

non-dominant interexchange carriers.¹⁹³ In addition, we have eliminated Part 41 requirements applicable to franks,¹⁹⁴ as well as the prior approval requirements for most *pro forma* transfer applications involving telecommunications carriers.¹⁹⁵

83. We also noted that, in the *47 GHz Notice*, which proposed service rules for spectrum bands allocated to both fixed and mobile services, we sought comment on whether the exercise of our Section 332(c)(1)(A) forbearance authority with respect to CMRS, in the *CMRS Second Report and Order*, should be extended to fixed wireless service carriers.¹⁹⁶ We sought comment in the *NPRM* for this proceeding on whether we should exercise our authority under Section 10 of the Act to forbear, in a similar fashion, from applying to non-CMRS licensees of this spectrum the specific Title II requirements that the Commission has previously determined not to apply to CMRS licensees. However, cognizant of the fact that it will take longer for us to conduct a forbearance analysis than to adopt service rules for the 746-764 MHz and 776-794 MHz bands, we proposed an interim solution for non-CMRS licensees of these bands. Section 214(a) of the Communications Act¹⁹⁷ requires that no common carrier may

¹⁹³ “Complete detariffing” refers to a policy of neither requiring nor permitting non-dominant interexchange carriers to file tariffs pursuant to Section 203 of the Communications Act for their interstate, domestic, interexchange services. See, Policy and Rules Concerning the Interstate, Interexchange Marketplace, Implementation of Section 245(g) of the Communications Act of 1934, As Amended, CC Docket No. 96-61, *Second Report and Order*, 11 FCC Rcd 20730 (1996) (*Detariffing Second Report and Order*); stay granted, *MCI Telecommunications Corp. v. FCC*, No. 96-1459 (D.C. Cir. Feb. 13, 1997); Policy and Rules Concerning the Interstate, Interexchange Marketplace, Implementation of Section 245(g) of the Communications Act of 1934, As Amended, CC Docket No. 96-61, *Order on Reconsideration*, 12 FCC Rcd 15014, 15016, 15047-54 (para. 2 n.5, paras. 59-73) (1997) (*Detariffing Reconsideration Order*); Policy and Rules Concerning the Interstate, Interexchange Marketplace, Implementation of Section 254(g) of the Communications Act of 1934, As Amended, CC Docket No. 96-61, *Second Order on Reconsideration and Erratum*, 14 FCC Rcd 6004 (1999) (*Detariffing Second Reconsideration Order*).

¹⁹⁴ 1998 Biennial Regulatory Review — Elimination of Part 41 Telegraph and Telephone Franks, CC Docket No. 98-119, *Report and Order*, 14 FCC Rcd 2379 (1999).

¹⁹⁵ Federal Communications Bar Association’s Petition for Forbearance from Section 310(d) of the Communications Act Regarding Non-Substantial Assignments of Wireless Licenses and Transfers of Control Involving Telecommunications Carriers and Personal Communications Industry Association’s Broadband Personal Communications Services Alliance’s Petition for Forbearance for Broadband Personal Communications Services, *Memorandum Opinion and Order*, 13 FCC Rcd 6293 (1998); see also Biennial Regulatory Review -- Amendment of Parts 0, 1, 13, 22, 24, 26, 27, 80, 87, 90, 95, 97 and 101 of the Commission’s Rules to Facilitate Development and Use of the Universal Licensing System in the Wireless Telecommunications Services, WT Docket No. 98-20, *Report and Order*, 13 FCC Rcd 21027; but see Rule Making to Amend Parts 1, 2, 21, and 25 of the Commission’s Rules To Redesignate the 27.5-29.5 GHz Frequency Band, To Reallocate the 29.5-30.0 GHz Frequency Band, To Establish Rules and Policies for Local Multipoint Distribution Service And for Fixed Satellite Services, CC Docket No. 92-297, Petitions for Further Reconsideration of the Denial of Applications for Waiver of the Commission’s Common Carrier Point-to-Point Microwave Radio Service Rules, *Fourth Report and Order*, 13 FCC Rcd 11655, 11669-71, paras. 27-29, (1998). See also 1998 Biennial Regulatory Review -- Streamlining of Mass Media Applications, Rules, and Processes, MM Docket No. 98-43, *Notice of Proposed Rulemaking*, 13 FCC Rcd 11349, 11376-79, paras. 72-82, (1998).

¹⁹⁶ *CMRS Second Report and Order*, 9 FCC Rcd at 1463-90, paras 124-213. The statutory sections identified in the Order include 47 U.S.C. §§ 203, 204, 205, 211 and 214.

¹⁹⁷ 47 U.S.C. § 214(a).

discontinue, reduce, or impair service without Commission approval. We proposed a discontinuance provision that is consistent with common carrier obligations set forth in Subpart E of Part 1 and in Parts 61 through Part 64 of the Commission's Rules.¹⁹⁸ We also proposed to apply other parts of the Commission's Rules to ensure compliance of fixed service common carriers operating in the 746-764 MHz and 776-794 MHz bands with Title II of the Communications Act.

84. AirTouch supports the Commission's Part 27 approach to Title II forbearance.¹⁹⁹ AMTA urges the Commission to forbear from imposing its Title II common carrier obligations on non-CMRS licensees and on CMRS licensees that have been exempted from E911 and number portability requirements. AMTA argues that these carriers serve a more specialized business-oriented market oriented principally toward dispatch services and lack those technical capabilities that would permit them to compete in the broader CMRS marketplace.²⁰⁰

85. **Discussion.** Pursuant to our prior exercise of authority under Section 332(c)(1)(A) to forbear for CMRS from certain of the obligations imposed on common carriers by Title II of the Communications Act, common carriers classified as CMRS, including those providing mobile services in the 747-762 MHz and 777-792 MHz bands, will not be required to file contracts of service, seek authority for interlocking directors,²⁰¹ or submit applications for new facilities or discontinuance of existing facilities, and are prohibited from filing tariffs for interstate service to their customers or for interstate access service. CMRS providers on this spectrum will be required to support service provider LNP by November 24, 2002. Such providers also will not be required to file tariffs for most international services or be subject to most of Section 226 of the Act, relating to telephone operator services. In addition, CMRS providers in the 747-762 MHz and 777-792 MHz bands will be subject to the Commission's complete detariffing of interstate, interexchange services offered by non-dominant interexchange carriers, to our elimination of Part 41 requirements applicable to franks, and to our elimination of the prior approval requirements for most *pro forma* transfer applications involving telecommunications carriers.

86. Although we solicited comment on the proper application of our forbearance authority with respect to this spectrum, we received no comments on the appropriate interpretation of the forbearance criteria in this context and no proposals concerning additional forbearance from specific regulatory provisions otherwise applicable to fixed service providers operating on this spectrum. We continue to invite suggestions on ways in which we can alleviate or streamline regulations that would otherwise be applicable to fixed services provided on this spectrum. In the *NPRM* we specifically addressed the requirements of Section 214(a) as they apply to licensees in the 747-762 MHz and 777-792 MHz bands that voluntarily discontinue, reduce, or impair service to a community or part of a community and are

¹⁹⁸ 47 C.F.R. Part 1, Subpart E; 47 C.F.R. Parts 61-64.

¹⁹⁹ AirTouch Comments at 26-27.

²⁰⁰ AMTA Comments at 10-11. UTC asks the Commission to forbear from requiring PMRS providers to obtain prior consent to *pro forma* transfers, as it has previously done with CMRS providers. UTC Comments at 4-5. Given the commercial nature of the spectrum, this request is beyond the scope of this proceeding.

²⁰¹ We recently acted to forbear from requiring all common carriers to seek authority for interlocking directorates. Thus, common carriers that offer fixed services on the 746-764 MHz and 776-794 MHz bands are also exempt from this requirement. See 1998 Biennial Regulatory Review of Part 62 of the Commission's Rules, CC Docket No. 98-195, *Report and Order*, FCC 99-163 (rel. Jul. 16, 1999).

subject to the prior authorization requirement in Section 63.71 of the Commission's Rules.²⁰² Subsequent to issuance of the *NPRM*, we amended Section 63.71 to provide for the automatic grant of a nondominant common carrier's application for discontinuance after 31 days.²⁰³ We are adopting this approach for fixed service common carriers here, to ensure comparable regulatory treatment between wireline providers and fixed wireless providers operating on the 747-762 MHz and 777-792 MHz bands.²⁰⁴

87. As we indicated in the *NPRM*, a non-common carrier licensee in the 747-762 MHz and 777-792 MHz bands that voluntarily discontinues, reduces, or impairs service to a community or part of a community will be required to give written notice to the Commission within seven days. However, neither a fixed service common carrier, nor a non-common carrier licensee need surrender its license for cancellation, if "discontinuance" is merely a change in common carrier or non-common carrier status.

88. We do not find that the Commission's network reliability requirements will apply to fixed service common carrier licensees on this spectrum. Thus, if the service provided by a fixed service common carrier licensee is involuntarily discontinued, reduced, or impaired for a period exceeding 48 hours, the licensee must promptly notify the Commission, in writing, of the reasons for the discontinuance, reduction, or impairment of service, including a statement indicating when normal service is to be resumed. When normal service is resumed, the licensee must promptly notify the Commission.

2. Equal Employment Opportunity

89. **Background.** In the *NPRM*, we noted that Part 27 does not include an explicit Equal Employment Opportunity (EEO) provision.²⁰⁵ We also noted that Parts 24 (PCS) and Part 26 (General Wireless Communications Service) similarly lack an EEO provision although specific EEO provisions exist in other parts of our Rules.²⁰⁶ We noted that we had initiated a rulemaking on our Part 73 EEO rules and sought comment on whether there are any reasons not to apply Part 73 rules to conventional broadcasters operating in these spectrum bands and licensed under Part 27. As to non-broadcast services on these bands, we invited comment on whether we should include a separate EEO provision in Part 27 and, if so, which of our EEO rules we should adopt.²⁰⁷ No commenter addressed this issue.

90. **Discussion.** An applicant's EEO requirements will depend on the type of service the applicant chooses to provide. As previously stated, in the interests of flexibility and optimum spectrum use, we have enabled the provision of any service identified in Section 27.2 of the Commission's

²⁰² 47 C.F.R. § 63.71.

²⁰³ Implementation of Section 402(B)(2)(A) of the Telecommunications Act of 1996, Petition for Forbearance of the Independent Telephone & Telecommunications Alliance, CC Docket No. 71-11, AAD File No. 98-43, *Report and Order*, FCC 99-104 (rel. Jun 30, 1999).

²⁰⁴ See Section 27.66 of the Commission's Rules at Appendix B, 47 C.F.R. § 27.66. This approach is consistent with the modification of Section 101.305(c) of the Commission's Rules adopted for LMDS. See 47 C.F.R. § 101.305(c); see also *LMDS Second Report and Order*, 12 FCC Rcd at 12654-55 (paras. 252-55).

²⁰⁵ *NPRM* at para. 55.

²⁰⁶ *Id.*

²⁰⁷ *Id.* at para. 56.

Rules²⁰⁸ and this Order, so long as the licensee complies with the technical rules governing spectrum use. The Commission's EEO Rules are service-specific; different EEO Rules govern different services. Our modified FCC Form 601 requires an applicant to choose one, or several, of four regulatory statuses: (a) common carrier, (b) non-common carrier, (c) private, internal communications, or (d) broadcast.²⁰⁹ An applicant's election on its FCC Form 601 will determine the EEO Rules that apply to the applicant.

91. Allowing a licensee to self-characterize its regulatory status in this proceeding is consistent with the flexible approach that the Commission took in the *DBS NPRM*.²¹⁰ The Commission in the *DBS NPRM* proposed that DBS (direct broadcast satellite) service licensees have the choice of providing service on a broadcast, common carrier, or non-broadcast, non-common carrier basis with an applicant's self-characterization determinant of the applicable EEO rules. Licensees in the 700 MHz spectrum have the choice of providing any service authorized under Section 27.2 of the Commission's Rules²¹¹ so long as the licensee complies with the technical rules governing spectrum use.²¹²

92. We therefore conclude that that an applicant's EEO requirements are determined by the type of service an applicant chooses to provide. All commercial mobile radio service (CMRS) providers are subject to the Commission's EEO requirements,²¹³ for example, see Parts 22 and 90 of our rules.²¹⁴ Similarly, a licensee that provides broadcast service will be subject to the Commission's EEO Rules contained in Section 73.2080.²¹⁵ We also note that commercial mobile service providers are generally subject to the Commission's common carrier EEO obligations.²¹⁶

²⁰⁸ 47 C.F.R. § 27.2.

²⁰⁹ See FCC Form 601, item number 35.

²¹⁰ See Policies and Rules for the Direct Broadcast Satellite Service, IB Docket 98-21, *Notice of Proposed Rulemaking*, 13 FCC Rcd 6907, 6924-6925 (1998) (*DBS NPRM*).

²¹¹ 47 C.F.R. § 27.2.

²¹² See 47 C.F.R. Part 27, Subpart C – Technical Standards.

²¹³ See Implementation of Sections 3(n) and 332 of the Communications Act, Regulatory Treatment of Mobile Services, GN Docket 93-252, *Third Report and Order*, 9 FCC Rcd 7988, 8097-8100, paras 231-237 (1994) (*CMRS Third Report and Order*).

²¹⁴ Sections 22.321, 90.168 of the Commission's Rules, 47 C.F.R. §§ 22.321, 90.168.

²¹⁵ Section 73.2080 of the Commission's Rules, 47 C.F.R. § 73.2080. The U.S. Court of Appeals for the D.C. Circuit has invalidated as unconstitutional the outreach portions of the Commission's EEO program requirements for broadcast stations and remanded to the Commission for a determination whether the non-discrimination rule is within its statutory authority. See *Lutheran Church-Missouri Synod v. FCC*, Case No. 97-1116, 141 F.3d 344, *reh'g denied*, 154 F.3d 487 (D.C. Cir. 1998). We have initiated a rulemaking on our Part 73 Rules EEO Rules. See Review of the Commission's Broadcast and Cable Equal Employment Opportunity rules and Policies, MM Docket No. 98-204, and Termination of the EEO Streamlining Proceeding, MM Docket No. 96-16, *Notice of Proposed Rulemaking*, 13 FCC Rcd 23004 (1998).

²¹⁶ See 47 U.S.C. 332(c)(1)(A) (stating in relevant part "[a] person engaged in the provision of a service that is a commercial mobile service shall . . . be treated as a common carrier for purposes of this Act"). See also 47 C.F.R. §

D. Technical Rules

93. All licensees in the 747-762 MHz and 777-792 MHz bands, including licensees who acquire their licenses through partitioning or disaggregation, will be subject to the general provisions of Part 27 relating to equipment authorization, frequency stability, antenna structures and air navigation, international coordination, environmental requirements, quiet zones, and disturbance of AM broadcast antenna patterns.²¹⁷ In addition, the following technical rules will apply to these licensees.

1. In-Band Interference Control

94. **Background.** As we noted in the NPRM, a broad range of services and technologies will operate on this spectrum, and their nature will affect the potential for interference between licensees operating on the same spectrum in adjacent service areas. We noted that in other frequency bands various means have been employed to avoid interference when we have permitted flexibility in services and technologies. We tentatively concluded that either a coordination²¹⁸ or a field strength²¹⁹ method could provide a satisfactory means of controlling harmful interference between systems in the 746-764 MHz and 776-794 MHz bands. We observed that a general coordination requirement may minimize the potential for interference to coordinated facilities, but may also impose unnecessary coordination costs for facilities with a low potential for interference and increase the potential for undesirable strategic or anti-competitive behavior.²²⁰ We also noted, however, that a field strength limit, while reducing the need for coordination by giving licensees the ability to unilaterally deploy facilities in boundary areas as long as the limit is met, may not provide sufficient assurance against interference to such facilities. We sought comment on the advantages and disadvantages of both approaches, and on any other approaches that would minimize interference among co-channel licensees.

95. No commenter favors the coordination approach for controlling in-band interference, but AirTouch and SBC endorse the use of the field strength method. AirTouch indicates that the field strength method is “particularly appropriate” for terrestrial mobile services in larger geographic areas.²²¹ SBC concludes that the field strength method is “the more efficient method of reducing the risk of interference across service areas,” and suggests that licensees in adjacent service areas should be permitted to agree to alternative field strengths along their mutual border.²²²

1.815 (stating in relevant part “[e]ach common carrier licensee or permittee with 16 or more full time employees shall file with the Commission . . . an annual employment report”).

²¹⁷ See Sections 27.51, 27.54, 27.56, 27.57, 27.59, 27.61, 27.63 of the Commission's Rules, 47 C.F.R. §§ 27.51, 27.54, 27.56, 27.57, 27.59, 27.61, 27.63; see also *Part 27 Report and Order*, 12 FCC Rcd at 10848-65, paras. 123-161.

²¹⁸ In a “coordination” approach, licensees operating on the same spectrum in adjacent areas would coordinate the location of their stations in order to control interference.

²¹⁹ The “field strength” approach requires a licensee to limit the field strength of its station transmissions to some prescribed level at the licensee’s geographic border.

²²⁰ *NPRM* at para. 60.

²²¹ AirTouch Comments at 29.

²²² SBC Comments at 4-5.

96. **Discussion.** We agree with commenters that the field strength limit approach should be used to control co-channel interference in this band. That approach provides established, objective criteria for controlling in-band interference, and gives licensees the ability to construct and operate facilities in boundary areas so long as the limit is met. As discussed in the *NPRM*, a coordination approach, on the other hand, could impose unnecessary coordination costs for facilities that are not likely to cause interference, and could lead to possible anti-competitive activities. Furthermore, nothing in the record suggests that use of a field strength method would not provide adequate protection against co-channel interference. Therefore, we will require licensees to limit signals from all base and fixed stations operating in the 747-762 MHz band to a particular predicted or measured field strength at the licensee's geographic border.

97. Although commenters agree on the appropriateness of a field strength approach, they did not provide any guidance as to the proper field strength. In both 800 MHz EA-based and 900 MHz MTA-based SMR licensing,²²³ we employed a 40 dBu/m field strength at the geographic border. Because the types of services that will be provided in the 700 MHz band are likely to be similar to the types of services permitted in the 800 and 900 MHz bands,²²⁴ and because of its proximity to these bands, we conclude that the appropriate field strength for the control of in-band interference in the 700 MHz band is 40 dBu/m.²²⁵ We believe that use of the field strength procedure will satisfy the requirement in Section 337(d)(1) that the Commission establish "interference limits at the boundaries of the spectrum block and service area."²²⁶ The use of this procedure should enable licensees to deploy their facilities effectively, while minimizing interference to co-channel licensees in adjacent geographic areas. Finally, we agree with SBC's suggestion to permit licensees in adjoining areas to agree to alternate field strengths at their common border and therefore adopt this approach. It will provide licensees increased flexibility in implementing their systems without increasing the risk of harmful interference.

2. Out-of-Band and Spurious Emission Limits

98. **Background.** We noted in the *NPRM* that different kinds of technical criteria may be used to limit out-of-band and spurious emissions designed to protect services outside the licensee's assigned spectrum. We also noted Congress's concern,²²⁷ with ensuring that "public safety service licensees continue to operate free of interference from any new commercial licensees." We therefore proposed that licensees operating in the 746-764 MHz and 776-794 MHz bands be required to attenuate the power below the transmitter power (P) by at least $43 + 10 \log_{10}(P)$ dB, or 80 decibels, whichever is less ("43 + 10 log P"), for any emission on all frequencies outside the licensee's authorized spectrum -- except for emissions that fall within the GPS band, which is addressed in Section III.D.4, below.²²⁸

²²³ See Sections 90.7, 90.689, and 90.671, 47 C.F.R. §§ 90.7, 90.689, and 90.671.

²²⁴ See Section 90.419(f), which permits SMR licensees to operate fixed services on a co-primary basis with their mobile operations. 47 C.F.R. § 90.419(f).

²²⁵ The predicted 40 dBu/v field strength shall be calculated using Figure 10 of Section 73.699 of this chapter, with a correction factor for antenna height differential of -9 dB. 47 C.F.R. § 73.699, Fig. 10.

²²⁶ 47 U.S.C. § 337(d)(1).

²²⁷ H. Conf. Rep. No. 105-217, at 12 (1997, *reprinted at* 1997 U.S.C.C.A.N. 201).

²²⁸ *NPRM* at para. 69.

99. Several commenters support our proposal that licensees in the 746-764 MHz and 776-794 MHz bands be required to comply with the $43 + 10 \log P$ attenuation requirement.²²⁹ APCO, however, points out that interference exists in the 800 MHz band from “low-site, low-power commercial systems [that] are intermixed in a common area and operate on adjacent frequencies to public safety systems.”²³⁰ Motorola notes that such adjacent channel interference exists even though 800 MHz technologies are providing out-of-band emission characteristics “superior” to the $43 + 10 \log P$ requirement.²³¹ Motorola identifies several possible interference scenarios that could occur when both commercial and public safety base transmissions originate in the 746-776 MHz band (the “lower band”) and commercial and public safety mobile transmissions originate in the 776-806 MHz band (the “upper band”) -- *e.g.*, potential interference from commercial base transmitters to public safety mobile receivers at the 764 MHz interface and potential interference from public safety base transmitters to commercial base receivers at the 776 MHz interface.²³²

100. In recent *ex parte* filings, a number of parties addressed the subject of out-of-bound emissions (“OOBE”). For example, Motorola asserts that because of the interference scenario that exists at the 764 MHz interface,²³³ emissions from non-coordinated commercial base stations should be attenuated to -57 dBm in the first 6.25 kHz channel of the 764-776 MHz public safety band.²³⁴ FreeSpace supports a requirement that a Guard Band licensee attenuate its out-of-band emissions by a factor of not less than $87 + 10 \log P$ in a 6.25 kHz bandwidth.²³⁵ Bell Atlantic takes issue with Motorola’s proposal, and believes that the Commission should establish an OOBE limit that is comparable to the $43 + 10 \log P$ limit applied elsewhere in our rules for other commercial services.²³⁶ Lucent, in comments attached by Bell Atlantic, indicates that the limits proposed by Motorola to protect public safety are “excessive,” and concludes that the level of attenuation demanded by Motorola would “place an unwarranted burden on the CMRS provider, significantly reduce the useable spectrum, and reduce the value of the spectrum to potential bidders.” Lucent suggests that we consider interference parameters that are consistent with those currently applied to other commercial services.²³⁷

101. Motorola subsequently suggests that switching both the commercial and public safety transmit bands, so that mobile transmissions originate in the lower band and base transmissions originate

²²⁹ IMSA/IAFC Comments at 2; Harris Comments at 2; SBC Comments at 5; AirTouch Comments at 29.

²³⁰ APCO Comments at 4.

²³¹ Motorola Reply at 12.

²³² *Id.* at 15-16.

²³³ Motorola describes this scenario as causing possible interference to public safety mobile receivers from emissions from commercial base transmitters. Motorola December 2, 1999 *Ex Parte* Filing at 1.

²³⁴ *Id.* at 5 (unpaginated). This limit, as described, is the equivalent to requiring that the out-of-band emission be attenuated by at least $87 + 10 \log P$ in a 6.25 kHz bandwidth.

²³⁵ FreeSpace December 16, 1999 *Ex Parte* Filing at 1.

²³⁶ Bell Atlantic December 9, 1999 *Ex Parte* Filing at 3.

²³⁷ *Id.* at 4.

in the upper band, "would provide better protection to public safety services."²³⁸ Motorola supports the following interference limits under its "reverse band" proposal: (1) limiting emissions from commercial base transmitters operating in the upper band to -57 dBm per 6.25 kHz into the 794-806 MHz public safety band;²³⁹ (2) limiting emissions from commercial base transmitters operating in the upper band to -62 dBm per 6.25 kHz into the 764-776 MHz band;²⁴⁰ and (3) limiting emissions from commercial mobile transmitters operating in the lower band to -35 dBm per 6.25 kHz into the 764-776 MHz band.²⁴¹ APCO opposes the reversal of the commercial and public safety bands because it would impact the ability to "integrate 700 MHz public safety radio systems with the substantial number of public safety radio systems operating above 806 MHz."²⁴² US WEST argues that the standards proposed by Motorola could "adversely affect commercial licensees' ability to utilize the spectrum won at auction."²⁴³

102. The Federal Law Enforcement Wireless Users Group (FLEWUG), which consists of law enforcement and public safety officials from numerous federal agencies, recommends the following attenuation values to protect public safety receivers in the 764-776 MHz and 794-806 MHz bands: (1) for transmitters with power levels above 1 watt: $65 + 10 \log P$ dB; and (2) for transmitters with power levels below 1 watt: 65 dBc (db relative to the carrier).²⁴⁴ Motorola, commenting on the FLEWUG proposal, and citing its earlier analysis, states that the $65 + 10 \log P$ limit is only appropriate at the interface where commercial mobiles could cause interference to public safety base station receivers.²⁴⁵ Motorola believes that the $87 + 10 \log P$ protection limit it proposed for the interface where base-to-

²³⁸ Reversing the base and mobile transmit bands creates different interference scenarios at the 764 MHz, 776 MHz, and 794 MHz interfaces than exist under the base/mobile configuration currently used in the 700 MHz public safety bands -- in particular, replacing what Motorola considers to be a very undesirable "mobile-to-mobile" interference scenario at the 776 MHz interface with a "base-to-base" interference scenario at that interface. Motorola December 6, 1999 *Ex Parte* Filing at 4-5 (unpaginated); Motorola December 13, 1999 *Ex Parte* Filing at 2 (unpaginated).

²³⁹ Motorola December 13, 1999 *Ex Parte* Filing at 2 (unpaginated).

²⁴⁰ This limit is the equivalent to requiring that out-of-band emissions be attenuated by at least $92 + 10 \log P$ in a 6.25 kHz bandwidth. Motorola recommends that, in addition to applying this level of protection to public safety, commercial licensees operating in the upper band be required to "work with public safety operators to resolve instances of interference." *Id.* at 3 (unpaginated).

²⁴¹ This limit is the equivalent to requiring that out-of-band emissions be attenuated by at least $65 + 10 \log P$ in a 6.25 kHz bandwidth. *Id.* at 4 (unpaginated).

²⁴² APCO further notes that one of the principal reasons for adopting the current band plan for the 764-776/794-806 MHz public safety bands is the "potential for integrated and interoperable radio systems across the bands. APCO December 16, 1999 *Ex Parte* Filing at 2.

²⁴³ US WEST December 21, 1999 *Ex Parte* Filing at 1. US WEST anticipates that the proposed standards would affect carrier's ability to provide viable wireless services using existing IS-95 CDMA technologies, and the impact of the standards on the use of wideband CDMA technologies "could even be more acute." *Id.* at 2.

²⁴⁴ FLEWUG December 9, 1999 *Ex Parte* Filing at 5.

²⁴⁵ Motorola December 22, 1999 *Ex Parte* Filing at 2. Under Motorola's "reversed band" approach, this would be the 764 MHz interface. When the 746-764 MHz band is used for base transmissions and the 776-794 MHz band is used for mobile transmissions, this would be the 794 MHz interface.

mobile interference could occur “results in the appropriate protection for public safety.”²⁴⁶ Motorola also points out differences between its analysis and FLEWUG analysis of the mobile-to-mobile interference scenario that exists at the 776 MHz interface when the 746-764 MHz band is used for base transmissions and the 776-794 MHz band is used for mobile transmissions, but notes that under its reversed band plan this “extremely severe interference problem” would not exist.²⁴⁷ The National Telecommunications and Information Administration (NTIA) provides a technical analysis of the interference scenarios that could exist between commercial and public safety operations in the 700 MHz band, and concludes that, in order to protect public safety receivers, we should: (1) require that out-of-band emissions from commercial transmitters operating in the upper band be attenuated by $65 + 10 \log P$ into the 764-776 MHz public safety band, and by $70 + 10 \log P$ into the 794-806 MHz public safety band; and (2) require that out-of-band emissions from commercial transmitters operating in the lower band be attenuated by $80 + 10 \log P$ into the 764-776 MHz and 794-806 MHz public safety bands²⁴⁸

103. **Discussion.** We conclude that licensees operating in the 747-762 MHz and 777-792 MHz bands should, at a minimum, be required to attenuate the power below the transmitter power (P) by at least $43 + 10 \log_{10}(P)$ dB for any emission on all frequencies outside the licensee's authorized spectrum -- except for emissions that fall within the GPS band, which is addressed in Section III.D.4, below. We also provide additional measures of interference protection to operations in the public safety bands, as described below.

104. In establishing OOB limits in the 700 MHz service, we are guided by Congress's concern that public safety service licensees be able to operate free of harmful interference from new commercial licensees. Parties to this proceeding also have made convincing engineering showings of the potential for interference to public safety licensees from commercial users in adjacent bands, and those showings are supported by independent evidence of increasing instances of actual interference between commercial and public safety operations in other parts of the spectrum, principally the 800 MHz band.²⁴⁹ Against this backdrop, we recognize the need to adopt technical rules that provide adequate protection to public safety entities operating in this band. We are mindful, however, that Congress also intended that we establish rules that will enable viable commercial operations here. Thus, while we might set extremely stringent OOB limits in an effort to afford maximum protection to public safety licensees, we conclude that, as a practical matter, at some point, the incremental benefits to protection of public safety from ever higher OOB limits would be outweighed by the adverse effects on the commercial usefulness of the spectrum. Moreover, even the most stringent OOB limits do not guarantee there will never be any interference under any circumstance between commercial and public safety licensees. We conclude, therefore, that we should set OOB limits that, while achieving the primary goal of protecting public safety, also strike a reasonable balance between protecting public safety and maintaining the

²⁴⁶ *Id.* at 2. Under Motorola's “reverse band” approach, this would be the 794 MHz interface.

²⁴⁷ *Id.* at 4.

²⁴⁸ See January 5, 2000 letter from William T. Hatch, Acting Associate Administrator, Office of Spectrum Management, National Telecommunications and Information Administration, to Thomas Sugrue, Chief, Wireless Telecommunications Bureau, Federal Communications Commission.

²⁴⁹ *Id.* See also, e.g., Motorola December 2, 1999 *Ex Parte* Filing; FLEWUG December 9, 1999 *Ex Parte* Filing; Dary DeForest, *Analysis into Potential Interference from Out-of-Band Emissions to Public Safety Operations in the 821-824/866-869 MHz Band*, Industry Canada, December 4, 1998; Joe Kuran, *A Conflict of Public Interest*, Mobile Radio Technology, March 1999.

commercial viability of this band. As explained below, we adopt OOB limits for 30 megahertz licensees in the 700 MHz band that we believe will satisfy these dual objectives.

105. Some commenters believe that we should provide OOB limits in line with the $43 + 10 \log P$ limits currently used to provide interference protection in other wireless services.²⁵⁰ Motorola believes that the appropriate OOB limit needed to protect public safety receivers from commercial base stations, which will operate in the 747-762 MHz band,²⁵¹ is a requirement to attenuate the power below transmitter power (P) operating in that spectrum by at least $87 + 10 \log P$ dB per 6.25 kHz in the 764-776 MHz public safety band.²⁵² NTIA, however, favors an $80 + 10 \log P$ attenuation of commercial base station transmissions in the 747-762 MHz band to protect public safety receivers in both the 764-776 MHz and 794-806 MHz public safety bands, and FLEWUG supports a $65 + 10 \log P$ dB attenuation requirement to protect public safety receivers in these bands. Similarly, Bell Atlantic, Lucent, and US WEST urge the adoption of a lower OOB limit, arguing that Motorola's recommended limit could inhibit the utility of the spectrum for commercial use. As noted above, based on the record, we are persuaded that we should adopt an OOB limit higher than $43 + 10 \log P$ in order to provide adequate protection to public safety. On the other hand, we are not persuaded that the $87 + 10 \log P$ recommended by Motorola is necessary, and are concerned about the negative impact that standard could have on the viability of 30 megahertz systems operating in the 747-762 MHz band. While we believe that an OOB limit in line with the $65 + 10 \log P$ standard proposed by FLEWUG and others might well protect public safety licensees, we adopt a more conservative OOB limit of $76 + 10 \log P$ for emissions from 30 megahertz base station transmitters into the 764-776 MHz and 794-806 MHz public safety bands.²⁵³ We conclude that this limit strikes the proper balance among the competing recommendations of the various parties, is closely in line with $80 + 10 \log P$ standard recommended by NTIA, and will adequately protect public safety while maintaining the viability of the band for 30 megahertz users.

106. With regard to the appropriate OOB limit for mobile and portable transmitters, which will operate in the 777-792 MHz band, FLEWUG supports the adoption of a $65 + 10 \log P$ standard for mobile transmitters. Motorola concurs with this OOB limit for emissions from mobile transmissions into the 794-806 MHz public safety band. NTIA favors a $65 + 10 \log P$ requirement for emissions into the 764-776 MHz public safety band, but supports a $70 + 10 \log P$ standard for emissions into the 794-806 MHz band. Again, our goal is to adopt OOB limits that will adequately protect public safety while enabling viable commercial operations. We therefore adopt a requirement to attenuate the power of mobile and portable transmitters operating in that spectrum by at least $65 + 10 \log P$ dB per 6.25 kHz in the 764-776 MHz and 794-806 MHz public safety bands. We find that compliance with a more stringent OOB limit could make it difficult to produce mobile and portable equipment to meet our base station

²⁵⁰ See, generally, Bell Atlantic Comments; Lucent Comments; IMSA/IAFC Comments; Harris Comments; SBC Comments; and AirTouch Comments.

²⁵¹ We agree with APCO that reversing the mobile and base transmit bands, as Motorola proposes, would be in contradiction of our intention to provide for integration of public radio systems across the 700 MHz and 800 MHz bands. See *Public Safety Spectrum Report and Order*, 14 FCC Rcd 152, 168 (1998). We therefore reject this proposal.

²⁵² This assumes a band plan that would provide for base transmissions in the 747-762 MHz band and mobile transmissions in the 777-792 MHz band.

²⁵³ As recommended by NTIA, we restrict the out-of-band emissions from 30 megahertz base station transmitters into both the 764-776 MHz and the 794-806 MHz public safety bands.

standard while maintaining commercial viability in the 700 MHz spectrum band.²⁵⁴ In particular, the amount of frequency separation that would be required between a 30 megahertz mobile or portable transmission and the public safety bands if a more stringent standard were required could be so great that a significant portion of the 30 megahertz spectrum might become unusable. Because we permit fixed operations in the 777-792 MHz band, we also address the adoption of an OOB limit for fixed equipment operating in this band. If fixed transmissions are employed in the 777-792 MHz band, then interference to public safety operations in the 764-776 MHz band from such transmissions would resemble the type of interference to that band that could occur from base stations transmitting in the 746-764 MHz band (and for which we have adopted a $76 + 10 \log P$ standard). In addition, Motorola indicates that if fixed operation is permitted in the band designated for mobile and portable transmissions, then a "base-to-base" interference scenario would occur, and that a $92 + 10 \log P$ standard should be applied in this instance.²⁵⁵ We conclude that, to protect public safety operations from fixed equipment operating in the 777-792 MHz band, we should adopt the standard we have adopted for emissions from base stations operating in the 747-762 MHz band, *i.e.*, a requirement to attenuate the power of fixed transmitters operating in the 747-762 MHz band by at least $76 + 10 \log P$ dB per 6.25 kHz in the 764-776 MHz and 794-806 MHz public safety bands,.

107. Finally, we decide that where an emission from a 30 megahertz transmitter is found to cause harmful interference to public safety operations, at our discretion, we may require greater out-of-band attenuation from such transmitters.²⁵⁶ In conclusion, while no OOB limits can *guarantee* non-interference to public safety operations, we believe that the OOB limits we adopt herein will limit such occurrences, and that in adopting these limits we have satisfied the Congressional concern to ensure that public safety licensees are protected from interference.

3. RF Safety/Power Limits

108. **Background.** Section 27.52 of the Commission's Rules²⁵⁷ subjects licensees and manufacturers to the RF radiation exposure requirements specified in Sections 1.1307(b), 2.1091, and 2.1093 of the Commission's Rules, which list the services and devices for which an environmental evaluation must be performed.²⁵⁸ In adopting the rule, we concluded that routine environmental evaluations for RF exposure are required for applicants desiring to use the following types of

²⁵⁴ We believe that it would be more difficult for manufacturers to produce mobile and portable equipment that could meet a stringent OOB standard than it would for manufacturers to produce base station equipment to meet such a standard due to cost considerations and the need to minimize power consumption in mobile and portable equipment.

²⁵⁵ In our adopted band plan, this interference scenario would occur with respect to the 794-806 MHz public safety band. See Motorola *Ex Parte* Filing of December 22, 1999 at 5.

²⁵⁶ We note that historically-followed coordination procedures, requiring cooperation and accommodation by both commercial and public safety entities, may resolve many instances of potential interference.

²⁵⁷ 47 C.F.R. § 27.52.

²⁵⁸ 47 C.F.R. §§ 1.1307(b), 2.1091, 2.1093. The RF radiation exposure limits are set forth in 47 C.F.R. §§ 1.1310, 2.1091, and 2.1093, as modified in Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation, ET Docket No. 93-62, *Report and Order*, 11 FCC Rcd 15123 (1996); First Memorandum Opinion and Order, 11 FCC Rcd 17512 (1997); *Second Memorandum Opinion and Order*, 12 FCC Rcd 13494 (1997) (*RF Guidelines Second Reconsideration Order*).

transmitters: (1) fixed operations, including base stations and radiolocation transmitters, when the effective radiated power (ERP) is greater than 1,000 watts; (2) all portable devices; and (3) mobile devices, if the ERP of the device, in its normal configuration, will be 1.5 watts or greater.²⁵⁹ In the *NPRM*, we proposed to treat services and devices in the 746-764 MHz and 776-794 MHz bands in a manner comparable to other services and devices that have similar operating characteristics, and tentatively concluded that the requirements in Section 27.52 for licensees in the 2.3 GHz band should apply to licensees in the 746-764 MHz and 776-794 MHz bands. SBC supports this approach.²⁶⁰ In the *NPRM* we did not propose specific power limits for operations in the 746-776 MHz and 776-794 MHz bands.

109. **Discussion.** With respect to RF Safety, we adopt a threshold of 1000 w ERP for categorical exclusion from routine evaluation for RF exposure for base and fixed stations. As in the 2.3 GHz band, where we adopted an identical standard, this threshold recognizes the flexibility with respect to use, power, location, and other factors accorded licensees operating in this band. We determine that this power limit should be appropriate to ensure compliance with our RF exposure standards for most situations.²⁶¹

110. Although we are adopting a maximum power limit of 30 w ERP for mobile transmitters in the 777-792 MHz band, the threshold for routine evaluation of these devices for RF safety purposes shall be 1.5 w or greater in conformance with Section 2.1091 of our Rules.²⁶² For portable devices in these bands, we adopt a maximum power limit of 3 w ERP with the provision that these devices be evaluated for RF exposure in compliance with Section 2.1093 of our Rules.²⁶³ Thus we will modify Sections 1.1307(b), 2.1091, and 2.1093 of the Commission's Rules²⁶⁴ to include potential services and devices developed for use in the 747-762 MHz and 777-792 MHz bands. As we have previously stated, we are providing guidance on acceptable methods of evaluating compliance with the Commission's RF exposure limits in OET Bulletin No. 65, which has replaced OST Bulletin No. 65.²⁶⁵

111. Turning to power limits, we adopt power limits that will provide for base-to-mobile and

²⁵⁹ *Part 27 Report and Order*, 12 FCC Rcd at 10861 (para. 154 n.344), noting that 1,000 watts ERP equates to 1,640 watts EIRP. In the *RF Guidelines Second Reconsideration Order*, the Commission increased the exclusion threshold for mobile devices operating above 1.5 GHz from 1.5 watts to 3 watts ERP. *RF Guidelines Second Reconsideration Order*, 12 FCC Rcd at 13514 (para. 51).

²⁶⁰ SBC Comments at 5.

²⁶¹ *Part 27 Report and Order*, 12 FCC Rcd at 10862, para. 154 n.345, noting that, in a pending petition for reconsideration of the *RF Guidelines Report and Order*, the Commission was considering whether to revise the threshold for requiring routine evaluation of mobile devices above 1.5 GHz from 1.5 watts to 3 watts. This change was made in the *RF Guidelines Second Reconsideration Order*.

²⁶² 47 C.F.R. § 2.1091.

²⁶³ 47 C.F.R. § 2.1093.

²⁶⁴ 47 C.F.R. §§ 1.1307(b), 2.1091, 2.1093.

²⁶⁵ *Part 27 Report and Order*, 12 FCC Rcd at 10862 (para. 154 n.346). OET Bulletin No. 65 (Edition 97-01) was issued on August 25, 1997, and is available for downloading at the FCC Web Site: www.fcc.gov/oet/rfsafety. Copies of OET Bulletin No. 65 also may be obtained by calling the FCC RF Safety Line at (202) 418-2464.

fixed-to-fixed communication in the 747-762 MHz band, and for mobile-to-base and fixed-to-fixed communication in the 777-792 MHz band. Specifically, we adopt the following power limits: (1) for base stations and fixed stations operating in the 747-762 MHz band, an ERP no greater than 1,000 watts and an antenna height above average terrain (HAAT) no greater than 305 m;²⁶⁶ (2) for mobile, fixed, and control stations operating in 777-792 MHz band, an ERP no greater than 30 watts; and (3) for portable stations operating in 777-792 MHz band, an ERP no greater than 3 watts. We believe that the adoption of these power limits will facilitate both mobile and fixed service operations in the 700 MHz band. The 1000 w ERP power limit for base and fixed stations operating in the 747-762 MHz band should enable satisfactory coverage for commercial systems operating in this band. The 30 w ERP power limit for mobile, fixed, and control stations in the 777-792 MHz band is the power limit adopted for mobile and control station operation in the 700 MHz public safety band. And the 3 w ERP power limit for portable stations in the 777-792 MHz band is consistent with the power limit adopted for portables in the 700 MHz public safety band.

4. Special Considerations for Use of Channels 65, 66, and 67

112. **Background.** The second harmonic transmissions²⁶⁷ of services that will be operating on TV channels 65-67 fall within a band used for radionavigation in the Global Navigation Satellite System (GNSS), which includes the Global Positioning System (GPS) at 1563.42-1587.42 MHz.²⁶⁸ To protect this system and to ensure that equipment that operates in these bands does not cause radio interference to the GNSS,²⁶⁹ particularly when that system is used for precision approach and landing, NTIA recommended²⁷⁰ that the following out-of-band emission limits from fixed and mobile transmitters operating in the 746-764 MHz and 776-794 MHz bands be applied to all spurious emissions, including second harmonic emissions in the 1559-1610 frequency range: (1) for wideband emissions, -70 dBW/MHz equivalent isotropically radiated power (EIRP); and (2) for narrowband emissions,²⁷¹ -80

²⁶⁶ Antenna heights greater than 305 m HAAT are permitted in accordance with Table 1 in Section 27.50 of our Rules, as amended. 47 C.F.R. § 27.50.

²⁶⁷ Radio transmitters produce energy not only on the desired frequency (such as 784 MHz) but also lesser amounts of energy on multiples of the desired frequency, known as harmonics. In this example, the second harmonic (twice the desired frequency) would be 1568 MHz. Although most of the power generated is on the desired frequency, very sensitive receivers can detect the smaller amounts of power generated on the harmonic frequencies.

²⁶⁸ The GPS is in operation, and will be the United States component of the GNSS. GPS utilizes the lower portion of the Radionavigation-Satellite Service (space-to-Earth) allocation from 1559-1610 MHz on a primary basis, and is maintained by the United States Department of Defense. The other component of the GNSS is GLONASS, the Russian Federation Global Orbiting Navigation Satellite System, which will use the 1598-1605 MHz portion of that allocation (i.e., the second harmonic frequencies of TV channels 68 and 69) when the system reaches its final frequency configuration after 2005.

²⁶⁹ GNSS, as currently envisioned, will consist of the GPS and GLONASS systems that provide radionavigation satellite services (RNSS) worldwide.

²⁷⁰ See May 11, 1999 letter from William T. Hatch, Acting Associate Administrator, Office of Spectrum Management, National Telecommunications and Information Administration, to Dale Hatfield, Chief, Office of Engineering and Technology, Federal Communications Commission.

²⁷¹ For purposes of NTIA's analysis, interference from wideband emissions was considered to have a bandwidth in the range of 100 kHz to 1 MHz; interference from narrowband emissions was considered to have a bandwidth less

dBW/700 Hz. NTIA also proposed the adoption of the DTV out-of-band limit of -110 dBc for emissions in the 1559-1610 MHz band from broadcast transmitters operating in the 746-764 MHz and 776-794 MHz bands. Thus, in the NPRM we sought comment on the risk of harmonic interference to GNSS operations from systems licensed in the 776-794 MHz bands, and whether the emissions limits recommended by NTIA would provide the necessary protection for GNSS systems from anticipated fixed and mobile operations in these bands.

113. In addition, we sought comment on the impact of imposing the out-of-band emission limits proposed by NTIA on the design of equipment for use in the 776-794 MHz band. Noting that stringent OOB²⁷² limits are generally more difficult to meet for mobile and hand-held transmitters than for base and control stations or for fixed service stations, we sought information on how our proposal might affect the cost, size, weight, and battery life for handheld or portable equipment, and whether the proposal could severely curtail the availability of the 36 megahertz of spectrum designated by Congress for commercial use.²⁷³

114. In response to the *NPRM* AirTouch states generally that the proposed OOB limits could affect the production of portable units and thereby affect the availability of the commercial 700 MHz spectrum.²⁷⁴ In detailed comments, the U.S. GPS Industry Council ("USGPS"), on the other hand, asserts that the proposed OOB standards do not sufficiently protect GPS receivers from the second harmonic emissions of systems operating in the 776-794 MHz band.²⁷⁵ USGPS contends that NTIA levels were developed solely to protect aircraft GPS receivers from interference from MSS Mobile Earth Terminals (METs) operating in the 1-3 GHz band.²⁷⁶ According to USGPS, if these levels are adopted for different types of services, "each one of those services would endanger the availability of GPS by itself, raising the noise floor above the level that GPS receivers can operate . . . and the cumulative effect from all services operating at emissions of -70/80 dBW/MHz would be devastating for critical safety-of-life GPS applications."²⁷⁷ USGPS argues that the only default level that can safely be established at this time, "absent case-by-case independent studies," is a wideband out-of-band emission threshold limit of -

than or equal to 700 Hz. The limits identified by NTIA are based on international recommendations by RTCA and ETSI for mobile earth terminals in the Mobile Satellite Service (MSS). See RTCA Inc. Special Committee 159, Assessment of Radio Frequency Interference Relevant to the GNSS, Document No. RTCA/DO-235, January 27, 1997; European Testing and Standards Institute (ETSI) standards TBR-041 and TBR-042 for Mobile Earth Terminals in the 1.6/2.4 GHz and 2.0 GHz range, respectively.

²⁷² The out-of-band emissions include both spurious and harmonic emissions.

²⁷³ We determined that the standard recommended by NTIA would require approximately 85-90 dB suppression for typical full-power mobile equipment and approximately 75-80 dB for handhelds and portables. For the purposes of the GLONASS standard, we assumed the narrowband limit of -80 dBW as sufficient for commercial services bandwidths of up to 150 kHz. *NPRM* at paras. 73-78.

²⁷⁴ AirTouch Comments at 30.

²⁷⁵ USGPS Comments at 3.

²⁷⁶ USGPS Comments at 4 n.4.

²⁷⁷ *Id.* at 4.

100 dBW/MHz²⁷⁸

115. **Discussion.** Like the concerns we addressed above in balancing public safety and commercial interests, we are similarly committed to ensuring that the GNSS is protected adequately against interference without adopting OOB limits on equipment operating in the 777-792 MHz band that could effectively prohibit the use of this band by new 30 megahertz licensees. Rather, we seek to enable such licensees to implement new services in a timely manner. As discussed below, we believe that the proposed OOB limits provide the appropriate balance to meet the needs of both of these competing requirements. Thus, we adopt the following OOB limits for all spurious emissions, including harmonics, that fall within the 1559-1610 frequency range, from equipment operating in the 747-762 MHz and 777-792 MHz bands: (1) for wideband emissions, -70 dBW/MHz equivalent isotropically radiated power (EIRP); and (2) for discrete emissions of less than 700 Hz bandwidth, an absolute EIRP limit of -80 dBW. Outside of emissions into the 1559-1610 MHz RNSS band, the OOB standards adopted in Section III.D.2 will apply.

116. We are concerned about critical safety-of-life applications of GPS, particularly those systems that will use GPS for aeronautical radionavigation, and seek to ensure that the rules we adopt in this proceeding do not adversely affect these operations. NTIA, which represents the Federal Government's positions on spectrum management matters, has suggested specific OOB limits for equipment operating in this band that it believes will sufficiently protect aeronautical radionavigation operations. We agree with NTIA that the proposed OOB limits will "ensure that fixed and mobile equipment will not cause radio frequency interference to the GNSS when those systems are used for precision approach and landing"²⁷⁹ and we adopt NTIA's recommendations.²⁷⁹

117. We reject USGPS's argument that our proposed emission limits are insufficient to protect GPS operations.²⁸⁰ Similar arguments were raised by USGPS in a proceeding regarding an application by AirTouch Satellite Services U.S., Inc. for a license to construct and operate mobile earth terminals transmitting in the 1.6 GHz band. Consistent with the International Bureau's October 4, 1999 Order,²⁸¹ we find that the degree of precision needed to provide position updates for planes moving at high speeds is more rigorous than the precision that is needed for other GPS uses. Although GPS has and will be used for a variety of non-aeronautical safety-of-life applications, USGPS has not established that such other uses of GPS will require the high level of protection from unwanted signals that we are adopting herein, much less a *greater* level of protection. We thus conclude that USGPS has not justified

²⁷⁸ USGPS incorporates by reference, and attaches its comments in the GMPCS proceeding. In that proceeding, USGPS further notes that USGPS and the United States, in ITU-R study group activities earlier in 1999, were prepared to accept the -70 dBW/MHz limitation, provided that it was made clear that this value would not be applied to any emitters other than 1-3 GHz MSS METs without independent studies. See USGPS Reply at 8.

²⁷⁹ NTIA Comments at 1. AirTouch suggests that our proposed OOB emission limits could be difficult to meet for portable units, but does not suggest that they would be so difficult as to prevent equipment manufacturers from producing mobiles and portables meeting those limits. We have not received any indication from any potential 700 MHz band equipment manufacturers commenting in this proceeding that it will be difficult to suppress wideband OOB to the -70 dBW/MHz level.

²⁸⁰ USGPS Reply at 7.

²⁸¹ AirTouch Satellite Services, Inc. Application For Blanket Authority To Construct And Operate Up To 50,000 Mobile Satellite Earth Terminals Through The GLOBALSTAR Mobile Satellite System, *Order and Authorization*, PA 99-2010, October 4, 1999, paras. 10-13.

a need for a more stringent standard.

118. With regard to the tests USGPS conducted to determine the effects of unwanted emissions into the GPS band from emitters complying with the proposed limits, we believe that USGPS has not sufficiently demonstrated that signals from emitters meeting the proposed emission limits will cause interference to GPS receivers that will affect the ability of such GPS receivers to perform their functions.²⁸² We recognize that in certain scenarios a 700 MHz emitter and a GPS receiver could be placed in very close proximity and that this could result in interference to the GPS receiver. We do not believe, however, that it is in the public interest to protect GPS receivers in every such possible scenario. Our analysis must be based on reasonable assumptions of emitter-receiver proximity. Specifically, we must balance the needs of competing requirements of the spectrum. In this case we must balance the needs of users of GNSS and future users of the 700 MHz band. We conclude that our proposed OOB limit will be sufficient to protect critical GPS operations.

119. Contrary to USGPS' argument, we also find that our proposed -70 dBW/MHz wideband OOB limit is not inconsistent with the United States' position in the ITU-R study group activities. Our decision in this proceeding is consistent with the decisions adopted on this matter internationally. Should future actions internationally result in conflicts between the decision we adopt here and international positions, we would consider those differences as part of a separate, future proceeding, if appropriate.

120. USGPS also asks us to adopt a harmonized spectrum policy that considers the cumulative impact on the GPS noise floor from all relevant services. The protection of GPS, as with all services, is an ongoing obligation of this agency. Nonetheless, even if we undertook a study to analyze the effects of various services on GPS, we believe it would be difficult to identify and consider all relevant services, as well as all possible future services. Therefore, we conclude that the protection of GPS is better handled on a case-by-case basis, in the context of each relevant proceeding. In this proceeding we have considered all relevant technical findings of interested parties and believe we have come to a reasonable balance -- protecting GPS operations while proceeding expeditiously to make this spectrum available to the public.

E. Competitive Bidding

1. Statutory Requirements

121. **Background.** Most of the auctions the Commission has conducted to date have been simultaneous multiple-round auctions. In Section 3002 of the Balanced Budget Act, Congress directed the Commission to "provide for the design and conduct (for purposes of testing) of competitive bidding using a contingent combinatorial bidding system that permits prospective bidders to bid on combinations or groups of licenses in a single bid and to enter multiple alternative bids within a single bidding round."²⁸³ In the *NPRM*, we sought comment on whether the auction of the 746-764 MHz and 776-794 MHz bands may present a suitable context for such combinatorial procedures, especially if our service rules provide for broadcast services. We also asked commenters to consider whether, absent the

²⁸² USGPS testing concluded that under "co-location" conditions, wideband OOB of -70 dBW/MHz completely prevented GPS receivers from tracking and securing fixes from GPS satellites.

²⁸³ Codified at 47 U.S.C. § 309(j)(3).

application of combinatorial rules, the existing standardized auction rules in Part 1 are adequate.²⁸⁴ In addition, we sought comment on whether our statutory obligations prohibited public safety entities from participating in the auction of licenses for this spectrum.²⁸⁵

122. Those commenters who addressed the issue believe the auction of licenses for the 746-764 MHz and 776-794 MHz bands presents a suitable context for using a combinatorial bidding system. AirTouch contends that while combinatorial bidding is not essential, it is suitable for the auction of the 746-764 MHz and 776-794 MHz bands.²⁸⁶ KM and MSTV also support the use of combinatorial bidding, but MSTV suggests as well allowing consortia of potential service providers to participate in the auction, with the expectation that, if a consortium won, the spectrum could be divided pursuant to a predetermined plan to accommodate the needs of each individual member. This would address the difficulties caused to some providers by the pairing of frequency blocks.²⁸⁷

123. On the issue of public safety participation, we received little comment. APCO asserts that there is no rational reason to prevent a public safety entity from participating in the auction, and Southern similarly contends that public safety uses should be permitted, with public safety applicants subject to the same rules as commercial applicants.²⁸⁸

124. **Discussion.** We will not use combinatorial bidding procedures for the 747-762 MHz and 777-792 MHz bands, although we believe that such procedures may well have certain benefits in the auction of licenses for these bands. The primary benefit is that combinatorial bidding allows bidders to bid on licenses in packages rather than single units. This allows bidders to better express the value of any synergies that may exist among licenses. In this context, for example, it would be possible for a bidder to bid on several geographic area licenses as a package or on channels as either paired or unpaired. To date we have not yet tested or employed combinatorial bidding, which involves numerous complications for both the Commission and bidders. Consistent with Congress' directive, we are actively developing theoretical and applied combinatorial bidding approaches, but we have not yet

²⁸⁴ See *NPRM* at para. 82.

²⁸⁵ Section 309(j)(2) of the Act, which exempts "public safety radio services" from competitive bidding, defines that term as including "private internal radio services used by State and local governments and non-government entities and emergency road services provided by not-for-profit organizations, that (i) are used to protect the safety of life, health, or property; and (ii) are not made commercially available to the public." 47 U.S.C. § 309(j)(2)(A). Section 337, which directs the Commission to allocate 24 megahertz of spectrum for "public safety services," defines that term as services--

the sole or principal purpose of which is to protect the safety of life, health, or property; that are provided-- (i) by State or local government entities; or (ii) by nongovernmental organizations that are authorized by a governmental entity whose primary mission is the provision of such services; and that are not made commercially available to the public by the provider.

47 U.S.C. § 337(f)(1).

²⁸⁶ AirTouch Comments at 30-31.

²⁸⁷ KM Comments at 3; MSTV Comments at 9-10.

²⁸⁸ APCO Comments at 6; Southern Comments at 4n.8, 8.

completed the development of a practical means of implementing such an auction design. We therefore find that we should not use this complex and untested auction design for the 747-762 MHz and 777-792 MHz bands, especially in light of the statutory deadline imposed here.²⁸⁹

125. We believe our existing competitive bidding rules generally will be adequate for the auction of licenses for all permitted uses in the 747-762 MHz and 777-792 MHz bands. As explained above, we have adopted a geographic area licensing scheme for licenses in these bands that we believe is appropriate in light of the services that may be provided consistent with our rules. There is nothing in the Commission's rules that would prevent any parties from participating as part of a consortium of service providers, so long as the consortium observes the Commission's rules. Section 1.2105(a) of the Commission's rules requires that applicants that have entered into consortia identify all consortium members and any agreements relating to the post-auction market structure, and consortia must comply with the anti-collusion provisions of Section 1.2105(c).²⁹⁰ Consortia may also qualify for bidding credits under our small business provisions.²⁹¹ We also find that our partitioning and disaggregation rules offer licensees sufficient flexibility to assign unused spectrum to others.

126. We recognize that there may be entities whose business plans are such that they may not wish to acquire any licenses if they are unable to aggregate the 10 megahertz and 20 megahertz blocks to create a nationwide 30 megahertz license. Our current rules are designed to facilitate the aggregation of licenses, and bidders in a number of past auctions have been successful in putting together nationwide licenses through aggregation. We believe that our current rules are adequate to facilitate the aggregation of all 10 megahertz or all 20 megahertz licenses. The bid withdrawal provisions of our Part 1 rules could, however, potentially discourage bidders from attempting a 30 megahertz nationwide aggregation in an auction where there are divergent business plans. This is because, were such an aggregation attempt ultimately to fail, a bidder might be left with a subset of licenses for which its bids exceeded the value it places on that subset absent the complete aggregation. The bidder would then be forced to withdraw any high bids it holds and pay a bid withdrawal payment, or perhaps retain licenses for which it cannot recoup the price paid. We therefore direct the Bureau to adopt, if operationally feasible, a nationwide bid withdrawal procedure for the 747-762 MHz and 777-792 MHz bands to limit the exposure of bidders seeking a 30 megahertz nationwide aggregation. Pursuant to standard practice, in its public notice seeking comment on auction procedures, the Bureau will seek comment on whether to implement this procedure, and it will announce, prior to the filing of short-form applications for the auction, whether a 30 megahertz nationwide aggregation subject to this procedure will be available to bidders.²⁹²

127. Bidders may still aggregate licenses pursuant to our standard bid withdrawal provisions.²⁹³ The following procedure would be available, however, to limit the exposure associated with bid withdrawal for those seeking a 30 megahertz nationwide aggregation, while still discouraging insincere bidding. Under this approach, an applicant would be required to declare on its short-form

²⁸⁹ See Section I, *supra*.

²⁹⁰ See 47 C.F.R. § 1.2105(a)(2)(viii); 47 C.F.R. § 1.2105(c).

²⁹¹ See 47 C.F.R. § 27.502(a).

²⁹² See *Part 1 Third Report and Order*, 13 FCC Rcd 374, 447-49, paras. 124-25.

²⁹³ 47 C.F.R. § 1.2104(g).

application whether it is seeking a 30 megahertz nationwide aggregation and wishes to be subject to the nationwide bid withdrawal provisions. An applicant that chooses to be such a nationwide bidder would not be allowed to bid on anything other than all licenses comprising the 30 megahertz nationwide aggregation, and must win either this nationwide aggregation or no licenses at all. Thus, once such a nationwide bidder withdraws from a market, it must withdraw from all markets and will be ineligible to continue bidding for any licenses. The bid withdrawal payment for a 30 megahertz nationwide bidder that withdraws from the auction would be calculated as the difference between the sum of the withdrawn bids and the sum of the subsequent high bids on the withdrawn licenses. Calculating the payment this way may result in a payment that is lower than a payment calculated on a license-by-license basis. In addition, nationwide bid withdrawal payments would be limited to a certain percentage, such as 5 percent, of the aggregate withdrawn bids. The withdrawn licenses would be offered in the next round at the second highest bid price, which may be less than, or equal to, the amount of the withdrawn bid, without any bid increment. The FCC would serve as the "place holder" on the license until a new acceptable bid is submitted. When a 30 megahertz nationwide bidder withdraws, eligibility and waivers for all other bidders would be restored to beginning auction levels, except for those nationwide bidders that have withdrawn from the auction by withdrawing their high bids. Without this restoration, few bidders may be eligible to bid on licenses withdrawn late in the auction.²⁹⁴ Finally, if the Bureau implements the bid withdrawal procedure outlined here, it will suspend the Part 1 bid withdrawal rule for those applicants that choose to become 30 megahertz nationwide bidders.

2. Incorporation by Reference of Part 1 Standardized Auction Rules

128. **Background.** In the *NPRM*, we proposed to conduct the auction for initial licenses in the 746-764 MHz and 776-794 MHz bands in conformity with the general competitive bidding rules set forth in Part 1, Subpart Q, of the Commission's Rules, and substantially consistent with the bidding procedures that have been employed in previous auctions.²⁹⁵ Specifically, we proposed to employ the Part 1 rules governing designated entities, application issues, payment issues, competitive bidding design, procedure and timing issues, and collusion issues.²⁹⁶ We further stated that these rules would be subject to any modifications that the Commission may adopt in the Part 1 proceeding. We sought comment on whether any of our Part 1 rules would be inappropriate in an auction of licenses for the 746-764 MHz and 776-794 MHz bands.²⁹⁷ No commenters oppose the use of the Part 1 standardized auction rules.

129. **Discussion.** We will use the competitive bidding procedures contained in Subpart Q of Part 1 of the Commission's Rules for the 747-762 MHz and 777-792 MHz bands, including any amendments adopted in the ongoing Part 1 proceeding.²⁹⁸ As discussed above, however, we direct the

²⁹⁴ We adopted a similar rule for the General Wireless Communications Service. *See* Allocation of Spectrum Below 5 GHz Transferred from Federal Government Use, ET Docket No. 94-32, *Second Report and Order*, 11 FCC Rcd 624, 652-53, paras. 71-73 (1995).

²⁹⁵ *See NPRM* at para. 83.

²⁹⁶ *Id.*

²⁹⁷ *Id.*

²⁹⁸ The most recent comprehensive order in this proceeding was the *Third Report and Order and Second Further Notice of Proposed Rule Making*. *See* Amendment of Part 1 of the Commission's Rules – Competitive Bidding, WT Docket No. 97-82, Allocation of Spectrum Below 5 GHz Transferred from Federal Government Use, 4660-4685

Bureau to adopt a nationwide bid withdrawal procedure for the 747-762 MHz and 777-792 MHz bands, if operationally feasible, to facilitate a 30 megahertz nationwide license aggregation. The Bureau will announce after public comment whether this procedure will be implemented.

130. We decline to follow TWDC's suggestion that, given the uniquely broad allocation of this spectrum, which will involve service providers traditionally subject to different regulatory requirements bidding against each other for the same spectrum for the first time, the Commission should explicitly state that implementing rules adopted in this proceeding will not be considered to be precedent in future rulemaking proceedings with respect to other spectrum auctions.²⁹⁹ Because we will use our standardized Part 1 rules for the auctioning of the spectrum, we find that it is inappropriate to adopt TWDC's suggestion. Moreover, to the extent we depart from the Part 1 rules, we cannot exclude the possibility that any such departure will be useful in future auctions.

3. Small Business Definitions

131. **Background.** In the *NPRM*, we proposed to adopt for the 746-764 MHz and 776-794 MHz bands definitions of small and very small businesses that the Commission also adopted for broadband PCS, 2.3 GHz, and 39 GHz applicants.³⁰⁰ Specifically, we proposed to define a small business as any entity with average annual gross revenues for the three preceding years not in excess of \$40 million, and a very small business as an entity with average annual gross revenues for the three preceding years not in excess of \$15 million.³⁰¹

132. We sought comment on these definitions as they relate to the size of the geographic area to be covered and the spectrum allocated to each license. We also sought comment on whether the proposed designated entity provisions would be sufficient to promote participation by businesses owned by minorities and by women, and participation by rural telephone companies. We asked commenters, to the extent that they propose additional provisions to ensure participation by minority-owned and women-owned businesses, to address how such provisions should be crafted to meet the relevant standards of judicial review.³⁰²

133. **Discussion.** We will define a small business as an entity with average annual gross revenues for the preceding three years not exceeding \$40 million. A very small business is an entity with average annual gross revenues for the preceding three years not exceeding \$15 million.³⁰³ Although we

MHz, ET Docket No. 94-32, *Third Report and Order and Second Further Notice of Proposed Rule Making*, 13 FCC Rcd 374 (1997) ("Part 1 Third Report and Order" and "Second Further Notice of Proposed Rule Making"), *recon. pending*.

²⁹⁹ TWDC Comments at 8.

³⁰⁰ See *NPRM* at paras. 85-86.

³⁰¹ *Id.* See also 47 C.F.R. § 24.720(b); 47 C.F.R. § 27.210(b); 47 C.F.R. § 101.1209(b).

³⁰² *NPRM* at para. 87. See *Adarand Constructors, Inc. v. Peña*, 515 U.S. 200 (1995); *United States v. Virginia*, 518 U.S. 515 (1996).

³⁰³ For the 746-764 MHz and 776-794 MHz bands, the Commission is exempt from 15 U.S.C. § 632, which requires Federal agencies to obtain Small Business Administration approval before adopting small business size standards. See *Consolidated Appropriations*, Appendix E, Section 213(a)(4)(B). See also 145 Cong. Rec. at H12493, Nov. 17, 1999.

received no comments on the capital costs of operations in the bands at issue here, we believe that these two definitions will provide businesses seeking to provide a variety of services with opportunities to participate in the auction of licenses for this spectrum. In calculating gross revenues for purposes of small business eligibility, we will adopt our proposal to attribute the gross revenues of the applicant, its controlling interests and its affiliates. This approach is consistent with our proposal in the *Part 1 Second Further Notice*,³⁰⁴ and is similar to the attribution rules we have employed for the recent LMDS, 800 MHz SMR, and LMS auction proceedings.³⁰⁵

134. We agree with Alaskan Choice that existing bidding credits should apply to this spectrum.³⁰⁶ We will therefore adopt tiered bidding credits for small and very small businesses, consistent with the levels adopted in the Part 1 proceeding.³⁰⁷ Accordingly, small businesses will receive a 15 percent bidding credit.³⁰⁸ Very small businesses will receive a 25 percent bidding credit.³⁰⁹ Bidding credits for small businesses are not cumulative.³¹⁰ As noted in the Part 1 proceeding, we believe that this approach will provide adequate opportunities for small businesses of varying sizes to participate in spectrum auctions.³¹¹

135. We decline to adopt KM's suggestion that the Commission provide bidding credits to any LPTV licensee that has been or will be displaced by a DTV station.³¹² We do not believe that we have an adequate record regarding the legal and policy implications of such bidding credits. In addition, LPTV licensees have not established a record that they need bidding credits in order to be able to compete in the auction.³¹³ As explained above, we are not permitting public safety entities as defined in

³⁰⁴ See *Part 1 Third Report and Order*, 13 FCC Rcd at 477-78, paras. 185-87.

³⁰⁵ See Amendment of Parts 1, 2, 21, and 25 of the Commission's Rules to Redesignate the 27.5-29.5 GHz Frequency Band, to Reallocate the 29.5-30.0 GHz Frequency Band, to Establish Rules and Policies for Local Multipoint Distribution Service and for Fixed Satellite Services, CC Docket No. 92-297, *Second Report and Order, Order on Reconsideration, and Fifth Notice of Proposed Rulemaking*, 12 FCC Rcd 12545, 12692-93 (1997); Amendment of Part 90 of the Commission's Rules to Facilitate Future Development of SMR Systems in the 800 MHz Frequency Band, PR Docket No. 93-144, *Second Report and Order*, 12 FCC Rcd 19079, 19169 (1997); Amendment of Part 90 of the Commission's Rules to Adopt Regulations for Automatic Vehicle Monitoring Systems, PR Docket No. 93-61, *Second Report and Order*, 13 FCC Rcd 15182, 15194 (1997).

³⁰⁶ Alaskan Choice Comments at 5.

³⁰⁷ See *Part 1 Third Report and Order*, 13 FCC Rcd at 403-04, paras. 47-48.

³⁰⁸ See 47 C.F.R. § 1.2110(e)(2)(iii).

³⁰⁹ See 47 C.F.R. § 1.2110(e)(2)(ii).

³¹⁰ In other words, very small businesses may not accumulate a 15 percent credit and a 25 percent credit.

³¹¹ See *Part 1 Third Report and Order*, 13 FCC Rcd at 403-04, para. 47.

³¹² KM Comments at 4-5.

³¹³ In the competitive bidding proceeding, the Commission concluded that the record clearly demonstrates that the primary impediment to participation by designated entities is lack of access to capital. See Implementation of Section 309(j) of the Communications Act --- Competitive Bidding, PP Docket No. 93-253, *Fifth Report and Order*, 9 FCC Rcd 5532, 5537, para. 10 (1994) ("*Competitive Bidding Fifth Report and Order*"). Bidding credits,

Section 337(f) of the Act to participate in the auction of licenses for this spectrum. It is therefore unnecessary to address APCO's suggestion that state and local governments seeking spectrum for public safety communications should be given "auction credits" similar to the bidding credits offered to small businesses.³¹⁴

136. We will not adopt special preferences for entities owned by minorities or women.³¹⁵ No commenters submitted quantifiable evidence or data to support race- or gender-based auction provisions. Therefore, we conclude that we do not have an adequate record to support such special provisions at this time under the current standards of judicial review. We remain committed to meeting the statutory objectives of promoting economic opportunity and competition, avoiding excessive concentration of licenses, and ensuring access to new and innovative technologies by disseminating licenses among a wide variety of applicants, including small businesses, rural telephone companies, and businesses owned by members of minority groups and women. We believe the bidding credits we adopt here for small businesses will further these objectives because many minority- and women-owned entities, as well as rural telephone companies, are small businesses and will therefore qualify for these special provisions. We also believe that our standardization of the rules, through the *Part 1 Third Report and Order*, regarding eligible entities, unjust enrichment, and bidding credits will assist small and minority- and women-owned businesses because the resulting predictability will facilitate the business planning and capital fundraising process.³¹⁶

IV. PROTECTION OF TELEVISION SERVICES

137. **Background.** In the *NPRM* we discussed technical requirements for protecting incumbent broadcast licensees and planned DTV allotments against interference. In the *DTV Sixth Report and Order*,³¹⁷ we stated that all analog TV and DTV operations in the 746-806 MHz band would be fully protected during the DTV transition period. In the *Reallocation Notice*³¹⁸ we noted that new licensees in the band will have to protect both analog TV and DTV operations from interference. We subsequently addressed the protection of TV and DTV operations in the 764-776 MHz and 794-806 MHz public safety bands in the *Public Safety Spectrum Report and Order*, which adopted service rules for

established in response to Congress' directive that such entities be given the opportunity to provide spectrum-based services, were designed in particular to ease the difficulties women and minorities often experience in gaining access to capital. *Competitive Bidding Fifth Report and Order*, 9 FCC Rcd at 5571-79, paras. 93-110.

³¹⁴ APCO Comments at 6-7.

³¹⁵ See Alaskan Choice Comments at 4 (suggesting preferences for minorities, women, and underserved communities).

³¹⁶ See *Part 1 Third Report and Order*, 13 FCC Rcd at 386, para. 14.

³¹⁷ See *Advanced Television Systems and Their Impact Upon the Existing Television Broadcast Service*, MM Docket No. 87-268, *Sixth Report and Order*, 12 FCC Rcd 14588, 14626-27 (para. 80)(1997)(*DTV Sixth Report and Order*).

³¹⁸ *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, 14148, para. 17 (1997)(*Reallocation Notice*).

public safety uses of this spectrum.³¹⁹

138. In reaching our decisions in that proceeding, we noted that land mobile and TV stations have successfully shared the 470-512 MHz band (TV Channels 14-20) in 11 major metropolitan areas of the United States.³²⁰ In the 470-512 MHz band, we relied on minimum separation distances based on the various heights and powers of the land mobile stations to prevent harmful interference.³²¹ Because this method has been successful, we decided in the public safety proceeding to continue to administer protection criteria for these services in the 700 MHz band in this same manner.³²² In making that determination, we examined the previous methodology with consideration of the more recent technological changes, the physical characteristics of the 700 MHz band, and the goals Congress established in the Balanced Budget Act of 1997.

139. **Discussion.** We conclude that the factors and considerations examined in the *Public Safety Spectrum Report and Order* with regard to the protection of TV and DTV operations should apply to the use of the 747-762 MHz and 777-792 MHz bands.³²³ We note that Motorola, although seeking reconsideration of the television protection rules adopted in the public safety proceeding, believes that the sharing criteria for the public safety and the remaining portions of the 746-806 MHz band can be the same.³²⁴ We will require licensees operating on the 747-762 MHz and 777-792 MHz bands to comply with the provisions of Section 90.545 of our Rules and will incorporate those provisions into Part 27.³²⁵

140. One commenter, the Association of America's Public Television Stations (APTS), expresses some concern over establishing interference criteria for an untested service such as DTV and suggests a trial period in which to test actual (or objectionable) interference on a case-by-case basis. However, APTS does not propose an objective standard by which TV licensees and commercial licensees could determine if, in fact, interference is being caused to an incumbent station. We believe that the engineering standards we adopt herein will effectively minimize interference and that testing of the type proposed by APTS will not be necessary.

141. Thus, licensees operating on the spectrum associated with Channels 60, 61, 62, 65, 66, and 67 must comply with the co-channel and adjacent channel provisions of Section 27.60 of our Rules.

³¹⁹ See *Public Safety Spectrum Report and Order*, 14 FCC Rcd. 152 (1998) at 217-227, paras. 146-164.

³²⁰ *Public Safety Spectrum Report and Order*, at 218, para. 148.

³²¹ See *Further Sharing of the UHF Television Band by Private Land Mobile Radio Services*, General Docket No. 85-172, *Notice of Proposed Rulemaking*, 101 FCC 2d 852, 865 (1985), *proceeding suspended*, 2 FCC Rcd 6441 (1987).

³²² *Public Safety Spectrum Report and Order* at 220-227, paras. 150-164.

³²³ Certain of our decisions with regard to TV protection in the *Public Safety Spectrum Report and Order* are the subject of reconsideration. To the extent that our actions with regard to that reconsideration result in subsequent changes to the rules adopted in that proceeding, those changes may be reflected as they apply or are relevant.

³²⁴ Motorola Comments at 18.

³²⁵ The provisions of Section 90.545 of our Rules will be contained in Section 27.60 of our Rules. 47 C.F.R. § 27.60.

For example, a licensee operating on any portion of the 10 megahertz block (i.e., between 752 MHz and 762 MHz) that coincides with Channels 61 will have to provide co-channel protection to television stations operating on Channels 61 and adjacent channel protection to television stations operating on Channels 60 and 62; and any licensee operating on any portion of the 10 megahertz block that coincides with Channels 62 will have to provide co-channel protection to television stations operating on Channels 62 and adjacent channel protection to television stations operating on Channels 61 and 63. Licensees operating on spectrum between 747 MHz and 752 MHz (Channel 60), in addition to providing co-channel protection to Channel 60 television stations, will have to provide adjacent channel protection to television stations operating on both Channel 61 and 59.³²⁶

A. Negotiations with Incumbent Broadcast Licensees

142. **Background.** We proposed in the NPRM to permit new licensees in this spectrum to reach agreements with licensees of protected, incumbent television stations that would compensate incumbents for: (1) converting to DTV-only transmission before the end of the statutory transition period;³²⁷ (2) accepting higher levels of interference than allowed by the protection standards; or (3) otherwise accommodating new licensees.³²⁸ Various commenters have addressed the significant effect of continued television operations by protected incumbents on the usefulness of these spectrum blocks.³²⁹

143. **Discussion.** One of the spectrum management challenges in expeditiously achieving efficient and intensive commercial use of the 700 MHz bands is minimizing the operational difficulties presented by incumbent TV licensees to new wireless licensees, consistent with maintaining broadcast services through their transition. Promoting broadcasters' ability to build digital businesses, and continue their free programming service, requires both regulatory flexibility in their use of channels and the practical recognition that they may rely on revenue from existing, analog operations for some years. The extended license term specified for services on these bands in part reflects the recognition that incumbent television licensees on these frequencies may, under the statutory provision for DTV transition, continue to broadcast for some years, delaying the time when new licensees have uncompromised use of the spectrum resource. The Commission policy to promote broadcasters' ability to establish full DTV transmission by allowing maximum flexibility in developing viable business plans during the transition period is consistent with many of the objectives for the long-term use of the 700 MHz bands.³³⁰

144. The joint license structure adopted for incumbent television operators, however,

³²⁶ In addition, licensees operating fixed stations in the 747-762 MHz band must comply with the relevant provisions for "base stations" in Section 90.309 of our Rules; and licensees operating fixed stations in the 777-792 MHz band must comply with the relevant provisions for "control stations" in Section 90.309 of our Rules. 47 C.F.R. § 90.309.

³²⁷ 47 U.S.C. 309(j)(14). *See also DTV Proceeding* 12 FCC Rcd 12809, 12832 (1997), para. 54 (outlining elements of the transition schedule "by the sixth year from the date of adoption of this *Report and Order* a requirement of 50% simulcasting of the video programming of the analog channel on the DTV channel; by the seventh year, a 75% simulcasting requirement; by the eighth year, a 100% simulcasting requirement, until the analog channel is terminated and that spectrum returned.").

³²⁸ *NPRM* at para. 99.

³²⁹ *See, e.g., US WEST Comments* at 10.

³³⁰ *DTV Proceeding*, 12 FCC Rcd 12809, 12834, para. 60.

potentially complicates this process. The Commission licenses both the NTSC and DTV facilities, once digital transmission begins, under a "single, paired license."³³¹ While administrative efficiency is furthered by having one license for the purposes of revocation or non-renewal,³³² the unitary license may pose administrative complications if an incumbent wishes to consider accommodations to new licensees that affect only its analog, UHF operations.

145. The Congressional plan set forth in Sections 336 and 337 of the Act and in the 1997 Budget Act is to transition this spectrum from its current use for broadcast services to commercial use and public safety services.³³³ Congress also has directed us to auction the 36 MHz spectrum for commercial use six years before the relocation deadline for incumbent broadcasters in this spectrum, while adopting interference limits and other technical restrictions necessary to protect full-service analog television service during the transition to DTV.³³⁴ In these circumstances, we will consider specific regulatory requests needed to implement voluntary agreements reached between incumbent licensees and new licensees in these bands. In considering whether the public interest would be served by approving specific requests, we would, for example, consider the benefits to consumers of the provision of new wireless services, such as next generation mobile services or Internet fixed access services. We would also consider whether such agreements would help clear spectrum for public safety use in these bands and could result in the provision of new wireless service in rural and other relatively underserved communities. On the other hand, we would also consider loss of service to the broadcast community of the licensee. For example, we would consider the availability of the licensee's former analog programming within the service area, through simulcast of that programming on the licensee's DTV channel or distribution of the programming on cable or DBS, or the availability of similar broadcast services within the service area, (e.g., whether the lost service is the only network service, the only source for local service, or the only source for otherwise unique broadcast service).

V. CANADIAN AND MEXICAN BORDER REGIONS

146. There are currently separate agreements with Canada and Mexico covering TV broadcast use of the UHF 470-806 MHz band. Such agreements do not reflect the additional use or services being adopted in this item for 746-764 and 776-794 MHz bands. While the Commission staff has been involved in discussions with both countries regarding coordination or interference criteria for the use of these bands in the border areas for the additional services, agreements have yet to be reached.³³⁵ Therefore, until such agreements have been finalized, we believe it necessary to adopt certain interim requirements for licenses in these bands along the Canada and Mexico borders.³³⁶ Accordingly, licenses

³³¹ *DTV Proceeding*, 12 FCC Rcd 12809, 12834, para. 59.

³³² *DTV Proceeding*, 12 FCC Rcd 12809, 12834, para. 57.

³³³ 47 U.S.C. §§ 336-337.

³³⁴ *See Consolidated Appropriations*, Appendix E, Sec. 213. *See also* 145 Cong. Rec. at H12493-94, (Nov. 17, 1999).

³³⁵ Both Canada and Mexico have been notified that the Commission has changed the allocation of these bands, and the Commission has discussed with them the possibility of mutually compatible spectrum use in all three countries.

³³⁶ Many agreements have used the geographic distance of 120 km from the border as the coordination or effected area. We will apply this criterion until agreements are reached.

issued for these bands within 120 km of the borders will be subject to whatever future agreements the United States develops with these two countries. In that the existing agreements for the protection of TV stations in these countries are still in effect and must be recognized until they are replaced or modified to reflect the new uses, licenses in the border areas will be granted on the condition that harmful interference may not be caused to, but must accept interference from, UHF TV transmitters in Canada and Mexico. Furthermore, modifications may be necessary to comply with whatever provisions are ultimately specified in future agreements with Canada and Mexico regarding the use of these bands. Pending further negotiations, we also adopt the protection criteria for domestic TV and DTV stations as interim criteria for Canadian and Mexican TV and DTV stations as described herein.³³⁷

VI. PROCEDURAL MATTERS AND ORDERING CLAUSES

147. Authority. This action is taken pursuant to Sections 1, 4(i), 7, 10, 201, 202, 208, 214, 301, 303, 307, 308, 309(j), 309(k), 310, 311, 315, 317, 324, 331, 332 and 336 and 337 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 154(i), 157, 160, 201, 202, 208, 214, 301, 303, 307, 308, 309(j), 309(k), 310, 311, 315, 317, 324, 331, 332, and 336, and 337 and the Consolidated Appropriations Act, 2000, Pub. Law 106-113, 113 Stat. 1501, Section 213.

148. Accordingly, IT IS ORDERED that Part 27 of the Commission's Rules IS AMENDED to establish service rules for the 746-764 and 776-794 MHz bands, as set forth in Appendix B, and that, in accordance with Section 213 of the Consolidated Appropriations Act, 2000, Pub. Law 106-113, 113 Stat. 1501 (1999), these Rules shall be effective immediately upon publication in the Federal Register.

149. IT IS FURTHER ORDERED that, pursuant to 47 U.S.C. § 155(c), the Chief of the Wireless Telecommunications Bureau IS GRANTED DELEGATED AUTHORITY to implement and modify auction procedures in the Wireless Communications Service, including the general design and timing of the auction; the manner of submitting and withdrawing bids; the amount of any minimum opening bids and bid increments; activity and stopping rules; and application and payment requirements, including the amount of upfront payments; and to announce such procedures by public notice.

FEDERAL COMMUNICATIONS COMMISSION



Magalie Roman Salas
Secretary

³³⁷ See Section IV, *supra*.