

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

In the Matter of)
)
Creation of Interstitial 12.5 kHz Channels in the) WP Docket No. 15-32
800 MHz Band Between 809-817/854-862 MHz) RM-11572

NOTICE OF PROPOSED RULEMAKING

Adopted: February 5, 2015

Released: February 9, 2015

Comment Date: [45 days after date of publication in the Federal Register]

Reply Comment Date: [60 days after date of publication in the Federal Register]

By the Commission:

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I. INTRODUCTION

1. In this *Notice of Proposed Rulemaking (NPRM)*, we propose to introduce new, full power, interstitial 12.5 kHz “offset” channels in the 809-817/854-862 MHz band (800 MHz Mid-Band), subject to certain protections designed to safeguard 800 MHz incumbents from interference.¹ We initiate

¹ “Interstitial” refers to a narrow space or interval between things especially when one of a series of alternating uniform spaces, *e.g.*, the interstices between the slats of a fence. In this *NPRM*, the interstices are the spaces between the regularly spaced 25 kilohertz channels in the 800 MHz band.

this *NPRM* in response to a Petition for Rulemaking filed by the Enterprise Wireless Alliance (EWA).² The proposal creates the opportunity for 319 additional voice-grade channels for use by Public Safety, Business/Industrial, General Category, and high-site Specialized Mobile Radio licensees.³ It leverages technology advancements that have made high quality narrow-band voice transmission a reality, and reflects Commission efforts to improve spectral efficiency in heavily used bands. We believe our proposal may reduce barriers to innovation and encourage investment in new technologies that will enable Private Land Mobile Radio (PLMR) licensees to use the spectrum more efficiently. We also seek comment on eligibility and licensing requirements for the proposed new interstitial channels.

II. BACKGROUND

2. The 800 MHz Mid-Band consists of:
- the Interleaved Band (809-815/854-860 MHz, 240 channels),
 - the Expansion Band (815-816/860-861 MHz, 40 channels), and
 - the Guard Band (816-817/861-862 MHz, 40 channels).⁴

Three service categories (public safety, Business/Industrial Land Transportation (B/ILT), and high-site SMR) are interleaved in the Mid-Band,⁵ which contains 320 primary channel pairs, spaced every 25 kHz.⁶ The Commission's rules provide that licensees may operate both conventional and trunked PLMR facilities in the Mid-Band subject to loading and construction requirements.⁷ Mid-Band channels are licensed on an exclusive use basis, with co-channel use restricted by distance to protect against interference.⁸ The Mid-Band rules do not currently accommodate interstitial channels.⁹ The

² See Petition for Rulemaking of the Enterprise Wireless Alliance, RM-11572, filed April 29, 2009.

³ The proposal would supply 70 offset channels in the Public Safety pool, 100 offset channels in the Business/Industrial pool, 80 offset channels in the Specialized Mobile Radio (SMR) pool and 69 offset channels in the General Category pool.

⁴ These frequency allotments vary slightly in some areas. In the Southeast Region, the Interleaved Band covers 809-812.5 MHz/854-857.5 MHz, the Expansion Band is generally at 812.5-813.5 MHz/857.5-858.5 MHz, the ESMR Band covers 813.5-824 MHz/858.5-869 MHz, and the Guard Band has been eliminated. See *Improving Public Safety Communications in the 800 MHz Band*, WT Docket 02-55, 19 FCC Rcd 14969, 15058 ¶ 166 (2004) (*800 MHz Report and Order*). Within a 70 mile radius of Atlanta, however, the Expansion Band channels fall at 813.0125-813.4875 MHz/858.0125-858.4875 MHz. See *Improving Public Safety Communications in the 800 MHz Band*, WT Docket 02-55, *Memorandum Opinion and Order*, 20 FCC Rcd 16015, 16035-36 ¶¶ 46-49. In Puerto Rico and the U.S. Virgin Islands, the Expansion Band is 1.5 MHz wide and extends from 815-816.5 MHz/860-861.5 MHz, and the Guard Band is correspondingly narrower, a 0.5 MHz segment extending from 816.5-817 MHz/861.5-862 MHz. See *Improving Public Safety Communications in the 800 MHz Band*, WT Docket 02-55, *Third Report and Order and Third Further Notice of Proposed Rule Making*, 25 FCC Rcd 4443 (PSHSB 2010) (*Puerto Rico Order*); *Fourth Report and Order*, 26 FCC Rcd 1937 (PSHSB 2010). There is no Guard Band or Expansion band in the Canada Border area. See *Improving Public Safety Communications in the 800 MHz Band*, WT Docket 02-55, *Second Report and Order*, 23 FCC Rcd 7605 (PSHSB 2008).

⁵ 47 C.F.R. §§ 90.617 (Frequencies in the 809.750-824/854.750-869 MHz and 896-901/935-940 MHz bands available for trunked, conventional or cellular system use in non-border areas) and 90.619 (Operations within the U.S./Mexico and U.S./Canada border areas.).

⁶ 47 C.F.R. §§ 90.209 (Bandwidth limitations) and 90.613 (Frequency stability).

⁷ 47 C.F.R. §§ 90.631 (Trunked systems loading, construction and authorization requirements) and 90.633 (Conventional system loading requirements).

⁸ 47 C.F.R. § 90.621. Exclusivity is obtained once a channel is fully loaded. See 47 C.F.R. §§ 90.631 and 90.633.

⁹ In the Mexico border region, incumbent licensees on channels 231–710 currently operate with channel centers offset 12.5 kHz lower in frequency than those specified in the table in § 90.613. These incumbent licensees, (continued....)

Commission, however, has authorized the use of offset channels by waiver in certain areas.¹⁰ These 12.5 kHz offset channels obtained by waiver operate on a secondary basis to the adjacent primary 25 kHz assignments.¹¹

3. Our channel spacing and bandwidth rules for the 800 MHz band are essentially unchanged since the 1970s and so predate the creation of the Mid-Band, which the Commission established as part of 800 MHz rebanding.¹² Since the initial allocation of the 800 MHz band nearly forty years ago, much has changed in the Commission's approach to managing PLMR spectrum. In 1991, the Commission initiated the refarming proceeding to promote the more effective and efficient use of the congested PLMR spectrum bands below 512 MHz.¹³ The Commission excluded the 800 MHz band from the refarming proceeding because the rules governing the spectrum above 800 MHz already contained incentives designed to foster the research and development of advanced, spectrum-efficient techniques.¹⁴ Since that time, however, the capabilities of newer technologies, coupled with the increased demand for Mid-Band spectrum from public safety and other eligible users of the band, warrant further examination of the question whether there may be greater efficiencies available in the band.

4. The instant proposal for interstitial channels in the 800 MHz band differs significantly from the narrowbanding approach to below-512 MHz PLMR licensing in the refarming proceeding. In refarming, all incumbent licensees were required to narrowband their facilities,¹⁵ whereas, in the instant proposal, incumbent licensees retain their existing authorized facilities. Consequently, the proposal can be implemented immediately and does not require the multi-year transition to narrowband technology associated with refarming. The 800 MHz rules do provide applicants with the flexibility to aggregate up to five 25 kHz channels to accommodate efficient technologies that require more than a 25 kHz bandwidth.¹⁶ However, doing so, particularly in large metropolitan areas, is generally foreclosed because the necessary contiguous spectrum is occupied by other users. Thus, more flexible use of spectrum in these areas appears possible only by accommodating *narrower* channel spacing in the Mid-Band, as proposed by EWA.

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however, are retuning to replacement channels with standard channel centers as part of 800 MHz rebanding. Improving Public Safety Communications in the 800 MHz Band, WT Docket 02-55, *Fifth Report and Order*, 28 FCC Rcd. 4085, 4090-94 ¶¶ 14-24 (PSHSB 2013).

¹⁰ See, e.g., State of Florida, *Memorandum Opinion and Order*, 16 FCC Rcd 2174 (WTB 2001); State of Florida, *Memorandum Opinion and Order*, 18 FCC Rcd 3843 (WTB 2003); State of Florida, *Order*, 23 FCC Rcd 1636 (PSHSB 2008). But see State of Florida, *Order*, 22 FCC Rcd 1782 (PSHSB 2007) (denying waiver request in which Florida contended that Telecommunications Industries Association TSB-88 methodology demonstrated that Florida's proposed offset channel operations would not cause interference to incumbent stations operating on standard channels).

¹¹ See, e.g., City of Boynton Beach, Florida, *Order*, 25 FCC Rcd 4551 (PSHSB 2010) (noting that "(a) the Rules do not provide interference protection to offset channels, and (b) those [offset] channels must not cause interference to licensees operating on non-offset channels").

¹² See Amendment of the Commission's Rules governing the Private Land Mobile Radio Service to Provide a new Part 90 that reregulates and consolidates Parts 89, 91, and 93, *Report and Order*, Docket No. 21348, 69 FCC 2d 1612 (1978); 43 Fed. Reg. 54788 (Nov. 22, 1978).

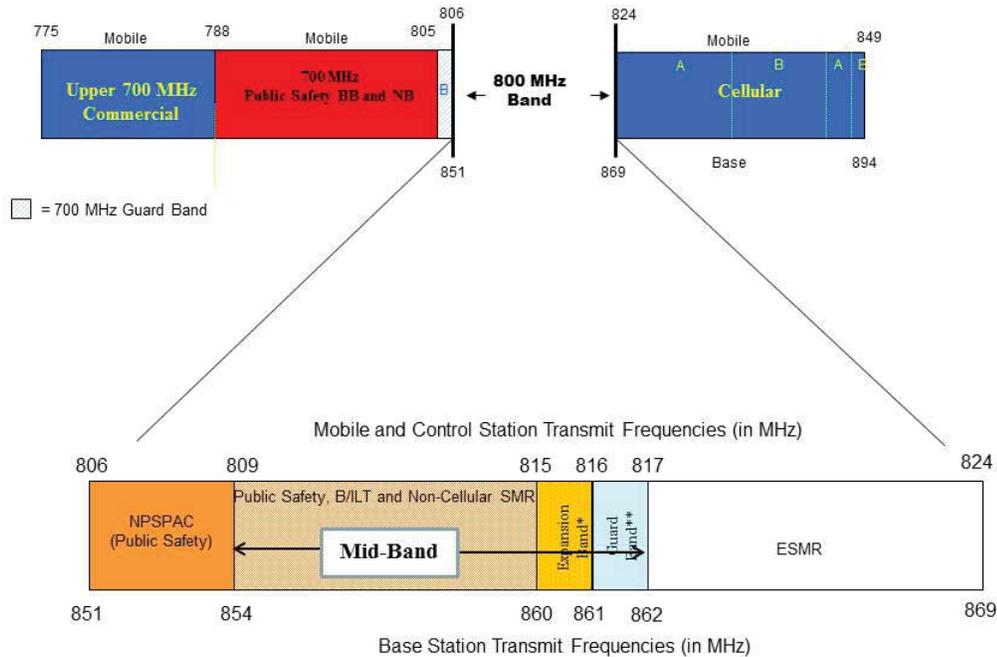
¹³ See Spectrum Efficiency in the Private Land Mobile Radio Bands in Use Prior to 1968, PR Docket 91-170, *Notice of Inquiry*, 6 FCC Rcd 4126 (1991).

¹⁴ *Id.* at 4127 ¶ 4.

¹⁵ Replacement of Part 90 by Part 88 to Revise the Private Land Mobile Radio Services and Modify the Policies Governing Them and Examination of Exclusivity and Frequency Assignment Policies of the Private Land Mobile Radio Services, PR Docket No. 92-235, *Report and Order and Further Notice of Proposed Rule Making*, 10 FCC Rcd 10076 (1995).

¹⁶ 47 C.F.R. § 90.645(g).

5. In the 2004 800 MHz rebanding order, the Commission designated the Mid-Band¹⁷ as the spectrum between (1) the National Public Safety Planning Advisory Committee (NPSPAC) allocation at 806-809/851-854 MHz,¹⁸ and (2) the Enhanced SMR (ESMR)¹⁹ allocation at 817-824/862-869 MHz, as illustrated below:



*No public safety system will be required to remain in or relocate to the Expansion Band; although they may do so if they choose.
 **No public safety or CII licensee may be involuntarily relocated to occupy the Guard Band.

800 MHz Mid- Band

6. The Commission initiated rebanding to resolve interference from 800 MHz “low site” commercial stations to “high site” systems in the band and to provide additional public safety spectrum.²⁰ As a consequence of 800 MHz rebanding, Mid-Band channels are subject to technology and licensing restrictions; *e.g.*, licensees may not deploy high-density cellular systems in the Mid-Band, and Guard Band stations near the ESMR band receive less interference protection than other Mid-Band channels.²¹ Additionally, the Interleaved Band spectrum remaining after ESMR operators relocate to the ESMR band is exclusively available to public safety applicants for three years after the completion of rebanding in each public safety region and exclusively available to public safety and critical infrastructure industry

¹⁷ The term “Mid-Band” was first used in reference to the interleaved, expansion and guard bands subsequent to the adoption of the 2004 rebanding order. *See, e.g.*, Improving Public Safety Communications in the 800 MHz Band, WT Docket 02-55, Order, 23 FCC Rcd 11271 (PSHSB 2008) citing *Third Memorandum Opinion and Order*, 22 FCC Rcd 17209 (2007).

¹⁸ 47 C.F.R. § 90.617(a)(1). The NPSPAC segment is comprised of 25 kHz bandwidth channels with channel centers spaced every 12.5 kHz. *See* 47 C.F.R. § 90.613.

¹⁹ ESMR refers to an 800 MHz SMR system that employs cellular architecture. 47 C.F.R. § 90.7.

²⁰ *800 MHz Report and Order*, 19 FCC Rcd 14969.

²¹ 47 C.F.R. §§ 90.614 and 90.617.

(CII) eligibles for the following two years.²² At the end of this five-year period, the ESMR-vacated channels in the Interleaved Band revert to their pre-rebanding pool categories *i.e.*, public safety, B/ILT and SMR.²³ In connection with reconfiguration of the 800 MHz band, the Public Safety and Homeland Security Bureau (PSHSB) released for licensing, certain channels vacated by Sprint in the interleaved portion of the band (809-815/854-860 MHz).²⁴ Guard Band and Expansion Band channels have been, and will continue to be, made available for licensing under the B/ILT, high-site SMR and General pool categories as rebanding is completed in each public safety region.²⁵

7. In 2009, EWA requested that we initiate a proceeding to assign new, full-power interstitial 12.5 kHz frequencies between currently authorized 25 kHz bandwidth channels at 854-861/809-816 MHz (collectively the Interleaved Band and Expansion Band).²⁶ EWA submitted that “it is now appropriate [...] to consider whether changes in the 800 MHz regulatory structure would serve the interests of PLMR users, and permit more intensive use of this spectrum while concurrently promoting the implementation of advanced technologies.”²⁷ To improve the efficient use of the 800 MHz spectrum, EWA proposed to establish interstitial full-power 12.5 kHz bandwidth channels between the NPSPAC and Guard Band segments, “subject to rules that will ensure continued interference protection for incumbent 25 kHz bandwidth licensees.”²⁸ EWA proposed that we establish new 12.5 kHz bandwidth interstitial channels centered 12.5 kHz above and below the existing 25 kHz channels in the Interleaved Band as shown below:

²² 47 C.F.R. § 90.615. *See 800 MHz Report and Order*, 19 FCC Rcd at 15046-47 ¶ 152.

²³ 47 C.F.R. § 90.617(g) and (h).

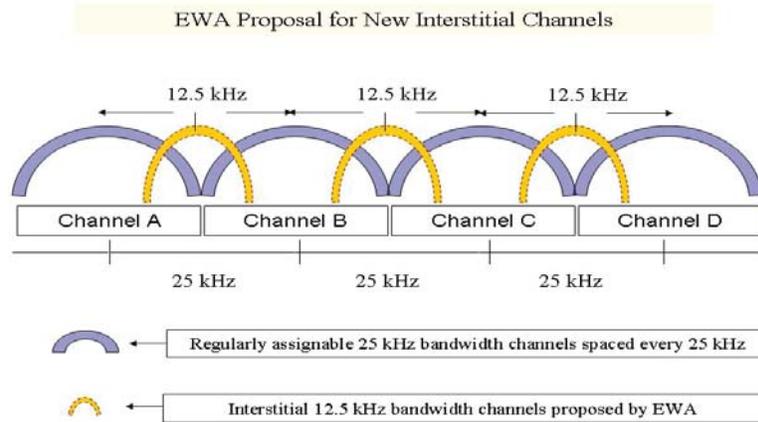
²⁴ *See* Public Safety and Homeland Security Bureau Announces Application and Licensing Procedures for Channels Relinquished by Sprint Nextel Corporation in the 809-809.5/854-854.5 MHz Band, *Public Notice*, 23 FCC Rcd 18343 (PSHSB 2008); Public Safety and Homeland Security Bureau Announces Application and Licensing Procedures for Certain Channels Relinquished by Sprint Nextel Corporation in the 809.5-815/854.5-860 MHz Band, *Public Notice*, 24 FCC Rcd 13236 (PSHSB 2009); Public Safety and Homeland Security Bureau Announces Application and Licensing Procedures for Certain Channels Relinquished by Sprint Nextel Corporation in the 809.5-815/854.5-860 MHz Band, *Public Notice*, 25 FCC Rcd 16038 (PSHSB 2010); Public Safety and Homeland Security Bureau Announces the Opening of a Filing Window for Additional Locations Relinquished by Sprint Nextel Corporation in the 809.5-815/854.5-860 MHz Band Segment, *Public Notice*, 26 FCC Rcd 6639 (PSHSB 2011).

²⁵ *See* Improving Public Safety Communications in the 800 MHz Band, *Order*, 23 FCC Rcd 15966, 15972-73 ¶ 17 (2008). Expansion and Guard Band channels have been made available for licensing in several regions which completed rebanding. *See* Public Safety and Homeland Security Bureau and Wireless Telecommunications Bureau Announce the Completion of 800 MHz Band Reconfiguration in Certain NPSPAC Regions, *Public Notice*, 27 FCC Rcd 14775, 14780-82 (PSHSB 2013); Public Safety and Homeland Security Bureau and Wireless Telecommunications Bureau Announce the Completion of 800 MHz Band Reconfiguration in Certain NPSPAC Regions and the Availability of Additional Sprint Vacated Channels, WT Docket No. 02-55, *Public Notice*, DA-14-1904 (PSHSB rel. Dec. 30, 2014). To date, twenty 800 MHz NPSPAC regions have completed rebanding.

²⁶ EWA Petition at 1 (EWA did not suggest interstitial channels in the Guard Band).

²⁷ *Id.* at 3.

²⁸ *Id.* at 4.



8. EWA submitted that its proposal “will promote greater spectrum efficiency, further encourage the development of new analog and digital technologies critical to incumbent licensees that require innovative wireless solutions to accommodate expanding business requirements, and provide the potential for a viable spectrum alternative for new entrants whose requirements can be met without compromising incumbent operations.”²⁹ EWA also claimed that its proposal will “provide consistency between the 800 MHz band plan and those in other Part 90 allocations, thereby permitting the development of dual-band communication devices, which will further promote spectrum efficiency.”³⁰ Further, EWA stated that interstitial operations would be “subject to rules that will ensure continued interference protection for incumbent 25 kHz bandwidth licensees”³¹ and assured the Commission that its proposed changes would not affect public safety operations in either the old or the new NPSPAC bands or Sprint’s operations in the new ESMR band.³²

9. EWA recommended that the Commission retain the existing 40 dB μ V/m F(50,50) standard for the protected service contour of 25 kHz bandwidth systems.³³ EWA explained that the Commission historically has required 800 MHz licensees and applicants to use the R-6602 curves in calculating contours in this band and recommends retaining those curves for consistency in analysis. EWA, however, also noted that alternative interference analysis methodologies exist that more accurately reflect real world conditions and states that it would not be opposed to the adoption of a different analytical standard.³⁴ Because the interstitial channels would be 12.5 kHz removed from the 25 kHz standard channels, EWA proposed that 12.5 kHz interstitial operation be allowed if the 34 dB μ V/m F(50,10) interference contour of a proposed station does not overlap the 40 dB μ V/m F(50,50) contour of an incumbent station.³⁵ Finally, EWA proposed making the new interstitial channels available to all

²⁹ *Id.* at 1.

³⁰ *Id.*

³¹ *Id.* at 4.

³² *Id.* at 2.

³³ *Id.* at 6.

³⁴ *Id.*

³⁵ *Id.* EWA’s petition recommends use of a 26 (rather than 34) dBu standard when protecting adjacent channel digital or data systems, because of their significantly wider receiver passbands. *Id.* at 7.

qualified Part 90 applicants, independent of the eligibility category of licensees on the adjacent 25 kHz bandwidth channels.³⁶

10. The PSHSB and Wireless Telecommunications Bureau (WTB) jointly issued a *Public Notice* requesting comments on the EWA Petition.³⁷ Nearly all commenters agreed that 12.5 kHz interstitial channels in the 800 MHz band, if properly managed so as to avoid harmful interference to existing licensees, could prove beneficial to public safety and enterprise business and industrial users by providing additional channel capacity, added spectrum efficiency, and deployment of advanced technologies.³⁸ For example, LMCC submitted that “[a] variety of advanced analog and digital [Land Mobile Radio (LMR)] equipment, using [Frequency Division Multiple Access (FDMA)]³⁹ and new [Time Division Multiple Access (TDMA)] techniques, is being provided in the 800 MHz band by the equipment vendors today.”⁴⁰ The availability of new additional 12.5 kHz channels in the 800 MHz band, LMCC added, “will provide additional opportunities to better meet the communications needs and accelerate the advanced equipment choices of the users.”⁴¹ LMCC also submitted that, “unlike the shared and cluttered spectrum environment in the VHF and UHF bands, the structured [and] virtually exclusive channel use through protected service contours in the 800 MHz band much more readily allows the introduction of new trunking systems and licensing of usable interstitial 12.5 kHz channels, both of which lead to more efficient use of the spectrum and more frequency channel availability for users.”⁴² LMCC and others, however, emphasized that the 800 MHz band was continuing to undergo rebanding, that introduction of interstitial channels should not interfere with incumbents’ rebanding efforts, and that the Commission should not impose unnecessary burdens, such as mandated narrowbanding of the standard channels.⁴³ LMCC recognized that several parties expressed concern about protecting incumbent 25 kHz licensees from interference and offered to study the matter further.⁴⁴

³⁶ *Id.* at 6.

³⁷ See Public Safety and Homeland Security Bureau and Wireless Telecommunications Bureau Seek Comment on the Petition by Enterprise Wireless Alliance Requesting the Creation of New, Full Power, Interstitial 12.5 kHz Channels in the 800 MHz Band, RM-11572, *Public Notice*, 24 FCC Rcd 12461 (2009).

³⁸ See, e.g., Letter from Danielle Coffey, Vice President-Government Affairs, Telecommunications Industry Association to Marlene H. Dortch, Secretary, FCC (filed October 9, 2009) (TIA Letter); Comments of the Association of Public-Safety Communications Officials-International, Inc., at 2 (APCO Comments); Comments of Bob Ferrell at 1 (Bob Ferrell Comments); Comments of Fisher Wireless at 1 (Fisher Comments); Comments of Forest Industries Telecommunications at 1-2 (FIT Comments); Comments of Land Mobile Communications Council at 2-3 (LMCC Comments); Comments of Motorola, Inc., (Motorola Comments) at 1-2; Comments of National Public Safety Telecommunications Council at 3 (NPSTC Comments); Comments of SouthernLINC Wireless at 1, 5 (SouthernLINC Comments) (cautioning that interstitial assignments cannot be made above 813.5/858.5 MHz in the Southeast region); Comments of the State of Florida at 1 (Florida Comments); EWA *ex parte* (June 30, 2011).

³⁹ FDMA separates users by frequency: each user occupies its own radio channel. For example, two users share 12.5 kHz of bandwidth, each using a different 6.25 kHz channel. Many 800 MHz Public Safety Pool licensees are adopting Phase I Project 25 technology, which operates with FDMA. TDMA separates users by time: each user occupies the entire radio channel, but at different time intervals, e.g., a single TDMA 12.5 kHz channel employs two time slots per frame per user. TDMA systems include Terrestrial Trunked Radio (TETRA), which may be deployed in the Mid-band. See Amendment of Part 90 of the Commission’s Rules to Permit Terrestrial Trunked Radio (TETRA) Technology, WT Docket No. 11-69, ET Docket No. 09-234, *Report and Order*, 27 FCC Rcd 11569 (2012) (*TETRA Report and Order*) as clarified by *Order on Reconsideration*, 28 FCC Rcd 9639 (2013).

⁴⁰ LMCC Comments at 2.

⁴¹ *Id.* at 3.

⁴² *Id.*

⁴³ *Id.* See, e.g., APCO Comments at 2; United Telecom Council Comments at 5 (UTC Comments).

⁴⁴ *Id.*

11. One commenting party opposed EWA's proposal in its entirety. The United Telecom Council (UTC) suggested that EWA's proposal (1) lacks adequate interference safeguards, (2) would move the 800 MHz band in the wrong direction and away from digital, IP-based and broadband technologies and (3) would disrupt 800 MHz rebanding and risk recreating the interference problems that prompted rebanding.⁴⁵ If the Commission revisits the 800 MHz band, UTC suggests that the Commission consider "changing rules currently limiting data to uses only ancillary to voice. The FCC also should make it easier to aggregate current 25 kHz frequencies into broader 'pipes.'"⁴⁶

12. Other commenters raised concerns over (1) interference protection and eligibility criteria and (2) application of the EWA proposal to the ESMR band in the Southeast, U.S. Mr. Bob Ferrell, a retired public safety communications official, disagreed with certain technical recommendations in the EWA Petition and also argued that any interstitial channels should be reserved for public safety use.⁴⁷ SouthernLINC notes that the EWA Petition fails to recognize the expanded ESMR band in the Southeast.⁴⁸ In its reply comments, EWA suggested that it would address UTC's objections in a rulemaking proceeding on this matter.⁴⁹ EWA disagrees with "Mr. Ferrell's suggestion that new 800 MHz channels should be available exclusively for public safety use, in addition to the 800 MHz spectrum public safety already is inheriting from Nextel in the bands between 854-861 MHz."⁵⁰ EWA, however, concedes SouthernLINC's point and states that its proposal would not change the ESMR band.⁵¹

13. In a subsequent filing, LMCC stated that its membership, which includes UTC, unanimously endorsed LMCC's proposed interference criteria for consideration in this rulemaking.⁵² LMCC also stated that it intended to use an F(50,50) curve to calculate both predicted service and interference contours for purposes of coordinating the interstitial channels.⁵³ LMCC explained that "experience has shown that the F(50,50) curves are reliable predictors of the actual land mobile environment."⁵⁴ APCO, an LMCC member, requested that the Commission seek comment on whether the contour values have been sufficiently tested to provide appropriate protection to incumbents.⁵⁵

III. NOTICE OF PROPOSED RULEMAKING

A. Interstitial Channels

14. Based on comments received in response to the *Public Notice*, we propose to establish interstitial channels with reduced bandwidth in the Mid-Band, subject to certain interference protection criteria and eligibility requirements. We also propose to continue licensing of standard 25 kHz bandwidth

⁴⁵ UTC Comments at 2-4. Specifically, UTC proposes the aggregation of current 25 kHz frequencies rather than the introduction of 12.5 kHz interstitial channels. See *infra* paragraph 19.

⁴⁶ UTC Comments at 3.

⁴⁷ Mr. Bob Ferrell Comments at 2-4.

⁴⁸ SouthernLINC Comments at 4.

⁴⁹ EWA Reply Comments at note 5.

⁵⁰ *Id.* at note 6.

⁵¹ *Id.* at 3.

⁵² Letter from Mark E. Crosby, LMCC, Secretary/Treasurer to Ruth Milkman, Wireless Telecommunications Bureau and Jamie A. Barnett, Jr., Public Safety and Homeland Security Bureau at 1 (June 23, 2010) (LMCC *Ex Parte*).

⁵³ Letter from Gregory Kunkle, LMCC, President to Marlene H. Dortch, Secretary, FCC at 1 (Oct. 3, 2014) (LMCC Oct. *Ex Parte*).

⁵⁴ *Id.*

⁵⁵ Letter from Robert M. Gurs, Senior Regulatory Counsel, APCO to David L. Furth, Deputy Bureau Chief, Public Safety and Homeland Security Bureau (Oct. 15, 2014) (APCO *Ex Parte*).

channels in the Mid-Band with channel centers separated by 25 kHz, and licensing of full power interstitial channels with 12.5 kHz bandwidth and center frequencies offset 12.5 kHz above and below the center frequencies of the standard channels in the Mid-Band. We seek comment on our proposal generally, and on whether it would promote more effective and efficient use of the 800 MHz Mid-Band relative to competing technology that, although requiring greater bandwidth per channel, may achieve greater reliability/resiliency for personnel operating in challenging RF environments.

15. We agree with commenters that establishing interstitial channels may promote greater use of the Mid-Band without imposing costs or other burdens on existing users.⁵⁶ EWA notes that the 800 MHz band is “well-designed to accommodate interstitial 12.5 kHz bandwidth channels,” as compared to the lower PLMR bands that are densely populated by shared licensees.⁵⁷ Under our proposal, interstitial channels would be inserted between the existing 25 kHz standard channels without requiring existing systems that use the standard channels to modify their operations. We seek comment on this proposal, on our assessment regarding the lack of additional costs to incumbents, and on the benefits that could be derived from greater use of the Mid-Band. We ask commenters to provide specific data identifying costs and benefits, including evidence of demand for interstitial channels from public safety and other critical users, any efficiencies to be derived from the proposal, the extent of incumbent use of the Mid-Band, the effect of the proposal on such use, and its impact on successful completion of the 800 MHz rebanding initiative.

16. After the close of comments on the EWA Petition, the Commission adopted the *TETRA Report and Order*,⁵⁸ which modified Part 90 of the Commission’s rules to permit the certification and use of TETRA equipment in the Mid-Band and ESMR band so long as it meets the Adjacent Channel Power limits of Section 90.221 of the Commission’s Rules.⁵⁹ The Commission concluded that TETRA offers PLMR users new equipment choices and poses minimal risk of causing harmful interference to other users provided the licensee of a TETRA system has exclusive use of its channels and all adjacent channels within 18.75 kilohertz of its center frequency.⁶⁰

17. Accordingly, we seek comment on how the introduction of TETRA technology into the Mid-Band may impact our proposal to establish 12.5 kHz bandwidth interstitial channels. We seek comment on any interference, frequency coordination and geographic spacing issues that must be resolved before introducing operations on interstitial channels. We seek comment on whether TETRA technologies would necessarily preclude operations on interstitial channels and vice versa. We envision the gradual introduction of interstitial channels as a process that can be managed to avoid interference conflicts in the Mid-Band. However, we believe the introduction of narrower interstitial channels adjacent to existing or future TETRA deployments will require careful advance coordination.

18. Commenters also expressed a desire to minimize licensing complexity and avoid interference with 800 MHz rebanding.⁶¹ We agree. We propose to make interstitial channels in the Mid-Band available for licensing in any NPSPAC region only after 800 MHz rebanding is completed in that

⁵⁶ See, e.g., TIA Letter at 1; FIT Comments at 2; LMCC Comments at 2-3; Motorola Comments at 1.

⁵⁷ EWA Petition at 5. See, e.g., LMCC Comments at 3.

⁵⁸ See Amendment of Part 90 of the Commission’s Rules to Permit terrestrial Trunked Radio (TETRA) Technology, WT Docket No. 11-69, ET Docket No. 09-234, *Report and Order*, 27 FCC Rcd 11569 (2012) (*TETRA Report and Order*).

⁵⁹ 47 C.F.R. § 90.221.

⁶⁰ *TETRA Report and Order*, 27 FCC Rcd at 11572-73 ¶¶ 5-7. In other words, TETRA operations are premised on exclusive use of one 25 kHz bandwidth channel and the upper and lower adjacent 12.5 kHz bandwidth interstitial channels.

⁶¹ See, e.g., Transit Wireless Communications Comments at 1; UTC Comments at 5.

region. We propose to announce by Public Notice when licensing of interstitial channels may begin in each NPSPAC region.⁶² We seek comment on this proposal.

19. UTC – alone among the commenting parties – argues that introducing 12.5 kHz interstitial channels, as opposed to aggregating 25 kHz channels, would take the 800 MHz band in the “wrong” technical direction.⁶³ UTC urges the Commission to make it easier to aggregate current 25 kHz frequencies into broader “pipes.”⁶⁴ UTC notes that “efficient digital Sprint networks support multiple communications paths within a 25 kHz bandwidth channel” and that “[t]his is the future direction of wireless technology,” rather than narrower channels.⁶⁵ UTC further claims that incompatibilities would arise between existing 25 kHz users and the new 12.5 kHz users and that such incompatibilities would recreate an incompatible mix of technologies that ultimately led the Commission to reconfigure the 800 MHz band.⁶⁶

20. We seek comment on the concerns raised by UTC regarding interstitial channels and its alternative proposal to encourage aggregation of 25 kHz channels. As an initial matter, we note that Section 90.645 of the rules already permits licensees to aggregate up to five contiguous 800 MHz channels “after justification for systems requiring more than the normal single channel bandwidth.”⁶⁷ The rules, however, prohibit high density ESMR “cellular” operations in the Mid-Band to prevent the type of interference that prompted 800 MHz rebanding. In light of this limitation, is it viable or desirable to introduce wideband technology into the Mid-Band as UTC proposes? If we were to allow aggregation of 25 kHz frequencies into broader “pipes,” could this cause harmful interference to narrowband licensees in the Mid-Band? Is there data to support UTC’s claim that broadband (*e.g.*, CDMA) operation in the Mid-Band would not cause any greater interference to narrowband incumbents than new, full power, 12.5 kHz operations on interstitial channels? Are there alternative technologies that would provide greater spectrum efficiency using the interstitial channels? Is it preferable, as UTC suggests, to await completion of the still incomplete 800 MHz rebanding before pursuing EWA’s proposal?

21. We also seek comment on UTC’s view that interstitial channels would recreate the interference problem that led to rebanding. We note that the interference problem that prompted the 800 MHz rebanding proceeding was a result of high-power, low site systems creating near-far and

⁶² Several NPSPAC regions have already completed 800 MHz rebanding. *See supra* n. 25.

⁶³ UTC claims that many utilities rely on backbone 800 MHz networks and that these mission critical networks cannot tolerate interference. UTC contends that utilities preparing for the future need broader channels, not narrower ones. UTC Comments at 4.

⁶⁴ *Id.*

⁶⁵ *Id.* at 4-5.

⁶⁶ *See* UTC Comments at 2; Larry Sayers Comments at 1. The root cause of the interference problem that led to rebanding resulted from a “fundamentally incompatible mix of two types of communications systems in the 800 MHz band: cellular-architecture multi-cell systems—used by cellular telephone and ESMR licensees—and high site systems—used by public safety, private wireless and non-cellular SMR licensees.” *See 800 MHz Report and Order*, 19 FCC Rcd at 15045 ¶ 142. The Commission believed that reconfiguring the 800 MHz band to separate these incompatible technologies, supplemented, when necessary with, “Enhanced Best Practices” (*e.g.* procedures to remedy interference in the post-rebanded 800 MHz band) provided the best long-term solution to the problem of interference in the 800 MHz band. *Id.*

⁶⁷ 47 C.F.R. § 90.645(g) (permitting licensees in the 809-816/854-861 MHz sub-band to aggregate up to five continuous channels.). Section 90.645(g) also provides: “[i]f necessary, licensees may trade channels amongst themselves in order to obtain contiguous frequencies. Notification of such proposed exchanges shall be made to the appropriate frequency coordinator(s) and to the Commission by filing an application for license modification.” *Id.* By comparison, Section 90.209 has been amended to permit EA licensees in the ESMR band to exceed the standard channel spacing and authorized bandwidth once all public safety licensees complete rebanding in a given NPSPAC region. *See* 47 C.F.R. § 90.209(b)(7).

intermodulation interference, neither of which is typical of the high site systems that would use the interstitial Mid-Band channels. Further, most commenters contend that we can establish suitable interference protection criteria in this rulemaking to ensure that incumbent 25 kHz operations will not receive unacceptable interference from interstitial channel systems. The LMCC membership unanimously approved a table of "Interstitial 800 MHz Coordination Procedures," which LMCC submitted in the record for consideration in this rulemaking.⁶⁸ We seek comment on whether these measures are sufficient to mitigate interference concerns.

B. Interference Protection Criteria.

22. The current 800 MHz rules generally protect licensees against co-channel interference, and only recently have been revised to afford adjacent channel interference protection from TETRA systems.⁶⁹ The co-channel interference rules are based on distance separation, *i.e.* a co-channel station must maintain at least 113 kilometers (70 miles) separation from other co-channel stations.⁷⁰ Section 90.621(b)(4) of the Commission's rules, however, permits distances fewer than 113 kilometers but no fewer than 88 kilometers (55 miles) if the applicant proposes power and antenna height reductions consistent with the cited rule's Short-Spacing Separation Table.⁷¹ An applicant may propose shorter distances than the minimum spacing distances listed in the table if it "submits with its application letters of concurrence indicating that the applicant and each co-channel licensee within the specified separation agree to accept any interference resulting from the reduced separation between their systems."⁷²

23. EWA observes that most 800 MHz incumbents obtained exclusive rights to channels with a protected service contour,⁷³ and suggests that licensees on interstitial channels should protect existing users on adjacent 25 kHz-spaced standard channels from interference based on a contour overlap standard.⁷⁴ RadioSoft, however, proposes using Telecommunications Industry Association (TIA) Technical Service Bulletin 88 (TSB-88),⁷⁵ which it characterizes as "an evolving frequency coordination standard."⁷⁶ RadioSoft argues that contour overlap analysis is "over-conservative" insofar as it introduces "5 dB of unnecessary protection," and that the analysis fails to differentiate between analog and digital modulation schemes.⁷⁷ The State of Florida suggests using the Okumura propagation model to calculate contour overlap.⁷⁸

⁶⁸ LMCC *Ex Parte* at 1.

⁶⁹ See *TETRA Report and Order*, 27 FCC Rcd 11569.

⁷⁰ 47 C.F.R. § 90.621(b).

⁷¹ The distances in the Short-Spacing Separation Table were derived using the Commission's R-6602 curves and are premised on the 22 dB μ V/m F(50,10) contour of a proposed station causing no overlap with the 40 dB μ V/m F(50,50) service contour of a co-channel station. See 47 C.F.R. § 90.621(b)(4).

⁷² See 47 C.F.R. § 90.621(b)(5).

⁷³ EWA Petition at 4.

⁷⁴ *Id.* at 6.

⁷⁵ See Telecommunications Industry Association, TIA TSB-88.1, *Wireless Communications Systems Performance in Noise and Interference-Limited Situations Part 1: Recommended Methods for Technology Independent Performance Modeling* (Oct 2013).

⁷⁶ RadioSoft Comments at 1. RadioSoft notes that TSB-88 has been used since 1997 for frequency coordination in the 470-512 MHz band. *Id.* at n.1.

⁷⁷ *Id.* at 2.

⁷⁸ Florida Comments at 1. The Okumura model uses curves derived from measurements taken in the Tokyo metropolitan area. The curves give the median attenuation relative to free space in an urban area over quasi-smooth terrain. See Jacobsmeier, J., *When Measurements Aren't Feasible*, Urgent Communications, May 1, 2008.

24. In its reply comments, EWA endorsed the views of other commenters that recommended deferring to LMCC to develop appropriate coordination procedures.⁷⁹ In an *ex parte* presentation, LMCC states that its members unanimously approved the following interference protection criteria for stations operating on interstitial channels.⁸⁰ The criteria are based on reciprocal contour overlap analysis of F(50,50) coverage and interference contours.⁸¹

25. LMCC supports reciprocal contour analyses whereby: “[t]he applicant’s interference contour cannot overlap the service contour of any affected incumbent and the incumbent(s)’ interference contour cannot overlap the applicant’s service contour.”⁸² LMCC argues that a reciprocal analysis “will provide superior interference protection for both applicants and incumbents.”⁸³ LMCC also supports using the F(50,50) curves for both the service and interfering contours because according to LMCC the F(50,50) curves “represent an appropriate balance of promoting more intensive use of spectrum without burdening applicants with the need to conduct an overly complex and costly coordination analysis.”⁸⁴ Interference, however, typically is related to the F(50,10) contour.⁸⁵ We therefore seek comment on LMCC’s reciprocal contour analysis proposal and whether the interfering contour in the table, below, should be based on the F(50,10) contour rather than the F(50,50) contour.

**Interstitial 800 MHz Coordination Procedures
Land Mobile Communications Council**

ADJACENT STANDARD CHANNEL INCUMBENT EMISSION	INTERSTITIAL PROPOSED EMISSION DESIGNATOR 7K-11K Emission (B/ILT or PS)	INTERSTITIAL PROPOSED EMISSION DESIGNATOR 4K Emission (B/ILT or PS)
16K or greater analog (B/ILT or PS)	40/38 (50/50) (reciprocal) ⁸⁶	No analysis required
16K or greater digital (B/ILT or PS)	40/23 (50/50) (reciprocal) ⁸⁷	No analysis required
11K or less (B/ILT or PS)	No analysis required	No analysis required

26. We seek comment on LMCC’s proposed interference protection criteria, the foregoing alternatives, and any other interference protection approaches that may be viable.⁸⁸ For instance, APCO requests that we seek comment on how LMCC derived the contour values in its proposal and whether or

⁷⁹ EWA Reply Comments at 4.

⁸⁰ LMCC *Ex Parte* at 1.

⁸¹ *Id.* at Attachment A.

⁸² LMCC *Oct. Ex Parte* at 2.

⁸³ *Id.*

⁸⁴ *Id.* at 1.

⁸⁵ *See, e.g.*, 47 C.F.R. §§ 90.621(b)(4) Short-Spacing Separation Table note 3; 90.723(k).

⁸⁶ 40/38 here refers to overlap of a licensee’s 40 dB μ V/m service contour and the 38 dB μ V/m interference contour of a proposed station over a location/time distribution of 50% of the locations 50% of the time, *i.e.*, predicted interference will occur if the specified contours overlap.

⁸⁷ *See supra* n.86. Here 23 refers to the 23 dB μ V/m interference contour.

⁸⁸ *See, e.g.*, Third District Enterprise, LLC Comments at 4-7 (arguing that licensees and applicants should receive ample opportunity to comment on interference protection proposals).

not these contours “need to be revisited to ensure protection to incumbent licensees operating with bandwidths of 20 kHz and greater.”⁸⁹ APCO also asks that we seek comment on whether or not “there has been testing of the interference values to ensure proper protection is provided to incumbent licensees, and whether appropriate coordination standards will be established.”⁹⁰ We seek comment on these matters.

27. We also inquire whether contour overlap or other analytical methods, such as TSB-88, are the most appropriate for protecting adjacent-channel incumbents. Proponents of contour overlap should address whether a contour method provides efficient, adequate and accurate interference protection on a consistent basis and whether the contour overlap process would be less burdensome on applicants and frequency coordinators than alternative proposals. Additionally, should applicants be allowed to obtain letters of concurrence, similar to our existing short-spacing rules, from adjacent channel licensees as an alternative to the contour overlap analysis? Should we accept analyses based on terrain-sensitive models such as Technical Note 101 (Longley-Rice)?⁹¹ Are protected contours still an appropriate model for interference protection for digital modulation schemes?⁹² For instance, how does the introduction of TETRA technology into the Mid-Band impact adjacent-channel use and the LMCC contour overlap proposal? Should the contour values proposed by LMCC be adjusted to account for TETRA systems? Proponents of the TSB-88 or Okumura methodologies should address whether these methods can provide adequate interference protection with repeatable results but without being overly-complex or excessively costly. Finally, we seek comment on whether or not to extend interference protection to licensees on the new full power interstitial channels and, if so, what interference criteria should be used to protect these licensees, *e.g.*, whether the interference criteria in the table *supra* should be reciprocal as LMCC proposes.⁹³

C. Eligibility and Licensing Requirements

28. Our rules establish four eligibility pools or categories for the Mid-Band portion of the 800 MHz band:⁹⁴ General Category,⁹⁵ Public Safety,⁹⁶ B/ILT,⁹⁷ and high-site SMR.⁹⁸ Each category has

⁸⁹ See *APCO Ex Parte* at 1.

⁹⁰ *Id.*

⁹¹ NPSTC Comments at 4 (claiming that some NPSTC participants encountered situations in which the contour method did not provide adequate protection). See Rice, P.L., Longley, A.G., Norton, K.A., Barsis, A.P., “Transmission Loss Predictions for Tropospheric Communications Circuits,” NBS Technical Note 101 (Revised), Volumes I and II, U.S. Department of Commerce, 1967.

⁹² RadioSoft further observes that the calculation of DHAAT specified in § 90.621(b)(4) closely approximates the claimed contour protection, but is not identical. Radiosoft Comments at 2. Specifically, RadioSoft submits, the DHAAT tables presume the incumbent’s ability in most cases to upgrade to 1000 watts Effective Radiated Power (ERP). *Id.* RadioSoft argues that DHAAT has served its purpose, but that the actual use of the 800 MHz band has evolved and will increasingly favor smaller Protected Service Areas, especially with the introduction of interstitial channels. *Id.* While RadioSoft favors use of TSB-88, it agrees that “this portion of the Rule, with its presumed 1 kW ERP upgrade, should be retired altogether in all cases post-rebanding, as it would not only unnecessarily inhibit new interstitial assignments but even now, by successive application, has caused many unanticipated problems to existing users.” *Id.*

⁹³ See LMCC Oct. *Ex Parte* at 1-2.

⁹⁴ See *800 MHz Report and Order*, 19 FCC Rcd at 14977 ¶ 11; see also *id.* at Appendix C, §§ 90.615 and 90.617, 19 FCC Rcd 15180-15185; *Supplemental Order*, 19 FCC Rcd at 25144-45 ¶ 57.

⁹⁵ Under the *800 MHz Report and Order*, the new General Category Pool consists of Channels 231-260 and 511-550. See *800 MHz Report and Order* 19 FCC Rcd at 15051. Frequencies in this pool are available for public safety, B/ILT and SMR (site based, non-cellular) operations. See 47 C.F.R. § 90.603.

specific eligibility requirements.⁹⁹ Our rules allocate the channels to each category by grouping them into five-channel blocks and interspersing the blocks among the categories.

29. EWA suggests that applicants of all of the above categories should be eligible for licensing on new interstitial channels independent of their eligibility on adjacent standard 25 kHz bandwidth channels.¹⁰⁰ UTC and the American Petroleum Institute (API), however, argue against reducing the amount of spectrum available to B/ILT users that would result from making the interstitial channels available to applicants from all categories.¹⁰¹ One commenter argues that any new interstitial channels should be reserved for public safety use consistent with the three and five-year criteria applicable to ESMR-vacated channels.¹⁰²

30. We seek comment on what eligibility requirements should be established for interstitial channels. Should all interstitial channels be available for licensing to all Part 90 eligibles, or should subsets of the interstitial channels be reserved for specific eligibility categories? Should eligibility for each interstitial channel track the applicable eligibility for the adjacent 25 kHz bandwidth channels? For example, in our proposed rules we assign eligibility to each interstitial channel based on the category of the lower-adjacent standard channel.¹⁰³ In this manner, a set of interstitial channels would be reserved for each category of user.

31. We also seek comment on whether public safety eligibles should receive preferential or exclusive access to interstitial channels for some period of time. In this regard, we note that since comments were filed on EWA's proposal, Congress enacted Section 6103 of the Middle Class Tax Relief and Job Creation Act of 2012 (Spectrum Act), which requires public safety licensees in the 470-512 MHz band (T-Band) to relocate from the band.¹⁰⁴ Should public safety T-Band incumbents be afforded preferential or exclusive access to interstitial channels in their geographic areas for relocation purposes?

(Continued from previous page) _____

⁹⁶ The Public Safety Pool channels in the interleaved segment of the band are interspersed with channels in other pools throughout the 809-815/854-860 MHz band segment. Frequencies in this group are available, in general, only to public safety eligibles. *See* 47 C.F.R. § 90.617(a).

⁹⁷ The B/ILT pool consists of interleaved channels in the 809-816/854-861 MHz band segment. Channels in this pool, in general, are available only to B/ILT eligibles. *See* 47 C.F.R. § 90.617(b).

⁹⁸ This pool consists of interleaved channels in the 809-816/854-861 MHz band. Channels in this pool, in general, are available only to SMR eligibles. *See* 47 C.F.R. § 90.617(d).

⁹⁹ The rules also provide for "inter-category sharing," under which an applicant may apply for a channel outside its category. *See* 47 C.F.R. § 90.621(e). However, the Commission currently maintains a freeze on inter-category sharing. Licensing of General Category Frequencies in the 806-809.750/851-854.750 MHz Bands, *Order*, 10 FCC Rcd 13190 (WTB 1995).

¹⁰⁰ EWA Petition at 6.

¹⁰¹ UTC Comments at 3 (opposing making new interstitial channels available to all Part 90 applicants, irrespective of pool eligibility); API Reply Comments at 5 (opposing any reduction in the amount of spectrum available to B/ILT entities, including expanding eligibility for 800 MHz B/ILT channels to all Part 90 eligible entities).

¹⁰² Bob Ferrell Comments at 4.

¹⁰³ *See* Appendix B, *infra*.

¹⁰⁴ Pub. L. No. 112-96, 126 Stat. 156 (2012). The Spectrum Act directs the Commission to reallocate the spectrum "used by public safety eligibles" in the 470-512 MHz band (also referred to as the "T Band") no more than nine years after enactment, and within that same time period to begin a system of competitive bidding under section 309(j) of the Communications Act of 1934 to grant new initial licenses for the use of this spectrum. *Id.* at § 6103(a)(1) (citing 47 C.F.R. § 90.303), § 6103(a)(2) (*citing* 47 U.S.C. § 309(j)). Congress also directed the National Telecommunications and Information Administration to administer grants from the auction proceeds to cover costs for the relocation of public safety licensees from the T-Band and mandated that relocation "be completed not later than 2 years after the date on which the system of competitive bidding . . . is completed." *Id.* at §§ 6103(b), 6103(c).

In that connection, we note that the Commission recently established an application priority for T-Band licensees relocating from the T-Band to 700 MHz narrowband channels that previously had been held in reserve.¹⁰⁵ Would the application priority process set out in that proceeding appropriately be applied to the 800 MHz interstitial channels?¹⁰⁶ If we afford the T-Band incumbents priority access, how long should they be afforded such access before interstitial channels are made available to other applicants? To what extent, if any, should the provision of such preferential access to these frequencies affect the disposition of the eligibility issues presented for comment above? As for licensing processes more generally – *i.e.*, the overall procedures for filing and granting applications – we propose to use those rules currently in place for the overarching band (*i.e.*, the Mid-Band).¹⁰⁷ We seek comment on this proposal and any alternatives.

D. Authorized Bandwidth and Emission Mask.

32. Section 90.209 of our rules lists the standard channel spacing and authorized bandwidth for various PLMR bands.¹⁰⁸ Under our proposal, we would reduce the spectral spacing between the center frequencies of each channel in the Mid-Band from 25 kHz to 12.5 kHz by adding interstitial channels. The authorized bandwidth for licensees operating in the Mid-Band on standard 25 kHz bandwidth channels would remain unchanged at 22 kHz.¹⁰⁹ We propose establishing an authorized bandwidth of 11.25 kHz for licensees operating on interstitial 12.5 kHz bandwidth channels. We seek comment on our proposal.

33. Further, Section 90.210 of our rules lists the emission masks applicable to transmitters used in the PLMR bands.¹¹⁰ We propose applying emission mask “D” to licensees operating on interstitial channels in the Mid-Band. This is the emission mask required of licensees operating on interstitial 12.5 kHz bandwidth channels in other PLMR bands.¹¹¹ Emission mask D was designed to allow licensees operating on 12.5 kHz bandwidth channels to employ various modulation techniques while offering interference protection to licensees operating on adjacent 25 kHz bandwidth channels.¹¹² Consequently, we seek comment on whether applying emission mask D would suffice to limit the potential for interference to licensees operating on the adjacent standard 25 kHz bandwidth channels in the Mid-Band. Furthermore, we note that Section 90.210 of the Commission’s rules currently requires

¹⁰⁵ Proposed Amendments to the Service Rules Governing Public Safety Narrowband Operations in the 769-775/799-805 MHz Bands, *Report and Order*, 29 FCC Rcd 13283 (2014) (2014).

¹⁰⁶ Boston, Mass. Chicago, Ill, Cleveland, Ohio, Dallas/Fort Worth, Tex., Detroit, Mich., Houston, Tex, Los Angeles, Calif., Miami, Fla., New York, N.Y./NE N.J., Philadelphia, Penn., Pittsburgh, Penn., San Francisco/Oakland, Calif. and Washington, D.C./Maryland/Virginia. 47 C.F.R. § 90.303(b). Additionally, 482-488 MHz (TV Channel 16) is available to Public Safety licensees in New York City, Nassau, Suffolk, and Westchester Counties, N.Y. 47 C.F.R. § 90.303(c).

¹⁰⁷ *See* 47 C.F.R. §§ 90.110, 90.120, 90.175.

¹⁰⁸ 47 C.F.R. § 90.209(b)(5). The authorized bandwidth is the frequency band specified in kilohertz and centered on the carrier frequency containing those frequencies in which a total of 99 percent of the radiated power appears. *See* 47 C.F.R. § 90.7.

¹⁰⁹ Licensees may only operate up to an authorized bandwidth of 22 kHz if they comply with the adjacent channel power limits listed in Section 90.221 otherwise the maximum authorized bandwidth is 20 kHz. *See* 47 C.F.R § 90.221(c)(1).

¹¹⁰ *See* 47 C.F.R. § 90.210.

¹¹¹ *Id.* Emission mask D applies to licensees operating on 12.5 kHz bandwidth channels in the 150-174 MHz and 421-512 MHz bands.

¹¹² *See* Replacement of Part 90 by Part 88 to Revise the Private Land Mobile Radio Services and Modify the Policies Governing Them, *Report and Order*, 10 FCC Rcd 10076, 10119 ¶ 87 (1995).

compliance with either Emission Mask B or G.¹¹³ Therefore we seek comment on whether or not equipment manufacturers would need to update their equipment authorizations to comply with mask D in the 800 MHz band.

34. One commenter suggests that we license interstitial channels with a channel bandwidth of 25 kHz, similar to the NPSPEC band where 25 kHz channels are spaced every 12.5 kHz.¹¹⁴ This commenter argues that a 12.5 kHz bandwidth interstitial channel would provide no benefit to the vast majority of existing 800 MHz systems that operate in a wideband mode of up to 20 kHz emission bandwidth.¹¹⁵ We seek comment on this alternative. We note that limiting the channel bandwidth of interstitial channels to 12.5 kHz would minimize bandwidth overlap from these interstitial channels to the adjacent standard channels, thus reducing interference potential to incumbent licensees and increasing the ability of PLMR users to license these interstitial channels in areas where the standard channels are heavily used.¹¹⁶ If we were to authorize 25 kHz channel bandwidth on the interstitial channels, would we have to adopt more rigorous distance separations between stations? What would be the impact on availability of interstitial channels, particularly in spectrum-congested areas where they are most needed?

35. The record to date also suggests that it would be beneficial to update the channelization scheme for the Mid-Band to support new PLMR equipment. For example, TIA suggests that interstitial channels would encourage the adoption of new wireless technologies, *e.g.*, narrowband (12.5 kHz) equipment similar to what is currently used in the VHF and UHF bands.¹¹⁷ LMCC notes that FDMA and TDMA equipment is already available in the 800 MHz band and can provide two voice or data paths within an interstitial channel's 12.5 kHz bandwidth. We thus seek comment on whether we should restrict the interstitial channels to spectrum efficient technologies capable of providing two, or more, voice or data paths per channel.¹¹⁸

IV. PROCEDURAL MATTERS

A. *Ex Parte* Rules – Permit-But-Disclose

36. This proceeding shall be treated as a “permit-but-disclose” proceeding in accordance with the Commission's *ex parte* rules.¹¹⁹ 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

¹¹³ 47 C.F.R. § 90.210. Alternatively, equipment may meet the Adjacent Channel Power limits in Section 90.221, 47 C.F.R. § 90.221.

¹¹⁴ Bob Ferrell Comments at 1.

¹¹⁵ *Id.* We note the Commission adopted changes to the bandwidth limit and emission masks, which allows the use of TETRA technology in the United States. TETRA technology operates with an authorized bandwidth of up to 22 kHz. We further note that Harris Corporation proposed (1) requiring digitally-modulated signals be certified under the H-Mask for use in public safety spectrum and (2) adopting equipment certification “technical” mandates for operation on the mutual aid channels designated in 47 C.F.R. §§ 90.203(i) and 90.203(j)(1). *See* Petition for Rulemaking (Apr. 30, 2012) (RM 11663). Emission Mask Requirements for Digital Technologies on 800 MHz NPSPEC Channels; Analog FM Capability on Mutual Aid and Interoperability Channels, PS Docket No. 13-209, RM-11663, *Notice of Proposed Rulemaking*, 28 FCC Rcd 13403 (2013).

¹¹⁶ *See* EWA Petition at 8 (noting that licensees operating with 25 kHz bandwidth systems on channels separated by only 12.5 kHz must be treated as “co-channel systems” whereas a licensee limited to 12.5 kHz on an interstitial channels need not be so treated).

¹¹⁷ TIA Comments at 1-2.

¹¹⁸ *See ex parte* Letter from Catherine Seidel, Motorola Solutions, Inc. to Marlene Dortch, Secretary, FCC (April 11, 2012) (stating that ETSI DMR-standard equipment, and APCO Project 25, Phase II technologies are capable of realizing two voice or data channels within a 12.5 kHz channel).

¹¹⁹ 47 C.F.R. §§ 1.1200 *et seq.*

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 Section 1.1206(b).¹²⁰ In proceedings governed by Section 1.49(f)¹²¹ 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.

B. Comment Period and Procedures

37. Pursuant to sections 1.415 and 1.419 of the Commission's rules, 47 CFR §§ 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. Comments may be filed using the Commission's Electronic Comment Filing System (ECFS). *See Electronic Filing of Documents in Rulemaking Proceedings*, 63 FR 24121 (1998).

- Electronic Filers: Comments may be filed electronically using the Internet by accessing the ECFS: <http://fjallfoss.fcc.gov/ecfs2/>.
- 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.

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).

¹²⁰ 47 C.F.R. § 1.1206(b).

¹²¹ 47 C.F.R. § 1.49(f).

C. Initial Regulatory Flexibility Analysis

38. As required by the Regulatory Flexibility Act of 1980 (RFA),¹²² the Commission has prepared an Initial Regulatory Flexibility Analysis (IRFA) of the possible significant economic impact on small entities of the policies and rules proposed in the *NPRM*. The analysis is found in Appendix A. We request written public comment on the analysis. Comments must be filed by the same dates as listed on the first page of this document and must 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 this Notice, including the IRFA, to the Chief Counsel for Advocacy of the Small Business Administration.

D. Initial Paperwork Reduction Analysis

39. This *NPRM* contains proposed new or modified information collection requirements. Specifically, the Commission seeks comment on rule changes that would increase the number of channels available to Private Land Mobile Radio users, thus revising the number of respondents subject to certain existing information collection requirements (*i.e.* ICR Reference Number: 201311-3060-018, OMB Control No. 3060-0798). Additionally, the *NPRM* seeks comment on interference protection criteria that would modify frequency coordination requirements and frequency selection and assignment criteria for 800 MHz PLMR spectrum. 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 information collection requirements contained in this document, as required by the Paperwork Reduction Act of 1995, Public Law 104-13. Written comments on the PRA proposed information collection requirements must be submitted by the public, the OMB, and other interested parties on or before 60 days after publication of the Notice in the *Federal Register*. Comments should address: (a) whether the proposed collection of information is necessary for the proper performance of the functions of the Commission, including whether the information shall have practical utility; (b) the accuracy of the Commission's burden estimates; (c) ways to enhance the quality, utility, and clarity of the information collected; and (d) ways to minimize the burden of the collection of information on the respondents, including the use of automated collection techniques or other forms of information technology. 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.

E. Further Information

40. For further information, contact John Evanoff, Esq., of the Public Safety and Homeland Security Bureau, Policy and Licensing Division, at (202) 418-0848, or by email to john.evanoff@fcc.gov or Rodney Conway, Wireless Telecommunications Bureau, Mobility Division, at (202) 418-2904, or by email to rodney.conway@fcc.gov.

V. ORDERING CLAUSES

41. Accordingly, IT IS ORDERED, pursuant to Sections 1, 2, 4(i), 4(j), 301, 302, 303, 308, 309, 316, 324, and 332 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 152, 154(i), 154(j), 301, 302a, 303, 308, 309, 324, 316, and 332, that this *Notice of Proposed Rulemaking* is hereby ADOPTED.

¹²² 5 U.S.C. § 603.

42. IT IS FURTHER ORDERED that the Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, SHALL SEND a copy of this *Notice of Proposed Rulemaking*, including the Initial Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch
Secretary

APPENDIX A

Initial Regulatory Flexibility Analysis

1. As required by the Regulatory Flexibility Act of 1980, as amended (RFA),¹ the Commission prepared this Initial Regulatory Flexibility Analysis (IRFA) of the possible significant economic impact on a substantial number of small entities by the policies and rules proposed in this *Notice of Proposed Rulemaking (NPRM)*. Written public comments are requested on this IRFA. Comments must be filed by the same dates as listed on the first page of the *NPRM* and must have a separate and distinct heading designating them as responses to this IRFA. The Commission will send a copy of the *NPRM*, including this IRFA, to the Chief Counsel for Advocacy of the Small Business Administration (SBA).² In addition, the *NPRM* and IRFA (or summaries thereof) will be published in the *Federal Register*.³

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

2. The proposed changes to the 800 MHz band plan between 809-817 MHz/854-862 MHz (the 800 MHz “Mid-Band”) provide flexibility in channel spacing and bandwidth limitation governing 800 MHz Private Land Mobile Radio (PLMR) licensees. Specifically, we propose to modify the band plan to accommodate full power, interstitial 12.5 kHz “offset” channels in the 800 MHz Mid-Band, subject to certain protections designed to safeguard 800 MHz incumbents from interference. These proposed band plan changes provide licensees with the flexibility to deploy advanced PLMR technologies while also continuing to protect 800 MHz incumbents, including public safety licensees, from any potential interference. The proposed band plan changes allow 800 MHz PLMR licensees in the 809-817 MHz/854-862 MHz band to reduce the channel spacing and bandwidth limits in Section 90.209 of the Commission’s rules, upon completion of 800 MHz reconfiguration. We believe these proposed band plan changes will reduce barriers to innovation and investment and allow 800 MHz PLMR licensees to deploy advanced technologies at reduced cost and to the benefit of safety of life, health, and property as well as small businesses.

3. The *NPRM* seeks comment on the following implementation proposals. First, the *NPRM* seeks comment on licensing the proposed interstitial channels. The *NPRM* notes that licensing the interstitial channels would require frequency coordination (*e.g.* PLMR licensees would be required to submit a license application on Form 601 demonstrating evidence of frequency coordination). The Commission also seeks comment on appropriate eligibility requirements to ensure the efficient use of the interstitial channels.

4. The *NPRM* also seeks comment on adopting an adjacent channel interference analysis, which would modify the existing frequency coordination process for the 800 MHz PLMR spectrum. Specifically, the *NPRM* seeks comments on adopting a contour overlap analysis, which would be different than the existing co-channel mileage separation rules (*i.e.* 47 C.F.R. § 90.621) used in the selection and assignment of 800 MHz PLMR channels. The *NPRM* seeks comment on alternatives to the contour overlap analysis, including TSB-88, and whether such alternatives are more appropriate for protecting adjacent channel incumbents.

5. Under the contour overlap analysis approach, the *NPRM* also seeks comment on whether PLMR applicants should be allowed to provide letters of concurrence indicating that the applicant and each adjacent-channel licensee agree to accept any interference resulting from the reduced adjacent

¹ See 5 U.S.C. § 603. The RFA, *see* 5 U.S.C. §§ 601–612, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. No. 104-121, Title II, 110 Stat. 857 (1996).

² See 5 U.S.C. § 603(a).

³ *Id.*

channel separation between systems, an approach that would be similar to the consensual short-spacing approach (*i.e.* 47 C.F.R. § 90.621(e)(5)) or the concurrence approach below 512 MHz.

6. The *NPRM* seeks comment on whether or not the proposed band plan changes would require equipment manufacturers to update their equipment authorizations in order to comply with Emission Mask D and 12.5 kHz/11.25 kHz channel spacing/authorized bandwidth, important technical parameters that minimize adjacent channel interference. As a general matter, the Commission rules require that manufacturers of certain radio frequency (RF) equipment file FCC Form 731 to obtain approval prior to marketing their equipment. Manufacturers may then market their RF equipment based on a showing of compliance with technical standards established in the FCC Rules for each type of equipment or device operated under the applicable FCC Rule part.

7. The primary beneficiaries of the proposed band plan changes are PLMR licensees, including small governmental jurisdictions and small business entities, as well as small equipment manufacturers and small business associations that are certified to coordinate PLMR frequencies in the 800 MHz band. The FCC notes that the proposed band plan changes do not require existing PLMR licensees, equipment manufacturers or certified frequency coordinators to make any changes unless they choose to take advantage of the proposed interstitial channels to make more intensive use of the 800 MHz Mid-Band. Thus, incumbent licensees, including small businesses and small governmental jurisdictions, will not be required to modify their systems and may continue to operate on their licensed spectrum. PLMR entities seeking to apply for the proposed interstitial channels may be required to obtain frequency coordination and submit a license application on FCC Form 601 in order to license, construct and operate base, control and mobile stations on the interstitial channels. Additionally, frequency coordinators would be allowed to coordinate more PLMR spectrum provided they incorporate adjacent channel protection criteria in making frequency recommendations. Further, equipment manufacturers may be allowed to exploit an expanded market for radio frequency equipment, provided they comply with the FCC's technical and equipment certification rules to avoid interference.

B. Legal Basis

8. The proposed action is taken under Sections 1, 2, 4(i), 4(j), 301, 302, 303, 308, 309, 316, 324, and 332 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 152, 154(i), 154(j), 301, 302a, 303, 308, 309, 316, 324, and 332.

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

9. 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.⁴ The RFA generally defines the term “small entity” as having the same meaning as the terms “small business,” “small organization,” and “small governmental jurisdiction.”⁵ In addition, the term “small business” has the same meaning as the term “small business concern” under the Small Business Act.⁶ 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.⁷

⁴ 5 U.S.C. § 603(b)(3).

⁵ 5 U.S.C. § 601(6).

⁶ 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.” *Id.*

⁷ Small Business Act, 15 U.S.C. § 632 (1996).

10. *Private Land Mobile Radio Licensees.* PLMR systems serve an essential role in a range of industrial, business, land transportation, and public safety activities. These radios are used by companies of all sizes operating in all U.S. business categories, and are often used in support of the licensee's primary (non-telecommunications) business operations. For the purpose of determining whether a licensee of a PLMR system is a small business as defined by the SBA, we use the broad census category, Wireless Telecommunications Carriers (except Satellite), which comprises establishments engaged in operating and maintaining switching and transmission facilities to provide communications via the airwaves. Establishments in this industry have spectrum licenses and provide services using that spectrum, such as cellular phone services, paging services, wireless Internet access, and wireless video services.⁸ The appropriate size standard under SBA rules is for the category Wireless Telecommunications Carriers. The size standard for that category is that a business is small if it has 1,500 or fewer employees.⁹ For this category, census data for 2007 show that there were 11,163 establishments that operated for the entire year.¹⁰ Of this total, 10,791 establishments had employment of 999 or fewer employees and 372 had employment of 1000 employees or more.¹¹ Thus under this category and the associated small business size standard, the Commission estimates that the majority of wireless telecommunications carriers (except satellite) are small entities.¹²

11. **Small Businesses, Small Organizations, and Small Governmental Jurisdictions.** Our action may, over time, affect small entities that are not easily categorized at present. We therefore describe here, at the outset, three comprehensive, statutory small entity size standards that encompass entities that could be directly affected by the proposals under consideration.¹³ As of 2009, small businesses represented 99.9% of the 27.5 million businesses in the United States, according to the SBA.¹⁴ Additionally, a “small organization” is generally “any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.”¹⁵ Nationwide, as of 2007, there were approximately 1,621,315 small organizations.¹⁶ Finally, the term “small governmental jurisdiction” is defined generally as “governments of cities, counties, towns, townships, villages, school districts, or special districts, with a population of less than fifty thousand.”¹⁷ Census Bureau data for 2007 indicate that there were 89,527 governmental jurisdictions in the United States.¹⁸ We estimate that, of this total, as many as 88,761

⁸ <http://www.census.gov/cgi-bin/sssd/naics/naicsrch?code=517210&search=2007%20NAICS%20Search>

⁹ 13 C.F.R. § 121.201, NAICS code 517210.

¹⁰ U.S. Census Bureau, Subject Series: Information, Table 5, “Establishment and Firm Size: Employment Size of Firms for the United States: 2007 NAICS Code 517210” (issued Nov. 2010).

¹¹

http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ECN_2007_US_51SSSZ2&prodType=tableId. Available census data do not provide a more precise estimate of the number of firms that have employment of 1,500 or fewer employees; the largest category provided is for firms with “100 employees or more.”

¹² See

http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ECN_2007_US_51SSSZ2&prodType=table

¹³ See 5 U.S.C. § 601(3)–(6).

¹⁴ See SBA, Office of Advocacy, “Frequently Asked Questions,” available at <http://web.sba.gov/faqs/faqindex.cfm?areaID=24> (last visited Aug. 31, 2012).

¹⁵ 5 U.S.C. § 601(4).

¹⁶ INDEPENDENT SECTOR, THE NEW NONPROFIT ALMANAC & DESK REFERENCE (2010).

¹⁷ 5 U.S.C. § 601(5).

¹⁸ U.S. CENSUS BUREAU, STATISTICAL ABSTRACT OF THE UNITED STATES: 2011, Table 427 (2007).

entities may qualify as “small governmental jurisdictions.”¹⁹ Thus, we estimate that most governmental jurisdictions are small.

12. *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 communications equipment, and radio and television studio and broadcasting equipment.”²⁰ 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. Of this total, 912 had less than 500 employees and 17 had more than 1000 employees.²¹ Thus, under that size standard, the majority of firms can be considered small.

13. *Frequency Coordinators.* Neither the Commission nor the SBA have developed a definition of small entities specifically applicable to frequency coordinators. Therefore, the Commission concluded that the closest applicable definition under SBA rules is Business Associations (NAICS Code 813910).²² The SBA defines a small business association as an entity with \$7 million or less in annual receipts. There are 18 entities certified to perform frequency coordination functions under Part 90 of our Rules. However, the Commission is unable to ascertain how many of these frequency coordinators are classified as small entities under the SBA definition.²³ The Census Bureau indicates that 97% of business associations have annual receipts of \$7 million or less and would be classified as small entities. The Census Bureau category is very broad, and does not include specific figures for firms that are engaged in frequency coordination. Therefore, for the purposes of this IRFA, the Commission estimates that almost all of the 18 FCC-certified frequency coordinators are small as defined by the SBA.

¹⁹ The 2007 U.S. Census data for small governmental organizations are not presented based on the size of the population in each such organization. There were 89,476 local governmental organizations in 2007. If we assume that county, municipal, township, and school district organizations are more likely than larger governmental organizations to have populations of 50,000 or less, the total of these organizations is 52,095. If we make the same population assumption about special districts, specifically that they are likely to have a population of 50,000 or less, and also assume that special districts are different from county, municipal, township, and school districts, in 2007 there were 37,381 such special districts. Therefore, there are a total of 89,476 local government organizations. As a basis of estimating how many of these 89,476 local government organizations were small, in 2011, we note that there were a total of 715 cities and towns (incorporated places and minor civil divisions) with populations over 50,000. CITY AND TOWNS TOTALS: VINTAGE 2011 – U.S. Census Bureau, *available at* <http://www.census.gov/popest/data/cities/totals/2011/index.html>. If we subtract the 715 cities and towns that meet or exceed the 50,000 population threshold, we conclude that approximately 88,761 are small. U.S. CENSUS BUREAU, STATISTICAL ABSTRACT OF THE UNITED STATES 2011, Tables 427, 426 (Data cited therein are from 2007).

²⁰ The NAICS Code for this service 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

²¹ *See* http://factfinder.census.gov/servlet/IBQTable?_bm=y&-geo_id=&-fds_name=EC0700A1&-skip=4500&-ds_name=EC0731SG3&-lang=en

²² *See* 13 C.F.R. § 121.201. *See, e.g.,* Replacement of Part 90 by Part 88 to Revise the Private Land Mobile Radio Services and Modify the Policies Governing Them, PR Docket 92-235, *Second Report and Order*, 12 FCC Rcd 14307, 14353 (1997).

²³ *See* 13 C.F.R. § 121.201.

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

14. The proposed rules provide regulatory flexibility to all 800 MHz PLMR licensees, including small governmental jurisdictions and small businesses. The proposed rules would minimize the filing burden and paperwork burden for all PLMR licensees seeking to license 12.5 kHz full power channels, for which applicants would under the current rules have to request a waiver.

15. PLMR entities seeking licenses in the 800 MHz band are required to obtain coordination from certain frequency coordinators as specified in Sections 90.20 and 90.35 of the Commission's rules, 47 C.F.R. § 90.20 and 90.35. OMB has already approved the information collection requirements, including frequency coordination requirement associated with Form 601. *See* ICR Reference Number: 201311-3060-018, OMB Control No. 3060-0798. We do not propose any substantive or material changes to the wording of this existing information collection. Instead, if we amend to rules to allow PLMR licensees to license the proposed interstitial channels, then the number of respondents subject to the existing information collections would increase.

16. Frequency coordinators have been certified by the Commission to recommend the most appropriate frequencies for applicants in the designated Part 90 radio services. Section 90.175 requires coordinators to provide a statement recommending the most appropriate frequency. In the below 512 MHz band, frequency coordinators are required to analyze adjacent channel interference. However, in the 800 MHz band, coordinators generally consider co-channel mileage separation requirements. If we amended the rules to permit frequency coordination of interstitial channels then the existing frequency coordination process for the 800 MHz PLMR spectrum would be modified. We anticipate that the burden and cost levels would be comparable to the existing contour overlap analysis in the below 512 MHz band, which OMB approved. *See* ICR Reference No: 201311-3060-015, OMB Control No: 3060-0984.

17. Under the proposed contour overlap approach, PLMR applicants may be allowed to provide letters of concurrence indicating that the applicant and each adjacent-channel incumbent agree to accept any interference resulting from the reduced adjacent channel separation between systems, an approach that would be similar to the consensual short-spacing approach. Currently PLMR applicants may provide letters of concurrence indicating that the applicant and each co-channel licensee agree to accept any interference resulting from the reduced co-channel separation between systems (*i.e.* 47 C.F.R. § 90.621(e)(5)). We envision that the estimated burden and cost levels would be comparable to the existing consensual short spacing rules. *See* ICR Reference No: 201205-3060-017, OMB Control No: 3060-0441.

18. If we amend to rules to allow manufacturers to comply with Emission Mask D and 12.5 kHz/11.25 kHz channel spacing/authorized bandwidth, then manufacturers may be required to update their equipment certifications. OMB has already approved the information collection requirements associated with updating equipment authorizations. OMB has already approved the information collection requirements associated with updating equipment authorizations. The estimated burden and cost levels for equipment certification are described in more detail in the supporting statement for ICR Reference No: 201404-3060-029, OMB Control No. 3060-0057. We do not propose any substantive or material changes to the wording of this existing information collection. Instead, if we amend to rules to allow manufacturers to comply with Emission Mask D and 12.5 kHz/11.25 kHz channel spacing/authorized bandwidth, then the number of respondents subject to the existing information collections may increase.

19. The Commission believes that applying the proposed information collections will promote spectrum efficiency, development of new technologies and mitigate adjacent channel interference. The Commission does not believe that the costs and/or administrative burdens associated with the proposed rules will unduly burden small entities. The rule revisions the Commission proposes should benefit small governmental jurisdictions, small businesses, small equipment manufacturers and small business associations by giving them more flexibility, and more options for gaining access to PLMR spectrum. As noted above, the FCC invites comment on these new or modified information collection requirements.

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

20. 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 and 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.²⁴

21. The *NPRM* seeks comment on a proposal to make more intensive use of the 800 MHz Mid-Band. Denying the proposal would preclude PLMR licensees and applicants, including small governmental jurisdictions and small businesses from making more effective use of the band and thus potentially increase costs on those entities. The *NPRM* is deregulatory in nature and seeks comment on appropriate interference and eligibility requirements on all affected entities, including small entities. In recognition of the resources available to small entities, and in the interest of simplified compliance obligations, the *NPRM* does not mandate a transition to 12.5 kHz technology. Specifically, the *NPRM* proposes to allow 800 MHz PLMR licensees the flexibility to increase capacity by reducing channel size and bandwidth as long as they meet interference protection criteria and eligibility requirements. While we strive to provide flexibility to small entities, because we believe that protection of public safety licensees and PLMR entities is essential and in the public interest, we do not propose any exemption for small entities. We invite comment on less burdensome alternatives.

F. Federal Rules that May Duplicate, Overlap, or Conflict With the Proposed Rules

None.

²⁴ 5 U.S.C. § 603(c)(1)-(4).

**APPENDIX B
Proposed Rules**

The Federal Communications Commission proposes to amend Part 90 of Title 47 of the Code of Federal Regulations (CFR) as set forth below:

PART 90—Private Land Mobile Radio Service

1. 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), 332(c)(7).

2. Section 90.209 is amended by amending the table in paragraph (b)(5) and adding paragraph (b)(8) as follows:

§ 90.209 Bandwidth limitations.

* * * * *

(b) * * *

(5) ***

Standard Channel Spacing/Bandwidth

Frequency band (MHz)	Channel spacing (kHz)	Authorized bandwidth (kHz)
***	* * *	* * *
809–817/854–869	25/12.5	⁶ 20/11.25
***	* * *	* * *

⁶ Operations using equipment designed to operate with a 25 kHz channel bandwidth may be authorized up to a 22 kHz bandwidth if the equipment meets the Adjacent Channel Power limits of § 90.221. Operations using equipment designed to operate with a 12.5 kHz channel bandwidth will be authorized a 11.25 kHz bandwidth.

(8) Private Land Mobile Radio (PLMR) site-based licensees in frequencies 809-817/854-862 MHz may reduce the standard channel spacing and authorized bandwidth listed in paragraph (b)(5) of this section in any National Public Safety Planning Advisory Committee Region upon issuance of Public Notice announcing the availability of interstitial channels. Licensees authorized to reduce the standard channel spacing and authorized bandwidth under this paragraph must meet the applicable co-channel and adjacent channel interference criteria and eligibility requirements prior to initiating service in the 809-817/854-862 MHz.

3. Section 90.210 is revised by amending the introductory paragraph to revise footnote 5 to the table to read as follows:

§ 90.210 Emission masks.

* * *

APPLICABLE EMISSION MASKS

Frequency band (MHz)	Mask for equipment with Audio low pass filter	Mask for equipment without audio low pass filter
* * *	* * *	* * *
809-824/854-869 ^{3, 5 ***}	B, D	D, G
* * *	* * *	* * *

⁵ Equipment designed to operate with a 25 kHz channel bandwidth may alternatively meet the Adjacent Channel Power limits of § 90.221. Equipment designed to operate with a 12.5 kHz channel bandwidth must meet the requirements of Emission Mask D.

* * *

4. Section 90.613 is revised by amending the introductory paragraph to add interstitial channel numbers and base frequency to the table to read as follows:

§ 90.613 Frequencies available.

* * *

Table of 806–824/851–869 MHz Channel Designations

Channel No.	Base frequency (MHz)
* * *	* * *
231a	.0250
* * *	* * *
232a	.0500
* * *	* * *
233a	.0750
* * *	* * *
234a	.1000
* * *	* * *
235a	.1250
* * *	* * *

236a		.1500
	***	***
237a		.1750
	***	***
238a		.2000
	***	***
239a		.2250
	***	***
240a		.2500
	***	***
241a		.2750
	***	***
242a		.3000
	***	***
243a		.3250
	***	***
244a		.3500
	***	***
245a		.3750
	***	***
246a		.4000
	***	***
247a		.4250
	***	***
248a		.4500
	***	***
249a		.4750
	***	***
250a		.5000
	***	***
251a		.5250
	***	***
252a		.5500

	***	***
253a		.5750
	***	***
254a		.6000
	***	***
255a		.6250
	***	***
256a		.6500
	***	***
257a		.6750
	***	***
258a		.7000
	***	***
259a		.7250
	***	***
260a		.7500
	***	***
261a		.7750
	***	***
262a		.8000
	***	***
263a		.8250
	***	***
264a		.8500
	***	***
265a		.8750
	***	***
266a		.9000
	***	***
267a		.9250
	***	***
268a		.9500
	***	***

269a		.9750
	***	***
270a		855.0000
	***	.0125
271a		.0250
	***	***
272a		.0500
	***	***
273a		.0750
	***	***
274a		.1000
	***	***
275a		.1250
	***	***
276a		.1500
	***	***
277a		.1750
	***	***
278a		.2000
	***	***
279a		.2250
	***	***
280a		.2500
	***	***
281a		.2750
	***	***
282a		.3000
	***	***
283a		.3250
	***	***
284a		.3500
	***	***
285a		.3750

	***	***
286a		.4000
	***	***
287a		.4250
	***	***
288a		.4500
	***	***
289a		.4750
	***	***
290a		.5000
	***	***
291a		.5250
	***	***
292a		.5500
	***	***
293a		.5750
	***	***
294a		.6000
	***	***
295a		.6250
296a		.6500
	***	***
297a		.6750
	***	***
298a		.7000
	***	***
299a		.7250
	***	***
300a		.7500
	***	***
301a		.7750
	***	***

302a		.8000
	***	***
303a		.8250
	***	***
304a		.8500
	***	***
305a		.8750
	***	***
306a		.9000
	***	***
307a		.9250
	***	***
308a		.9500
	***	***
309a		.9750
	***	***
310a		856.0000
	***	.0125
311a		.0250
	***	***
312a		.0500
	***	***
313a		.0750
314a		.1000
	***	***
315a		.1250
	***	***
316a		.1500
	***	***
317a		.1750
	***	***
318a		.2000

	***	***
319a		.2250
	***	***
320a		.2500
	***	***
321a		.2750
	***	***
322a		.3000
	***	***
323a		.3250
	***	***
324a		.3500
	***	***
325a		.3750
	***	***
326a		.4000
	***	***
327a		.4250
	***	***
328a		.4500
329a		.4750
	***	***
330a		.5000
	***	***
331a		.5250
	***	***
332a		.5500
	***	***
333a		.5750
	***	***
334a		.6000
	***	***

335a		.6250
	***	***
336a		.6500
	***	***
337a		.6750
	***	***
338a		.7000
	***	***
339a		.7250
	***	***
340a		.7500
	***	***
341a		.7750
	***	***
342a		.8000
	***	***
343a		.8250
	***	***
344a		.8500
	***	***
345a		.8750
	***	***
346a		.9000
	***	***
347a		.9250
	***	***
348a		.9500
	***	***
349a		.9750
	***	***
350a		857.0000
	***	.1250
351a		.2500

	***		***
352a			.0500

353a			.0750

354a			.1000

355a			.1250

356a			.1500

357a			.1750

358a			.2000

359a			.2250

360a			.2500

361a			.2750

362a			.3000

363a			.3250

364a			.3500

365a			.3750

366a			.4000

367a			.4250

368a		.4500
	***	***
369a		.4750
	***	***
370a		.5000
	***	***
371a		.5250
	***	***
372a		.5500
	***	***
373a		.5750
	***	***
374a		.6000
	***	***
375a		.6250
	***	***
376a		.6500
	***	***
377a		.6750
	***	***
378a		.7000
	***	***
379a		.7250
	***	***
380a		.7500
	***	***
381a		.7750
	***	***
382a		.8000
	***	***
383a		.8250
	***	***
384a		.8500

	***	***
385a		.8750
	***	***
386a		.9000
	***	***
387a		.9250
	***	***
388a		.9500
	***	***
389a		.9750
	***	***
390a		858.0000
	***	.0125
391a		.0250
	***	***
392a		.0500
	***	***
393a		.0750
	***	***
394a		.1000
	***	***
395a		.1250
	***	***
396a		.1500
	***	***
397a		.1750
	***	***
398a		.2000
	***	***
399a		.2250
	***	***
400a		.2500
	***	***

401a		.2750
	***	***
402a		.3000
	***	***
403a		.3250
	***	***
404a		.3500
	***	***
405a		.3750
406a		.4000
	***	***
407a		.4250
408a		.4500
	***	***
409a		.4750
	***	***
410a		.5000
	***	***
411a		.5250
	***	***
412a		.5500
	***	***
413a		.5750
	***	***
414a		.6000
	***	***
415a		.6250
	***	***
416a		.6500
	***	***
417a		.6750

	***	***
418a		.7000
	***	***
419a		.7250
	***	***
420a		.7500
	***	***
421a		.7750
	***	***
422a		.8000
	***	***
423a		.8250
	***	***
424a		.8500
	***	***
425a		.8750
	***	***
426a		.9000
	***	***
427a		.9250
	***	***
428a		.9500
	***	***
429a		.9750
	***	***
430a		859.0000
	***	.0125
431a		.0250
	***	***
432a		.0500
	***	***
433a		.0750
	***	***

434a		.1000
	***	***
435a		.1250
	***	***
436a		.1500
437a		.1750
	***	***
	***	***
438a		.2000
	***	***
439a		.2250
	***	***
440a		.2500
	***	***
441a		.2750
	***	***
442a		.3000
	***	***
443a		.3250
	***	***
444a		.3500
	***	***
445a		.3750
	***	***
446a		.4000
	***	***
447a		.4250
	***	***
448a		.4500
	***	***
449a		.4750
	***	***
450a		.5000

	***	***
451a		.5250
	***	***
452a		.5500
	***	***
453a		.5750
	***	***
454a		.6000
	***	***
455a		.6250
	***	***
456a		.6500
	***	***
457a		.6750
	***	***
458a		.7000
	***	***
459a		.7250
	***	***
460a		.7500
	***	***
461a		.7750
	***	***
462a		.8000
	***	***
463a		.8250
	***	***
464a		.8500
	***	***
465a		.8750
	***	***
466a		.9000
	***	***

467a		.9250
	***	***
468a		.9500
	***	***
469a		.9750
	***	***
470a		860.0000
	***	.0125
471a		.0250
	***	***
472a		.0500
	***	***
473a		.0750
	***	***
474a		.1000
	***	***
475a		.1250
	***	***
476a		.1500
	***	***
477a		.1750
	***	***
478a		.2000
	***	***
479a		.2250
	***	***
480a		.2500
	***	***
481a		.2750
	***	***
482a		.3000
	***	***
483a		.3250

	***	***
484a		.3500
	***	***
485a		.3750
	***	***
486a		.4000
	***	***
487a		.4250
	***	***
488a		.4500
	***	***
489a		.4750
	***	***
490a		.5000
	***	***
491a		.5250
	***	***
492a		.5500
	***	***
493a		.5750
	***	***
494a		.6000
	***	***
495a		.6250
	***	***
496a		.6500
	***	***
497a		.6750
	***	***
498a		.7000
	***	***
499a		.7250
	***	***

500a		.7500
	***	***
501a		.7750
	***	***
502a		.8000
	***	***
503a		.8250
	***	***
504a		.8500
	***	***
505a		.8750
	***	***
506a		.9000
	***	***
507a		.9250
	***	***
508a		.9500
	***	***
509a		.9750
	***	***
510a		861.0000
	***	.0125
511a		.0250
	***	***
512a		.0500
	***	***
513a		.0750
	***	***
514a		.1000
	***	***
515a		.1250
	***	***
516a		.1500

	***	***
517a		.1750
	***	***
518a		.2000
	***	***
519a		.2250
	***	***
520a		.2500
	***	***
521a		.2750
	***	***
522a		.3000
	***	***
523a		.3250
	***	***
524a		.3500
	***	***
525a		.3750
	***	***
526a		.4000
	***	***
527a		.4250
	***	***
528a		.4500
	***	***
529a		.4750
	***	***
530a		.5000
	***	***
531a		.5250
	***	***
532a		.5500
	***	***

533a		.5750
	***	***
534a		.6000
	***	***
535a		.6250
	***	***
536a		.6500
	***	***
537a		.6750
	***	***
538a		.7000
	***	***
539a		.7250
	***	***
540a		.7500
	***	***
541a		.7750
	***	***
542a		.8000
	***	***
543a		.8250
	***	***
544a		.8500
	***	***
545a		.8750
	***	***
546a		.9000
	***	***
547a		.9250
	***	***
548a		.9500
	***	***
549a		.9750

* * *	* * *
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* * *

5. Section 90.614 is revised by amending paragraph (a) to read as follows:

§ 90.614 Segments of the 806–824/851–869 MHz band for non-border areas.

* * *

(a) 800 MHz high density cellular systems—as defined in §90.7—are prohibited from operating on channels 1–550 in non-border areas.

* * *

6. Section 90.615 is revised by amending the introductory text and paragraphs (a), (b) and (c) to read as follows:

§ 90.615 Individual channels available in the General Category in 806–824/851–869 MHz band.

The General Category will consist of channels 231–260a and 511–550 at locations farther than 110 km (68.4 miles) from the U.S./Mexico border and 140 km (87 miles) from the U.S./Canadian border. All entities will be eligible for licensing on these channels except as described in paragraphs (a) and (b) of this section.

(a) In a given 800 MHz NPSPAC region, any channel in the 231–260a range which is vacated by a licensee relocating to channels 551–830 and which remains vacant after band reconfiguration will be available as follows:

* * *

(b) In a given 800 MHz NPSPAC region, any channel in the 231–260a range which is vacated by a licensee relocating to channels 511–550 and remains vacant after band reconfiguration will be available as follows:

* * *

(c) Spectrum Block F1 consists of channels 236–260a.

* * *

7. Section 90.617 is revised by amending Table 1, Table 1A and Table 1B in paragraph (a); Table 2, Table 2A and Table 2B in paragraph (b); Table 4B, Table 4C and Table 4D in paragraph (d) to the table to read as follows:

§ 90.617 Frequencies in the 809.750-824/854.750-869 MHz, and 896-901/935-940 MHz bands available for trunked, conventional or cellular system use in non-border areas.

(a) * * *

Table 1—Public Safety Pool 806–816/851–861 MHz Band Channels

[140 Channels]

Group No.	Channel Nos.
***	***
269a	269a–289a–311a–399a–439a
***	***
270a	270a–290a–312a–400a–440a
***	***
279a	279a–299a–319a–339a–359a
***	***
280a	280a–300a–320a–340a–360a
***	***
309a	309a–329a–349a–369a–389a
***	***
310a	310a–330a–350a–370a–390a
***	***
313a	313a–353a–393a–441a–461a
***	***
314a	314a–354a–394a–448a–468a
***	***
321a	321a–341a–361a–381a–419a
***	***
328a	328a–348a–368a–388a–420a
***	***
351a	351a–379a–409a–429a–449a
***	***
332a	352a–380a–410a–430a–450a
Single Channels	*** 391a, 392a, 401a, 408a, 421a, 428a, 459a, 460a, 469a, 470a

(2) ***

Table 1A—Public Safety Pool 806–816/851–861 MHz Band Channels for Counties in Southeastern U.S.

[140 Channels]

Group No.	Channel Nos.
***	***
261a	261a-313a-324a-335a-353a
***	***
262a	262a-314a-325a-336a-354a
***	***
265a	265a-285a-315a-333a-351a
***	***
266a	266a-286a-316a-334a-352a
***	***
269a	269a-289a-311a-322a-357a
***	***
270a	270a-290a-312a-323a-355a
***	***
271a	271a-328a-348a-358a-368a
***	***
279a	279a-299a-317a-339a-359a
***	***
280a	280a-300a-318a-340a-360a
***	***
309a	309a-319a-329a-349a-369a
***	***
310a	310a-320a-330a-350a-370a
***	***
321a	321a-331a-341a-361a-372a
Single Channels	*** 326a, 327a, 332a, 337a, 338a, 342a, 343a, 344a, 345a, 356a

(3) ***

Table 1B—Public Safety Pool 806–816/851–861 MHz Band Channels for Atlanta, GA

[140 Channels]

Group No.	Channel Nos.
***	***

261a	261a-313a-324a-335a-353a
***	***
262a	262a-314a-325a-336a-354a
***	***
269a	269a-289a-311a-322a-357a
***	***
270a	270a-290a-312a-323a-355a
***	***
279a	279a-299a-319a-339a-359a
***	***
280a	280a-300a-320a-340a-360a
***	***
285a	285a-315a-333a-351a-379a
***	***
286a	286a-316a-334a-352a-380a
***	***
309a	309a-329a-349a-369a-389a
***	***
310a	310a-330a-350a-370a-390a
***	***
321a	321a-331a-341a-361a-381a
***	***
328a	328a-348a-358a-368a-388a
Single Channels	*** 317a, 318a, 326a, 327a, 332a, 337a, 338a, 356a, 371a, 372a

(b) ***

Table 2—Business/Industrial/Land Transportation Pool 806–816/851–861 MHz Band Channels

[200 Channels]

Group No.	Channel Nos.
***	***
322a	322a-362a-402a-442a-482a
***	***

323a	323a-363a-403a-443a-483a
***	***
324a	324a-364a-404a-444a-484a
***	***
325a	325a-365a-405a-445a-485a
***	***
326a	326a-366a-406a-446a-486a
***	***
327a	327a-367a-407a-447a-487a
***	***
342a	342a-382a-422a-462a-502a
***	***
343a	343a-383a-423a-463a-503a
***	***
344a	344a-384a-424a-464a-504a
***	***
345a	345a-385a-425a-465a-505a
***	***
346a	346a-386a-426a-466a-506a
***	***
347a	347a-387a-427a-467a-507a
Single Channels	*** 261a, 271a, 281a, 291a, 301a, 262a, 272a, 282a, 292a, 302a, 263a, 273a, 283a, 293a, 303a, 264a, 274a, 284a, 294a, 304a, 265a, 275a, 285a, 295a, 305a, 266a, 276a, 286a, 296a, 306a, 267a, 277a, 287a, 297a, 307a, 268a, 278a, 288a, 298a, 308a

(1) ***

Table 2A—Business/Industrial/Land Transportation Pool 806–816/851–861 MHz Band for Channels in Southeastern U.S.

[138 Channels]

	Channel Nos.
Single Channels	*** 263a, 264a, 267a, 268a, 272a, 273a, 274a, 275a, 276a, 277a, 278a, 281a, 282a, 283a, 284a, 287a, 288a, 291a, 292a, 293a, 294a, 295a, 296a, 297a, 298a, 301a, 302a, 303a, 304a, 305a, 306a, 307a, 308a, 346a, 347a, 362a, 363a, 364a, 365a, 366a, 367a, 379a, 380a, 381a, 382a,

383a, 384a, 385a, 386a, 387a, 388a, 389a, 390a, 391a, 392a, 393a, 394a, 399a, 400a, 401a, 403a, 403a, 404a, 405a, 406a, 407a, 408a, 409a, 410a
--

(2) * * *

Table 2B—Business/Industrial/Land Transportation Pool 806–816/851–861 MHz Band for Channels in Atlanta, GA

[138 Channels]

	Channel Nos.
Single Channels	*** 263a, 264a, 265a, 266a, 267a, 268a, 271a, 272a, 273a, 274a, 275a, 276a, 277a, 278a, 281a, 282a, 283a, 284a, 287a, 288a, 291a, 292a, 293a, 294a, 295a, 295a, 297a, 298a, 301a, 302a, 303a, 304a, 305a, 306a, 307a, 308a, 342a, 343a, 344a, 345a, 346a, 347a, 362a, 363a, 364a, 365a, 366a, 367a, 382a, 383a, 384a, 385a, 386a, 387a, 391a, 392a, 393a, 394a, 399a, 400a, 401a, 402a, 403a, 404a, 405a, 406a, 407a, 409a, 410a

(d) * * *

Table 4B—SMR Category 806–816/851–861 MHz Band Channels, Available After January 21, 2005, for Site-Based Licensing

[160 Channels]

Group No.	Channel Nos.
* * *	* * *
315a	315a–355a–395a–435a–475a
* * *	* * *
316a	316a–356a–396a–436a–476a
* * *	* * *
317a	317a–357a–397a–437a–477a
* * *	* * *
318a	318a–358a–398a–438a–478a
* * *	* * *
331a	331a–371a–411a–451a–491a
* * *	* * *
332a	332a–372a–412a–452a–492a
* * *	* * *
333a	333a–373a–413a–453a–493a

***	***
334a	334a-374a-414a-454a-494a
***	***
335a	335a-375a-415a-455a-495a
***	***
336a	336a-376a-416a-456a-496a
***	***
337a	337a-377a-417a-457a-497a
***	***
338a	338a-378a-418a-458a-498a
Single Channels	*** 431a, 432a, 433a, 434a, 471a, 472a, 473a, 474a, 479a, 480a, 481a, 488a, 489a, 490a, 499a, 500a, 501a, 508a, 509a, 510a

(1) ***

Table 4C—SMR Category 806–816/851–861 MHz Band Channels Available for Site-Based Licensing in Southeastern U.S. After January 21, 2005

[22 Channels]

	Channel Nos.
Single Channels	*** 371a, 373a, 374a, 375a, 376a, 377a, 378a, 395a, 396a, 397a, 398a

(2) ***

Table 4D—SMR Category 806–816/851–861 MHz Band Channels Available for Site-Based Licensing in Atlanta, GA after January 21, 2005

[22 Channels]

	Channel Nos.
Single Channels	*** 373a, 374a, 375a, 376a, 377a, 378a, 395a, 396a, 397a, 398a, 408a

7. Section 90.619 is revised by amending Table C6, Table C7, Table C8 and Table C9 to read as follows:

§ 90.619 Operations within the U.S./Mexico and U.S./Canada border areas.

(6) * * *

Table C6—Public Safety Pool 806–816/851–861 MHz Band Channels in the Canada Border Regions

Canada Border Region	Channel Nos.	Total
***	***-260a	60 Channels.
***	***	
***	***-320a, ***-508a	180 Channels.
***	*** 269a, 289a, 311a, 399a, 439a, 270a, 290a, 312a, 400a, 440a, 279a, 299a, 319a, 339a, 359a, 280a, 300a, 320a, 340a, 360a, 309a, 329a, 349a, 369a, 389a, 310a, 330a, 350a, 370a, 390a, 313a, 353a, 393a, 441a, 461a, 314a, 354a, 394a, 448a, 468a, 321a, 341a, 361a, 381a, 419a, 328a, 348a, 368a, 388a, 420a, 351a, 379a, 409a, 429a, 449a, 352a, 380a, 410a, 430a, 450a, 391a, 392a, 401a, 408a, 421a, 428a, 459a, 460a, 469a, 470a	140 Channels.
***	*** 231a-260a, 269a, 289a, 311a, 399a, 439a, 270a, 290a, 312a, 400a, 440a, 279a, 299a, 319a, 339a, 359a, 280a, 300a, 320a, 340a, 360a, 309a, 329a, 349a, 369a, 389a, 310a, 330a, 350a, 370a, 390a, 313a, 353a, 393a, 441a, 461a, 314a, 354a, 394a, 448a, 468a, 315a, 355a, 395a, 435a, 475a, 316a, 356a, 396a, 436a, 476a, 317a, 357a, 397a, 437a, 477a, 318a, 358a, 398a, 438a, 478a, 321a, 341a, 361a, 381a, 419a, 328a, 348a, 368a, 388a, 420a, 331a, 371a, 411a, 451a, 491a, 332a, 372a, 412a, 452a, 492a, 333a, 373a, 413a, 453a, 493a, 334a, 374a, 414a, 454a, 494a, 335a, 375a, 415a, 455a, 495a, 336a, 376a, 416a, 456a, 496a, 337a, 377a, 417a, 457a, 497a, 338a, 378a, 418a, 458a, 498a, 351a, 379a, 409a, 429a, 449a, 352a, 380a, 410a, 430a, 450a, 391a, 392a, 401a, 408a, 421a, 428a, 459a, 460a, 469a, 470a, 431a, 432a, 433a, 434a, 471a, 472a, 473a, 474a, 479a, 480a	340 Channels.

(8) * * *

Table C8—Business/Industrial/Land Transportation Pool 806–816/851–861 MHz Band Channels in the Canada Border Regions

Canada Border Region	Channel Nos.	Total
***	***	***
***	*** 261a, 271a, 281a, 291a, 301a, 262a, 272a, 282a, 292a, 302a, 263a, 273a, 283a, 293a, 303a, 264a, 274a, 284a, 294a, 304a, 265a, 275a, 285a, 295a, 305a, 266a,	200 Channels

	276a, 286a, 296a, 306a, 267a, 277a, 287a, 297a, 307a, 268a, 278a, 288a, 298a, 308a, 322a, 362a, 402a, 442a, 482a, 323a, 363a, 403a, 443a, 483a, 324a, 364a, 404a, 444a, 484a, 325a, 365a, 405a, 445a, 485a, 326a, 366a, 406a, 446a, 486a, 327a, 367a, 407a, 447a, 487a, 342a, 382a, 422a, 462a, 502a, 343a, 383a, 423a, 463a, 503a, 344a, 384a, 424a, 464a, 504a, 345a, 385a, 425a, 465a, 505a, 346a, 386a, 426a, 466a, 506a, 347a, 387a, 427a, 467a, 507a	
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(9) * * *

Table C9—SMR Category 806–816/851–861 MHz Channels Available for Site-Based Licensing in the Canada Border Regions

Canada Border Region	Channel Nos.	Total
***	***	***
***	315a, 355a, 395a, 435a, 475a, 316a, 356a, 396a, 436a, 476a, 317a, 357a, 397a, 437a, 477a, 318a, 358a, 398a, 438a, 478a, 331a, 371a, 411a, 451a, 491a, 332a, 372a, 412a, 452a, 492a, 333a, 373a, 413a, 453a, 493a, 334a, 374a, 414a, 454a, 494a, 335a, 375a, 415a, 455a, 495a, 336a, 376a, 416a, 456a, 496a, 337a, 377a, 417a, 457a, 497a, 338a, 378a, 418a, 458a, 498a, 431a, 432a, 433a, 434a, 471a, 472a, 473a, 474a, 479a, 480a, 481a, 488a, 489a, 490a, 499a, 500a, 501a, 508a, 509a, 510a	160 Channels.
***	481a, 488a, 489a, 490a, 499a, 500a, 501a, 508a, 509a, 510a	20 Channels.

APPENDIX C
List of Commenters

I. Comments

Association of Public-Safety Communications Officials-International, Inc. (APCO)
Mr. Bob Ferrell
Enterprise Wireless Alliance (EWA)
Fisher Wireless Service, Inc. (Fisher)
Forest Industries Telecommunications (FIT)
Joint Council on Transit Wireless Communications
Land Mobile Communications Council (LMCC)
Mr. Larry Sayers
Motorola, Inc. (Motorola)
National Public Safety Telecommunications Council (NPSTC)
Utilities Telecom Council (UTC)
Radiosoft
Southern Communications Services, Inc. d/b/a SouthernLINC Wireless (SouthernLINC)
State of Florida
Telecommunications Industry Association (TIA)

II. Reply Comments

American Petroleum Institute (API)
EWA
Third District Enterprises, LLC (TDE)

III. *Ex Parte* Filings

APCO (Oct. 15, 2014)
EWA (July 1, 2011 and March 3, 2012)
LMCC (June 23, 2010 and Oct. 4, 2014) (Interference Protection Criteria)
Motorola Solutions, Inc. (April 11, 2012)