

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

In the Matter of)
)
 The Development of Operational, Technical and)
 Spectrum Requirements for Meeting Federal, State) WT Docket No. 96-86
 and Local Public Safety Communication)
 Requirements Through the Year 2010)

**FIFTH MEMORANDUM OPINION AND ORDER,
 SIXTH REPORT AND ORDER, AND
 SEVENTH NOTICE OF PROPOSED RULEMAKING**

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By the Commission:

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I. INTRODUCTION AND EXECUTIVE SUMMARY

1. In this *Fifth Memorandum Opinion and Order, Sixth Report and Order and Seventh Notice of Proposed Rulemaking* we take certain actions intended to encourage the transition to narrowband technology in the 764-776 MHz and 794-806 MHz public safety bands (700 MHz Public Safety Band). We also conform certain technical rules governing this band to industry consensus standards, and seek comment on various proposals governing both technical and operational rules in this band.

2. In the *Fifth Memorandum Opinion and Order*, we take the following actions:

- defer the ban on the marketing, manufacture and importation of equipment solely capable of utilizing 12.5 kHz bandwidth when operating in the voice mode in the 700 MHz Public Safety Band (12.5 kHz equipment) from December 31, 2006 until December 31, 2014; and
- defer the prohibition on filing applications for new systems that operate utilizing 12.5 kHz voice channels from December 31, 2006 until December 31, 2014.

3. In the *Sixth Report and Order*, we take the following actions:

- change the terminology used in Sections 90.543 and 27.53 of the Commission’s rules from Adjacent Channel Coupled Power (ACCP) to Adjacent Channel Power (ACP);¹

¹ 47 C.F.R. §§ 90.543, 27.53. ACCP or ACP is typically defined as the ratio of the average power in the adjacent frequency channel to the average power in the transmitted frequency channel, and is usually measured at multiple offsets. There is no technical distinction between the terms ACCP and ACP; however, ACP has become the more accepted term in the industry, possibly because ACCP is also used as an abbreviation for Adjacent Channel Co-Polarization. See, e.g., Fixed Radio Systems; Representative Values for Transmitter Power and Antenna Gain to Support Inter- And Intra-Compatibility and Sharing Analysis. European Technical Standards Institute (ETSI) TR-102 243-1, V1.1.1 at 6. (2004-2005).

and

- adopt recommended changes to the ACP limits in Sections 90.543 and 27.53 of the Commission's rules.²

4. In the *Seventh Notice of Proposed Rulemaking* that we adopt today, we seek comment on:

a) A proposal made by the Private Radio Section of the Wireless Communications Division of the Telecommunications Industry Association (TIA-PRS)³ to:

- adopt tables describing ACP limits for 50 kHz and 100 kHz wideband operations;
- relax the ACP requirement in the paired receive band for wideband and narrowband base station transmitters; and
- extend the ACP limits to the 700 MHz Guard Band channels.⁴

b) The proposal by Access Spectrum, LLC (Access Spectrum) that the Commission clarify that the 700 MHz Guard Band ACP limits apply only at the boundaries of the 700 MHz Guard Band's licensee's authorized allocation.⁵

c) The proposal by Access Spectrum that the Commission establish scalable ACP limits which would apply to operations at any bandwidth;⁶

d) The joint proposal from Nortel/EADS Telecom North America that the Commission adjust the ACP limits for 12.5 kHz bandwidth operations in order to permit use of more spectrally efficient technologies;⁷

² 47 C.F.R. §§ 90.543, 27.53.

³ See Comments of the Private Radio Section of the Wireless Communications Division of the Telecommunications Industry Association, filed Dec. 9, 2002, (TIA-PRS Comments). TIA is a trade association serving the communications and information technology industry, with approximately 1,000 member companies that manufacture or supply the products and services used in global communications. TIA is an American National Standard Institute-accredited standards development organization and provides technical expertise to the telecommunications industry in a wide range of areas, including system performance, interference abatement, and compatibility interoperability. PRS is a section of TIA's Wireless Communications Division that focuses in part on the necessary requirements to support reliable wireless communications responding to the needs of public safety entities. See *Development of Operational, Technical and Spectrum Requirements For Meeting Federal, State and Local Public Safety Agency Communication Requirements Through the Year 2010*, WT Docket No. 96-86, *Sixth Notice of Proposed Rulemaking*, 17 FCC Rcd 19303, 19305 n. 8 (2002) (Sixth NPRM).

⁴ The term "700 MHz Guard Bands" refers to six megahertz of spectrum that is located immediately adjacent to the 700 MHz Public Safety Band. See *Service Rules for the 746-764 and 776-794 MHz Bands, and Revisions to Part 27 of the Commission's Rules, Second Report and Order*, 15 FCC Rcd 5299 (2000). The 700 MHz Guard Bands consist of two blocks of paired spectrum, specifically, 746-747 MHz paired with 776-777 MHz, and 762-764 MHz paired with 792-794 MHz. See 47 C.F.R. § 27.5(b)(1) and (2).

⁵ Comments of Access Spectrum, LLC, filed Dec. 9, 2002 at 2-3 (Access Spectrum Comments).

⁶ *Id* at 3.

- e) Proposals made by the Public Safety National Coordination Committee (NCC) asking that the Commission:
- adopt a 700 MHz wideband data standard;
 - require wideband mobile and portable radios be capable of operating on all the wideband interoperability channels using the wideband data standard;
 - update the interoperability standards set forth at Section 90.548 of the Commission's rules to reflect updated industry standards;⁸
 - update the encryption standards set forth at Section 90.553(e) of the Commission's rules to reflect updated industry standards;⁹ and
 - adopt minimum signal strength design criteria for public safety systems operating in the 700 MHz Public Safety Band.
- f) Our tentative conclusion not to adopt the following NCC proposals:
- requiring the use of standard channel nomenclature for interoperability channels;
 - requiring mobile and portable units certificated for use under Part 90 of the Rules be capable of displaying standardized interoperability channel labels alphanumerically if the radios are equipped with alphanumeric displays;
 - revise the term "State Interoperability Executive Committee" to "Statewide Interoperability Executive Committee";
 - mandate the use of State Interoperability Executive Committees; and extend their jurisdiction to interoperability channels in all public safety bands; and
 - make certain procedural changes to the Commission's review of 700 MHz regional plans;
- g) Clarifications to the trunking requirement of Section 90.537 of our rules.¹⁰

II. FIFTH MEMORANDUM OPINION AND ORDER

A. Background

5. In 1997, the Commission allocated the 700 MHz Public Safety Band for public safety use.¹¹ At the time, this allocation was the largest one ever made for public safety communications and

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⁷ Joint Comments of Nortel Networks Inc. and EADS Telecom North America to Sixth Notice of Proposed Rulemaking, filed Dec. 9, 2002 (Nortel/EADS Joint Comments).

⁸ 47 C.F.R. § 90.548.

⁹ 47 C.F.R. § 90.533(e).

¹⁰ 47 C.F.R. § 90.537.

constituted a significant public benefit to be derived from the conversion of television broadcasting in the United States from analog technology to state-of-the-art digital technology.¹² The Commission designated spectrum in the 700 MHz Public Safety Band for use as follows: 12.5 megahertz for General Use, 2.6 megahertz for Interoperability, 2.4 megahertz for State License, 0.3 megahertz for Low Power, 0.2 megahertz for Secondary Trunking, and 6.0 megahertz for Reserve.¹³ The Commission divided the twenty-four megahertz of spectrum into narrowband (6.25 kHz channel) and wideband (50 kHz channel) segments. Since the 1997 allocation, the Commission has used the instant docket to consider and adopt a series of technical rules governing this spectrum.

6. In the *Fifth Report and Order* in this proceeding, the Commission adopted a migration path to a 6.25 kHz voice efficiency requirement for General Use and State License channels in the 700 MHz band.¹⁴ Specifically, the Commission indicated that, after December 31, 2016, all licensees operating on General Use and State License channels must cease operation with 12.5 kHz equipment¹⁵ and operate exclusively with 6.25 kHz equipment.¹⁶

7. In addition, as an interim measure, the Commission banned the marketing, manufacture, and importation of equipment that is exclusively capable of operating in the 12.5 kHz mode after December 31, 2006.¹⁷ In banning the marketing, manufacturing and importation of 12.5 kHz equipment after December 31, 2006, the Commission believed that allowing licensees to continue purchasing 12.5 kHz mode equipment until the date such equipment becomes unauthorized (January 1, 2017) would engender

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¹¹ Reallocation of Television Channels 60-69, the 746-806 MHz Band, ET Docket No. 97-157, *Notice of Proposed Rule Making*, 12 FCC Rcd 14141 (1997); Reallocation of Television Channels 60-69, the 746-806 MHz Band, *Report and Order*, 12 FCC Rcd 22953 (1998) (*Reallocation R&O*).

¹² *Advanced Television Systems and Their Impact upon the Existing Television Broadcast Service, Sixth Report and Order*, 12 FCC Rcd 14588 (1997).

¹³ *See, e.g.*, 47 C.F.R. § 90.531 (Band plan). *See also* Development of Operational, Technical and Spectrum Requirements For Meeting Federal, State and Local Public Safety Agency Communication Requirements Through the Year 2010, *First Report and Order and Third Notice of Proposed Rulemaking*, 14 FCC Rcd 152, 214 ¶ 138 (1998) (*First R&O and Third NPRM*).

¹⁴ *See* Development of Operational, Technical and Spectrum Requirements For Meeting Federal, State and Local Public Safety Agency Communication Requirements Through the Year 2010, *Fifth Report and Order*, 17 FCC Rcd 14999, 15007-09 ¶¶ 16-19 (*Fifth R&O*).

¹⁵ The reference to 25 kHz, 12.5 kHz and 6.25 kHz systems used in this item is a short form for systems that carry a single voice path in those bandwidths. However, there is equipment that accommodates more than a single voice path in a 25 kHz or 12.5 kHz channel, *e.g.*, a “four-slot TDMA” system that provides four voice paths in a 25 kHz bandwidth (thus meeting the a “one voice path per 6.25 kHz” efficiency standard) or a “two-slot TDMA” system that provides two voice paths in a 12.5 kHz bandwidth (also meeting the “one voice path per 6.25 kHz” efficiency standard). These latter two systems therefore would not be considered, respectively, “25 kHz systems” or “12.5 kHz systems,” as those terms are used herein. *See Fifth R&O*, 17 FCC Rcd at 15000 ¶ 2 n.4.

¹⁶ *See Fifth R&O*, 17 FCC Rcd at 15007-08 ¶¶ 16-17.

¹⁷ *Id.* 17 FCC Rcd at 15008 ¶ 18.

confusion among licensees about the legality of their equipment and ultimately deprive licensees of an expected ten-year equipment life cycle.¹⁸

8. The Commission also indicated that after December 31, 2006, it would accept applications for *new* systems only if they employed 6.25 kHz equipment.¹⁹ The Commission believed that allowing applicants for new systems to employ 12.5 kHz equipment after December 31, 2006 would deprive such licensees of a minimum ten-year life cycle on their equipment and create a financial burden for these licensees to replace their entire systems by the deadline for transition to 6.25 kHz equipment (January 1, 2017).²⁰

9. *Motorola Petition.* On January 13, 2003, Motorola, Inc. (Motorola) filed a petition for reconsideration of certain requirements in the *Fifth R&O*.²¹ Specifically, Motorola requested that the Commission eliminate, or at least defer until December 31, 2011, (1) the ban on marketing, manufacture, and importation of 12.5 kHz equipment; and (2) the prohibition on filing applications for new systems that utilize 12.5 kHz equipment.²²

10. In its petition, Motorola argues that the existing ban would impose a substantial and unnecessary financial burden on public safety entities by forcing these licensees to purchase equipment with features that far exceed their needs.²³ Motorola also states that it is unaware of any entity developing equipment capable of providing a single voice path within a discrete 6.25 kHz channel (6.25 kHz equipment).²⁴ Therefore, Motorola argues this lack of development means that 12.5 kHz equipment may be the only viable choice for many legacy licensees for some time after December 31, 2006.²⁵ Finally, Motorola states its belief that, because public safety organizations have a direct economic interest to minimize their migration costs, these entities will make purchasing decisions that further their best interests.²⁶

11. In addition to opposing the Commission's ban on the marketing, manufacturing and importation of 12.5 kHz equipment, Motorola similarly argues that the Commission should either eliminate, or defer until December 31, 2011, the ban on accepting applications for new systems that use

¹⁸ *Id.* 17 FCC Rcd at 15007 ¶ 16.

¹⁹ *Id.*

²⁰ *Id.*

²¹ Motorola Petition for Reconsideration, filed Jan. 13, 2004 (*Motorola Petition*).

²² *Id.* at 6-14.

²³ *Id.* at 6-8. For instance, Motorola believes that most manufacturers will satisfy efficiency requirements primarily with 12.5 kHz time division multiple access equipment (TDMA) offering two voice paths per channel. Motorola believes that while TDMA technology may provide a reasonable solution for multi-channel, wide-area trunked systems, such systems will likely be cost prohibitive for public safety entities, which require less elaborate conventional solutions. *Id.*

²⁴ *Id.* at 7.

²⁵ *Id.*

²⁶ *Id.* at 9.

12.5 kHz equipment.²⁷ Motorola believes that the ban adopted in the *Fifth R&O* will restrict the ability of public safety users to choose the most efficient and cost effective solutions for their communications needs²⁸ and further argues that in some instances, it may be more efficient and timely for a public safety licensee to construct a new system that uses 12.5 kHz equipment channels, even if it must transition to a narrower bandwidth by January 1, 2017.²⁹

B. Decision

1. Marketing, Manufacture and Importation of 12.5 kHz Equipment

12. We will extend the deadline banning the marketing, manufacture, and importation of 12.5 kHz equipment until two years before the final migration date, *i.e.*, until December 31, 2014. Although we are encouraged that one manufacturer believes that it could have 6.25 kHz equipment available by January 1, 2007,³⁰ we are persuaded by the comments of several other parties who do not believe a 6.25 kHz product could be brought to market within that time,³¹ and by public safety's concern about ensuring that new 6.25 kHz equipment is first field-tested under the conditions of public safety operations.³² We decline to adopt Motorola's suggestion that we defer the ban on the marketing, manufacture, and importation of 12.5 kHz equipment until December 31, 2011. Motorola's suggestion would provide manufacturers with a five-year window (*i.e.*, from December 31, 2011 until December 31, 2016) in which manufacturers could market, manufacture and import dual-mode equipment. In a separate docket, we only provided manufacturers a two-year window to market, manufacture and import dual-mode equipment in the public safety spectrum below 512 MHz.³³ In that proceeding, we stated that this limited, two-year, window struck the appropriate balance between avoiding the difficulties that could be caused to licensees' current and future operations and encouraging the planning and implementation of a migration

²⁷ Motorola Petition at 13.

²⁸ *Id.* at 12-13.

²⁹ *Id.* at 11-12. For example, Motorola suggests that if a public safety user needs to construct a conventional system after January 1, 2007, it may be less expensive to purchase a 12.5 kHz bandwidth system and retire that system in less than ten years, rather than purchase a cost prohibitive multi-slot TDMA system. *Id.*

³⁰ See Opposition by M/A-COM, Inc. to the Petition of Reconsideration of the Fifth Report and Order filed by Motorola, Inc. at 12 filed Apr. 1, 2003 (M/A-COM Opposition).

³¹ See Comments of Daniels Electronics at 1 filed Mar. 26, 2003 (Daniels Electronics Comments); EF Johnson Comments in Support of the Motorola Petition for Reconsideration 6.25 kHz Migration Ruling in 700 MHz at 2 filed April 28, 2003 (EF Johnson Comments).

³² See Comments of Association of Public Safety Communications Officials International (APCO) in Support of Petition for Reconsideration filed by Motorola, Inc., filed Apr. 1, 2003 (APCO Comments) at 2; Comments of the International Association of Chiefs of Police, the Major Cities Chiefs, the National Sheriffs Association and the Major Counties Sheriffs Association, filed Mar. 30, 2003 (IACP Comments) at 5; Comments of Pinellas County, Florida in Support of Motorola's Petition for Reconsideration at 1 filed Apr 1, 2003 (Pinellas County Comments).

³³ See Implementation of Sections 309(j) and 337 of the Communications Act of 1934 as Amended; Promotion of Spectrum Efficient Technologies on Certain Part 90 Frequencies, *Third Memorandum and Opinion and Order and Third Further Notice of Proposed Rulemaking*, WT Docket No. 99-87, RM-9332, FCC 04-xxxx (rel. Dec. xx, 2004).

to narrowband technology well before the final cutover.³⁴ Specifically, we noted that imposing a limited two-year window would still provide licensees with ample incentive to convert to narrowband by the start of the window without either jeopardizing interoperability during the two-year interim or overwhelming our administrative processes with a flood of last-minute waiver requests.³⁵

13. We believe similar reasons exist in this instance. We note that our decision today should not harm manufacturers that develop and offer for sale dual mode equipment or 6.25 kHz equipment in advance of December 31, 2014. Licensees who elect to purchase such equipment ahead of the transition date will avoid needing to replace their equipment before the end of its useful life. Thus we believe that our decision today provides an incentive for all manufacturers to timely develop dual mode equipment and 6.25 kHz equipment in advance of the mandatory transition to 6.25 kHz technology, on January 1, 2017. Given M/A-COM's contention that it will have dual-mode equipment available by January 2007,³⁶ we note that Motorola's proposal only allows entities with equipment that operates exclusively at 12.5 kHz four years to voluntarily integrate dual band equipment into their systems. Given that the average lifespan of public safety equipment is ten years, Motorola's proposal could require public safety entities to replace sixty percent of their equipment when our rules would prohibit the marketing, manufacture and importation of 12.5 kHz equipment. We believe delaying the prohibition on the marketing, manufacture and importation of 12.5 kHz equipment until December 31, 2014 provides public safety entities a seven-year period to voluntarily transition to dual band equipment, thus only requiring these entities to possibly undertake the replacement of thirty percent of their equipment. Given the financial constraints that many public safety entities operate under, we believe this more gradual approach allows entities to transition to narrowband equipment without creating a financial crisis. Therefore, as amended, our rules will permit manufacturers to market, manufacture and import 12.5 kHz equipment until December 31, 2014. Thereafter, manufacturers may market, manufacture and import only dual mode equipment or 6.25 kHz equipment.

2. Applications for New Systems

14. Consistent with our decision to extend the deadline banning the marketing, manufacture and importation of 12.5 kHz equipment, we will accept applications for new systems employing 12.5 kHz equipment on General Use and State License channels until December 31, 2014. While we remain committed to ensuring a complete and expeditious transition to 6.25 kHz equipment in the 700 MHz band, we must also consider the economic constraints and logistical concerns facing licensees in this band. We are persuaded by parties who state that the December 31, 2006 deadline adopted in the *Fifth R&O* would force public safety entities who apply for a new license after December 31, 2006 to employ either dual mode equipment or 6.25 kHz equipment regardless of that equipment's level of maturity, coverage capabilities, reliability in actual operations or applicability to a system's specific configuration.³⁷ Thus, public safety entities would be faced with the choice of either placing mission critical communications on relatively untested equipment or delaying implementation in the 700 MHz band until such equipment reaches a greater level of maturity. Both of these choices negatively impact the safety of life and property. Thus, given the current status of the 6.25 kHz equipment market, we

³⁴ *Id.* at ¶ 22.

³⁵ *Id.*

³⁶ *See* n. 30 *supra*.

³⁷ APCO Comments at 2; and IACP Comments at 5.

believe that our decision to delay the cut-off for applications for new systems will allow licensees to construct systems that best suit their needs. While we continue to have concern about depriving licensees of a ten-year life cycle on 12.5 kHz equipment, we believe assuring public safety access to a complete line of fully tested dual-mode equipment and 6.25 kHz equipment is a greater concern.

15. Although one commenting party believes the December 31, 2006 deadline adopted in the *Fifth R&O* will encourage new public safety licensees to operate wide-area, shared systems, which improve spectrum efficiency and promote interoperability,³⁸ we wish to avoid forcing public safety licensees into purchasing untested technology in order to satisfy bandwidth requirements. We therefore delay until December 31, 2014 the cut-off for accepting applications for new systems operating on the General Use and State License channels that use 12.5 kHz equipment. As indicated above, the two year deadline we impose here is consistent with the two-year deadline we recently adopted for the public safety bands below 512 MHz.³⁹

III. SIXTH REPORT AND ORDER

16. On October 4, 2002, the Commission released a *Sixth Notice of Proposed Rulemaking* in this docket seeking comment on proposed revisions to the Commission's rules and policies regarding ACP emission limits for the 700 MHz Public Safety Band.⁴⁰ TIA-PRS proposed these revisions, which it claimed reflected an industry consensus in response to the Commission's request in the *Second Memorandum Opinion and Order (Second MO&O)* in this proceeding.⁴¹ This *Sixth Report and Order* addresses the comments received with respect to revising the ACCP limits, as proposed in the *Sixth NPRM*, and implements the proposals set forth in the *Sixth NPRM*.

A. Terminology Update

17. *Background.* In the *Sixth NPRM*, the Commission sought comment on changing the term "Adjacent Channel Coupled Power" (ACCP) in our rules to the term "Adjacent Channel Power" (ACP).⁴² The Commission noted that this change would ensure consistency with the terminology referenced in industry standards documents.⁴³ The Commission also sought comment on changing the reference level for out-of-band emission limits in Section 90.543(c) of the Commission's Rules⁴⁴ from "unmodulated

³⁸ M/A-COM Opposition at 15-16.

³⁹ See note 33, *supra*.

⁴⁰ See generally Development of Operational, Technical and Spectrum Requirements For Meeting Federal, State and Local Public Safety Agency Communication Requirements Through the Year 2010, WT Docket No. 96-86, *Sixth Notice of Proposed Rulemaking*, 17 FCC Rcd 19303 (2002) (*Sixth NPRM*).

⁴¹ *Sixth NPRM*, 17 FCC Rcd at 19305 ¶ 4. See also Development of Operational, Technical and Spectrum Requirements For Meeting Federal, State and Local Public Safety Agency Communication Requirements Through the Year 2010, *Second Memorandum Opinion and Order*, 15 FCC Rcd 16844, 16853 ¶ 17 (2000) (*Second MO&O*). In the *Second MO&O*, the Commission requested the industry to review technical issues related to ACCP values and come to a consensus on specific ACCP emission limits. *Id.*

⁴² *Sixth NPRM*, 17 FCC Rcd at 19309 ¶ 17.

⁴³ *Id.*

⁴⁴ 47 C.F.R. § 90.543(c).

carrier power (P)” to “mean output power (P).”⁴⁵ The Commission noted that in some instances a transmitter may be incapable of generating an unmodulated carrier.⁴⁶

18. *Decision.* We adopt our proposed changes to Section 90.543 of the Commission’s Rules to conform the terminology in the Commission’s Rules to be consistent with the terminology used by industry in standards documents.⁴⁷ While no commenting party specifically addressed the terminology changes, all commenting parties voiced their overall support for proposals in the *Sixth NPRM*.⁴⁸ Accordingly, we will change the term “Adjacent Channel Coupled Power” to “Adjacent Channel Power” and the abbreviation “ACCP” to “ACP” in Section 90.543 of the Commission’s Rules⁴⁹ and will use this terminology for the remainder of this *Sixth Report and Order*. Because some transmitters may not normally be capable of generating an unmodulated carrier, we amend Section 90.543(c) of the Commission’s rules by changing the reference level for out-of-band emission limits in Section 90.543(c) from “unmodulated carrier power (P)” to “mean output power (P).”

B. ACP Values

19. In the *Sixth NPRM*, the Commission sought comment on revising Section 90.543 of the Commission’s Rules⁵⁰ to specify maximum ACP relative values at certain frequency offsets.⁵¹ Only one party, M/A-COM, specifically addressed this issue and it supported the Commission’s proposals⁵² and, as indicated above, all commenting parties voice their overall support for proposals in the *Sixth NPRM*.⁵³ As discussed below, we amend our rules to adopt the ACP values proposed in the *Sixth NPRM*.

1. 37.5 kHz Frequency Offset.

20. *Background.* The Commission sought comment on whether to specify a maximum ACP relative value of -60 dBc for offset measurements taken 37.5 kHz from the center frequency of a mobile

⁴⁵ *Sixth NPRM*, 17 FCC Rcd at 19309 ¶ 17.

⁴⁶ *Id.*

⁴⁷ In adopting our proposed changes to Section 90.543, we correct a typographical error contained in proposed rule Section 90.543(b) in the *Sixth NPRM*. 47 C.F.R. § 90.543. See *Sixth NPRM*, 17 FCC Rcd at 19322, Appendix A. As TIA-PRS noted, the third sentence in the proposed Section 90.543(b) is redundant and should be deleted. TIA-PRS Comments at 4 n.7.

⁴⁸ See TIA-PRS Comments at 2; Access Spectrum Comments at 2; Comments of M/A-COM Private Radio Systems, Inc. to the Sixth Further Notice of Proposed Rulemaking, filed Dec. 9 2002 (M/A-COM Comments) at 1-2; Nortel/EADS Joint Comments at 2; and Reply Comments of Motorola, Inc., filed Dec. 23, 2002 (Motorola Reply Comments) at 1.

⁴⁹ 47 C.F.R. § 90.543.

⁵⁰ 47 C.F.R. § 90.543(a).

⁵¹ *Sixth NPRM*, 17 FCC Rcd at 19306 ¶¶ 6-9.

⁵² See M/A-COM Comments at 4-6.

⁵³ See note 48, *supra*.

transmitter.⁵⁴ Currently, the rule specifies a maximum ACP relative value of -65 dBc for mobile transmitters operating with 12.5 kHz or 25 kHz bandwidth. This value, however, is more stringent than the -60 dBc value, which governs corresponding 12.5 kHz and 25 kHz bandwidth base stations. Because mobile stations are not normally required to meet specifications more stringent than those of base stations, the Commission sought comment on harmonizing the requirements for 12.5 kHz and 25 kHz bandwidth mobile transmitters with those for the corresponding base station transmitters.⁵⁵

21. *Decision.* In order to harmonize our rules with current industry standards, we will revise Section 90.543(a) of the Commission's Rules to specify that the maximum ACP relative value for the 37.5 kHz frequency offset is -60 dBc.⁵⁶ We make this change to the tables in the rules which specify ACP limits for mobile transmitters operating with a 12.5 kHz and 25 kHz bandwidth.

2. 350 kHz Frequency Offset.

22. *Background.* The 6.25 kHz, 12.5 kHz and 25 kHz bandwidth ACP tables contained in Section 90.543 of the Commission's Rules currently do not limit emissions in the frequency offset range between 300 and 400 kHz, but only establish an ACP limit in the frequency offset range in this band using 150 kHz bandwidth.⁵⁷ The Commission sought comment on whether to specify an ACP limit of -65 dBc at the 350 kHz offset, using 100 kHz measurement bandwidth, and noted that the ACP limit of -65 dBc would be equivalent to the value currently governing the frequency offset at 250 kHz. The Commission also observed that this limit reflected a consensus by industry.⁵⁸

23. *Decision.* We will modify Section 90.543 to specify an ACP limit of -65 dBc at the 350 kHz offset, with a 100 kHz measurement bandwidth. Because this limit of -65 dBc is equivalent to the value currently governing the frequency offset at 250 kHz, we believe it should limit the potential for interference from transmitters using 6.25 kHz, 12.5 kHz or 25 kHz bandwidth.

3. Base Station Frequency Offsets Greater than 400 kHz.

24. *Background.* In the *Sixth NPRM* the Commission sought comment on amending the ACP limits, at offset frequencies greater than 400 kHz, for base station transmitters operating with a 6.25 kHz, 12.5 kHz or 25 kHz bandwidth.⁵⁹ In particular, the Commission sought comment on specifying an ACP limit of -80 dBc for frequency offsets between 400 kHz and the base receive band. Currently, Section 90.543(a) of the Commission's Rules⁶⁰ specifies a formula to derive maximum ACP limits for measurements at offsets greater than 400 kHz up to the base receive band. The resultant value begins at -80 dBc at 400 kHz and continues at the rate of -6dB/octave up to the base receive band. This formula produces an ACP limit of -116 dBc before the base receive band—which is located between 30 MHz and

⁵⁴ *Sixth NPRM*, 17 FCC Rcd at 19306-07 ¶¶ 6-9.

⁵⁵ *Id.*

⁵⁶ 47 C.F.R. § 90.543(a).

⁵⁷ 47 C.F.R. § 90.543.

⁵⁸ *Sixth NPRM*, 17 FCC Rcd at 19306 ¶ 8.

⁵⁹ *Id.* at 19306 ¶ 9.

⁶⁰ 47 C.F.R. § 90.543(a).

42 MHz away from the base transmit band—is reached. This result conflicts with Section 90.543(a) of the Commission’s Rules which sets a maximum ACP limit of -100 dBc for offset frequencies in the base receive band. Therefore, the Commission sought comment on eliminating this potential conflict by implementing a single -80 dBc limit for all offset frequencies between 400 kHz and the base receive band.⁶¹

25. *Decision.* We will revise Section 90.543(a) of the Commission’s Rules to specify an ACP limit of -80 dBc for frequency offsets between 400 kHz and the base receive band. Although, no commenting party directly addressed this discrepancy,⁶² we believe that adequate interference protection will be achieved by our adopting the uniform -80 dBc limit. We make the changes to the tables which specify ACP limits for base station transmitters operating with bandwidths of 6.25 kHz, 12.5 kHz, or 25 kHz.

4. Values for Offsets Greater than 400 kHz.

26. *Background.* In the *Sixth NPRM*, the Commission sought comment on replacing the row entitled “>400 to receive band” in the ACP tables of Section 90.543 of the Commission’s Rules with two new, more specific, rows.⁶³ The purpose of this proposed change was to ensure consideration of unwanted emissions that are offset more than 400 kHz both above and below the authorized center frequency.⁶⁴

27. For mobile units, the receive band is located at 764-776 MHz, which is eighteen megahertz below the start of the mobile transmit band at 794-806 MHz. The Commission sought comment on adding a new row to the ACP tables for mobile transmitters, which would govern offsets greater than 400 kHz and up to twelve megahertz.⁶⁵ This new row would include all emissions within twelve megahertz (plus or minus) of the center frequency of a mobile transmitter, including the entire mobile transmit band, 794-806 MHz.⁶⁶ A second row was proposed to govern the remaining range from twelve megahertz below the transmitter frequency to the mobile receive band at 764-776 MHz.⁶⁷ For these two new rows, the Commission sought comment on an ACP limit of -75 dBc.⁶⁸

28. For base stations, the receive band is located at 794-806 MHz, which is eighteen megahertz above the end of the base transmit band at 764-776 MHz. The Commission sought comment on adding a new row to the ACP tables for base stations that would govern offsets greater than 400 kHz up to twelve

⁶¹ *Sixth NPRM*, 17 FCC Rcd at 19306-07 ¶ 9.

⁶² We note that commenting parties voiced their overall support for proposals in the *Sixth NPRM*. See note 48, *supra*.

⁶³ *Id.* 17 FCC Rcd at 19307 ¶ 10.

⁶⁴ *Id.* 17 FCC Rcd at 19307-8 ¶¶ 11,13.

⁶⁵ *Id.* 17 FCC Rcd at 19307 ¶ 11.

⁶⁶ *Id.*

⁶⁷ *Id.*

⁶⁸ *Id.*

megahertz.⁶⁹ This new row would include all emissions within twelve megahertz (plus or minus) of the center frequency of a base transmitter, including the entire base transmit band 764-776 MHz.⁷⁰ A second row was proposed to govern the remaining range from twelve megahertz above the transmitter frequency to the base receive band at 794-806 MHz.⁷¹ For these two new rows, the Commission sought comment on an ACP limit of -80 dBc.⁷²

29. *Decision.* Although, no commenting party directly addressed this issue,⁷³ we believe replacing all rows in Section 90.543(a) entitled “>400 to receive band” with the new rows described above will clarify that ACP limitations for offsets greater than 400 kHz apply to emissions that lie both above and below the authorized center frequency. This will control in-band emissions on adjacent public safety channels. Because the mobile and base transmit segments of the 700 MHz band span twelve megahertz (764-776 MHz for base and 794-806 MHz for mobile), the new row “>400 kHz to 12 MHz” will clarify that stations operating near the band edges must not exceed the ACP values intended to protect adjacent channel public safety units from interference. We will replace all rows in Section 90.543(a) entitled “>400 kHz to 12 MHz” with two new rows specifying: (1) limits for offsets greater than 400 kHz up to twelve megahertz; and (2) limits for offsets from twelve megahertz to the receive band. For mobile transmitters, these new rows will list an ACP limit of -75 dBc while for base transmitters these new rows will list an ACP limit of -80 dBc.

5. Deletion of ACP Absolute (dBm) Values for Mobiles.

30. *Background.* In the *Sixth NPRM*, the Commission sought comment on deleting the “Maximum ACCP Absolute (dBm)” column from the mobile transmitter tables in Section 90.543.⁷⁴ This column was originally intended to set absolute ACP emission limits for mobile and portable transmitters employing automatic power control.⁷⁵ In the *First R&O*, the Commission required that all mobile and portable transmitters operating in the 700 MHz band employ automatic power control.⁷⁶ However, in the *Second MO&O*, the Commission made automatic power control optional, but neglected to amend Section 90.543(a) to reflect this change.⁷⁷ Therefore, the Commission sought comment on whether deleting the columns entitled “Maximum ACCP Absolute (dBm)” would eliminate any inference that automatic power control was required for mobile or portable units.⁷⁸ The Commission also noted that this change

⁶⁹ *Id.* 17 FCC Rcd at 19308 ¶ 13.

⁷⁰ *Id.*

⁷¹ *Id.*

⁷² *Id.*

⁷³ We note that commenting parties voiced their overall support for proposals in the *Sixth NPRM*. See note 48, *supra*.

⁷⁴ 47 C.F.R. § 90.543. See *Sixth NPRM*, 17 FCC Rcd at 19309 ¶ 16.

⁷⁵ See *First R&O*, 14 FCC Rcd at 216 ¶ 144. Automatic power control allows a system to automatically adjust the output power of transmitters in order to maintain the minimum transmitting power necessary for effective communications, thereby reducing the potential for interference from that transmitter.

⁷⁶ *Id.*

⁷⁷ See *Second MO&O*, 15 FCC Rcd at 16852 ¶ 14.

would make the mobile transmitter tables consistent with the base transmitter tables, which specify limits only in terms of ACP levels relative to the maximum output power.⁷⁹

31. *Decision.* Although, no commenting party directly addressed this issue,⁸⁰ we believe deleting the columns labeled “Maximum ACCP Absolute (dBm)” from the mobile transmitter tables in Section 90.543 of the Commission’s Rules will eliminate any inference that there is a requirement for automatic power control of mobile and portable units and will ensure that the mobile transmitter tables—like the base transmitter tables—will specify limits only in terms of ACP levels relative to the maximum output power.

6. ACP Values for Transmitters Operating in the 700 MHz Guard Bands.

32. *Background.* Section 27.53(d) of the Commission’s rules requires transmitters operating in the 700 MHz guard bands (the 746-747 MHz, 762-764 MHz, 776-777 MHz, and 792-794 MHz bands) to satisfy emission limits identical to those set forth in Section 90.543 of the Commission’s Rules,⁸¹ which govern public safety transmitters in the 700 MHz band. Because the Commission proposed changes to Section 90.543 of the Commission’s Rules in the *Sixth NPRM*, it also proposed corresponding changes to the ACP limits of Section 27.53(d) of the Rules.⁸²

33. All commenting parties who address this issue support conforming the ACP limits contained in Section 27.53(d) of the Rules⁸³ to the corresponding requirements in Section 90.543.⁸⁴ For instance, M/A-COM states that compatible changes need to be made to Section 27.53(d) in order for the guard bands to realize their full potential and still provide sufficient protection to adjacent public safety systems.⁸⁵

34. *Decision.* We believe that the changes adopted in Section 90.543 for public safety transmitters in the 700 MHz band should also be adopted in Section 27.53(d) for transmitters in the 700 MHz Guard Band. Adoption of the recommended values ensures that the Commission’s Rules reflect the latest industry technical standards. In addition, these changes will harmonize the mobile and base transmitter requirements of Section 27.53(d) of the Rules with Section 90.543 of the Rules. Accordingly, we will adopt corresponding revisions to Section 27.53(d) for the 700 MHz Guard Band channels.

(Continued from previous page) _____

⁷⁸ *Sixth NPRM*, 17 FCC Rcd at 19309 ¶ 16.

⁷⁹ *Id.*

⁸⁰ We note that commenting parties voiced their overall support for proposals in the *Sixth NPRM*. See note 48, *supra*.

⁸¹ 47 C.F.R. § 90.543.

⁸² See 47 C.F.R. § 27.53(d). See *Sixth NPRM*, 17 FCC Rcd at 19309 ¶ 18.

⁸³ 47 C.F.R. § 27.53(d).

⁸⁴ See 47 C.F.R. § 90.543. See TIA-PRS Comments at 2; Access Spectrum Comments at 1; M/A-COM Comments at 6; and Motorola Reply Comments at 4.

⁸⁵ M/A-COM Comments at 6. See 47 C.F.R. § 90.543.

IV. SEVENTH NOTICE OF PROPOSED RULEMAKING

A. TIA-PRS Proposals

35. In response to the *Sixth NPRM*, TIA-PRS recommended further changes to the ACP requirements in Sections 90.543, which they claim represent a consensus opinion of manufacturers interested in building 700 MHz public safety equipment based on current technology.⁸⁶ TIA-PRS claims that adoption of these recommendations will expedite the availability of equipment for the 700 MHz band.⁸⁷

1. ACP Values for 50, 100 and 150 kHz Mobile and Base Station Transmitters.

36. Section 90.543 of the Commission's Rules⁸⁸ currently contains ACP limits for wideband base and mobile transmitters operating with 150 kHz channel bandwidth. TIA-PRS recommends adding tables that would describe ACP emission limits for transmitters operating with 50 kHz and 100 kHz bandwidths.⁸⁹ TIA-PRS believes that these additional tables will provide manufacturers with greater flexibility in designing wideband equipment for channel bandwidths other than 150 kHz.⁹⁰ TIA-PRS also suggests revising the table for 150 kHz operations.⁹¹ We seek comment on the wideband transmitter tables suggested by TIA-PRS shown below:

50 kHz Mobile Transmitter ACP Requirements

Offset from Center Frequency (kHz)	Measurement Bandwidth (kHz)	Maximum ACP (dBc)
50	50	-40
100	50	-50
150	50	-50
200	50	-50
250	50	-50
300	50	-50
350	50	-50
400	50	-50
450	50	-50
500	50	-50
550	50	-50
600 to 1000	30 (s)	-60
1000 to 2000	30 (s)	-65

⁸⁶ 47 C.F.R. § 90.543. See TIA-PRS Comments at 2-4 and Letter dated July 16, 2002 from TIA-PRS to Magalie Roman Salas, Secretary, Federal Communications Commission (TIA-PRS *Ex Parte*).

⁸⁷ TIA-PRS Comments at 4.

⁸⁸ 47 C.F.R. § 90.543.

⁸⁹ TIA-PRS *Ex Parte* at 2, 4-7.

⁹⁰ TIA-PRS Comments at 2-3.

⁹¹ TIA-PRS *Ex Parte* at 2.

2000 to 9000	30 (s)	-70
9 MHz to paired receive band	30 (s)	-70
In the paired receive band	30 (s)	-100

100 kHz Mobile Transmitter ACP Requirements

Offset from Center Frequency (kHz)	Measurement Bandwidth (kHz)	Maximum ACP (dBc)
75	50	-40
125	50	-50
175	50	-50
225	50	-50
275	50	-50
325	50	-50
375	50	-50
425	50	-50
475	50	-50
525	50	-50
575	50	-50
600 to 1000	30 (s)	-60
1000 to 2000	30 (s)	-65
2000 to 9000	30 (s)	-70
9 MHz to paired receive band	30 (s)	-70
In the paired receive band	30 (s)	-100

150 kHz Mobile Transmitter ACP Requirements

Offset from Center Frequency (kHz)	Measurement Bandwidth (kHz)	Maximum ACP (dBc)
100	50	-40
150	50	-50
200	50	-50
250	50	-50
300	50	-50
350	50	-50
400	50	-50
450	50	-50
500	50	-50
550	50	-50
600 to 1000	30 (s)	-60
1000 to 2000	30 (s)	-65
2000 to 9000	30 (s)	-70
9 MHz to paired receive band	30 (s)	-70

In the paired receive band	30 (s)	-100
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50 kHz Base Transmitter ACP Requirements

Offset from Center Frequency (kHz)	Measurement Bandwidth (kHz)	Maximum ACP (dBc)
50	50	-40
100	50	-50
150	50	-50
200	50	-50
250	50	-50
300	50	-55
350	50	-55
400	50	-60
450	50	-60
500	50	-60
550	50	-60
600 to 1000	30 (s)	-65
1000 to 2000	30 (s)	-70
2000 to 9000	30 (s)	-75
9 MHz to paired receive band	30 (s)	-75
In the paired receive band	30 (s)	-85

100 kHz Base Transmitter ACP Requirements

Offset from Center Frequency (kHz)	Measurement Bandwidth (kHz)	Maximum ACP (dBc)
75	50	-40
125	50	-50
175	50	-50
225	50	-50
275	50	-55
325	50	-55
375	50	-60
425	50	-60
475	50	-60
525	50	-60
575	50	-60
600 to 1000	30 (s)	-65
1000 to 2000	30 (s)	-70
2000 to 9000	30 (s)	-75
9 MHz to paired receive band	30 (s)	-75
In the paired receive band	30 (s)	-85

150 kHz Base Transmitter ACP Requirements

Offset from Center Frequency (kHz)	Measurement Bandwidth (kHz)	Maximum ACP (dBc)
100	50	-40
150	50	-50
200	50	-50
250	50	-50
300	50	-55
350	50	-55
400	50	-60
450	50	-60
500	50	-60
550	50	-60
600 to 1000	30 (s)	-65
1000 to 2000	30 (s)	-70
2000 to 9000	30 (s)	-75
9 MHz to paired receive band	30 (s)	-75
In the paired receive band	30 (s)	-85

37. We agree with TIA-PRS that the values contained in these tables may offer manufacturers greater flexibility in designing wideband equipment with bandwidths other than 150 kHz. In addition, we note that this proposal dovetails with our policy of allowing licensees to aggregate wideband channels from 50 kHz “building blocks.”⁹² Further, we agree with the majority of the values TIA-PRS proposes for these wideband tables and note that they reflect industry consensus and are consistent with current limits for wideband channels.⁹³ We therefore tentatively conclude to revise Section 90.543 of our Rules in accordance with the recommendations, with the exception noted in the paragraphs below.⁹⁴ We seek comment on our tentative conclusion.

2. Relaxing ACP Limits for Base Stations in Paired Receive Band.

38. TIA-PRS proposes relaxing the ACP requirement of -100 dBc in the paired receive band to -85 dBc, for both wideband and narrowband base station transmitters, suggesting that licensees can easily offset the change in the ACP limit by providing fifteen dB of additional protection through the use of filters external to the base station transmitter.⁹⁵ TIA-PRS notes that such external filters are routinely installed at transmitter sites in order to permit “duplex” operation.⁹⁶ Thus, TIA-PRS suggests that since

⁹² See *First R&O*, 14 FCC Rcd 173-174 ¶ 39.

⁹³ TIA-PRS *Ex Parte* Comments at 2.

⁹⁴ 47 C.F.R. § 90.543.

⁹⁵ See TIA-PRS Comments at 3.

⁹⁶ *Id.* See also TIA-PRS *Ex Parte* at 2-3. Duplex operation is a method whereby transmission is possible simultaneously in both directions of a telecommunication channel.

filters external to the base station transmitter can prevent interference to co-sited, paired base receivers, we can relax the -100 dBc ACP requirement.⁹⁷

39. We are not persuaded by TIA-PRS's reasoning. We are disinclined to adopt less stringent interference protections for all base stations operating in the 700 MHz Public Safety Band. TIA-PRS does not dispute that -100 dBc is an appropriate value for out of band emissions but merely opines that licensees can offset the relaxation of the ACP value by regaining the -15 dBc of protection through the use of filters external to the base station.⁹⁸ The TIA-PRS proposal effectively transfers the cost of providing additional interference protection from manufacturers to licensees, potentially forcing public safety entities with limited budgets to purchase additional equipment that might otherwise not be necessary. Moreover, the TIA-PRS proposal would compromise the Commission's equipment certification process by allowing the certification of equipment that fails to provide an optimal level of interference protection, relying instead upon an unenforceable expectation that licensees would purchase additional equipment to meet the optimal level of interference protection. We therefore tentatively conclude to retain an ACP requirement of -100 dBc in the paired receive band in both the wideband and narrowband base station tables. We seek comment on our tentative conclusion.

3. Corresponding Changes to ACP Limits for Guard Band Transmitters.

40. TIA-PRS suggests that the Commission amend Section 27.53(d) of the Commission's Rules in conformance with its proposed changes to Section 90.543(a) of the Rules.⁹⁹ We note that the Commission based the ACP limits contained in Section 27.53(d) of the Rules on the same limits contained Section 90.543(a) of the rules in order to ensure that equipment operating in the 700 MHz Guard Band provided the same level of interference protection as equipment operating in the 700 MHz Public Safety Band.¹⁰⁰ Therefore, we tentatively conclude that we should apply TIA-PRS's proposal to conform Section 27.53(d) of the Rules to Section 90.543(a) of the Rules. We seek comment on this tentative conclusion.

4. Secondary Fixed Operations and Digital Base Station ID.

41. TIA-PRS suggests that the 700 MHz rules be updated to address secondary fixed operation, and station identification of digital base stations.¹⁰¹ TIA-PRS believes that existing rules covering such operations at 806-824 MHz/851-869 MHz (800 MHz band) provide a suitable framework for 700 MHz

⁹⁷ TIA-PRS *Ex Parte* at 2-3.

⁹⁸ *Id.*

⁹⁹ TIA-PRS Comments at 4, addressing 47 C.F.R. § 90.543(a).

¹⁰⁰ See Service Rules for the 746-764 and 776-794 MHz Bands, and Revisions to Part 27 of the Commission's Rules, *Second Report and Order*, 15 FCC Rcd 5299, 5307 ¶ 17 (2000).

¹⁰¹ See Letter dated October 6, 2004, from Wayne Leland, Chairman Private Radio Section of Telecommunications Industry Association to Marlene Dortch, Secretary Federal Communications Commission at 3 (TIA-PRS *Ex Parte*). See also Letter, dated September 28, 2004, from Marilyn B. Ward, Chair National Public Safety Communications Council to John Muleta, Chief, Wireless Telecommunications Bureau, Federal Communications Commission at 3.

band systems.¹⁰² While we recognize that TIA-PRS represents an industry consensus view, consensus does not always mean unanimity. We therefore seek comment on whether we should update the 700 MHz rules as suggested by TIA-PRS and whether the existing rules for the 800 MHz band should apply.

B. Access Spectrum Proposals

42. Access Spectrum requests that the Commission make clear that out-of-band emission requirements for the 700 MHz Guard Band apply only at the boundaries of a commercial licensee's authorized allocation.¹⁰³ Access Spectrum argues that a general policy of applying out-of-band emission limitations only at the boundaries of a commercial licensee's authorized spectrum, has been implemented for commercial service in the 800 MHz SMR, 900 MHz SMR, PCS and 700 MHz commercial bands.¹⁰⁴

43. We tentatively agree with Access Spectrum. We believe that, like other commercial licensees, emission limits for Guard Band licensees should apply only outside a licensee's authorized frequency block. Therefore, we propose to add language to Section 27.53(d) of the Rules¹⁰⁵ specifying that 700 MHz Guard Band licensees need only satisfy ACP limits outside their authorized frequency band of operation. We seek comment on our tentative conclusion.

44. Access Spectrum also believes that the ACP requirements for the 700 MHz Guard Band contained in Section 27.53(d) of the Rules should be more flexible than those set out in Section 90.543(a), in order to accommodate a wider variety of equipment designs.¹⁰⁶ Access Spectrum suggests that ACP limits for the 700 MHz Guard Band should be easily scalable to correspond to any authorized bandwidth.¹⁰⁷ For instance, Access Spectrum states that the current ACP limits would be unclear for a manufacturer who intends to design a transmitter to operate on a "non-standard," e.g., 200 kHz, channel.¹⁰⁸

45. We seek comment on Access Spectrum's proposal. We note, however, that Access Spectrum fails to explain how scalable ACP limits would be established. Therefore, any commenting party supporting this proposal should offer specific suggestions for establishing ACP limits scalable to any bandwidth. In addition, commenting parties who support scalable ACP limits should indicate whether or not they have obtained industry consensus on this issue.

¹⁰² See 47 C.F.R. §§ 90.637 (addressing operational fixed stations in the 800 MHz band) and 90.647(c) (addressing station identification of digital base stations in the 800 MHz band).

¹⁰³ Access Spectrum Comments at 2.

¹⁰⁴ *Id.* See 47 C.F.R. §§ 90.691 (for 800 MHz EA-based SMR emission limits), 90.669 (for 900 MHz EA-based SMR emission limits), 24.133 (for narrowband PCS emission limits), 24.238 (for broadband PCS emission limits), 27.53(c) and (f) (for 700 MHz commercial band emission limits).

¹⁰⁵ 47 C.F.R. § 27.53(d).

¹⁰⁶ Access Spectrum Comments at 2.

¹⁰⁷ *Id.* at 3.

¹⁰⁸ *Id.*

C. Nortel/EADS Proposal

46. In response to the *Sixth NPRM*, Nortel and EADS jointly suggest a further change to the ACP requirements of Section 90.543(a).¹⁰⁹ They propose that the Commission adjust the first offset value for 12.5 kHz bandwidth transmitters from 9.375 kHz to 9.55 kHz.¹¹⁰ In addition, Nortel/EADS suggest that the Commission modify the measurement bandwidth for this first offset from 6.25 kHz to 5.9 kHz.¹¹¹ They believe these changes will permit use of more spectrally efficient technologies in the 700 MHz band.¹¹² Nortel/EADS also state that they believe similar changes should be made to the 6.25 kHz and 25 kHz bandwidth tables; however, they propose no specific values.¹¹³

47. We seek comment on the proposed revisions to the 12.5 kHz bandwidth tables of Section 90.543(a). Specifically, we seek comment on whether the change proposed by Nortel/EADS would promote the use of spectrally efficient technology without increasing interference potential. We also seek comment on whether similar changes should be made to the first offset in the 6.25 kHz and 25 kHz bandwidth tables. Commenting parties who support changes to the 6.25 kHz and 25 kHz bandwidth tables should make specific proposals and indicate whether or not they have obtained industry consensus on their proposals.

D. NCC Recommendations

48. In this *Seventh Notice*, we discuss a number of recommendations made by the NCC. Some recommendations addressed the 700 MHz Public Safety Band, while others concern other public safety bands. In the paragraphs below, we address those recommendations.

1. Wideband Interoperability Channel Standard

49. The Commission tasked the NCC to develop a set of standards for the 700 Mhz interoperability channels in conjunction with an American National Standards Institute (ANSI)-accredited standards developer.¹¹⁴ In 2000, the NCC recommended that the Commission adopt Project 25 Phase I as the standard for the 700 MHz narrowband interoperability channels,¹¹⁵ but stated that additional work was needed on a wideband standard. In the *First R&O*, the Commission, responding to NCC

¹⁰⁹ Nortel/EADS Comments at 2-4.

¹¹⁰ *Id.* at 3.

¹¹¹ *Id.* See also 47 C.F.R. § 90.543(a).

¹¹² Nortel/EADS Comments at 2. Nortel/EADS state that the proposed change will allow use of 2-slot TDMA technology capable of a spectrum efficiency of 15-16 kb/s in a 12.5 kHz channel, which is well above the required minimum efficiency of 9.6 kb/s for a 12.5 kHz channel. *Id.* See 47 C.F.R. § 90.535(b) for minimum spectrum efficiency requirements.

¹¹³ Nortel/EADS Comments at 2 n.5.

¹¹⁴ *First R&O*, 14 FCC Rcd at 204 ¶ 113.

¹¹⁵ *NCC Report* at 22.

recommendations, adopted the narrowband standards, but believed that it would be premature to adopt wideband standards at that time, absent an NCC recommendation.¹¹⁶

50. The NCC sought the assistance of TIA to help develop a standard for the 700 MHz wideband interoperability channels,¹¹⁷ and in July 2003, recommended that the Commission adopt the 700 MHz wideband standard known as Scalable Adaptive Modulation (SAM).¹¹⁸ The SAM standard, which was adopted by industry consensus in cooperation with the TIA, is comprised of the TIA-902 suite of standards, all but one of which has been published.¹¹⁹ We continue to believe that, if interoperability is to be achieved on the 700 MHz wideband interoperability channels, a single standard must be selected to ensure equipment compatibility.¹²⁰ Accordingly, we tentatively conclude that we should adopt the SAM standard as proposed by the NCC as the standard for the 700 MHz wideband interoperability channels. We solicit comment on our tentative conclusion.

2. Wideband Radio Channel Requirement

51. In the *Second NPRM*, the Commission sought comment on whether to require all public safety mobile and portable radios designed to operate in the 700 MHz Public Safety Band be capable of operating on all interoperability channels in the band.¹²¹ The Commission subsequently adopted a rule requiring narrowband mobile and portable 700 MHz band public safety radios, in general, to be capable of operating on all the 700 MHz narrowband interoperability channels,¹²² but decided that, due to a lack

¹¹⁶ *First R&O*, 14 FCC Rcd at 204 ¶ 113.

¹¹⁷ *Id.* at 21.

¹¹⁸ See letter dated July 25, 2003 from Kathleen Wallman, Chair, National Coordination Committee to Michael Powell, Chairman, Federal Communications Commission at 2 (*July Letter*).

¹¹⁹ The SAM standard consists of the following documents: TIA-902.BAAC Wideband Air Interface Media Access Control/Radio Link Adaptation (MAC/RLA) Layer Specification Public Safety Wideband Data Standards Project Digital Radio Technical Standards, September 2002; TIA-902.BAAD Wideband Air Interface Scalable Adaptive Modulation (SAM) Radio Channel Coding (CHC) Specification Public Safety Wideband Data Standards Project Digital Radio Technical Standards, September 2002; TIA-902.BAAE Wideband Air Interface Logical Link Control (LLC) Specification Public Safety Wideband Standards Project Digital Radio Technical Standards, September 2002; TIA-902.BAEB Wideband Air Interface Packet Data Specifications (PDS) Public Safety Wideband Standards Project Digital Radio Technical Standards, May 2003; TIA-902.BAAF Wideband Air Interface Mobility Management (MM) Layer Specification Public Safety Wideband Standards Project Digital Radio Technical Standards, May 2003; and TIA-902.BAAB Wideband Air Interface Scalable Adaptive Modulation (SAM) Physical Layer Specification Public Safety Wideband Standards Project Digital Radio Technical Standards, February 2002. A related wideband data channel application for text messaging, TIA-902.AAAB, which does not involve the physical layer of the SAM technology and is not essential to the standard's definition, has not been published yet. See *July Letter* at 2-3. We will address the text messaging standard at a later date, if necessary.

¹²⁰ See 47 C.F.R. § 90.548(a).

¹²¹ Development of Operational, Technical and Spectrum Requirements For Meeting Federal, State and Local Public Safety Agency Communication Requirements Through the Year 2010, WT Docket No. 96-86, *Second Notice of Proposed Rule Making*, 12 FCC Rcd 17706 (1997) (*Second NPRM*).

¹²² See 47 C.F.R. § 90.547.

of a NCC recommendation, it was inappropriate to adopt the same requirement for mobile and portable radios operating on the 700 MHz wideband interoperability channels at that time.¹²³

52. When the NCC recommended the TIA-902 (SAM) standard for wideband data radios,¹²⁴ it suggested that the Commission revisit its determination that wideband data compatibility should not be required.¹²⁵ Its work with the TIA-902 (SAM) standard led the NCC to conclude that wideband data compatibility was readily achievable at little additional expense and, therefore, that wideband radios, with one exception, should be capable of operating on all the wideband interoperability channels using the TIA-902 (SAM) standard. The only exception to this requirement, the NCC notes, should be for “single purpose equipment, such as a video camera with an integral wideband data modem.”¹²⁶

53. We believe the rules governing interoperability channels should be similar for wideband and narrowband mobile and portable radios. Therefore, we tentatively conclude that the rules should be amended to require wideband mobile and portable radios to be capable of operating on all the wideband interoperability channels using the TIA-902 (SAM) standard, with the one exception recommended by the NCC: special-purpose equipment where the modem is integral to the special-purpose device (*i.e.*, a non-detachable component in a common enclosure or case). We ask for comments on this tentative conclusion, including recommendations on how best to define specific exceptions.¹²⁷

3. Section 90.548

54. Section 90.548 of the Commission’s rules sets forth the technical standards for the 700 MHz narrowband interoperability channels.¹²⁸ The NCC recommends that the Commission amend this section to reflect a “changed standard in the ANSI/TIA/EIA documents applicable to the narrowband voice/data channels.”¹²⁹ Specifically, the NCC states that the standard for automatic frequency control currently referenced in Section 90.548 of the Commission’s rules (ANSI/TIA/EIA-102.BAAA-1998) will not meet the frequency stability requirements set out in Section 90.539 of the Commission’s rules.¹³⁰ The NCC recommends that the rules reference a revised document ANSI/TIA/EIA-102.BAAA-A-203 which now

¹²³ *First R&O*, 14 FCC Rcd at 213 ¶ 135.

¹²⁴ In doing so, the NCC pointed out that one manufacturer, M/A-COM, noted the increased cost of the product while another, Dataradio, opposed the requirement. *See July Letter* at 3. TIA-PRS notes that the wideband I/O standards have been upgraded to full ANSI standards. *See TIA-PRS Ex Parte* at 2-3.

¹²⁵ *Id.*

¹²⁶ *Id.*

¹²⁷ The NCC defines the term “integral to single-purpose equipment” as a single-purpose device and data modem that is contained in the same case or enclosure; the data modem must be dedicated to said device. *See July Letter* at 3-4.

¹²⁸ *See* 47 C.F.R. § 90.548.

¹²⁹ *See July Letter* at 5.

¹³⁰ *Id.*

specifies a frequency stability that meets the rules.¹³¹ In addition, TIA-PRS notes that they have revised or reaffirmed several additional documents referenced in Section 90.548 and that these references should also be updated.¹³² Specifically, TIA-PRS suggests that Section 90.548 reference the following updated documents:

- Project 25 Vocoder Description ANSI/TIA/EIA-102.BABA-2003 (reaffirmed December 2003);
- Project 25 Data Overview-New Technology Standards Project-Digital Radio technical Standards ANSI/TIA/EIA-102.BAEA-A-2004 (revised June 2004); and
- Project 25 Radio Management Protocol ANSI/TIA/EIA-102.BAEE-A-2004 (renamed and revised June 2004 replacing Radio Control Protocol (RCP) - New Technology Standards Project – Digital Radio Technical Standards ANSI/TIA/EIA-102.BAEE-2000).¹³³

55. We agree with the NCC and TIA-PRS that our rules should reflect the latest technical standards for narrowband interoperability channels. Therefore, we tentatively conclude to amend the rules to incorporate by reference the revised documents listed above. We ask for comments on this tentative conclusion.

4. Encryption Standard

56. In the *Fourth R&O*, the Commission decided that encryption should be permitted on the 700 MHz interoperability channels and adopted the TIA/EIA IS 102 AAAAA Project 25 DES encryption standard as recommended by the NCC.¹³⁴ The NCC states that this standard has been superseded by the Advanced Encryption Standard (AES) because the DES standard had been compromised and is no longer suitable for encrypting sensitive public safety information.¹³⁵ The NCC recommends that the Commission amend the rules to reflect this new document: Project 25 Block Encryption Protocol, approved June 13, 2002, Telecommunications Industry Association, ANSI/TIA/EIA-102-AAAD-2002, Annex C-Advanced Encryption Standard. We agree with the NCC that our rules should reflect the latest standard, therefore, we tentatively conclude to amend the Commission's rules to incorporate by reference the revised document. We ask for comments on this tentative conclusion.

5. Display Labeling (Nomenclature)

57. As a general matter, transmitters used under Part 90 of our Rules must be certificated for use.¹³⁶ In its report, the NCC recommended that we require mobile units certificated for use under Part 90

¹³¹ *Id.* See Project 25 FDMA Common Air Interface—New Technology Standards Project—Digital Radio Technology Standards, Telecommunications Industry Association, ANSI/TIA/EIA-102.BAAA-A-2003, Project 25 Vocoder Description.

¹³² See TIA-PRS *Ex Parte* at 1-2.

¹³³ *Id.*

¹³⁴ The only exception was on the two nationwide interoperability calling channels. *Fourth R&O*, 16 FCC Red at 2053 ¶ 92. See also 47 C.F.R. § 90.553(b).

¹³⁵ See *July Letter* at 6.

¹³⁶ 47 C.F.R. § 90.203. See 47 C.F.R. Part 2, Subpart J.

of the Rules be capable of displaying standardized Interoperability Channel labels alphanumerically if the radios are equipped with alphanumeric displays.¹³⁷ The NCC also recommended that when a mobile radio is operating in the direct (simplex) mode,¹³⁸ the letter “D” should be appended to the end of the displayed channel label.¹³⁹ For instance, when a radio displayed “7TAC63D” on its alphanumeric display, the user would know that the radio was tuned to a channel in the 700 MHz band, that such channel was designated for tactical purposes, that it was the sixty-third frequency in sequence, and that the radio was operating in the direct mode.¹⁴⁰ The NCC asserted that adoption of these rules would allow the establishment of a nationally standardized format to communicate on Interoperability Channels. The information conveyed by the alphanumeric display would eliminate guesswork, as between users, on the actual channel to be used during a multi-agency response.¹⁴¹

58. In the *Fourth Report and Order* in this proceeding, the Commission declined to adopt a rule codifying the NCC’s recommendations, *supra*, because it believed the practical and administrative burdens of such a requirement would outweigh the benefits; and, that to adopt such a rule could be construed as excessive Federal involvement in what was essentially a “user feature” of the radio, unrelated to the parameters usually considered in the equipment certification process.¹⁴² The Commission then directed the NCC to consider the development of an industry-standardized—rather than Commission-mandated—scheme for display labeling.¹⁴³

59. In its July 25, 2003 letter, the NCC reiterated its recommendation that the Commission adopt such standards—rather than leaving them to industry—and filed a revised channel nomenclature recommendation.¹⁴⁴ Subsequently, in September 2004, the National Public Safety Telecommunications (NPSTC) reiterated its interest in this issue in a letter to the Chief of the Wireless Telecommunications Bureau.¹⁴⁵ NPSTC noted that the Commission’s recent action to resolve interference to public safety

¹³⁷ NCC Report at 14 ¶ 43, Appendix D at 4.

¹³⁸ In this case, simplex operation is mobile to mobile communications on one-half of the channel pair. The communications do not go through an infrastructure. Simplex operation is often the dominant mode of communications between multiple public safety agencies at the scene of an incident. *Id.*

¹³⁹ *Id.*

¹⁴⁰ *See July Letter* at 2.

¹⁴¹ *Id.* at Appendix D at 1-2.

¹⁴² Development of Operational, Technical and Spectrum Requirements For Meeting Federal, State and Local Public Safety Agency Communication Requirements Through the Year 2010, WT Docket No. 96-86, *Fourth Report and Order and Fifth Notice of Proposed Rule Making*, 16 FCC Rcd 2020 at 2039-40 ¶¶54-59 (2001) (*Fourth R&O*).

¹⁴³ *Id.* 16 FCC Rcd at 2040 ¶ 59.

¹⁴⁴ *See July Letter* at 4 and Attachment to *July Letter*.

¹⁴⁵ *See Letter*, dated September 28, 2004, from Marilyn B. Ward, Chair, National Public Safety Telecommunications Council to John Muleta, Chief, Wireless Telecommunications Bureau, Federal Communications Commission (*NPTSC Letter*).

systems operating in the 800 MHz band¹⁴⁶ provided an opportunity to accomplish the reprogramming of public safety radios in the 800 MHz band to also comply with the NCC's recommended nomenclature standards.¹⁴⁷

60. We remain aware of the interest in common nomenclature for radio channels among public safety organizations, but are not persuaded that we are warranted in overturning our initial determination. There are over 40,000 public safety licensees in this country, with each licensee having its own organizational culture and operational requirements. We do not have the organizational expertise to tell public safety licensees what radio channel nomenclature to use, particularly in critical tactical situations. We note, however, that we do not minimize the significance of common nomenclature, note that it is being considered by the Department of Homeland Security,¹⁴⁸ and pledge our ongoing cooperation with that Department in this, and other issues critical to public safety.

61. In summary, we tentatively conclude to decline to mandate the use of a standard channel nomenclature for interoperability channels and to decline to require equipment mobile units certificated for use under Part 90 of the Rules be capable of displaying standardized Interoperability Channel labels alphanumerically if the radios are equipped with alphanumeric displays. We seek comment on these tentative conclusions.

6. 700 MHz System Design Parameters

62. The NCC suggests that 700 MHz public safety systems should be designed so that the minimum signal at the edge of the operational area is not less than 40 dBu/V (forty decibels above one-microvolt per meter.)¹⁴⁹ However, in "unfavorable interference environments" or for systems requiring in-building coverage, the NCC recommends that the minimum coverage design criterion should be a signal ten times stronger, *i.e.*, 50 dBu/V. The NCC also suggests that designers follow the procedures set out in TIA Technical Services Bulletin No. 88 when considering co-channel and adjacent channel assignments. The NCC does not recommend codification of the foregoing recommendations or standards but seeks only to make designers aware that systems not designed to these criteria may be vulnerable to harmful interference.¹⁵⁰

63. We believe that the specific design parameters are best left to licensees, but agree there may be some benefit to recognizing (but not codifying) certain general system design parameters. Therefore,

¹⁴⁶ See Improving Public Safety Communications in the 800 MHz Band, WT Docket 02-55, *Report and Order, Fifth Report and Order, Fourth Memorandum Opinion and Order, and Order*, 19 FCC Rcd 14969 (2004) as amended by *Erratum*, DA 04-3208, rel. Oct. 6, 2004, and *Erratum*, DA 04-3459, rel. Oct. 29, 2004 (*800 MHz R&O*).

¹⁴⁷ See *NPTSC Letter* at 4.

¹⁴⁸ See Report to Congressional Requesters, Homeland Security: Federal Leadership and Intergovernmental Cooperation required to Achieve First Responder Interoperable Communications, General Accounting Office, GAO-04-740 at 20-21 (July 2004).

¹⁴⁹ See letter, dated May 29, 2003, from Kathleen Wallman, Chair, National Coordination Committee to Michael Powell, Chairman, Federal Communications Commission, at 3 (*May Letter*). For the purposes of this recommendation, operational area is the jurisdictional area plus three miles in rural areas, and the jurisdictional area plus five miles in urban areas.

¹⁵⁰ See *May Letter* at 3.

we seek comment on the NCC recommended design parameters. We ask for suggestions on to what extent, if any, the Commission should promote use of “recommended” design parameters for the public safety 700 MHz band.

7. State Interoperability Executive Committee (SIEC)

64. *Revision of the term.* The NCC contends that “anecdotal evidence” suggests that the term “State Interoperability Executive Committee” implies that states should control rather than administer interoperability channel use (*i.e.*, the term carries with it an implication that there is no role for county and local governments in the process).¹⁵¹ To dispel this impression, it recommends that the Commission refer to these committees as “Statewide Interoperability Executive Committees” and to make it clear that such committees must be broadly representative of all potential users within the state. Because the term “State Interoperability Executive Committee” was used in the *NCC Report* but does not appear in the Commission’s Rules,¹⁵² we tentatively conclude that this issue does not require Commission action. We seek comment on this tentative conclusion.

65. With regard to the issue of “state control” versus “state administration,” we note that, in the *Fourth R&O*, the Commission concluded that states should administer the Interoperability channels given the central role they play in managing large-scale emergencies and their enhanced ability to coordinate with the Federal Government.¹⁵³ Thus, the Commission requires that the state-level agency or organization responsible for administering state emergency communications (or its designee) must approve any base station application for 700 MHz Interoperability channels.¹⁵⁴ We require this because we believe a certain amount of control is necessary in order to minimize interference and facilitate a seamless, coordinated interoperability communications capability that will promote the safety of life and property. The purpose of the Interoperability channels, however, is to allow all public safety eligibles to communicate with one another. Therefore, we would expect states to look favorably, whenever possible, on applications for Interoperability channels from any eligible public safety user (*e.g.*, county and local government entities) within the state. However, we tentatively conclude that Commission action is not warranted in this regard. We seek comment on our tentative conclusion.

66. *Mandatory SIECs.* The NCC contends that it is crucial for Homeland security purposes that the Commission require that each state:

- have an identified point of contact for information on the state’s interoperability capabilities (a SIEC, or equivalent);
- be given jurisdiction of all interoperability channels regardless of band (*i.e.*, 150, 450, 700 and 800 MHz); and

¹⁵¹ See *July Letter* at 4.

¹⁵² See *NCC Report* at ¶ 34.

¹⁵³ *Fourth R&O*, 16 FCC Rcd at 2024 ¶ 9.

¹⁵⁴ See 47 C.F.R. § 90.525(b).

- have an interoperability plan that is available to adjacent states and the Federal Government, and that the plan be updated at least every three years.¹⁵⁵

67. The Commission has previously stated its support for the creation of SIECs but has declined to require their formation.¹⁵⁶ In reaching this conclusion, the Commission decided to defer to state government, decisions regarding management of their communications resources. The Commission also pointed out that some states already have a mechanism in place that could administer the Interoperability channels and, therefore, requiring a SIEC could be duplicative.¹⁵⁷ While we continue to believe that there are benefits to states creating or identifying a state-level agency or organization such as a SIEC to handle interoperability communications and other Homeland security issues, nothing in the record before us makes us believe the Commission should require their use. We continue to believe that states, rather than the Commission, are best able to determine how to manage their resources in the most efficient, effective and expeditious manner.

68. We agree with the NCC that states should have a periodically updated interoperability plan that is available to other entities including adjacent states and the Federal Government. However, we note that that both Congress and the President have clearly indicated that the responsibility of building a “comprehensive national incident management system” rests with the Secretary of the Department of Homeland Security.¹⁵⁸ Moreover, since a comprehensive interoperability plan involves more than just radio communications,¹⁵⁹ we are concerned that a Commission-mandated plan could be repetitive or potentially counterproductive relative to other ongoing federal efforts concerning interoperability and Homeland security initiatives. We therefore tentatively conclude not to require the mandatory creation of SIECs and seek comment on our tentative conclusion.¹⁶⁰

8. Regional Planning

69. *Mandatory Use of a Pre-coordination Database.* In the *Fourth R&O*, the Commission declined to require Regional Planning Committees (RPCs) to use a pre-coordination database. The Commission noted that, while such a database had great merit for planning purposes, mandating the use

¹⁵⁵ See *July Letter* at 5. Specifically the NCC recommends the Commission require states to create an interoperability plan and file it with the Commission, that such a plan be updated whenever substantive changes are made or, in any event, at least every three years and that the interoperability plan be stored in a electronic data base that is accessible by authorized officials. *Id.*

¹⁵⁶ *Fourth R&O*, 16 FCC Rcd at 2026 ¶ 13.

¹⁵⁷ *Id.*

¹⁵⁸ 107 Pub. L. 296; 116 Stat. 2135, § 502(5). See also Homeland Security Presidential Directive/HSPD-5 (rel. Feb. 28, 2003).

¹⁵⁹ For example, an interoperability plan involves establishing protocols, standard procedures, partnerships, inter-government coordination, training; etc.

¹⁶⁰ By tentatively concluding not to require the use of SIECs, we by extension tentatively conclude not to grant these entities jurisdiction over all public safety bands.

of an undeveloped database might not be the most prudent course of action.¹⁶¹ In the *Fourth MO&O*, the Commission also concluded that it was premature to mandate the use of such a database.¹⁶²

70. The NCC states that the National Public Safety Telecommunications Council (NPSTC) has developed and placed into operation a pre-coordination database, which it has named CAPRAD, and urges the Commission to mandate its use.¹⁶³ While we continue to believe that a pre-coordination database can be a very valuable planning tool, we deem it significant that neither the States nor the RPCs sought to have the Commission mandate use of a third party database. Moreover, it remains unclear to us how such a database would be used in connection with the Interoperability and State channels. Also, we note that the public safety frequency coordinators have committed to use this database for coordination, which may render moot any need for the Commission to mandate its use.¹⁶⁴ Nevertheless, we seek comments on this NCC recommendation. Parties should address how the database would be used for the different categories of 700 MHz public safety spectrum, the specific details on how the process would work and why the frequency coordinators' commitment to use the database is not sufficient without Commission intervention.

71. *Regional Planning Process.* By way of background, regional planning for the Public Safety 700 MHz band was modeled after the Commission's decision to adopt a national plan for public safety channels in the 800 MHz band. This scheme required Commission staff to examine the proposed plan, or any modification thereof, to ensure that public safety needs are fully addressed, that the spectrum has been used efficiently, that coordination with adjacent regions has occurred, and that all requirements of the National Plan are met.¹⁶⁵ In the *First R&O*, we affirmed our conclusion stating that inter-regional coordination remains the best, most cost effective and least complicated method for avoiding cross-border harmful interference problems between regions, and appropriately balances the requirements of fairness and efficiency. Specifically, we clarified that all 700 MHz Regional Plans, and any future modifications, would continue to be reviewed and approved using this procedure, and clarified that letters of

¹⁶¹ *Fourth R&O*, 16 FCC Rcd at 2028 ¶¶ 18-20.

¹⁶² Development of Operational, Technical and Spectrum Requirements For Meeting Federal, State and Local Public Safety Agency Communication Requirements Through the Year 2010, WT Docket No. 96-86, *Fourth Memorandum Opinion and Order*, 17 FCC Rcd at 4740 (*Fourth MO&O*).

¹⁶³ See *July Letter* at 6.

¹⁶⁴ See Letter from the Public Safety Communications Council (PSCC), Al Mello, Chairman, to Marilyn Ward, Chairperson, National Public Safety Telecommunications Council (dated May 24, 2001). The PSCC letter states the position of four FCC-certified public safety frequency coordinators (American Association of State Highway and Transportation Officials (AASHTO), APCO, Forestry Conservation Communications Association (FCCA) and International Municipal Signal Association (IMSA)/ International Association of Fire Chiefs (IAFC)) regarding the pre-coordination database. We also point out that in the PLMR bands below 512 MHz we left it to the coordinators to select a database to make frequency selections rather than mandate a particular database. See Frequency Coordination in the Private Land Mobile Radio Services, *Report and Order*, 103 FCC 2d 1093 (1986).

¹⁶⁵ See Development and Implementation of a Public Safety National Plan and Amendment of Part 90 to Establish Service Rules and Technical Standards for Use of the 821-824/866-869 MHz Bands by the Public Safety Services, *Report and Order*, 3 FCC Rcd 905, 911 (1987). See also *Second MO&O*, 12 FCC Rcd 17706, 17755 - 56 ¶¶ 109-110.

concurrence with the proposed modification, signed by the chairperson of each adjacent region must be submitted to the Commission with a region's modification request.¹⁶⁶

72. The NCC recommends streamlining the process for approval of amendments to Regional Plans to reduce burdens on RPCs and the Commission. Specifically, the NCC recommends the Commission adopt a streamlined processing standard for minor amendments to Regional Plans; or, that the Commission determine that minor amendments may be made without prior Commission approval. The NCC believes that amendments to a Regional Plan should be considered minor if they only involve changes to frequency allotments and meet any one of the following conditions: (a) the proposed channel change or addition involves a facility that would be more than seventy miles from the adjacent Region(s) border(s); (b) the co-channel or adjacent channel interference contour of the changed or added channel does not intersect the border of the adjacent region; or, (c) the adjacent region affected by the proposed channel change or addition has concurred in writing.¹⁶⁷ We request comments on this NCC recommendation.¹⁶⁸

73. The NCC also recommends that, if adjacent regions have concurred with proposed major amendments to a Regional Plan, the Commission should promptly place the amendments on Public Notice for the minimum practicable time, *e.g.*, thirty days, with a brief reply comment cycle, *e.g.*, fifteen days. The Public Notice should state that, if no comments are received, the plan will be deemed approved at the end of the thirty day period unless the Commission has determined that the plan is defective, incomplete, or otherwise unacceptable.

74. We make several observations regarding this recommendation. First, we note that the Commission currently reviews amendments to regional plans and rejects and/or returns for corrections or for clarification, amendments that are defective, such as those containing insufficient information or lack of letters of concurrence from adjacent regions.¹⁶⁹ The Commission only places amendments that pass this initial screening on Public Notice. Second, in the interest of obtaining a full public record, the Commission generally considers all comments filed during the comment and reply comment cycle. The fact that a party does not file during the initial thirty day comment period, and instead files comments during the reply comment period, does not preclude our review and consideration of such comments on the record. Under current Commission practice, if no comments or reply comments are filed regarding a proposed amendment to a regional plan, a public notice is released noting that no comments were received and affirmatively states that the proposed amendment is approved. We believe that there is benefit to such an affirmative statement because it informs the public, including the public safety community and frequency coordinators, of the completion of the process, thus removing doubt as to whether a proposed amendment has been approved. We therefore tentatively conclude not to change our review process in this regard and seek comment on this tentative conclusion.

¹⁶⁶ *First R&O*, 14 FCC Rcd at 195-196 ¶ 88.

¹⁶⁷ *See July Letter* at 6-7.

¹⁶⁸ We note that the NCC also recommends that modifications to approved Plans that involve changes in the way frequencies are allocated, allotted, and coordinated should be considered major modifications which require written concurrence of adjoining regions and prior Commission approval. Because the Commission already treats modifications to regional plans in such a fashion, we decline to seek comment on this recommendation.

¹⁶⁹ *First R&O*, 14 FCC Rcd at 195 ¶ 87.

75. Finally, the NCC recommends that the Commission should require that notice of modifications to Regional Plans only involving changes to RPC committee members should be served on adjacent regions, but should not require Commission approval of such membership changes.¹⁷⁰ Because changes in regional planning committee general membership or leadership positions are considered administrative updates that do not require an amendment to the regional plan, we tentatively conclude not to adopt this recommendation. We seek comment on this tentative conclusion.¹⁷¹

E. Rule Clarification

76. The Commission originally established trunking requirements for the 700 MHz band in order to ensure efficient use of the spectrum and subjected all narrowband channels (except nationwide interoperability channels) to the requirement.¹⁷² Section 90.537 of the Commission's rules sets forth the trunking requirements for public safety operations in the 700 MHz band.¹⁷³ Section 90.537(a) specifies that all systems using six or more narrowband General Use channels must operate in the trunked mode.¹⁷⁴ Conversely, Section 90.537(b) states that—for interoperability channels—trunking is permitted only on certain interoperability channels and only on a secondary basis.¹⁷⁵

77. When the Commission set aside 2.4 megahertz from the narrowband spectrum for geographic state licenses, it made no mention of exempting the State License channels from the trunking requirements of Section 90.537. Nevertheless, when the Commission updated Section 90.537 of the Commission's rules to allow secondary trunking on certain interoperability channels, only the General Use channels were listed as being subject to the trunking requirements of this section. The exclusion of the State License channels from the requirements of Section 90.537 of the Commission's rules appears unintentional and no reason has been offered why the efficiency of spectrum use that trunking provides to other band segments should not apply to the State License channels. We therefore propose to update Section 90.537 of the Commission's rules to specify that narrowband State License channels are subject to trunking requirements in this section. We seek comment on our proposal.

78. In addition, Section 90.537 of the Commission's rules makes no mention of whether the low power channels are subject to or exempt from the trunking requirements of this section. We note, however, that Section 90.537 specifically exempted the low power channels from the trunking requirements before the rule was updated to allow secondary trunking on certain interoperability channels. We believe removal of language exempting the low power channels also was unintentional. Therefore, we propose to restore that language into Section 90.537. We seek comment on our proposal to insert language specifically exempting the low power channels from the trunking requirements in Section 90.537 of the Rules.

¹⁷⁰ *Id.*

¹⁷¹ However, providing updates to the Commission's Wireless Telecommunications Bureau on changes to regional planning committee leadership, as well keeping adjacent regions apprised of changes in leadership, is a good practice that each region is encouraged to adopt.

¹⁷² See *First R&O and Third NPRM*, 14 FCC Rcd 211 ¶ 131. See also 47 C.F.R. § 90.537 (1998).

¹⁷³ 47 C.F.R. § 90.537.

¹⁷⁴ 47 C.F.R. § 90.537(a).

¹⁷⁵ 47 C.F.R. § 90.537(b).

V. PROCEDURAL MATTERS

A. Regulatory Flexibility Act

79. A Supplemental Final Regulatory Flexibility Analysis with respect to the *Fifth Memorandum Opinion and Order* has been prepared and is included in Appendix A. A Final Regulatory Flexibility Analysis has been prepared with respect to the *Sixth Report and Order* and is included in Appendix B. An Initial Regulatory Flexibility Analysis (IRFA) with respect to the *Seventh Notice of Proposed Rule Making* has been prepared and is included in Appendix C.

B. *Ex Parte* Rules – Permit-But-Disclose Proceeding

80. The *Seventh Notice of Proposed Rule Making* is a permit-but-disclose notice and comment rulemaking proceeding. *Ex parte* presentations are permitted, except during the Sunshine Agenda period, provided they are disclosed pursuant to the Commission's Rules.¹⁷⁶

C. Paperwork Reduction Act Analysis

81. The actions taken in the *Fifth Memorandum Opinion and Order* and *Sixth Report and Order* have been analyzed with respect to the Paperwork Reduction Act of 1995, Pub. L. No. 104-13, and found to impose no new or modified recordkeeping requirements or burdens on the public.

D. Comment Period and Procedures

82. Pursuant to applicable procedures set forth in sections 1.415 and 1.419 of the Commission's Rules,¹⁷⁷ interested parties may file comments on the *Seventh Notice of Proposed Rulemaking* on or before [30 days after publication in the Federal Register] and reply comments on or before [45 days after publication in the Federal Register]. Comments and reply comments may be filed using the Commission's Electronic Comment Filing System (ECFS) or by filing paper copies.¹⁷⁸ All relevant and timely comments will be considered by the Commission before final action is taken in this proceeding.

83. Comments filed through the ECFS can be sent as an electronic file via the Internet to <<http://www.fcc.gov/e-file/ecfs.html>>. In completing the transmittal screen, commenters should include their full name, Postal Service mailing address, and the applicable docket number. Parties may also submit an electronic comment by e-mail via the Internet. To obtain filing instructions for e-mail comments, commenters should send an e-mail to ecfs@fcc.gov, and should include the following words in the body of the message: "get form <your e-mail address>." A sample form and directions will be sent in reply.

84. Parties who choose to file by paper must file an original and four copies of each filing. If parties want each Commissioner to receive a personal copy of their comments, they must file an original plus nine copies. All filings must be sent to the Commission's Secretary, Marlene H. Dortch, Office of the Secretary, Federal Communications Commission, 445 12th Street, S.W., Room TW-A325,

¹⁷⁶ See generally 47 C.F.R. §§ 1.1202, 1.1203, 1.1206.

¹⁷⁷ 47 C.F.R. §§ 1.415, 1.419.

¹⁷⁸ See Electronic Filing of Documents in Rulemaking Proceedings, *Report and Order*, 13 FCC Rcd 11322 (1998).

Washington, D.C. 20554. One copy of each filing (together with a diskette copy, as indicated below) should also be sent to the Commission's copy contractor, Best Copy and Printing, Inc. (BCPI), Portals II, 445 12th Street, SW, Room CY-B402, Washington, DC 20554, telephone 1-800-378-3160.

85. Parties who choose to file by paper should also submit their comments on diskette. These diskettes should be attached to the original paper filing submitted to the Office of the Secretary. Such a submission should be on a 3.5 inch diskette formatted in an IBM compatible format using MicrosoftTM Word 2002 or compatible software. The diskette should be accompanied by a cover letter and should be submitted in "read only" mode. The diskette should be clearly labeled with the commenter's name, proceeding, type of pleading (comment or reply comment), date of submission, and the name of the electronic file on the diskette. The label should also include the following phrase "Disk Copy – Not an Original." Each diskette should contain only one party's pleadings, preferably in a single electronic file. In addition, commenters should send diskette copies to the Commission's copy contractor. In addition, commenters should send diskette copies to the Commission's copy contractor, Best Copy and Printing, Inc. (BCPI), Portals II, 445 12th Street, SW, Room CY-B402, Washington, DC 20554, telephone 1-800-378-3160.

86. The public may view the documents filed in this proceeding during regular business hours in the FCC Reference Information Center, Federal Communications Commission, 445 12th Street, S.W., Room CY-A257, Washington, D. C. 20554, and on the Commission's Internet Home Page: <<http://www.fcc.gov>>. Copies of comments and reply comments are also available through the Commission's duplicating contractor: Best Copy and Printing, Inc. (BCPI), Portals II, 445 12th Street, SW, Room CY-B402, Washington, DC 20554, telephone 1-800-378-3160, or via e-mail at the following e-mail address: WWW.BCPIWEB.COM. Accessible formats (computer diskettes, large print, audio recording and Braille) are available to persons with disabilities by contacting Brian Millin, of the Consumer & Governmental Affairs Bureau, at (202) 418-7426, TTY (202) 418-7365, or at bmillin@fcc.gov. For further information, contact Mr. Brian Marengo at 418-0838 <brian.marengo@fcc.gov>, Public Safety and Critical Infrastructure Division, Wireless Telecommunications Bureau.

VI. ORDERING CLAUSES

87. Accordingly, IT IS ORDERED that, pursuant to Sections 4(i), 303(f), 332, 337 and 405 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 154(i), 303(f), 332, 337 and 405 this *Fifth Memorandum Opinion and Order, Sixth Report and Order and Seventh Notice of Proposed Rulemaking* IS HEREBY ADOPTED.

88. IT IS FURTHER ORDERED that pursuant to applicable procedures set forth in Sections 1.415 and 1.419 of the Commission's Rules, 47 C.F.R. §§ 1.415, 1.419; interested parties may file comments on the *Seventh Notice of Proposed Rulemaking* on or before [30 days after publication in the Federal Register] and reply comments on or before [45 days after publication in the Federal Register].

89. IT IS FURTHER ORDERED that, pursuant to Sections 1, 4(i), 303(f) and (r), 332, and 405 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 1, 154(i), 303(f) and (r), 332, and 405 the Petition for Reconsideration filed by Motorola, Inc. on January 13, 2003, IS GRANTED to the extent described herein.

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

91. IT IS FURTHER ORDERED that the Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, SHALL SEND a copy of this *Fifth Memorandum Opinion and Order*, *Sixth Report and Order* and *Seventh Notice of Proposed Rulemaking* including the Supplemental Final Regulatory Flexibility Analysis, the Final Regulatory Flexibility Analysis and 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

**SUPPLEMENTAL FINAL REGULATORY FLEXIBILITY ANALYSIS
(Fifth Memorandum Opinion and Order)**

1. As required by the Regulatory Flexibility Act (RFA),¹⁷⁹ a Final Regulatory Flexibility Analysis (FRFA) was incorporated in the *Fifth Report and Order (5th R&O)*¹⁸⁰ in WT Docket 96-86. The Commission sought written public comment on the proposals in the *5th NPRM*. In view of the fact that we have adopted further rule amendments in this *Fifth Memorandum Opinion and Order (5th MO&O)*, we have included this Supplemental Final Regulatory Flexibility Analysis (SFRFA). This Supplemental Final Regulatory Flexibility Analysis (SFRFA) conforms to the RFA.¹⁸¹

A. Reason for, and Objectives of, the *Fifth Memorandum Opinion and Order*:

2. The *5th MO&O* adopts rules to promote the transition to dual mode equipment and 6.25 kHz equipment in the 700 MHz Public Safety band operating in the General Use and State License channels. Specifically, we amend our rules to delay the ban on the marketing, manufacture, and importation of 12.5 kHz equipment until December 31, 2014. In addition, we amend our rules to delay until December 31, 2014, the cut-off for accepting applications for new systems operating in the General Use and State License channels that use 12.5 kHz equipment. These actions will effect a transition to a narrowband channel plan. The resulting gain in efficiency will ease congestion on the General Use and State License channels in these bands. Delaying this transition, however, will ease the economic burden on small businesses by allowing them to make this transition over a longer period of time.

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

3. No comments or reply comments were filed in direct response to the FRFA. The Commission has; however, reviewed the general comments that may impact small businesses. Much of the potential impact on small businesses arises from the mandatory migration to 6.25 kHz or dual mode technology beginning on December 31, 2014; the ban on marketing, importation and manufacture of 12.5 kHz equipment after December 31, 2014; and the freeze on new 12.5 kHz applications. The costs associated with replacement of current systems were cited in opposition to mandatory conversion proposals.

¹⁷⁹ 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).

¹⁸⁰ Development of Operational, Technical, and Spectrum Requirements for meeting Federal, State and Local Public Safety Communication Requirements Through the Year 2010, WT Docket No. 96-86, *Fifth Report and Order*, 17 FCC Rcd 14999 (2002) 67 Fed Reg. 76697 (Dec. 13, 2002).

¹⁸¹ See 5 U.S.C. § 604.

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

4. 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 rules adopted. The RFA generally defines the term “small entity” as having the same meaning as the terms “small business,” “small organization,” and “small governmental jurisdiction.”¹⁸² In addition, the term “small business” has the same meaning as the term “small business concern” under the Small Business Act.¹⁸³ A small business concern is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration (SBA).¹⁸⁴ A small organization is generally “any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.”¹⁸⁵ Nationwide, as of 1992, there were approximately 275,801 small organizations.¹⁸⁶ Below, we further describe and estimate the number of small entity licensees and regulates that may be effected by the proposed rules, if adopted.

5. *Governmental Entities.* The term “small governmental jurisdiction” is defined as “governments of cities, towns, townships, villages, school districts, or special districts, with a population of less than fifty thousand.”¹⁸⁷ As of 1997, there were approximately 87,453 governmental jurisdictions in the United States.¹⁸⁸ This number includes 39,044 county governments, municipalities, and townships, of which 37,546 (approximately 96.2%) have populations of fewer than 50,000, and of which 1,498 have populations of 50,000 or more. Thus, we estimate the number of small governmental jurisdictions overall to be 84,098 or fewer.

6. *Public Safety Radio Licensees.* As a general matter, Public Safety Radio Pool licensees include police, fire, local government, forestry conservation, highway maintenance, and emergency medical services.¹⁸⁹ The SBA rules contain a definition for cellular and other wireless telecommunications

¹⁸² See 5 U.S.C. § 601(6).

¹⁸³ 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 which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register.

¹⁸⁴ Small Business Act, 5 U.S.C. § 632 (1996).

¹⁸⁵ 5 U.S.C. § 601(4).

¹⁸⁶ 1992 Economic Census, U.S. Bureau of the Census, Table 6 (special tabulation of data under contract to the Office of Advocacy of the Small Business Administration).

¹⁸⁷ 5 U.S.C. § 601(5).

¹⁸⁸ U.S. Census Bureau, Statistical Abstract of the United States: 2000, Section 9, pages 299-300, Tables 490 and 492.

¹⁸⁹ See subparts A and B of Part 90 of the Commission's Rules, 47 C.F.R. §§ 90.1-90.22. Police licensees include 26,608 licensees that serve state, county, and municipal enforcement through telephony (voice), telegraphy (code), and teletype and facsimile (printed material). Fire licensees include 22,677 licensees comprised of private volunteer or professional fire companies, as well as units under governmental control. Public Safety Radio Pool licensees also include 40,512 licensees that are state, county, or municipal entities that use radio for (continued....)

companies which encompasses business entities engaged in radiotelephone communications employing no more than 1,500 persons.¹⁹⁰ There are a total of approximately 127,540 licensees within these services.¹⁹¹ With respect to local governments, in particular, since many governmental entities as well as private businesses comprise the licensees for these services, we include under public safety services the number of government entities affected.

7. *Wireless Communications Equipment Manufacturers.* The SBA has established a small business size standard for radio and television broadcasting and wireless communications equipment manufacturing. Under the standard, firms are considered small if they have 750 or fewer employees.¹⁹² Census Bureau data for 1997 indicates that, for that year, there were a total of 1,215 establishments¹⁹³ in this category.¹⁹⁴ Of those, there were 1,150 that had employment under 500, and an additional 37 that had employment of 500 to 999. The Commission estimates that the majority of wireless communications equipment manufacturers are small businesses.¹⁹⁵

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

8. This *5th MO&O* adopts rules to promote the transition to dual mode equipment and 6.25 kHz equipment in the 700 MHz Public Safety band operating in the General Use and State License channels. (Continued from previous page) _____

official purposes. There are also 7,325 forestry service licensees comprised of licensees from state departments of conservation and private forest organizations that set up communications networks among fire lookout towers and ground crews. The 9,480 state and local governments are highway maintenance licensees that provide emergency and routine communications to aid other public safety services to keep main roads safe for vehicular traffic. Emergency medical licensees (1,460) use these channels for emergency medical service communications related to the delivery of emergency medical treatment. Another 19,478 licensees include medical services, rescue organizations, veterinarians, persons with disabilities, disaster relief organizations, school buses, beach patrols, establishments in isolated areas, communications standby facilities, and emergency repair of public communications facilities.

¹⁹⁰ See 13 C.F.R. § 121.201 (NAICS Code 517212).

¹⁹¹ There is no information currently available about the number within the 127,540 that have less than 1500 employees.

¹⁹² 13 C.F.R. § 121.201, NAICS code 334220.

¹⁹³ The number of "establishments" is a less helpful indicator of small business prevalence in this context than would be the number of "firms" or "companies," because the latter take into account the concept of common ownership or control. Any single physical location for an entity is an establishment, even though that location may be owned by a different establishment. Thus, the number given may reflect inflated numbers of businesses in this category, including the numbers of small businesses. In this category, the Census break-out data for firms or companies only gives the total number of such entities for 1997, which was 1,089.

¹⁹⁴ U.S. Census Bureau, *1997 Economic Census*, Industry Series: Manufacturing, "Industry Statistics by Employment Size," Table 4, (issued August 1999) NAICS code 334220. We note, however that the predominant manufacturers of 800 MHz equipment, Motorola and M/A-COM Private Radio Systems, Inc. are not considered small businesses.

¹⁹⁵ We note, however that the predominant manufacturers of 800 MHz equipment, Motorola and M/A-COM Private Radio Systems, Inc. are not considered small businesses.

Further, this 5th MO&O amends our current rules to prohibit the marketing, importation or manufacture of 12.5 kHz-only equipment beginning on December 31, 2014. All equipment utilized in the 700 MHz Public Safety band on or after December 31, 2014 must utilize a maximum channel bandwidth of 6.25 kHz. These rules do not impose new reporting or recordkeeping requirements on licensees, but will require licensees to transition to new equipment. We have made this transition as long as possible.

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

9. The RFA requires an agency to describe any significant alternatives that it has considered in reaching its proposed approach, which may include the following four alternatives (among others): (1) the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance or reporting requirements under the rule for small entities; (3) the use of performance, rather than design, standards; and (4) an exemption from coverage of the rule, or any part thereof, for small entities.¹⁹⁶

10. The Commission considered the economic burden on small businesses when it adopted the rules set forth in this 5th MO&O. For instance, in consideration of the amortization and life-span of current equipment and the resources available to small entities, we amend our Rules to delay until December 31, 2014 the cut-off for accepting applications for new systems operating in the General Use and State License channels that use 12.5 kHz equipment. In addition we amend our rules to delay until December 31, 2014 the prohibition on the marketing, manufacture and importation of 12.5 kHz equipment.

11. Exemption from coverage of the rule changes for small businesses would frustrate the purpose of the rule, *i.e.*, migration to more efficient spectrum use, and facilitate continued inefficient use of spectrum.

12. **Report to Congress:** The Commission will send a copy of this *Fifth Memorandum Opinion and Order*, including this SFRFA, in a report to be sent to Congress pursuant to the Small Business Regulatory Enforcement Fairness Act of 1996, *see* 5 U.S.C. § 801(a)(1) (A). In addition, the Commission will send a copy of the *Fifth Memorandum Opinion and Order*, including this SFRFA, to the Chief Counsel for Advocacy of the Small Business Administration. A copy of the *Fifth Memorandum Opinion and Order* and SFRFA (or summaries thereof) will also be published in the Federal Register. *See* 5 U.S.C. § 604(b).

¹⁹⁶ *See* 5 U.S.C. § 603(c).

APPENDIX B

FINAL REGULATORY FLEXIBILITY CERTIFICATION
(*Sixth Report and Order*)

1. The Regulatory Flexibility Act (RFA)¹⁹⁷ requires that an agency prepare a regulatory flexibility analysis for notice-and-comment rulemaking proceedings, unless the agency certifies that "the rule will not, if promulgated, have a significant economic impact on a substantial number of small entities."¹⁹⁸ The RFA generally defines "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction."¹⁹⁹ In addition, the term "small business" has the same meaning as the term "small business concern" under the Small Business Act.²⁰⁰ A "small business concern" is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration (SBA).²⁰¹

2. In this *Sixth Report and Order* (6th R&O), we:

- revise values in the emission limit tables set forth at 47 C.F.R. § 90.543 to ensure technological feasibility
- delete the column entitled "Maximum ACCP (dbm)" from the table governing ACCP requirements for mobile transmitters set forth at 47 C.F.R. § 90.543 because these values are inconsistent with the Commission's decision not to require mobile transmitters to utilize Automatic Power Control
- change the terminology "Adjacent Channel Coupled Power" to "adjacent Channel Power" in our Rules to align our rules with industry standards

3. These changes, which are intended to ensure that the Commission's rules reflect the latest technical and industry standards, and to correct typographical or ministerial errors in the Commission's Rules, are exclusively of an administrative nature. The changes will not have a significant economic impact on small entities because they are technologically neutral and will affect all entities equally.

¹⁹⁷ See 5 U.S.C. § 603. The RFA, *see* 5 U.S.C. § 601 *et seq.*, has been amended by the Contract With America Advancement Act of 1996, Pub. L. No. 104-121, 110 Stat. 847 (1996) (CWAAA). Title II of the CWAAA is the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA).

¹⁹⁸ See 5 U.S.C. § 605(b).

¹⁹⁹ 5 U.S.C. § 601(6).

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

²⁰¹ 15 U.S.C. § 632.

4. The Commission therefore certifies, pursuant to the RFA, that the rule changes contained proposals in this *Sixth Report and Order* will not have a significant economic impact on a substantial number of small entities.

5. The Commission will send a copy of the Final Analysis including a copy of this Final Regulatory Flexibility Certification, to the Chief Counsel for Advocacy of the SBA.²⁰² This certification will also be published in the Federal Register.²⁰³

²⁰² See 5 U.S.C. § 605(b).

²⁰³ See 5 U.S.C. § 605(b).

APPENDIX C

INITIAL REGULATORY FLEXIBILITY ANALYSIS
(*Seventh Notice of Proposed Rulemaking*)

1. As required by the Regulatory Flexibility Act (RFA),²⁰⁴ 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 this *Seventh Notice of Proposed Rule Making (Seventh Notice)*. Written public comments are requested regarding this IRFA. Comments must be identified as responses to the IRFA and must be filed by the deadlines for comments on the *Seventh Notice* provided in paragraph 82. The Commission will send a copy of the Seventh Notice, including this IRFA, to the Chief Counsel for Advocacy of the Small Business Administration.²⁰⁵ In addition, the Seventh Notice and IRFA (or summaries thereof) will be published in the Federal Register.²⁰⁶

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

2. In the *Seventh Notice* we seek comment on:

- the TIA-PRS proposal recommending:
 - adopting tables describing ACP limits for 50 kHz and 100 kHz wideband operations;
 - relaxing the ACP requirement in the paired receive band for wideband and narrowband base station transmitters; and
 - extending the above mentioned rules to the 700 MHz Guard Band channels.²⁰⁷
- the proposal by Access Spectrum that the Commission clarify that the 700 MHz Guard Band emission requirements masks only at the boundaries of the 700 MHz Guard Band's licensee's authorized allocation.
- the joint proposal from Nortel/EDS that the Commission adopts ACP requirements that correspond to any authorized bandwidth.
- the proposals by National Coordination Committee (NCC) that the Commission:
 - adopt a 700 MHz wideband standard;
 - update the interoperability standards set forth at Section 90.548 of the Commission's rules;
 - update the encryption standards set forth at Section 90.535(e) of the Commission's rules; and

²⁰⁴ 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).

²⁰⁵ See 5 U.S.C. § 603(a).

²⁰⁶ See *id.*

²⁰⁷ The term "700 MHz Guard Bands" refers to six megahertz of spectrum that is located immediately adjacent to the 700 MHz Public Safety Band. See Service Rules for the 746-764 and 776-794 MHz Bands, and Revisions to Part 27 of the Commission's Rules, *Second Report and Order*, 15 FCC Rcd 5299 (2000). The 700 MHz Guard Bands consists of two blocks of paired spectrum, specifically, 746-747 MHz paired with 776-777 MHz, and 762-764 MHz paired with 792-794 MHz. See 47 C.F.R. § 27.5(b)(1) and (2).

- adopt minimum signal strength requirements for public safety systems operating in the 700 MHz Public Safety band.

B. Legal Basis:

3. Authority for issuance of this item is contained in Sections 1, 4(i), 7, 301, 302, 303, and 337 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 154(i), 157, 301, 302, 303, 337.

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

4. 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 rules adopted. The RFA generally defines the term “small entity” as having the same meaning as the terms “small business,” “small organization,” and “small governmental jurisdiction.”²⁰⁸ In addition, the term “small business” has the same meaning as the term “small business concern” under the Small Business Act.²⁰⁹ A small business concern is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration (SBA).²¹⁰ A small organization is generally “any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.”²¹¹ Nationwide, as of 1992, there were approximately 275,801 small organizations. Below, we further describe and estimate the number of small entity licensees and regulatees that may be affected by the proposed rules, if adopted.

5. *Governmental Entities.* The term “small governmental jurisdiction” is defined as “governments of cities, towns, townships, villages, school districts, or special districts, with a population of less than fifty thousand.”²¹² As of 1997, there were approximately 87,453 governmental jurisdictions in the United States.²¹³ This number includes 39,044 county governments, municipalities, and townships, of which 37,546 (approximately 96.2%) have populations of fewer than 50,000, and of which 1,498 have populations of 50,000 or more. Thus, we estimate the number of small governmental jurisdictions overall to be 84,098 or fewer.

6. *Public Safety Radio Licensees.* As a general matter, Public Safety Radio Pool licensees include police, fire, local government, forestry conservation, highway maintenance, and emergency

²⁰⁸ See 5 U.S.C. § 601(6).

²⁰⁹ 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 which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register.

²¹⁰ Small Business Act, 5 U.S.C. § 632 (1996).

²¹¹ 5 U.S.C. § 601(4).

²¹² 5 U.S.C. § 601(5).

²¹³ U.S. Census Bureau, Statistical Abstract of the United States: 2000, Section 9, pages 299-300, Tables 490 and 492.

medical services.²¹⁴ The SBA rules contain a definition for cellular and other wireless telecommunications companies which encompasses business entities engaged in radiotelephone communications employing no more than 1,500 persons.²¹⁵ There are a total of approximately 127,540 licensees within these services.²¹⁶ With respect to local governments, in particular, since many governmental entities as well as private businesses comprise the licensees for these services, we include under public safety services the number of government entities affected.

7. *Wireless Communications Equipment Manufacturers.* The SBA has established a small business size standard for radio and television broadcasting and wireless communications equipment manufacturing. Under the standard, firms are considered small if they have 750 or fewer employees.²¹⁷ Census Bureau data for 1997 indicates that, for that year, there were a total of 1,215 establishments²¹⁸ in this category.²¹⁹ Of those, there were 1,150 that had employment under 500, and an additional 37 that had employment of 500 to 999. The Commission estimates that the majority of wireless communications equipment manufacturers are small businesses.²²⁰

²¹⁴ See subparts A and B of Part 90 of the Commission's Rules, 47 C.F.R. §§ 90.1-90.22. Police licensees include 26,608 licensees that serve state, county, and municipal enforcement through telephony (voice), telegraphy (code), and teletype and facsimile (printed material). Fire licensees include 22,677 licensees comprised of private volunteer or professional fire companies, as well as units under governmental control. Public Safety Radio Pool licensees also include 40,512 licensees that are state, county, or municipal entities that use radio for official purposes. There are also 7,325 forestry service licensees comprised of licensees from state departments of conservation and private forest organizations that set up communications networks among fire lookout towers and ground crews. The 9,480 state and local governments are highway maintenance licensees that provide emergency and routine communications to aid other public safety services to keep main roads safe for vehicular traffic. Emergency medical licensees (1,460) use these channels for emergency medical service communications related to the delivery of emergency medical treatment. Another 19,478 licensees include medical services, rescue organizations, veterinarians, persons with disabilities, disaster relief organizations, school buses, beach patrols, establishments in isolated areas, communications standby facilities, and emergency repair of public communications facilities.

²¹⁵ See 13 C.F.R. § 121.201 (NAICS Code 517212).

²¹⁶ There is no information currently available about the number within the 127,540 that have less than 1500 employees.

²¹⁷ 13 C.F.R. § 121.201, NAICS code 334220.

²¹⁸ The number of "establishments" is a less helpful indicator of small business prevalence in this context than would be the number of "firms" or "companies," because the latter take into account the concept of common ownership or control. Any single physical location for an entity is an establishment, even though that location may be owned by a different establishment. Thus, the number given may reflect inflated numbers of businesses in this category, including the numbers of small businesses. In this category, the Census break-out data for firms or companies only gives the total number of such entities for 1997, which was 1,089.

²¹⁹ U.S. Census Bureau, *1997 Economic Census*, Industry Series: Manufacturing, "Industry Statistics by Employment Size," Table 4, (issued August 1999) NAICS code 334220. We note, however that the predominant manufacturers of 800 MHz equipment, Motorola and M/A-COM Private Radio Systems, Inc. are not considered small businesses.

²²⁰ We note, however that the predominant manufacturers of 800 MHz equipment, Motorola and M/A-COM Private Radio Systems, Inc. are not considered small businesses.

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

8. This *Seventh Notice* does not propose a rule that will entail reporting, recordkeeping, and/or third-party consultation. The rule changes proposed in the *Seventh Notice* provide technical adjustments to the Commission's existing requirements for Adjacent Channel Power or update the Commission's existing requirements to reference the latest industry standards.

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

9. The RFA requires an agency to describe any significant alternatives that it has considered in reaching its proposed approach, which may include the following four alternatives (among others): (1) the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance or reporting requirements under the rule for small entities; (3) the use of performance, rather than design, standards; and (4) an exemption from coverage of the rule, or any part thereof, for small entities.²²¹ We believe the rule changes contained in this *Seventh Notice of Proposed Rulemaking* are technologically neutral and do not impact small entities differently than large entities.

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

10. None.

²²¹ See 5 U.S.C. § 603(c).

APPENDIX D – FINAL RULES

PART 27 – MICELLANEOUS WIRELESS COMMUNIATIONS SERVICES

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

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

2. Paragraph (d)(1) of Section 27.53 is amended as follows:

§ 27.53 Emission limitations.

* * * * *

(d) * * *

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

6.25 kHz Mobile Transmitter ACP Requirements

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

12.5 kHz Mobile Transmitter ACP Requirements

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

25 kHz Mobile Transmitter ACP Requirements

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

150 kHz Mobile Transmitter ACP Requirements

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

6.25 kHz Base Transmitter ACP Requirements

Offset from Center Frequency (kHz)	Measurement Bandwidth (kHz)	Maximum ACP (dBc)
6.25	6.25	-40
12.50	6.25	-60
18.75	6.25	-60
25.00	6.25	-65
37.50	25	-65
62.50	25	-65
87.50	25	-65
150.00	100	-65
250.00	100	-65
350.00	100	-65
>400 to 12 MHz	30 (s)	-80
12 MHz to paired receive band	30(s)	-80
In the paired receive band	30 (s)	-100

12.5 kHz Base Transmitter ACP Requirements

Offset from Center Frequency (kHz)	Measurement Bandwidth (kHz)	Maximum ACP (dBc)
9.375	6.25	-40
15.625	6.25	-60
21.875	6.25	-60
37.5	25	-60
62.5	25	-65
87.5	25	-65
150	100	-65
250	100	-65
350.00	100	-65
>400 kHz to 12 MHz	30 (s)	-80
12 MHz to paired receive band	30 (s)	-80
In the paired receive band	30 (s)	-100

25 kHz Base Transmitter ACP Requirements

Offset from Center Frequency (kHz)	Measurement Bandwidth (kHz)	Maximum ACP (dBc)
15.625	6.25	-40
21.875	6.25	-60
37.5	25	-60
62.5	25	-65
87.5	25	-65
150	100	-65
250	100	-65
350	100.00	-65
>400 kHz to 12 MHz	30(s)	-80
12 MHz to paired receive band	30 (s)	-80
In the paired receive band	30 (s)	-100

150 kHz Base Transmitter ACP Requirements

Offset from Center Frequency (kHz)	Measurement Bandwidth (kHz)	Maximum ACP (dBc)
100	50	-40
200	50	-50
300	50	-55
400	50	-60
600-1000	30(s)	-65
1000 to receive band	30(s)	-75 (continues at -6dB/oct)
In the receive band	30(s)	-100

(2) *ACP measurement procedure.* The following procedures are to be followed for making ACP transmitter measurements. For time division multiple access (TDMA) systems, the measurements are to be made under TDMA operation only during time slots when the transmitter is on. All measurements must be made at the input to the transmitter's antenna. Measurement bandwidth used below implies an instrument that measures the power in many narrow bandwidths (e.g. 300 Hz) and integrates these powers across a larger band to determine power in the measurement bandwidth.

(i) *Setting reference level:* Using a spectrum analyzer capable of ACP measurements, set the measurement bandwidth to the channel size. For example, for a 6.25 kHz transmitter, set the measurement bandwidth to 6.25 kHz; for a 150 kHz transmitter, set the measurement bandwidth to 150 kHz. Set the frequency offset of the measurement bandwidth to zero and adjust the center frequency of the spectrum analyzer to give the power level in the measurement bandwidth. Record this power level in dBm as the "reference power level".

(ii) *Non-swept power measurement:* Using a spectrum analyzer capable of ACP measurements, set the measurement bandwidth as shown in the tables above. Measure the ACP in dBm. These measurements should be made at maximum power. Calculate the coupled power by subtracting the measurements made in this step from the reference power measured in the previous step. The absolute ACP values must be less than the values given in the table for each condition above.

(iii) *Swept power measurement:* Set a spectrum analyzer to 30 kHz resolution bandwidth, 1 MHz video bandwidth and sample mode detection. Sweep ± 6 MHz from the carrier frequency. Set the reference level to the RMS value of the transmitter power and note the absolute power. The response at frequencies greater than 600 kHz must be less than the values in the tables above.

(iv) [deleted]

(3) *Out-of-band emission limit.* On any frequency outside of the frequency ranges covered by the ACP tables in this section, the power of any emission must be reduced below the unmodulated carrier power (P) by at least $43 + 10 \log (P)$ dB.

(4) *Authorized bandwidth.* Provided that the ACP requirements of this section are met, applicants may request any authorized bandwidth that does not exceed the channel size.

* * * * *

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

PART 90 - PRIVATE LAND MOBILE RADIO SERVICES

3. 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).

4. Section 90.203 is amended to read as follows:

§ 90.203 Certification required.

(m) Applications for Part 90 certification received after December 31, 2014 will only be granted to transmitters designed to operate in the voice mode on channels designated in §§ 90.531(b)(5) or 90.531(b)(6) that provide at least one voice path per 6.25 kHz of spectrum bandwidth.

(n) Transmitters designed to operate in the voice mode on channels designated in §§ 90.531(b)(5) or 90.531(b)(6) that do not provide at least one voice path per 6.25 kHz of spectrum bandwidth shall not be manufactured in, or imported into the United States after December 31, 2014. Marketing of these transmitters shall not be permitted after December 31, 2014.

5. Section 90.535 is amended to read as follows:

§ 90.535 Modulation and spectrum usage efficiency requirements.

(d) *****

(1) With the exception of licensees designated in paragraph (d)(2) of this section, after December 31, 2014, licensees may only operate in voice mode in these channels at a voice efficiency of at least one voice path per 6.25 kHz of spectrum bandwidth.

(2) Licensees authorized to operate systems in the voice mode on these channels from applications filed on or before December 31, 2014, may continue operating in voice mode on these channels (including modification applications of such licensees granted after December 31, 2014, for expansion or maintenance of such systems) at a voice efficiency of at least one voice path per 12.5 kHz of spectrum bandwidth until December 31, 2016.

6. Section 90.543 is amended to read as follows:

§ 90.543 Emission limitations

Transmitters designed to operate in 764-776 MHz and 794-806 MHz frequency bands must meet the emission limitations in this section.

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

6.25 kHz Mobile Transmitter ACP Requirements

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

12.5 kHz Mobile Transmitter ACP Requirements

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

25 kHz Mobile Transmitter ACP Requirements

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

150 kHz Mobile Transmitter ACP Requirements

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

6.25 kHz Base Transmitter ACP Requirements

Offset from Center Frequency (kHz)	Measurement Bandwidth (kHz)	Maximum ACP (dBc)
6.25	6.25	-40
12.50	6.25	-60
18.75	6.25	-60
25.00	6.25	-65
37.50	25	-65
62.50	25	-65
87.50	25	-65
150.00	100	-65
250.00	100	-65
350.00	100	-65
>400 to 12 MHz	30 (s)	-80
12 MHz to paired receive band	30(s)	-80
In the paired receive band	30 (s)	-100

12.5 kHz Base Transmitter ACP Requirements

Offset from Center Frequency (kHz)	Measurement Bandwidth (kHz)	Maximum ACP (dBc)
9.375	6.25	-40
15.625	6.25	-60
21.875	6.25	-60
37.5	25	-60
62.5	25	-65
87.5	25	-65
150	100	-65
250	100	-65
350.00	100	-65
>400 kHz to 12 MHz	30 (s)	-80
12 MHz to paired receive band	30 (s)	-80
In the paired receive band	30 (s)	-100

25 kHz Base Transmitter ACP Requirements

Offset from Center Frequency (kHz)	Measurement Bandwidth (kHz)	Maximum ACP (dBc)
15.625	6.25	-40
21.875	6.25	-60
37.5	25	-60
62.5	25	-65
87.5	25	-65
150	100	-65
250	100	-65
350	100.00	-65
>400 kHz to 12 MHz	30(s)	-80
12 MHz to paired receive band	30 (s)	-80
In the paired receive band	30 (s)	-100

150 kHz Base Transmitter ACP Requirements

Offset from Center Frequency (kHz)	Measurement Bandwidth (kHz)	Maximum ACP (dBc)
100	50	-40
200	50	-50
300	50	-55
400	50	-60
600-1000	30(s)	-65
1000 to receive band	30(s)	-75 (continues at 6dB/oct)
In the receive band	30(s)	-100

(b) *ACP measurement procedure.* The following are the procedures for making the transmitter ACP measurements. For all measurements modulate the transmitter as it would be modulated in normal operating conditions. For time division multiple access (TDMA) systems, the measurements are to be made under TDMA operation only during following are procedures for making transmitter measurements. For time division multiple access (TDMA) systems, the measurements are to be made under TDMA operation only during time slots when the transmitter is active. All measurements are made at the transmitter's output port. If a transmitter has an integral antenna, a suitable power coupling device shall be used to couple the RF signal to the measurement instrument. The coupling device shall substantially maintain the proper transmitter load impedance. The ACP measurements may be made with a spectrum analyzer capable of making direct ACP measurements. "Measurement bandwidth", as used for non-swept measurements, implies an instrument that measures the power in many narrow bandwidths equal to the nominal resolution bandwidth and integrates these powers to determine the total power in the specified measurement bandwidth..

(1) *Setting reference level:* Set transmitter to maximum output power. Using a spectrum analyzer capable of ACP measurements, set the measurement bandwidth to the channel size. For example, for a 6.25 kHz transmitter, set the measurement bandwidth to 6.25 kHz; for a 150 kHz transmitter, set the measurement bandwidth to 150 kHz. Set the frequency offset of the measurement bandwidth to zero and adjust the center frequency of the instrument to the assigned center frequency to measure the average power level of the transmitter. Record this power level in dBm as the "reference power level".

(2) *Non-swept power measurement:* Using a spectrum analyzer capable of ACP measurements, set the measurement bandwidth and frequency offset from the assigned center frequency as shown in the tables in §90.543 (a) above. Any value of resolution bandwidth may be used as long as it does not exceed 2% of the specified measurement bandwidth. Measure the power level in dBm. These measurements should be made at maximum power. Calculate ACP by subtracting the reference power level measured in (b)(1) from the measurements made in this step. The absolute value of the calculated ACP must be greater than or equal to the absolute value of the ACP given in the table for each condition above.

(3) *Swept power measurement:* Set a spectrum analyzer to 30 kHz resolution bandwidth, 1 MHz video bandwidth and average, sample, or RMS detection. Set the reference level of the spectrum analyzer to the RMS value of the transmitter power. Sweep above and below the carrier frequency to the limits defined in the tables. Calculate ACP by subtracting the reference power level measured in (b)(1) from the measurements made in this step. The absolute value of the calculated ACP must be greater than or equal to the absolute value of the ACP given in the table for each condition above.

(4) [deleted]

(c) *Out-of-band emission limit.* On any frequency outside of the frequency ranges covered by the ACP tables in this section, the power of any emission must be reduced below the mean output power (P) by at least $43 + 10\log(P)$ dB measured in a 100 kHz bandwidth for frequencies less than 1 GHz, and in a 1 MHz bandwidth for frequencies greater than 1 GHz.

(d) *Authorized bandwidth.* Provided that the ACP requirements of this section are met, applicants may request any authorized bandwidth that does not exceed the channel size.

(e) For operations in the 764 to 776 MHz and 794 to 806 MHz bands, all emissions including harmonics in the band 1559-1610 MHz shall be limited to -70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

(f) When an emission outside of the authorized bandwidth causes harmful interference, the Commission may, at its discretion, require greater attenuation than specified in this section.

APPENDIX E – LIST OF COMMENTING PARTIES

Telecommunications Industry Association – Private Radio Section
National Public Safety Telecommunications Council
Robert T. Rouleau
Frederick G. Griffin
Tyco Electronics
M/A-COM Private Radio Systems, Inc.
Thomas Jefferson, Inc.
Motorola, Inc.
Fox Ridge Communications
Robert J. Speidel
Association of Public-Safety Communications Officials, International
Kevin C. Shoemaker
Pam Montanari
Kevin Kearns
Stephen T. Devine, Chairperson Region 24 Regional Planning Committee
Robert W. Furtaw
IACP-MCC-NSA-MCSA by Harlin R. McEwen
John Oblak
Robert Small
R.I.C.
Kathleen M.H. Wallman
Nortel Networks Inc./EADS Telecom
Access Spectrum, LLC
Excel