict with the Proposed Rules

174. None.

G. Report to Congress

175. The Commission will send a copy of this *Seventh Report and Order*, including this FRFA, in a report to be sent to Congress pursuant to the Small Business Regulatory Enforcement Fairness Act of 1996.[391] In addition, the Commission will send a copy of the *Seventh Report and Order,* including this FRFA, to the Chief Counsel for Advocacy of the Small Business Administration. A copy of the *Seventh Report and Order* and FRFA (or summaries thereof) will also be published in the Federal Register.[392]

[391] *See* 5 U.S.C. § 801(a)(1)(A).

[392] *See* 5 U.S.C. § 604(b).

APPENDIX B

Initial Regulatory Flexibility Analysis
(*Notice of Proposed Rulemaking*)

176. As required by the Regulatory Flexibility Act of 1980, as amended ("RFA"),[393] the Commission has prepared this present Initial Regulatory Flexibility Analysis ("IRFA") of the possible significant economic impact on a substantial number of small entities that might result from adoption of the rules proposed in the *Notice of Proposed Rulemaking*. Written public comments are requested on this IRFA. Comments must be identified as responses to the IRFA and must be filed by the applicable deadlines for initial comments, or reply comments, as specified in the *Further Notice*. The Commission will send a copy of the *Notice of Proposed Rulemaking*, including this IRFA, to the Chief Counsel for Advocacy of the Small Business Administration ("SBA").[394] In addition, the *Notice of Proposed Rulemaking* and this IRFA (or summaries thereof) will be published in the Federal Register.[395]

A. Need for, and Objectives of, the Proposed Rules

177. In the *Notice of Proposed Rulemaking*, we seek comment on further proposals to amend the Commission's rules governing 700 MHz public safety narrowband spectrum at 769-775 MHz and 799-805 MHz. The rule changes we seek comment on are intended to promote flexible and efficient use of public safety narrowband spectrum in the 700 MHz band while reducing the regulatory burdens on licensees wherever possible. In order to achieve these objectives, we seek comment in the *Notice of Proposed Rulemaking* on:

- extending or eliminating the December 31, 2016 narrowbanding deadline for 700 MHz public safety narrowband licensees;
- allowing 700 MHz public safety narrowband licensees to use the secondary trunking channels for low-altitude, low power air-ground voice communications;
- redesignating two 6.25 kilohertz bandwidth nationwide calling channels as Nationwide Interoperability Travel Channels;
- allowing tactical voice communications on a secondary basis on the two 6.25 kilohertz bandwidth data-only interoperability channels;
- designating the forty-eight 6.25 kilohertz bandwidth reserve channel pairs for use by temporary deployable mobile trunked infrastructure that could be transported into an incident area to assist with emergency response and recovery;
- increasing the two-watt power limit for low power channels to 20 watts effective radiated power (ERP);
- requiring all 700 MHz narrowband equipment to be certified under the TIA Project 25 Compliance Assessment Program (P25 CAP);
- exempting Class B signal boosters from the Adjacent Channel Power (ACP) limits when retransmitting multiple signals;

[393] *See* 5 U.S.C. § 603. The RFA, *see* 5 U.S.C. §§ 601-12, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. No. 104-121, 110 Stat. 857 (1996).

[394] *See* 5 U.S.C. § 603(a).

[395] *Id*.

- harmonizing and eliminating redundant or conflicting power limits for transmitters operating on the 700 MHz public safety narrowband channels;
- specifying by rule a standardized Network Access Code (NAC) for operation on the 700 MHz interoperability channels;
- clarifying that our rules require radios to be capable of being programmed to operate on all sixty-four of the 6.25 kilohertz bandwidth interoperability channels in the 700 MHz band;
- permitting users to operate their mobile and portable equipment in analog mode on the interoperability channels.

H. Legal Basis

178. The legal basis for any action that may be taken pursuant to this *Notice of Proposed Rulemaking* is contained in Sections 1, 4(i), 303, 316, 332, and 337 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 1, 154(i), 303, 316, 332, and 337.

I. Description and Estimate of the Number of Small Entities to Which the Proposed Rules Will Apply

179. The RFA directs agencies to provide a description of and, where feasible, an estimate of the number of small entities that may be affected by the proposed rules.[396] The RFA generally defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction."[397] In addition, the term "small business" has the same meaning as the term "small business concern" under the Small Business Act.[398] A small business concern is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration (SBA).[399]

180. *Public Safety Radio Licensees*. As a general matter, Public Safety Radio licensees include police, fire, local government, forestry conservation, highway maintenance, and emergency medical services.[400] For the purpose of determining whether a Public Safety Radio licensee is a small business as defined by the SBA, we use the broad census category, Wireless Telecommunications Carriers (except Satellite). This definition provides that a small entity is any such entity employing no more than 1,500 persons.[401] The Commission does not require Public Safety Radio licensees to disclose information about number of employees, so the Commission does not have information that could be used to determine how many Public Safety Radio licensees constitute small entities under this definition.

181. *Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing*. The Census Bureau defines this category as follows: "This industry comprises establishments primarily engaged in manufacturing radio and television broadcast and wireless communications equipment. Examples of products made by these establishments are: transmitting and receiving antennas, cable television equipment, GPS equipment, pagers, cellular phones, mobile

[396] 5 U.S.C. §§ 603(b)(3), 604(a)(3).

[397] 5 U.S.C. § 601(6).

[398] 5 U.S.C. § 601(3) (incorporating by reference the definition of "small business concern" in the Small Business Act, 15 U.S.C. § 632). Pursuant to 5 U.S.C. § 601(3), the statutory definition of a small business applies "unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such terms which are appropriate to the activities of the agency and publishes such definitions(s) in the Federal Register."

[399] 15 U.S.C. § 632.

[400] *See* subparts A and B of Part 90 of the Commission's Rules, 47 C.F.R. §§ 90.1-90.22.

[401] *See* 13 C.F.R. §121.201, NAICS code 517210.

communications equipment, and radio and television studio and broadcasting equipment."[402] The SBA has developed a small business size standard for Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing, which is: all such firms having 750 or fewer employees. According to Census Bureau data for 2007, there were a total of 939 establishments in this category that operated for part or all of the entire year. According to Census bureau data for 2007, there were a total of 919 firms in this category that operated for the entire year. Of this total, 771 had less than 100 employees and 148 had more than 100 employees.[403] Thus, under that size standard, the majority of firms can be considered small.

J. Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements

182. No rule proposed in the *Notice of Proposed Rulemaking* will entail additional reporting, recordkeeping, and/or third-party consultation. Two proposed rules in the *Notice of Proposed Rulemaking*, however, would entail additional compliance efforts as described below.

183. Project 25 Compliance Assessment Program. We propose to require all vendors of 700 MHz narrowband equipment designed to operate on the interoperability channels to demonstrate compliance with the Project 25 Compliance Assessment Program (CAP). CAP is a voluntary program that establishes an independent compliance assessment process to ensure that communications equipment conforms to Project 25 standards and is interoperable across vendors. The purpose of this proposal is to enhance interoperability and provide assurance to licensees that their equipment is interoperable across vendors regardless of which vendor they choose.

184. *Interoperability Network Access Code*. We seek comment on whether to specify a standardized Network Access Code (NAC) by rule for operation on the 700 MHz interoperability channels. A NAC is a pre-programmed digital address used by radio units employing the Project 25 standard to "hear" only communications directed to that address from another radio. We seek comment on whether a standardized NAC is necessary to ensure all radio users can communicate with each other on the interoperability channels.

K. Steps Taken to Minimize Significant Economic Impact on Small Entities, and Significant Alternatives Considered

185. The RFA requires an agency to describe any significant, specifically small business alternatives that it has considered in reaching its proposed approach, which may include the following four alternatives (among others): "(1) the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance or reporting requirements under the rule for small entities; (3) the use of performance, rather than design, standards; and (4) and exemption from coverage of the rule, or any part thereof, for small entities."[404]

186. The *Notice of Proposed Rulemaking* seeks comment on a number of proposed changes to the rules covering operation of public safety systems on narrowband spectrum in the 700 MHz band. The *Notice of Proposed Rulemaking* seeks comment on whether the proposed rule changes will promote efficient use of public safety narrowband spectrum in the band while reducing economic burdens on licensees. In order to strike the proper balance between these two objectives, the *Notice of Proposed Rulemaking* seeks comment on a wide range of alternatives to the proposals put forth.

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[402] The NAICS Code for this service is 334220. *See* 13 C.F.R 121/201. *See also* http://factfinder.census.gov/servlet/IBQTable?_bm=y&-fds_name=EC0700A1&-geo_id=&-_skip=300&-ds_name=EC0731SG2&-_lang=en

[403] *See* http://factfinder.census.gov/servlet/IBQTable?_bm=y&-geo_id=&-fds_name=EC0700A1&-_skip=4500&-ds_name=EC0731SG3&-_lang=en

[404] 5 U.S.C. §§ 603(c)(1)-(c)(4).

187. Deadline for Narrowbanding Transition to 6.25 Kilohertz Technology. The *Notice of Proposed Rulemaking* seeks comment on petitions filed separately by the 700 MHz Region 24 Planning Committee, the State of Louisiana, and the Regional Wireless Cooperative seeking to delay the December 31, 2016 deadline for transition to 6.25 kilohertz-capable equipment. Public safety licensees operating on narrowband spectrum in the 700 MHz band have until December 31, 2016 to complete a mandatory migration from a 12.5 kilohertz voice efficiency standard to a 6.25 kilohertz voice efficiency standard. These parties seek an extension of the deadline in order to ensure that equipment purchased by public safety licensees for operation in the band need not be replaced before its intended life cycle is met. The *Notice of Proposed Rulemaking* seeks comment on extending the December 31, 2016 deadline and factors to be considered if a new deadline is selected. Alternatively, the *Notice of Proposed Rulemaking* seeks comment on whether the long-term future of the 700 MHz narrowband spectrum would be best served by suspending or eliminating the mandatory migration to a 6.25 kilohertz voice efficiency standard.

188. Air-Ground Communications on Secondary Trunking Channels. The *Notice of Proposed Rulemaking* seeks comment on a proposal by the National Public Safety Telecommunications Council (NPSTC) to allow 700 MHz public safety narrowband licensees to use the secondary trunking channels for low-altitude, low power air-ground voice communications. NPSTC asserts that designating these channels for airborne use would allow licensees to incorporate air-ground communications into their operations while creating little risk of interference to ground-based operations. The *Notice of Proposed Rulemaking* seeks comment on whether to dedicate channels in the 700 MHz band for air-ground use, if the secondary trunking channels are the most appropriate channels for this purpose and if protection criteria is needed to ensure that airborne operations create no interfere to terrestrial users which could potentially increase costs and cause disruption to users in the band.

189. Nationwide Interoperability Travel Channel. The *Notice of Proposed Rulemaking* seeks comment on a NPSTC proposal to redesignate two nationwide calling interoperability channels as Nationwide Interoperability Travel Channels. NPSTC contends the travel channels would facilitate coordination of vehicle convoys transporting resources, assets, and personnel to major incidents, allowing first responders and equipment to be deployed to an area directly instead of having to first travel to a staging area. The *Notice of Proposed Rulemaking* seeks comment on NPSTC's proposal and whether the potential benefits of such a designation outweigh the potential adverse impact of reducing the overall channel capacity devoted to nationwide calling interoperability.

190. Tactical Voice Communications on Data Interoperability Channels. The *Notice of Proposed Rulemaking* seeks comment on a NPSTC proposal to allow tactical voice communications on a secondary basis on data-only interoperability channels. NPSTC argues such action would help meet the expanding demand for communications supporting tactical operations. The *Notice of Proposed Rulemaking* seeks comment on NPSTC's proposal and whether such a designation would have any adverse impact on primary data-only interoperability. In this regard, the *Notice of Proposed Rulemaking* seeks comment on whether this proposal would have any impact on the existing base of mobile, portable, and base stations currently in use by public safety entities, such as requiring reprogramming or retrofits.

191. Temporary Deployable Mobile Trunked Infrastructure. The *Notice of Proposed Rulemaking* seeks comment on a NPSTC proposal to designate all 48 reserve channel pairs for use by temporary deployable mobile trunked infrastructure that could be transported into an incident area to assist with emergency response and recovery. According to NPSTC, designating channels for deployable trunked use would allow 700 MHz licensees to pre-program these channels into their subscriber radios, negating the need during a disaster to reprogram radios in the field or distribute cached radios. The *Notice of Proposed Rulemaking* seeks comment on whether designating some or all of the narrowband reserve channels for deployable mobile trunked infrastructure would be a practical and efficient utilization of these channels. Alternatively, the *Notice of Proposed Rulemaking* seeks comment on whether the same benefits could be achieved by simply requiring deployable equipment to operate on the narrowband channels already designated for general and/or state use in the affected area.

192. Power Limit for Low Power Channels. The *Notice of Proposed Rulemaking* seeks comment on a NPSTC proposal to increase the power limit on the low power channels from two watts to 20 watts effective radiated power (ERP). NPSTC argues that such an increase would allow for more effective on-scene communications in critical life-safety situations, particularly for fire department radios operating in high ambient noise environments. The *Notice of Proposed Rulemaking* seeks comment on whether NPSTC's proposal to increase the power limit to 20 watts ERP would overcome the problem of communicating in high ambient noise environments but also seeks comment on alternative solutions such as using vehicular repeater system (VRS) units to overcome the problem of communicating in noisy environments.

193. Project 25 Compliance Assessment Program. The *Notice of Proposed Rulemaking* seeks comment on requiring all 700 MHz narrowband equipment to be certified under the Project 25 Compliance Assessment Program (P25 CAP). The Commission states in the *Notice of Proposed Rulemaking* that it believes requiring all 700 MHz narrowband equipment to be P25 CAP-certified would enhance interoperability in the band and would provide assurance to licensees that their equipment will be interoperable across vendors regardless of which vendor they choose. Nonetheless, the *Notice of Proposed Rulemaking* seeks comment on what costs, if any, P25 CAP certification would impose on vendors.

194. ACP Requirements for Class B Signal Boosters. The *Notice of Proposed Rulemaking* seeks comment on a proposal by Dekolink to exempt Class B signal boosters from the Adjacent Channel Power (ACP) requirements when multiple signals are retransmitted. Dekolink suggests that Class B signal boosters currently authorized to operate in the 700 MHz public safety narrowband spectrum typically produce intermodulation products in excess of ACP limits when simultaneously retransmitting two or more signals. The *Notice of Proposed Rulemaking* seeks comment whether exempting this class of devices from the ACP requirements when multiple signals are retransmitted would unreasonably elevate the potential for harmful interference to adjacent channel users. The *Notice of Proposed Rulemaking* also seeks comment on any technical limitations that prevent these devices from being designed and manufactured to meet the current ACP limits and whether compliance can be achieved through filters and/or other technical remedies.

195. Narrowband Power Limits. The *Notice of Proposed Rulemaking* seeks comment on harmonizing and consolidating power limits in Sections 90.541 and 90.545(b) of the Commission's rules. In this regard, the *Notice of Proposed Rulemaking* tentatively concludes to base power limits on effective radiated power (ERP) rather then transmitter power output (TPO) but seeks comment on whether a change in policy from TPO to ERP would render certain incumbent users or previously certified equipment non-compliant. The *Notice of Proposed Rulemaking* also seeks comment on antenna height limits.

196. Interoperability Network Access Code. The *Notice of Proposed Rulemaking* seeks comment on whether the Commission should specify a standardized Network Access Code (NAC) by rule for operation on the 700 MHz interoperability channels. The NAC is a pre-programmed digital address in a Project 25 radio which allows the radio to "hear" only communications directed to that address from another radio. If the NAC is to be set by rule, the *Notice of Proposed Rulemaking* seeks comment what code would be most appropriate. Alternatively, the *Notice of Proposed Rulemaking* seeks comment on whether NACs should be left to an industry standard, which would be more flexible then codifying a single code into the Commission's rules.

197. User Access to Interoperability Channels. The *Notice of Proposed Rulemaking* proposes to clarify that transmitters designed to operate on the narrowband channels in the 700 MHz band be capable of being programmed to operate on all sixty-four of the 6.25 kilohertz bandwidth interoperability channels. The *Notice of Proposed Rulemaking* seeks comment on its proposal.

198. *Analog Operation on the Interoperability Channels.* The *Notice of Proposed Rulemaking* seeks comment on whether to permit users to operate their mobile and portable equipment in analog mode on the interoperability channels. In particular, the *Notice of Proposed Rulemaking* asks parties addressing this issue to describe what benefits may accrue from allowing analog operation on the interoperability

channels and whether such benefits outweigh the impairment to interoperability resulting from allowing both analog and digital modes of operation on these channels.

L. Federal Rules that May Duplicate, Overlap, or Conflict with the Proposed Rules

199. None.

APPENDIX C

Final Rules
(*Seventh Report and Order*)

Part 27 of Title 47 of the Code of Federal Regulations is amended as follows:

PART 27—MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES

The authority citation for Part 27 continues to read as follows:

AUTHORITY: 47 U.S.C. 154, 301, 302, 303, 307, 309, 332, 336, and 337 unless otherwise noted.

Section 27.53 is amended by modifying paragraph (e)(6) to read as follows:

§ 27.53 Emission limits.

(e) * * *

(6) The adjacent channel power (ACP) requirements for transmitters designed for various channel sizes are shown in the following tables. Mobile station requirements apply to handheld, car mounted and control station units. The tables specify a value for the ACP as a function of the displacement from the channel center frequency and measurement bandwidth. In the following tables, "(s)" indicates a swept measurement may be used.

6.25 kHz Mobile Transmitter ACP Requirements

Offset from Center Frequency (kHz)	Measurement Bandwidth (kHz)	Maximum ACP (dBc)
6.25	6.25	-40
12.5	6.25	-60
18.75	6.25	-60
25.00	6.25	-65
37.50	25.00	-65
62.50	25.00	-65
87.50	25.00	-65
150.00	100.00	-65
250.00	100.00	-65
350.00	100.00	-65
>400 kHz to 12 MHz	30 (s)	-75
12 MHz to paired receive band	30 (s)	-75
In the paired receive band	30 (s)	-100

12.5 kHz Mobile Transmitter ACP Requirements

Offset from Center Frequency (kHz)	Measurement Bandwidth (kHz)	Maximum ACP (dBc)
9.375	6.25	-40
15.625	6.25	-60
21.875	6.25	-60
37.50	25.00	-60
62.50	25.00	-65
87.50	25.00	-65
150.00	100	-65
250.00	100	-65
350.00	100	-65
>400 to 12 MHz	30 (s)	-75
12 MHz to paired receive band	30 (s)	-75
In the paired receive band	30 (s)	-100

25 kHz Mobile Transmitter ACP Requirements

Offset from Center Frequency (kHz)	Measurement Bandwidth (kHz)	Maximum ACP (dBc)
15.625	6.25	-40
21.875	6.25	-60
37.50	25	-60
62.50	25	-65
87.50	25	-65
150.00	100	-65
250.00	100	-65
350.00	100	-65
>400kHz to 12 MHz	30 (s)	-75
12 MHz to paired receive band	30 (s)	-75
In the paired receive band	30 (s)	-100

150 kHz Mobile Transmitter ACP Requirements

Offset from Center Frequency (kHz)	Measurement Bandwidth (kHz)	Maximum ACP Relative (dBc)
100	50	-40
200	50	-50
300	50	-50
400	50	-50
600-1000	30(s)	-60
1000 to receive band	30(s)	-70
In the receive band	30(s)	-100

6.25 kHz Base Transmitter ACP Requirements

Offset from center frequency (kHz)	Measurement bandwidth (kHz)	Maximum ACP (dBc)
6.25	6.25	-40
12.50	6.25	-60
18.75	6.25	-60
25.00	6.25	-65
37.50	25	-65
62.50	25	-65
87.50	25	-65
150.00	100	-65
250.00	100	-65
350.00	100	-65
>400 to 12 MHz	30 (s)	-80
12 MHz to paired receive band	30(s)	-80
In the paired receive band	30 (s)	-85[1]

12.5 kHz Base Transmitter ACP Requirements

Offset from center frequency (kHz)	Measurement bandwidth (kHz)	Maximum ACP (dBc)
9.375	6.25	-40
15.625	6.25	-60
21.875	6.25	-60
37.5	25	-60
62.5	25	-65
87.5	25	-65
150	100	-65
250	100	-65
350.00	100	-65
>400 kHz to 12 MHz	30 (s)	-80
12 MHz to paired receive band	30 (s)	-80
In the paired receive band	30 (s)	-85[1]

25 kHz Base Transmitter ACP Requirements

Offset from center frequency (kHz)	Measurement bandwidth (kHz)	Maximum ACP (dBc)
15.625	6.25	-40
21.875	6.25	-60
37.5	25	-60
62.5	25	-65
87.5	25	-65
150	100	-65
250	100	-65

350	100.00	-65
>400 kHz to12 MHz	30(s)	-80
12 MHz to paired receive band	30 (s)	-80
In the paired receive band	30 (s)	-85[1]

150 kHz Base Transmitter ACP Requirements

Offset from center frequency (kHz)	Measurement bandwidth (kHz)	Maximum ACP (dBc)
100	50	-40
200	50	-50
300	50	-55
400	50	-60
600-1000	30(s)	-65
1000 to receive band	30(s)	-75 (continues at -6dB/oct)
In the receive band	30(s)	-85[1]

[1] Although we permit individual base transmitters to radiate a maximum ACP of -85 dBc in the paired receive band, licensees deploying these transmitters may not exceed an ACP of -100 dBc in the paired receive band when measured at either the transmitting antenna input port or the output of the transmitter combining network. Consequently, licensees deploying these transmitters may need to use external filters to comply with the more restrictive ACP limit.

* * * * *

Part 90 of Title 47 of the Code of Federal Regulations is amended as follows:

PART 90—PRIVATE LAND MOBILE RADIO SERVICES

The authority citation for Part 90 continues to read as follows:

AUTHORITY: Sections 4(i), 11, 303(g), 303(r) and 332(c)(7) of the Communications Act of 1934, as amended, 47 U.S.C. 154(i), 161, 303(g), 303(r) and 332(c)(7).

Section 90.235 is amended by modifying paragraph (l) to read as follows:

§ 90.235 Secondary fixed signaling operations.

* * * * *

(l) Secondary fixed signaling operations conducted in accordance with the provisions of §§90.317(a), 90.557 and 90.637 are exempt from the foregoing provisions of this section.

* * * * *

Section 90.527 is amended by modifying paragraph (b) to read as follows:

§ 90.527 Regional Plan Requirements.

* * * * *

(b) *Modification of regional plans*. Regional plans may be modified by submitting a written request, signed by the regional planning committee, to the Chief, Public Safety and Homeland

Security Bureau. The request must contain the full text of the modification. Modifications are considered either major or minor. Regional planning committees must certify that successful coordination with all adjacent regions has occurred for major modifications and that all such regions concur with the major modification. Unless requested otherwise by the regional planning committee, the Bureau will only place major modifications on public notice for comment.

(1) Except as noted below, modifications changing the way channels are allocated, allotted or coordinated are considered major modifications.

(2) Modifications changing how channels are allotted are considered minor modifications only if:

(i) the proposed channel change or channel addition involves a facility located more than seventy miles from the adjacent region border;

(ii) the co-channel or adjacent channel interference contour of the facility changing or adding the channel does not intersect the border of an adjacent region, or

(iii) the proposed channel change or channel addition has been coordinated in writing with any affected adjacent region.

(3) Changes in membership or leadership of regional planning committees are considered minor modifications.

Section 90.537 is amended by modifying paragraphs (a) and (b) to read as follows:

§ 90.537 Trunking requirement.

(a) *General use and State License channels*. All systems using six or more narrowband channels in the 769-775 MHz and 799-805 MHz frequency bands must be trunked systems, except for those described in paragraph (b) of this section.

(b) *Interoperability and low power channels*. Trunking is permitted only on Interoperability channels specified in § 90.531(b)(1)(iii). Trunked use must be strictly on a secondary, non-interference basis to conventional operations. The licensee must monitor and immediately release these channels when they are needed for interoperability purposes. All systems using narrowband low power channels listed in §§ 90.531(b)(3) and (b)(4) are exempt from the trunking requirements described in paragraph (a) of this Section.

* * * * *

Section 90.543 is amended by modifying paragraph (a) to read as follows:

§ 90.543 Emission Limitations.

* * * * *

(a) The adjacent channel power (ACP) requirements for transmitters designed for various channel sizes are shown in the following tables. Mobile station requirements apply to handheld, car mounted and control station units. The tables specify a value for the ACP as a function of the displacement from the channel center frequency and measurement bandwidth. In the following tables, "(s)" indicates a swept measurement may be used.

6.25 kHz Mobile Transmitter ACP Requirements

Offset from center frequency (kHz)	Measurement bandwidth (kHz)	Maximum ACP relative (dBc)
6.25	6.25	-40
12.5	6.25	-60
18.75	6.25	-60
25.00	6.25	-65
37.50	25.00	-65
62.50	25.00	-65
87.50	25.00	-65
150.00	100.00	-65
250.00	100.00	-65
350.00	100.00	-65
>400 kHz to 12 MHz	30 (s)	-75
12 MHz to paired receive band	30 (s)	-75
In the paired receive band	30 (s)	-100

12.5 kHz Mobile Transmitter ACP Requirements

Offset from center frequency (kHz)	Measurement bandwidth (kHz)	Maximum ACP relative (dBc)
9.375	6.25	-40
15.625	6.25	-60
21.875	6.25	-60
37.50	25.00	-60
62.50	25.00	-65
87.50	25.00	-65
150.00	100	-65
250.00	100	-65
350.00	100	-65
>400 to 12 MHz	30 (s)	-75
12 MHz to paired receive band	30 (s)	-75
In the paired receive band	30 (s)	-100

25 kHz Mobile Transmitter ACP Requirements

Offset from center frequency (kHz)	Measurement bandwidth (kHz)	Maximum ACP relative (dBc)
15.625	6.25	-40
21.875	6.25	-60
37.50	25	-60
62.50	25	-65
87.50	25	-65
150.00	100	-65
250.00	100	-65
350.00	100	-65

>400kHz to 12 MHz	30 (s)	-75
12 MHz to paired receive band	30 (s)	-75
In the paired receive band	30 (s)	-100

6.25 kHz Base Transmitter ACP Requirements

Offset from center frequency (kHz)	Measurement bandwidth (kHz)	Maximum ACP (dBc)
6.25	6.25	-40
12.50	6.25	-60
18.75	6.25	-60
25.00	6.25	-65
37.50	25	-65
62.50	25	-65
87.50	25	-65
150.00	100	-65
250.00	100	-65
350.00	100	-65
>400 to 12 MHz	30 (s)	-80
12 MHz to paired receive band	30(s)	-80
In the paired receive band	30 (s)	-85[1]

12.5 kHz Base Transmitter ACP Requirements

Offset from center frequency (kHz)	Measurement bandwidth (kHz)	Maximum ACP (dBc)
9.375	6.25	-40
15.625	6.25	-60
21.875	6.25	-60
37.5	25	-60
62.5	25	-65
87.5	25	-65
150	100	-65
250	100	-65
350.00	100	-65
>400 kHz to 12 MHz	30 (s)	-80
12 MHz to paired receive band	30 (s)	-80
In the paired receive band	30 (s)	-85[1]

25 kHz Base Transmitter ACP Requirements

Offset from center frequency (kHz)	Measurement bandwidth (kHz)	Maximum ACP (dBc)
15.625	6.25	-40

21.875	6.25	-60
37.5	25	-60
62.5	25	-65
87.5	25	-65
150	100	-65
250	100	-65
350	100.00	-65
>400 kHz to12 MHz	30(s)	-80
12 MHz to paired receive band	30 (s)	-80
In the paired receive band	30 (s)	-85[1]

[1] Although we permit individual base transmitters to radiate a maximum ACP of -85 dBc in the paired receive band, licensees deploying these transmitters may not exceed an ACP of -100 dBc in the paired receive band when measured at either the transmitting antenna input port or the output of the transmitter combining network. Consequently, licensees deploying these transmitters may need to use external filters to comply with the more restrictive ACP limit.

* * * * *

Section 90.548 is amended by modifying paragraphs (a), (a)(1) and (a)(2), to read as follows:

§ 90.548 Interoperability Technical Standards.

(a) Transmitters designed after [insert date that is 30 days after publication in the *Federal Register*] to operate on the narrowband interoperability channels in the 769-775 and 799-805 MHz band (*see* § 90.531) shall conform to the following technical standards (transmitters certified prior to this date are grandfathered):

(1) Transmitters designed for voice operation shall include a 12.5 kilohertz bandwidth mode of operation conforming to the following standards, which are incorporated by reference: Project 25 FDMA Common Air Interface, approved September 2003, Telecommunications Industry Association, ANSI/TIA/EIA-102.BAAA-A-2003; Project 25 Vocoder Description, approved December 2003, Telecommunications Industry Association, ANSI/TIA/EIA-102.BABA-2003.

(2) Transmitters designed for data transmission shall include a 12.5 kilohertz bandwidth mode of operation conforming to the following standards, which are incorporated by reference: Project 25 Data Overview—New Technology Standards Project—Digital Radio Technical Standards, approved June, 2012, Telecommunications Industry Association, ANSI/TIA/EIA-102.BAEA-B-2012; Project 25 Packet Data Specification—New Technology Standards Project—Digital Radio Technical Standards, approved March 2005, Telecommunications Industry Association, ANSI/TIA/EIA-102.BAEB-A-2005; Project 25 Radio Management Protocols—New Technology Standards Project—Digital Radio Technical Standards, approved May 2010, Telecommunications Industry Association, ANSI/TIA/EIA-102.BAEE-B-2010; Project 25 FDMA—Common Air Interface, approved September 2003, Telecommunications Industry Association, ANSI/TIA/EIA-102.BAAA-A-2003.

* * * * *

Section 90.553 is amended by modifying paragraph (b), to read as follows:

§ 90.553 Encryption.

* * * * *

(b) If encryption is employed, then transmitters manufactured after [insert date that is 30 days after publication in the *Federal Register*] must use the Advanced Encryption Standard (AES) specified in Project 25 Block Encryption Protocol, approved August 2009, Telecommunications Industry Association, ANSI/TIA/EIA-102.AAAD-A – Project 25 Digital Land Mobile Radio – Block Encryption Protocol. Until 2030, manufacturers may also include the Digital Encryption Standard (DES) or Triple Data Encryption Algorithm (TDEA), in addition to but not in place of AES, for compatibility with legacy radios that lack AES capability.

* * * * *

New Section 90.557 is added as follows:

§ 90.557 Secondary fixed signaling operations.

Trunked and conventional 700 MHz narrowband systems may conduct fixed ancillary signaling and data transmissions subject to the following requirements:

(a) Operations are permitted only on:

(1) narrowband State License channels specified in § 90.531(b)(5), subject to the discretion of the relevant State licensee; and

(2) narrowband General Use channels specified in § 90.531(b)(6), subject to the discretion of the regional planning committee.

(b) All operations must be on a secondary, non-interference basis to the primary mobile operation of any other licensee.

(c) The output power at the remote site must not exceed 30 watts.

(d) Automatic means must be provided to deactivate the remote transmitter in the event the carrier remains on for a period in excess of three minutes.

(e) Operational fixed stations authorized pursuant to this section are exempt from the requirements of §§ 90.425, 90.429, and 90.559.

(f) Any operations undertaken in a shared use environment must be conducted pursuant to an agreement between the licensee and each participant, as set forth in Section 90.179.

* * * * *

New Section 90.559 is added as follows:

§ 90.559 Station Identification.

(a) Conventional systems of communication shall be identified in accordance with existing regulations governing such matters.

(b) Trunked systems of communication, except as noted in paragraph (c) of this section, shall be identified through the use of an automatic device which transmits the call sign of the base station facility at 30 minute intervals. Such station identification shall be made on the lowest frequency in the base station trunk group assigned the licensee. Should this frequency be in use at the time station

identification is required, such identification may be made at the termination of the communication in progress on this frequency. Identification may be made by voice or International Morse Code. When the call sign is transmitted in International Morse Code, it must be at a rate of between 15 to 20 words per minute and by means of tone modulation of the transmitter, the tone frequency being between 800 and 1000 hertz.

(c) Stations operating in the 769-775/799-805 MHz band that are licensed on an exclusive basis, and normally employ digital signals for the transmission of data, text, control codes, or digitized voice may also be identified by digital transmission of the call sign. A licensee that identifies its station in this manner must provide the Commission, upon its request, information sufficient to decode the digital transmission and ascertain the call sign transmitted.

* * * * *