Before the

FEDERAL COMMUNICATIONS COMMISSION

Washington, D.C.

In the Matter of

Amendment of Part 90 of the Commission's Rules To Provide for the Use of the 220-222 MHz Band by the Private Land Mobile Radio Service	)	PR Docket No. 89-552
Implementation of Sections 3(n) and 332 of the Communications Act	)	GN Docket No. 93-252
Regulatory Treatment of Mobile Services	)	
Implementation of Section 309(j) of the Communications Act — Competitive Bidding	)	PP Docket No. 93-253

MEMORANDUM OPINION AND ORDER ON RECONSIDERATION

Adopted: May 14, 1998; **Released:** May 21, 1998

By the Commission: Commissioner Ness issuing a statement.

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I. INTRODUCTION; EXECUTIVE SUMMARY

1. In this Order we consider Petitions for Reconsideration or Clarification of two Orders concerning the 220-222 MHz radio service (220 MHz service). On January 26, 1996, the Commission adopted final rules in the *220 MHz Second Report and Order*,[1] which enabled 220 MHz licensees to modify their licenses to relocate their authorized base stations within Commission specified parameters. In the *220 MHz Third Report and Order*,[2] adopted on February 19, 1997, the Commission established rules to govern the future operation and licensing of the 220 MHz service.

1. The Commission has received five petitions for reconsideration or clarification of the *220 MHz Second Report and Order* and one comment filed in response to those petitions.[3] In response to these petitions, we reaffirm the decision in the *220 MHz Second Report and Order*, with one clarification. We

[1] Amendment of Part 90 of the Commission's Rules To Provide for the Use of the 220-222 MHz Band by the Private Land Mobile F Service, PR Docket No. 89-552, Implementation of Sections 3(n) and 332 of the Communications Act, Regulatory Treatment of Mobil Services, GN Docket No. 93-252, Second Report and Order, 11 FCC Rcd 3668 (1996) (*220 MHz Second Report and Order*).

[2] Amendment of Part 90 of the Commission's Rules To Provide for the Use of the 220-222 MHz Band by the Private Land Mobile F Service, PR Docket No. 89-552, Implementation of Sections 3(n) and 332 of the Communications Act, Regulatory Treatment of Mobil Services, GN Docket No. 93-252, Implementation of Section 309(j) of the Communications Act – Competitive Bidding, PP Docket No 93-253, Third Report and Order; Fifth Notice of Proposed Rulemaking, 12 FCC Rcd 10943 (1997) (*220 MHz Third Report and Orde*

[3] A list of parties (together with short title references) filing petitions for reconsideration or clarification and comments to the *220 MHz Second Report and Order* is contained in Appendix A.

continue to believe that the procedures the Commission has adopted provide existing 220 MHz licensees flexibility to complete construction of their systems and provide service without unreasonably impairing the opportunity of potential competitors to obtain licenses in the 220 MHz service.

2. The petitions for reconsideration or clarification of the *220 MHz Second Report and Order* address a range of issues. Based on our review of these petitions, we are taking the following actions with regard to these issues in this Order:

- We deny petitions of AMTA and SMR requesting that we permit moves up to a maximum distance of 2 kilometers (km) if the licensee is moving from a location within a Designated Filing Area (DFA) to a location outside that DFA. We also deny Incom's petition asking that we clarify our position to indicate that a licensee whose initially authorized site is located inside a DFA within 8 km of the perimeter and who seeks to modify its authorization in order to move to a location outside the DFA be permitted to move its site a maximum of 25 km.

- We grant in part petitions of AMTA and SMR requesting that we accept modifications of operating parameters other than relocation modifications to the extent that we clarify that licensees who seek to relocate may modify their antenna height above average terrain (HAAT). Otherwise, we deny these petitions with respect to this issue.

- We deny petitions of AMTA, Incom, PERS, and SMR requesting that we reconsider or clarify that if a licensee had taken delivery of its base station transceiver on or before January 26, 1996, and had filed an application for Special Temporary Authority (STA) on or before January 26, 1996, the licensee need not have been granted an STA by January 26, 1996, in order to be allowed to seek permanent authorization at its STA site.

- We deny petitions of AMTA and Incom requesting that we clarify the *220 MHz Second Report and Order* to allow waiver requests to be accompanied by an alternative site proposal.

- We deny the petition filed by In Touch asking us to clarify that the Commission will accept waiver requests other than the specific type of waiver request discussed in the *220 MHz Second Report and Order* because such clarification is unnecessary under the Commission's rules.

3. The Commission has also received 11 petitions for reconsideration or clarification of the *220 MHz Third Report and Order*, seven comments filed in response to those petitions, and seven reply comments.[4] In general, we affirm the rules for the 220 MHz service adopted in the *220 MHz Third Report and Order*, however, we adopt some changes and clarifications in response to the petitions for

[4] A list of parties (together with short title references) filing petitions for reconsideration or clarification, comments, and reply comments to the *220 MHz Third Report and Order* is contained in Appendix B.

reconsideration or clarification. Specifically, we are taking the following action with regard to issues raised in these petitions:

- We deny the petitions of AMTA, INTEK, PCIA, and SMR that we modify the Commission's rules to require the protection of the 28 dBu, rather than the 38 dBu, service contour of Phase I licensees.[5]

- We deny the petitions of SEA, PCIA, and INTEK that we modify the Commission's rules to calculate the service contour of 220 MHz Phase I base stations based on the maximum allowable power and antenna height for such stations.

- We grant in part the petitions of AMTA, INTEK, PCIA, and SMR that Phase I licensees be permitted to modify their authorizations to the extent that Phase I licensees will be permitted to make modifications to their authorizations which do not expand their 38 dBu service contour and also will be permitted to convert their site-by-site licenses to a single license. Otherwise, we deny these petitions with respect to this issue.

- At the request of Comtech, we clarify the Commission's decision to eliminate the emission mask requirement for a licensee's inner, contiguous channels, by indicating that the Commission intended the decision to apply to those inner, contiguous channels that a licensee might derive from multiple authorizations.

- We grant the petition of SEA that the antenna height limitation for stations operating in the 220 MHz band be associated with the HAAT of the station's transmitting antenna, rather than the antenna's height above ground.

- We deny the petitions of Comtech and Glenayre that we raise the power limit for fixed stations operating on mobile channels from 50 watts effective radiated power (ERP) to 500 watts ERP.

- We dismiss on procedural grounds the petitions of Comtech and Glenayre that we raise the power limit for the base stations of nationwide licensees from 500 watts ERP to 1400 watts ERP.

- We deny the request of Metricom that we specify the criteria used to determine whether licensees have provided substantial service.

- We remove the 220 MHz service spectrum efficiency standard, and thus grant the petition of Comtech that we eliminate the efficiency standard as applied to paging operations.

[5] For a description of the licensing phases for 220 MHz service, see note 10, *infra*.

Consequently, we deny the petitions of Rush and Glenayre that we amend the 220 MHz service spectrum efficiency standard.

- We dismiss on procedural grounds the petitions of Rush and Metricom that we revisit the construction requirements for Phase I licensees.

- We dismiss on procedural grounds the petitions of Global and Comtech that we revisit the requirement that nationwide, Phase I licensees construct all five channels at a minimum number of base stations at certain urban sites.

- We dismiss on procedural grounds the petitions of Global, Comtech, and Rush that we cease to require nationwide, Phase I licensees to obtain specific licenses for each base station.

- We grant the petitions of Comtech and Global seeking clarification of Section 90.769 of the Commission's Rules, by clarifying that Section 90.769 applies only to Phase II nationwide licensees and not to Phase I nationwide licensees.

- We grant the petition of National requesting that we reconsider or clarify language regarding the return of pending nationwide 220 MHz applications, by clarifying that the language ordering the return of pending nationwide applications does not apply to pending, commercial, nationwide 220 MHz applications.

- We dismiss as moot the petition of Comtech that the Commission amend its rules to permit entities to obtain more than one Phase I authorization in a geographic area.

- Consistent with the conclusions reached in the *Part 1 Third Report and Order*, we eliminate installment payment plans for small and very small businesses participating in the 220 MHz Service auction, and increase the level of bidding credits for such entities. We will also amend the Commission's rules to permit auction winners to make their final payments within ten (10) business days after the applicable deadline, provided that they also pay a late fee of five (5) percent of the amount due.

II. BACKGROUND

4. The Commission established the 220 MHz service in the *220 MHz Report and Order* in April 1991.[6] The Commission adopted service rules for the assignment of 200 five kilohertz (kHz) channel pairs in the 220-222 MHz band to both Federal Government and private land mobile users. The Commission

[6] Amendment of Part 90 of the Commission's Rules To Provide for the Use of the 220-222 MHz Band by the Private Land Mobile F Services, PR Docket No. 89-552, Report and Order, 6 FCC Rcd 2356 (1991) (*220 MHz Report and Order*).

authorized 60 of the 200 channel pairs for nationwide licensing, with 10 of these designated for assignment to Federal Government entities. The remaining 50 nationwide channel pairs were reserved for non-Government users, with 20 channel pairs designated for "commercial" use and 30 channel pairs designated for "non-commercial" use.[7] The 20 commercial channel pairs were divided into four five-channel blocks and the 30 non-commercial channel pairs were divided into two 10-channel and two five-channel blocks. The Commission designated the remaining 140 channel pairs for non-nationwide use by both Government and non-Government licensees. The Commission also decided that all applications for 220 MHz channels would be granted on a first-come, first-served basis and that mutually exclusive applications would be assigned through random selection procedures.[8]

5. The Commission began accepting applications for 220 MHz licenses on May 1, 1991, and on May 24, 1991, after receiving over 59,000 applications, imposed a moratorium on the filing of all initial and modification applications for the 220 MHz service.[9] Since then, the Commission has issued authorizations to approximately 3,800 licensees to operate "non-nationwide" 220 MHz stations.[10]

A. 220 MHz Second Report and Order

6. Shortly after the Commission began processing 220 MHz applications, a court case was brought challenging the Commission's 220 MHz licensing procedures. This effectively placed all of the more than 3,000 authorizations the Commission granted in doubt for nearly a two-year period, and the uncertainty with respect to the finality of the Commission's grant of their licenses caused many

[7] At the time of the adoption of the *220 MHz Report and Order*, the Commission used the term "commercial" to refer to licensees who would operate as carriers under Part 90 of the Commission's Rules and provide commercial radio services to end users. The Commission used the term "non-commercial" to refer to licensees who would use spectrum to satisfy their own internal communications requirements. These terms do not correlate directly with the terms Commercial Mobile Radio Service (CMRS) and Private Mobile Radio Service (PMRS), as defined in Section 20.3 of the Commission's Rules, 47 C.F.R. § 20.3.

[8] *220 MHz Report and Order*, 6 FCC Rcd at 2364-65 (paras. 59, 62).

[9] Acceptance of 220-222 MHz Private Land Mobile Applications, Order, 6 FCC Rcd 3333 (1991). The Private Radio Bureau state that the imposition of a freeze on the acceptance of new applications was necessary to allow the Bureau to process the large number of 220 MHz applications received. *Id.* at 3333 (para. 4).

[10] Licensees granted authorizations from among applications filed on or before May 24, 1991, are hereinafter referred to as Phase I licensees. On August 28, 1995, the Commission released the *Third Notice*, which proposed market area licensing and more flexible technical rules for the next phase (Phase II) of licensing of the 220 MHz band. Amendment of Part 90 of the Commission's Rules To Provide for the Use of the 220-222 MHz Band by the Private Land Mobile Radio Service, PR Docket No. 89-552, RM-8506 Implementation of Sections 3(n) and 332 of the Communications Act, GN Docket No. 93-252, Implementation of Section 309(j) of the Communications Act – Competitive Bidding, 220-222 MHz, PP Docket No. 93-253, Second Memorandum Opinion and Order and Th Notice of Proposed Rulemaking, 11 FCC Rcd 188 (1995) (*Third Notice*).

licensees to refrain from constructing their stations.[11] Following the settlement of the case in March 1994, the deadline for licensees to construct their systems and place them in operation was extended on four separate occasions to allow licensees sufficient time to construct their systems.[12] Because several years had passed since 220 MHz licensees filed their applications for which licenses were granted, many licensees found that, for various unforeseen reasons, they were unable to construct at their authorized locations. In response, the Commission issued the *Fourth Notice*, proposing a procedure to enable existing licensees in the 220 MHz service to seek modification of their authorizations to relocate their base stations.[13]

7. Based on its review of the record following the release of the *Fourth Notice,* on January 26, 1996, the Commission adopted and released the *220 MHz Second Report and Order.* In that *Order*, the Commission adopted a procedure that enabled 220 MHz licensees to modify their licenses to relocate their authorized base stations to previously unauthorized locations. Under this procedure, licensees with base stations authorized inside any DFA[14] were permitted to relocate their base stations up to one-half the distance over 120 km toward any authorized co-channel base station, to a maximum distance of 8 km.[15] Licensees with base stations authorized outside the boundaries of any DFA were permitted to

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[11] *See* Evans v. FCC, Order, per curiam, Case No. 92-1317 (D.C. Cir. Mar. 18, 1994) (*Evans v. FCC*).

[12] In a Public Notice released on September 10, 1992, the Private Radio Bureau announced that the construction deadline for all non-nationwide 220 MHz stations would be 120 days after the disposition of the *Evans v. FCC* case. Public Notice, 7 FCC Rcd 6378 (1992). Following the disposition of the case, the Bureau extended the construction deadline to December 2, 1994, in an Order released on March 30, 1994. *See* Amendment of Part 90 of the Commission's Rules To Provide for the Use of the 220-222 MHz Band the Private Land Mobile Radio Services, PR Docket No. 89-552, Order, 9 FCC Rcd 1739 (1994). In the *CMRS Third Report and Or* the Commission established April 4, 1995, as the construction deadline. Implementation of Sections 3(n) and 332 of the Communications Act, Regulatory Treatment of Mobile Services, GN Docket No. 93-252, Third Report and Order, 9 FCC Rcd 7988, 8 (para. 184) (1994) (*CMRS Third Report and Order*), *recon. pending*. On February 17, 1995, the Wireless Telecommunications Bure released an Order extending the deadline to December 31, 1995. *See* Amendment of Part 90 of the Commission's Rules To Provide fo the Use of the 220-222 MHz Band by the Private Land Mobile Radio Services, PR Docket No. 89-552, Order, 10 FCC Rcd 3356 (Wi Tel. Bur. 1995). On December 15, 1995, the Bureau released an Order providing for a further extension of the construction deadline contingent upon the closure of the Commission as a result of any furlough of Federal Government employees. The ensuing 23-day Federal furlough resulted in an extension of the construction deadline to February 2, 1996, pursuant to a formula established in the Bureau Order. *See* Amendment of Part 90 of the Commission's Rules To Provide for the Use of the 220-222 MHz Band by the Private Land Mobile Radio Services, PR Docket No. 89-552, Order, 11 FCC Rcd 9710 (Wireless Tel. Bur. 1995).

[13] Amendment of Part 90 of the Commission's Rules To Provide for the Use of the 220-222 MHz Band by the Private Land Mobile Radio Service, PR Docket No. 89-552, Implementation of Sections 3(n) and 332 of the Communications Act, GN Docket No. 93-252, Fourth Notice of Proposed Rulemaking, 11 FCC Rcd 835 (1995) (*Fourth Notice*).

[14] The Commission established 50 Designated Filing Areas in its initial licensing of the 900 MHz Specialized Mobile Radio band. *See* Public Notice, Private Land Mobile Application Procedures for Spectrum in the 896-901 MHz and 935-940 MHz bands, D 86-173, 1 FCC Rcd 543 (1986).

[15] *220 MHz Second Report and Order*, 11 FCC Rcd at 3670 (para. 9).

relocate their base stations up to one-half the distance over 120 km toward any authorized co-channel base station, to a maximum distance of 25 km, so long as they did not locate their base station more than 8 km inside the boundaries of any DFA.[16] A licensee was permitted to relocate its base station less than 120 km from the base station of a co-channel licensee or more than one-half the distance over 120 km toward the base station of a co-channel licensee only with the consent of that licensee.[17]

8. The Commission also extended the February 2, 1996 construction deadline to March 11, 1996 for all non-nationwide 220 MHz licensees that elected to construct their base stations at their originally-authorized locations, and to August 15, 1996 for all licensees granted authority to modify their licenses to relocate their base stations.[18] Licensees seeking authority to modify their authorizations to relocate their base stations were required to file, on or before March 11, 1996, a modification application or statement of their intention to file an application requesting such modification, and were required to file a modification application on or before May 1, 1996.[19]

B. 220 MHz Third Report and Order

9. On July 28, 1995, the Commission adopted the *Third Notice*, which proposed a new framework for the operation and licensing of the 220-222 MHz band.[20] Based on its review of the comments in response to the *Third Notice*, the Commission adopted the *220 MHz Third Report and Order* on February 19, 1997. In the *220 MHz Third Report and Order*, the Commission decided to return pending, mutually exclusive applications for the four non-commercial, Phase I nationwide licenses and adopt a new licensing procedure for the 30 channels associated with these licenses. The Commission determined that the 30 channels would be licensed on a nationwide basis to all applicants, whether used for commercial services or for a licensee's private, internal use. The channels will be assigned, in the form of three 10-channel authorizations, through competitive bidding.

10. The Commission also decided to assign the non-nationwide licenses as five blocks (composed of 10 channels in each block) in 175 geographic areas defined as Economic Areas by the Bureau of Economic Analysis, Department of Commerce ("EA licenses") and five blocks (composed of 15 channels in each block) in geographic areas defined by six "Regional Economic Area Groupings" ("Regional licenses"). The Commission made these channels available to all eligible applicants, and decided to

[16] *Id.*

[17] *Id.*

[18] *Id.* at 3674 (para. 21).

[19] *Id.* at 3674 (para. 22).

[20] We refer herein to licenses granted pursuant to this new framework as Phase II licenses. Licenses granted under the rules that existed prior to the adoption of the *220 MHz Third Report and Order* are referred to as Phase I licenses.

resolve mutually exclusive applications for these channels through competitive bidding. The Commission provided a 10-year license term for Phase II licensees, and required Phase II licensees to meet five- and ten-year construction benchmarks.

11. The Commission permitted EA and Regional licensees to operate stations anywhere within their geographic borders, provided that their transmissions did not exceed a predicted field strength of 38 dBuV/m at their border, and provided that they protect the base stations of Phase I licensees in accordance with the existing co-channel separation criteria for 220 MHz stations.

12. The Commission also decided to allow all Phase I and Phase II, nationwide and non-nationwide 220 MHz licensees to operate fixed and paging systems without the requirement that such use be on an ancillary basis to land mobile operations. The Commission further determined that it would be appropriate to permit Phase I and Phase II, nationwide and non-nationwide 220 MHz licensees, to aggregate any of their contiguous 5 kHz channels and operate on channels wider than 5 kHz, so long as they comply with a prescribed spectrum efficiency standard.

13. Finally, the Commission established rules and procedures governing the auction of the Phase II 220 MHz Service licenses. Among other things, the Commission established installment payment plans and bidding credits for small and very small businesses designed to assist such entities in overcoming economic barriers to their participation in the auction.

III. DISCUSSION

A. 220 MHz Third Report and Order Issues

14. Because one of the issues raised in connection with our reconsideration of the *220 MHz Second Report and Order* will be affected by our resolution of an issue raised on reconsideration of the *220 MHz Third Report and Order*, we will first consider the issues raised on reconsideration of the *220 MHz Third Report and Order*.

1. Protection of Phase I Licensee Operations

a. Background

15. In the *220 MHz Third Report and Order*, the Commission decided that Phase II EA and Regional licensees would be required to locate their base stations at least 120 km from the base stations of co-channel Phase I licensees, except that Phase II licensees would be permitted to locate their base stations less than 120 km from the base stations of co-channel Phase I licensees if they provide 10 dB protection to the predicted 38 dBuV/m (dBu) service contour of the base stations of the Phase I

licensees.[21] This rule was derived from the rule adopted in the *220 MHz Report and Order*, which established a 120 km separation between co-channel, Phase I base stations, with shorter separations considered where licensees provide 10 dB protection to the predicted 38 dBu service contour[22] of co-channel base stations.[23]

16. Six parties (AMTA, SMR, INTEK, PERS, PCIA, and SEA) seek reconsideration of this decision.[24] AMTA, SMR, INTEK, and PERS argue that Phase II licensees should be required, in locating their base stations, to afford greater protection to co-channel Phase I licensees by providing 10 dB protection to the predicted *28* dBu service contour of all co-channel Phase I base stations,[25] and SMR contends that the distance separation provided by Phase II licensees to co-channel Phase I licensees should be 170 km, rather than 120 km, except in instances where "unique terrain or other features justify a lesser distance separation."[26] PCIA and SEA do not oppose continued protection of the 38 dBu service contour, but assert that we should afford greater than 10 dB protection to that contour.

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[21] As indicated in the *220 MHz Third Report and Order*, Phase II licensees may meet this requirement by submitting a technical analysis demonstrating that the predicted 28 dBuV/m interfering contour of their base station does not overlap the predicted 38 dBuV/m service contour of the Phase I licensee's base station. *220 MHz Third Report and Order*, 12 FCC Rcd at 11025-26 (para. 173).

[22] Unless otherwise indicated, any references to a station's "contour" or "service contour" herein refers to that station's *predicted* F(50,50) service contour, as determined by Figure 10 of Section 73.699 of the Commission's Rules, 47 C.F.R. § 73.699.

[23] *See* Section 90.723(i) of the Commission's Rules, 47 C.F.R. § 90.723(i).

[24] In its Third Order Petition, AMTA, a trade association, indicates that its members include 220 MHz licensees. AMTA also indicates in its Third Order Petition that its 220 MHz Council "includes representatives of the vast majority of incumbent licensees, 220 MHz organizers, and narrowband 220 MHz equipment suppliers," and is "actively involved in all aspects of the 220 MHz marketplace." AMTA Third Order Petition at 2. SMR, in its Third Order Petition, indicates that it manages 85 constructed Phase I systems. SMR Third Order Petition at 2. INTEK is the parent company of Securicor Limited and Roamer One, Inc. Securicor Limited is a manufacturer of 220 MHz radio equipment. Roamer One, Inc., in comments filed on September 27, 1995, indicated that, at that time, it was "operating eighty-five (85) 220 MHz systems, and [had] shipped RF equipment or begun installation for approximately fifty-five (55) more systems." Roamer One, Inc., Comments at 2. In its Third Order Petition, INTEK indicates that Roamer One, Inc., is one of the leading operators and managers of 220 MHz land mobile radio systems. INTEK Third Order Petition at 2. PERS indicates that it has been involved in the construction of over one-hundred 220 MHz systems and that it represents a substantial number of incumbent licensees. PERS Third Order Comment at 3 (unpaginated). In its Third Order Petition, PCIA, a trade association, indicates that it has "participated in all phases of this 220 MHz proceeding." PCIA Third Order Petition at 1. SEA is a manufacturer of 220 MHz radio equipment. In its Third Order Petition, SEA indicates that it has been involved in the development of 5 kHz narrowband technology for land mobile radio users since 1981. SEA Third Order Petition at 2.

[25] USMC, which indicates in its Third Order Comments that it "believes that it manages more systems in the major markets on the East Coast than any other 220 MHz management company," concurs with AMTA's petition to increase co-channel protection for Phase non-nationwide licensees. USMC Third Order Comments at 2.

[26] SMR Third Order Reply at 6-8.

b. Adequacy of Current Protection Criteria

17. AMTA, in expressing views that are generally representative of those of other petitioners, argues that the decision made by the Commission in the *220 MHz Third Report and Order* to provide 10 dB protection to the 38 dBu contour of Phase I stations does "not provide adequate protection between Phase I and Phase II licensees."[27] AMTA contends that in their original comments on this issue,[28] all interested parties indicated that the 28 dBu contour was the appropriate protected service contour[29] for the 220 MHz service, claiming that "220 MHz systems were essentially outperforming the Commission's original coverage estimation by a significant degree in the real world."[30] AMTA indicates in its petition that 220 MHz customers "are currently operating throughout the 28 dBu reliable service areas,"[31] and that failure to adopt co-channel protection criteria based on a 28 dBu contour "denies Phase I 220 MHz licensees a quality of service comparable to that of competitive wireless systems."[32]

18. As a general matter, we would be concerned about taking any action that would have a negative impact on existing customers who are receiving service from a Commission licensee. We conclude, however, based upon our detailed analysis in the following sections, that retention of the existing 38 dBu protected contour will not adversely affect operations in the 220 MHz service. We base this conclusion on the lack of meaningful, valid evidence or justification in support of petitioners' claim that the 28 dBu contour is the field strength contour that should be protected in the 220 MHz service.

19. The matter of whether we should modify the Commission's protection criteria essentially turns on two issues. The first is whether we should protect the 28 dBu contour instead of the 38 dBu contour because the signal at the 28 dBu contour produces a quality of service deserving of protection. There are various references by petitioners, and by commenters in the previous proceeding, to the effect that "reliable service" is being provided at the 28 dBu contour.[33] Yet, beyond this limited, and

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[27] AMTA Third Order Petition at 4.

[28] AMTA is referring to the comments filed in response to the *Third Notice*.

[29] The service contour to be protected may be referred to as the "protected service contour."

[30] AMTA Third Order Petition at 5.

[31] *Id.* at 8.

[32] *Id*. at 6.

[33] SMR Third Order Petition at 6; AMTA Third Order Petition at 6-7. INTEK claims that at the 24 dBu contour, customers are able to access a control channel. INTEK Third Order Petition at 4. *See also* INTEK Third Order Petition, App. A.

basically anecdotal information, petitioners provide no other evidence to justify this contention. The second issue is whether, as some petitioners appear to suggest, 220 MHz signals invariably propagate farther than predicted by the Commission's Section 73.699 curves. However, petitioners provide no data to adequately support such a claim.

20. Petitioners also argue that because the Grade B contour for high VHF television stations is 8 dB lower than the Grade B contour for UHF television stations, the protected service contour for the 220 MHz service should be 12 dB lower than the 40 dBu protected service contour used for the 800 MHz and 900 MHz land mobile bands. However, as we discuss in greater detail in the following sections, operating frequency is not the sole criteria used to determine service contours, and the discussion by commenters themselves of the use of a 32 dBu contour in the cellular service is evidence of this fact. Additionally, the mathematical relationship between the Grade B contours of the UHF and high VHF television bands and the corresponding mathematical relationship between the protected service contour for the 220 MHz band and the 800 MHz and 900 MHz land mobile bands were known to potential 22 MHz licensees and manufacturers alike when the 220 MHz service rules were adopted in 1991. Yet, none of these parties sought reconsideration of the Commission's decision to employ a 38 dBu service criteria at that time.[34]

21. While we endeavor to provide appropriate protection for all licensees in all services licensed by the Commission, it is a fact that no protection criteria can guarantee that interference will not occur. In fact, in developing protection criteria between Phase II licensees the Commission recognized that interference is a possibility when it permitted co-channel Phase II licensees to place a 38 dBu signal at their common border. To address situations where interference subsequently occurs, the Commission indicated that Phase II licensees would have to resolve such occurrences between themselves.[35] In the event that instances of interference do occur between Phase I and Phase II licensees, we are confident that these licensees, too, will be able to resolve their differences.

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[34] Providing 10 dB protection to the 38 dBu service contour resulted in a 120 km distance separation between co-channel base stations, which was used to determine the assignment of Phase I 220 MHz licenses. Had the Commission provided 10 dB protection to the 28 dBu service contour instead, and adopted the maximum allowable power and antenna height parameters that were adopted in the *220 MHz Report and Order* (*i.e.*, 500 watts ERP and 150 meters HAAT), the minimum distance between co-channel stations would have been 170 km, and, as a result, fewer Phase I 220 MHz licenses would have been awarded from among the applications received in 1991.

[35] In theory, the likelihood of interference at an EA or Regional border between Phase II licensees is greater than the likelihood of interference between Phase I and Phase II stations. This is because at the EA or Regional border both Phase II licensees may provide the *same* 38 dBu signal, but Phase II licensees must provide 10 dB protection to the 38 dBu signal of the Phase I licensee. It is interesting to note, given this, that no petitions called for changes to the protection criteria for EA and Regional licensees or changes to the procedures under which interference disputes between such licensees are resolved. Moreover, none of the parties who argue for the use of 28 dBu service contour for Phase I licensees petitioned for changes to the Commission's rules to similarly limit Phase II signals to 28 dBu, rather than 38 dBu, at the border.

22. AMTA states that if interference occurs between Phase I licensees, they will be able to "resolve whatever interference problems arise without FCC involvement." If this is the case and if, as AMTA suggests, interference will affect the operations of both Phase I and Phase II licensees, we see no reason why Phase I and Phase II licensees will not be similarly able to amicably resolve any interference matters that may arise. As AMTA points out, many of the Phase I licensees of today will be the Phase II licensees of tomorrow. And we believe that the unity that 220 MHz licensees have demonstrated in attempting to make the 220 MHz service successful over the years[36] will carry over into any negotiations that they may undertake on interference issues and will lead to a successful resolution of such matters.

23. Additionally, AMTA makes the argument that we should modify the Commission's protection criteria because failure to do so "denies Phase I 220 MHz licensees a quality of service comparable to that of competitive wireless systems." The matter of whether a 28 dBu or 38 dBu service contour provides the same quality of service as the 40 dBu service contour for 800 MHz and 900 MHz service aside,[37] we have provided virtually the same service area for 220 MHz systems as the Commission did for 800 MHz and 900 MHz systems by our selection of operating parameters. Specifically, the maximum allowable power and antenna height for 800 MHz and 900 MHz stations is 1000 watts ERP and 305 meters HAAT, which produces a 40 dBu service contour at approximately 29 miles from the transmitter. The maximum allowable power and antenna height for 220 MHz stations is 500 watts ERP and 150 meters HAAT which produces a 38 dBu service contour at approximately 28 miles from the transmitter. Thus, in defining the maximum allowable parameters in this manner for the 220 MHz service, the Commission provided 220 MHz licensees with about the same service area as 800 MHz and 900 MHz licensees.[38]

24. When the 220 MHz service was established in 1991, the Phase I applicant, and subsequently the Phase I licensee, expected, when it obtained its license and constructed its system, to have a system that provided service to its 38 dBu contour. If a particular 220 MHz licensee's system performs better than anticipated by providing quality signals beyond its 38 dBu contour,[39] then this would be a benefit for that licensee not anticipated in 1991. We do not believe, however, that the possibility of enhanced system performance in certain unique areas of the country is a basis for providing Phase I 220

[36] For example, the members of AMTA's 220 MHz Council, representing all elements of the 220 MHz service community, have, for many years, worked together to advance the 220 MHz service. *See* AMTA Third Order Petition at 2.

[37] *See* paras. 51-52, *infra*, for further discussion of this issue.

[38] There is precedent for this type of action. The Grade A and Grade B television contours, for example, vary among the three TV bands (*i.e.*, the Grade A and Grade B contours are 68 dBu and 47 dBu, respectively for Channels 2-6; 71 dBu and 56 dBu, respectively, for Channels 7-13; and 74 dBu and 64 dBu, respectively, for Channels 14-69). Yet, in order to enable television stations operating in these three bands to produce approximately the same service area, the Commission has established widely different maximum allowable parameters for stations in each band.

[39] *See*, *e.g.*, para. 46, *infra*.

MHz licensees with protection to a service area that is larger than the service area they had originally expected to obtain. The Commission's current rules provide 220 MHz licensees with exactly the protection they had expected to receive when they applied for their licenses — *i.e.*, protection to a service area that is equivalent to the service area provided for the 800 MHz and 900 MHz land mobile radio services.[40]

25. In the 220 MHz service, we believe that we have provided appropriate protection for Phase I licensees and that it is not necessary to require Phase II licensees to provide the additional protection sought by petitioners. We conclude that to do so would force Phase II licensees to provide unnecessary protection to Phase I licensees, thereby diminishing Phase II licensees' coverage capabilities[41] and their ability to provide service to the public. We are confident that our existing protection criteria will permit us to license future, Phase II 220 MHz licensees and will enable these and Phase I licensees to operate in harmony.

26. Having presented this overview of the arguments regarding the adequacy of the current protection criteria, as well as our conclusions and rationale, we now turn to a more detailed discussion of technical information and arguments submitted by the petitioners.

c. Analysis of Technical Arguments

(1) Estimation of Propagation Characteristics

(a) Performance of 220 MHz Signal

27. AMTA claims that the Commission "may have underestimated the propagation characteristics of the band[,]" stating that "220 MHz signals simply talk considerably farther than those in the 800 MHz and 900 MHz bands from which the 220 MHz protection criteria seemingly were extrapolated," and tha this difference is "not reflected adequately in the 2 dB difference between the benchmark 40 dBu contour at 800 MHz and 900 MHz and the 38 dBu contour adopted at 220 MHz."[42] AMTA notes that comm have observed that in the "real world," 220 MHz systems perform better than originally estimated by the

[40] Of course, if a 220 MHz licensee or an 800 MHz or 900 MHz licensee elects to operate at a power or antenna height less than maximum allowable, then this is a decision the licensee chooses to make, and its resulting service area will be proportionally smaller than the maximum attainable (*i.e.*, less than 28 miles for the 220 MHz service, and less than 29 miles for the 800 and 900 MHz services).

[41] The 38 dBu contour of a maximum parameter Phase I station would extend approximately 28 miles. The 28 dBu contour of a maximum parameter Phase I station, however, would extend approximately 40 miles.

[42] AMTA Third Order Petition at 6-7.

Commission,[43] that 220 MHz systems operating at 500 watts ERP and 500 feet HAAT will provide "a high quality signal to about 50 percent of the locations, 50 percent of the time throughout a 28 dBu contour,"[44] and that members of the 220 MHz service industry will provide data that will "confirm that the actual reliable service area of a 220 MHz system is represented by a 28 dBu, not a 38 dBu, contour."[45]

28. In the following sections, we discuss the showings provided by various commenters. With regard to its statement that the Commission may have underestimated the propagation characteristics of the 220 MHz band, AMTA appears to be suggesting that 220 MHz signals propagate farther than the Commission's R-6602 curves predict.[46] However, as we discuss in later sections, neither AMTA nor any other commenters provide evidence to adequately support such a claim.

29. Furthermore, AMTA's observation that in the "real world," 220 MHz signals *perform* better than originally expected, and its claim that "high quality" 220 MHz signals are present at about 50 percent of the locations, 50 percent of the time throughout a 28 dBu contour,[47] are similarly unsupported by any study, analysis, measurements, or data that associate the sound produced by 220 MHz receivers operating at the 28 dBu contour, or any other contour for that matter, to any particular

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[43] *Id.* at 5.

[44] *Id.* at 6.

[45] *Id.* Presumably, AMTA, in making this observation, is referring to data that it anticipated would be furnished by other commenters in support of AMTA's request for the adoption of a 28 dBu service contour. AMTA itself did not provide any such data.

[46] The R-6602 curves are found in Section 73.699 of the Commission's Rules, 47 C.F.R. § 73.699. They were developed in the Commission's report "R-6602, Development of VHF and UHF Propagation Curves for TV and Broadcasting," issued Sept. 7, 1966. The "F(50,50)" curves in Section 73.699 predict the location at which a transmitter, operating on a given frequency and at a given power and antenna height, will produce a particular signal strength 50 percent of the time and at 50 percent of locations. Thus, for example, the curves predict that the location of the F(50,50) 38 dBu signal for a 500 watt ERP/150 meter HAAT station is approximately 45 km from the transmitter; and that the location of the F(50,50) 28 dBu signal for a 500 watt ERP/150 meter HAAT station is approximately 65 km from the transmitter.

[47] AMTA states that systems operating at 500 watts ERP and 500 feet HAAT will provide a high quality signal to about 50 percent of the locations, 50 percent of the time, throughout the 28 dBu contour. The provision of a particular signal quality, "high quality" or otherwise, within a given contour, however, is independent of the particular power and antenna height of the station transmitter. Because service contours expand and contract as a function of power and antenna height, the 28 dBu service contour of a station operating at less than 500 watts ERP and 500 feet HAAT would simply be smaller in radius than the 28 dBu contour of a station operating *at* 500 watts ERP and 500 feet HAAT. If it is AMTA's assertion that a high quality signal is present about 50 percent of the locations, 50 percent of the time throughout a 28 dBu contour, this would be the case regardless of the station's operating parameters. Presumably, AMTA is simply using a station operating at 500 watts ERP and 500 feet HAAT as an *example* of one that provides a "high quality" signal, recognizing that it is not necessary for the station to be operating at such parameters in order to provide such a signal.

service quality — *e.g.*, "high quality," "reliable," or otherwise. AMTA merely states that "customers are operating throughout the 28 dBu reliable service areas."[48]

30. The fact that customers may be "operating" throughout the area encompassed by a 28 dBu contour, however, is not particularly meaningful for two reasons. First, the fact that customers are capable of "operating" in particular areas could simply mean that they are receiving transmissions in those areas that are minimally acceptable for communication. In establishing protection criteria for the land mobile radio services, our goal in the past has been to protect quality signals from interference.[49] To protect minimally acceptable or minimally intelligible signals from interference would result in extremely, and unnecessarily large distances between co-channel stations, and we have not nor would not provide this type of interference protection. Second, in the "real world," terrain can vary from flat, to hilly, to mountainous. As a result, it is quite possible to receive signals of varying field strengths at a given distance from a transmitter (*e.g.*, a mobile station situated at the top of a hill would receive a much stronger signal than a nearby mobile station at the bottom of a hill); and we have no way of knowing what type of terrain may have produced the "reliable service" claimed by AMTA.[50]

31. Moreover, AMTA does not provide any details as to how many customers made these observations, how frequently the observations were made, what percentage of the estimated number of 20,000 existing 220 MHz customers[51] made these observations, whether the customers making these observations might be operating in an area of unusual and favorable terrain that might cause received signal strengths to differ markedly from predicted signal strengths, or what method was used to gather the data cited by AMTA. Finally, AMTA claims that 220 MHz signals "simply talk considerably farther than those in the 800 MHz and 900 MHz bands . . . ." However, AMTA does not explain or elaborate upon this statement; and it is therefore difficult, if not impossible, for us to address the merits of its assertion.

32. INTEK contends that in the *Third Notice* proceeding, the 38 dBu protection standard was "universally opposed by the land mobile industry." It supports AMTA's position, indicating that, based on "real-world operational data for Phase I 220 MHz systems that is now available," the

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[48] AMTA Third Order Petition at 8.

[49] *220 MHz Third Report and Order*, 12 FCC Rcd at 11027-28 (paras. 176-177).

[50] AMTA's use of the term "reliable service" is not new to this proceeding. In their comments to the *Third Notice* as well as their petitions for reconsideration, commenters suggested that we provide protection to contours other than the 38 dBu contour because, they claim, "reliable" service is being received at such contours. Neither AMTA nor these commenters, however, have defined the term "reliable service," nor stated what criteria they use to determine a "reliable" 220 MHz signal.

[51] *See* AMTA Third Order Petition at 7.

Commission should adopt the 28 dBu service contour.[52] INTEK also claims that the use of the 38 dBu service contour will "result in harmful interference between Phase I and Phase II licensees, a loss of existing service area for Phase I systems, and resulting `dead spots' between Phase I and Phase II operations."[53] It therefore concludes that, if left unchanged, the Commission's protection standards "will lead to harmful interference between Phase I and Phase II licensees, diminishing the potential use of the band and devaluating its worth in the marketplace."[54]

33. In support of its position, INTEK provides an engineering analysis, based on the operation of an existing 220 MHz system located in the Los Angeles, California area, in an attempt to show that "reliable service . . . is available up to the system's 24 dBuV/m contour."[55] Specifically, INTEK provides computer-generated maps indicating the expected locations of 38 dBu, 28 dBu, and 24 dBu signals transmitted from a base station situated at the top of Mount Lukens (overlooking Los Angeles).[56] INTEK claims that "the actual coverage areas wherein no less than 50% of the mobile units can access the control channel at least 50% of the time is known to us and our customers as that depicted by the 24 dBuV/m map."[57] We do not believe that this statement by INTEK represents sufficient engineering analysis to justify re-evaluation of the existing 38 dBu protected service contour. At a minimum, the circumstance of accessing a control channel is not a condition that we would use to help us determine an appropriate signal contour to be protected because it does not correlate to any particular service quality. Moreover, we are uncertain as to the relationship between accessing a control channel and INTEK's concept of "reliable service." Thus, we do not believe that INTEK's pictorial representations of the Los Angeles areas where various signal levels are predicted to be received constitute a sufficient showing to justify its claim that we should modify the existing 38 dBu service contour for the 220 MHz service.

34. SMR claims that the Commission's "initial selection of the 38 dBu contour as the best indicator of actual signal strength in the 220 MHz service appears to have been only a best guess estimate with no substantiating technical analysis or actual operating data," and that we should "change this factor now after having the benefit of actual data accumulated by operating systems and

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[52] INTEK Third Order Petition at 4.

[53] *Id.*

[54] *Id.* at 5.

[55] *Id.* at 4.

[56] To be precise, each of the maps employs the Longley-Rice terrain-based, signal prediction model to show the locations where particular field strengths (*i.e.*, ≥ 38 dBu, ≥ 28 dBu or ≥ 24 dBu) are predicted to exist. INTEK Third Order Petition, Technical Showing at 2 (unpaginated), App. A-C.

[57] *Id*., Technical Showing at 1 (unpaginated).

adopt a 28 dBu protected contour."[58] In response to this argument, we note that although the Commission has licensed 3,800 Phase I, non-nationwide base stations,[59] we have little data in the record attempting to justify the adoption of a 28 dBu service contour for the 220 MHz service. And, as discussed herein, we do not believe this limited amount of data has successfully justified the adoption of a 28 dBu service contour.

(b) SMR Comments and Vega Report

35. As part of its reply comments, SMR submits what it describes as an "independent technical analysis" by The Richard L. Vega Group, Inc.[60] "in order to provide the Commission with even more technical data to ensure that its decision is as informed as possible."[61] The Vega Report agrees with others who claim that we should use a 28 dBu, rather than a 38 dBu, protected service contour for the 220 MHz band,[62] and contends that a mere 2 dB reduction between the 40 dBu service contour used for the 800 MHz and 900 MHz bands and the 38 dBu service contour for the 220 MHz band is insufficient because o the "distinct frequency trends and the propagation differences between the two services."[63] The Report argues that the Commission's use of a "64 dBu protected contour" for the UHF television band (Channels 14-69), and a "56 dBu protected signal" for the high VHF television band (Channels 7-13) "establishes a benchmark *8 dB reduction* to the contour protection for stations operating in frequencies up to 600 MHz lower than in the UHF band to account for the superior propagation characteristics in the lower bands."[64]

36. We do not agree with this argument for the following reasons. First, when the Commission determined the Grade B contour for UHF and VHF stations — the 64 dBu and 56 dBu figures referenced by the Vega Report — in the 1951 rulemaking in Docket Nos. 8736, 8975, 8976, and 9175 (Television Broadcast Service), these calculations were based on a variety of factors.[65] Specifically, the Grade A and Grade B contours for television are the locations at which an acceptable television picture

[58] SMR Third Order Petition at 7.

[59] These licenses were authorized in 1993.

[60] We cite this submission as the "Vega Report" or the "Report."

[61] SMR Third Order Reply at 4. The data provided in the Vega Report is the only measured data provided by any commenter in this reconsideration proceeding.

[62] Vega Report at 1-7.

[63] *Id.* at 4.

[64] *Id.* (emphasis in original).

[65] 16 Fed. Reg. 3072 (Apr. 7, 1951).

quality would be expected to be received at a given percentage of locations and time. When the contours were developed in 1951, the Grade A contour was meant to define the location in an urban environment where a picture of acceptable quality would be expected to be received at 70 percent of locations and 90 percent of the time, and the Grade B contour was meant to define the location in a rural environment where a picture of acceptable quality would be expected to be received at 50 percent of locations and 90 percent of the time.

37. In determining the Grade A and Grade B contour, several factors had to be taken into consideration. For example, it was determined that a signal-to-noise ratio of 30 dB was needed to produce a picture of acceptable quality, and this applied to televisions operating in all three frequency bands — Channels 14-83[66] (UHF), Channels 7-13 (high VHF), and Channels 2-6 (low VHF). In addition, there were other factors that contributed to the level of the signal received, such as the antenna dipole factor, the gain of the television receive antenna, and the transmission line loss between the antenna (presumed to be 30 feet above ground) and the television. It was also necessary to take into consideration factors contributing to noise experienced at the receiver, including receiver noise — *i.e.*, thermal noise plus the receiver noise figure — and man-made noise. In addition, it was necessary to take into account the fact that the Grade A and Grade B contours were meant to indicate the existence of the signal level 90 percent of the time and either 50 percent of the locations (for Grade B) or 70 percent of the locations (for Grade A), with adjustments having to be made for these factors.

38. Thus, certain factors contributing to the determination of the Grade A and Grade B contours were based on known electromagnetic principles (*e.g.*, the antenna dipole factor), others were based on the quality of television receivers at the time (*e.g.*, the determination of the signal level needed to produce a picture of acceptable quality, the noise figure of the television receiver), others were based on mathematical models (*e.g.*, "time fading" and "location variability"), and still others were based on assumptions about the configuration of the television receiver and antenna (*e.g.*, antenna gain and line loss) and the electromagnetic environment surrounding the television receiver and antenna (*e.g.*, the man-made noise factor). By deciding on what it considered to be the appropriate values for each of these factors, the Commission was able to determine the strength of a television signal that would produce picture of acceptable quality, for all three frequency bands.

39. The Vega Report points to the 8 dB difference in field strength of the Grade B contour for Channels 7-13 and Channels 14-69, and suggests that this is evidence that because Channel 14-69 and Channel 7-13 frequencies parallel the 800 MHz and 900 MHz and 220 MHz frequencies, the protected service contour for 220 MHz should similarly be much more than 2 dB below the protected service contour

[66] In 1951, the UHF television band extended to Channel 83.

for the 800 MHz and 900 MHz band.[67] As indicated above, however, the determination of the television contours for Channels 14-69 and Channels 7-13 is a function of a variety of factors, some of which were unique to the television systems of the early 1950s. Thus, we would not consider the existence of different Grade B television field strength contours for different television bands to be the sole grounds for the adoption of similar field strength differences for land mobile system service contours.

40. Further, even if we were to assume *arguendo* that the fairly substantial difference between the Grade B contour for Channels 14-69 versus Channels 7-13 is evidence that we should employ a similar field strength difference for 220 MHz versus 800 MHz and 900 MHz, it is not entirely clear why we would choose to employ the Grade B, rather than the Grade A contour, for this purpose.[68] And significantly, the difference between the Grade A contour for television Channels 14-69 versus Channels 7-13 is only 3 dB, which is very close to the 2 dB difference between the 40 dBu service contour for the 800 and 900 MHz bands, and the 38 dBu service contour of the 220 MHz band.

[67] Specifically, the Vega Report asserts that we "should apply an additional 10 dB reduction to the 220 MHz protected service contour to account for the 600 MHz difference between the 220 MHz band and the 800/900 MHz bands and the associated differences propagation." Vega Report at 4.

[68] We note that the distance of the 38 dBu contour of a maximum parameter 220 MHz station (*i.e.*, 28 miles) is much closer to the distance of the Grade A contour of a maximum parameter Channel 7-13 television station (*i.e.*, 52 miles) than it is to the distance of the Grade B contour of a maximum parameter Channel 7-13 television station (*i.e.*, 75 miles).

41. Thus, given the fact that:

(1) the simple, mathematical difference in frequency between the different TV bands was not the only factor used to determine the Grade A and Grade B contours for the different TV bands;

(2) the factors that went into determining these contours were, for the most part, unique to television receivers and the television receiver system and environment; and

(3) even if we were to consider the television contours as a basis for determining appropriate service contours for land mobile systems, it is not clear that the Grade B contours should be used for this purpose,

we conclude that it would not be appropriate to adopt a 28 dBu protected service contour for the 220 MHz service solely because the Grade B contour for Channels 7-13 is 8 dB below the Grade B contour for Channels 14-69.

42. The Vega Report also argues that the Commission's development of a protected service contour in the cellular service "provides additional support for a modification to the 220 MHz protected contour."[69] The Report observes that "the `outer bounds' of [cellular] service was being provided at the 32 dBu contour, which was significantly lower than the 40 dBu protected contour employed in the 800/900 MHz services, even though systems in the 800/900 MHz service operate in virtually the same frequency band as cellular."[70] The Vega Report claims that "a more appropriate and consistent accounting for the differences between the [800/900 MHz and 220 MHz] frequency bands support [*sic*] a reduction from the 32 dBu protected cellular contour of at least 4 dB, resulting in a 28 dBu protected contour for the 220 MHz service with a corresponding minimum 10 dB C/I ratio to account for the frequency difference."[71]

43. The references in the Vega Report and by SMR[72] to recent actions in the cellular service and their argument that the determination of protected service contours is frequency-dependent are difficult to reconcile. For example, the Vega Report states that, because we are employing a 32 dBu contour for cellular, we should provide a "reduction from the 32 dBu protected cellular contour of at least 4 dB, resulting in a 28 dBu protected contour for the 220 MHz service . . . ." But the Vega Report

[69] Vega Report at 5.

[70] *Id.*

[71] *Id.*

[72] SMR Third Order Reply at 4-6.

provides no calculations that produce such a 4 dB figure. The Report also acknowledges that the 32 dBu contour used for cellular is significantly lower than the 40 dBu protected contour employed for the 800 MHz and 900 MHz land mobile services — services that are in the same part of the spectrum as cellular. SMR's argument, based upon the Vega Report, that we should expand the protected service contour for the 220 MHz band from 38 dBu to 28 dBu because the determination of this contour is frequency-dependent and its argument that the Commission employs a 32 dBu contour for cellular while employing a 40 dBu contour for the land mobile services operating essentially in the same frequency band would appear to be inconsistent.

44. In support of the contention that we should provide for what the Vega Report claims is a "more realistic protected service area," the Report provides signal strength measurements produced by "an existing 220 MHz facility."[73] The station transmitter operates at 5 watts ERP, at a height of 981 meters above mean sea level (AMSL). Data was collected in four different azimuths (0^0, 225^0, 270^0, and 315^0) and at three distances from the transmitter (16, 32, and 48 miles).[74] The following data was collected:

Miles	Measurements	Directions
16	-83 dBm, -80 dBm, -80 dBm, -85 dBm	0^0, 225^0, 270^0, 315^0
32	-90 dBm, -85 dBm, -85 dBm, -95 dBm	0^0, 225^0, 270^0, 315^0
48	-100 dBm, -93 dBm, -88 dBm	0^0, 225^0, 270^0

In referring to the data provided in the Vega Report, SMR states that "as can be seen by the tabulated results . . . the readings at the 28 dBu contour point consistently showed reliable service."[75]

45. We have the following observations with regard to this data. First, we note that the particular transmitter site chosen for the Vega Report's study is situated at Tiger Mountain, which is located about 20 miles southeast of Seattle, Washington. In Section 90.621(b)(1) and (b)(3) of the Commission's Rules, the Commission identifies 19 mountains in the Seattle area, including Tiger Mountain, and four mountains in the Los Angeles area,[76] and indicates that co-channel base stations located in the vicinity of base stations transmitting from these mountaintops are deserving of special

[73] Vega Report at 6.

[74] *See id*. at Exhibit 3. According to the Report, data at azimuths 45^0, 90^0, 135^0, and 180^0 were unavailable due to mountainous terrain. The Report also indicates that data in the 315^0 direction at the 48-mile location was unavailable because this location was over water.

[75] SMR Third Order Reply at 6.

[76] One of these mountains is Mt. Lukens, which was the location of the 220 MHz base station used by INTEK in its analysis. *See* para. 34, *supra*.

protection. This special protection is necessary because signals from base stations at these locations will propagate farther than predicted by the Section 73.699 curves.[77] Based on our knowledge of the particular terrain surrounding Tiger Mountain, we can state with confidence that any signal measurements taken in the low-lying areas to the north and west of the mountain would be greater than predicted by the Section 73.699 curves.[78] As indicated in the table above, the only data shown in the Vega Report are measurements taken in the northerly and westerly directions from Tiger Mountain (*i.e.*, at the 0°, 315°, 270°, and 225° azimuths).

46. Another concern in evaluating this data is that the Vega Report does not indicate whether each data element represents a single measurement taken at a single location (*e.g.*, one measurement taken at one location to represent the 0° azimuth data element at 16 miles, one measurement taken at one location to represent the 225° azimuth data element at 32 miles, *etc.*) or whether each data element represents an average of several measurements taken in the same general area. If it is the former, the measurements may not provide an accurate representation of the median field strengths received at those locations.[79]

47. The presumed purpose of the data provided by the Vega Report is to demonstrate that signals transmitted from this base station site propagate farther that predicted by our Section 73.699 curves.[80] However, the Vega Report does not provide an analysis of the data to support such a claim. Nor does SMR explain its statement, in referring to the data provided in the Vega Report, that "as can be seen by the tabulated results . . . the readings at the 28 dBu contour point consistently showed reliable service." In the absence of such analysis or explanation, and because of our concerns about the data that was collected (*see* paras. 46-47, *supra*) we could not consider use of this data to support any recalculation or reevaluation of the 220 MHz service contour.

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[77] Section 90.621(2) also provides special co-channel separation provisions for stations located in Northern California.

[78] Also based on our knowledge of the terrain in the area around Tiger Mountain, we can state with confidence that any signal measurements taken in the mountainous areas to the east and southeast of Tiger Mountain would be significantly less than predicted by the Section 73.699 curves.

[79] This is due to the fact that the value of a signal strength can vary significantly over very short distances, especially in areas of unusual terrain, or where there is blockage from foliage or other obstructions. The determination of the curves found in Section 73.699 of the Commission's Rules, for example, required extensive field measurements in order to account for such varying types of topography and environment. Relatedly, in Section 73.686 of the Commission's Rules, we prescribe procedures for the measurement of television signals. For example, we generally require that field strength measurements of television signals be taken over a "mobile run" of at least 100 feet, with signals continuously measured on a chart recorder over the length of the run; and under certain conditions, we may also require a "cluster" of five spot measurements, with four of the measurements taken within 200 feet of the first. *See* Section 73.686(b)(2) of the Commission's Rules, 47 C.F.R. § 73.686(b)(2).

[80] If this were the case, it could be considered justification for revising our determination of the location of predicted field strength contours for the 220 MHz service.

48. SMR also asserts that Commission's decision in the *220 MHz Third Report and Order* to protect the 38 dBu contour of incumbent licensees is "inconsistent with actions taken with respect to incumbent licensees in substantially similar radio services."[81] In support of this contention, SMR discusses previous Commission actions — such as the decision to employ a 32 dBu contour in determining a cellular licensee's Cellular Geographic Service Area,[82] and the decision to modify the protection criteria for Multipoint Distribution Service stations[83] — and claims that because of the Commission's actions in these decisions, we must take similar actions in the 220 MHz service.

49. We do not disagree with SMR's observation that the Commission has in the past made adjustments to the contours that it has employed in other services. The Commission has done so in instances where it believed such adjustments were appropriate and justified. As we indicate throughout this discussion, however, we do not believe that the petitioners and commenters in this proceeding have provided adequate support for their various requests to modify the service contour for the 220 MHz service.

[81] SMR Third Order Petition at 4.

[82] *See* Amendment of Part 22 of the Commission's Rules To Provide for Filing and Processing of Applications for Unserved Areas in the Cellular Service and To Modify Other Cellular Rules, CC Docket No. 90-6, Second Report and Order, 7 FCC Rcd 2449 (1992).

[83] *See* Amendment of Parts 21, 43, 74, 78 and 94 of the Commission's Rules Governing Use of the Frequencies in the 2.1 and 2.5 GHz Bands Affecting Private Operational Fixed Microwave Service, Multipoint Distribution Service, Multichannel Multipoint Distribution Service, Instructional Television Fixed Service, and Cable Television Relay Service, Second Order on Reconsideration, Gen. Docket Nos. 90-54 and 80-113, 10 FCC Rcd 7074 (1995).

(c) TCG Report and PERS Comments

50. INTEK, in its reply comments, furnishes a report by the Trott Communications Group (TCG Report)[84] designed to "analyze the effects of both the FCC's existing co-channel protection rules and those proposed by INTEK and other parties."[85] The TCG Report, in attempting to justify the use of the 28 dBu protected service contour for the 220 MHz service, observes that the receiver input power for a 28 dBu field strength at 220 MHz is roughly equivalent to the receiver input power for a 40 dBu field strength at 855 MHz,[86] and therefore concludes that "at the service area boundary of 40 dBu at 855 MHz, the same level of performance can be expected as at a service area boundary of 28 dBu at 220 MHz."[87] The TCG Report also provides a pictorial view of the predicted 28 dBu signal of a Roamer One, Inc.[88] base station in the St. Louis, Missouri, area, calculated using the station's operating parameters and the Section 73.699 curves (Figure 10), and overlays a "propagation plot" using the same operating parameters and the Okumura/Hata Extended propagation model. The TCG Report observes that "the 28 dBu service contour closely approximates the actual coverage area expected from this site at these operational parameters."[89] Based on these showings, the TCG Report concludes that the protected service area for 220 MHz stations should be defined at the 28 dBu contour.

51. The mathematical calculations in the TCG Report indicate a similarity between the received power of a 28 dBu signal at 220 MHz and a 40 dBu signal at 855 MHz. However, as we have discussed in connection with the Grade A and Grade B contours,[90] there are a number of factors, in addition to operating frequency, that must be taken into account in determining a system's appropriate service contour. It is also interesting to note that when the 120 km separation distance, along with the 38 dBu protection criteria, were developed by the Commission in 1991 in the *220 MHz Report and Order*, petitioners could have sought reconsideration of those decisions based on this plausible "mathematical" argument (as presented in the TCG Report). In the absence of "real world" data from 220 MHz systems (because such systems were not yet in use at that time) petitioners could have used this

[84] We cite this submission as the "TCG Report."

[85] INTEK Third Order Reply at 3.

[86] This frequency approximates the mean frequency of 800 MHz and 900 MHz systems.

[87] TCG Report at 1-2 (unpaginated).

[88] INTEK is the parent company of Roamer One, Inc. *See* note 24, *supra*.

[89] TCG Report at 2 (unpaginated).

[90] *See* paras. 37-42, *supra*.

argument as being an appropriate criterion for distinguishing the 220 MHz band from the 800 MHz and 900 MHz bands. Yet, they did not.[91]

52. As to the claim in the TCG Report that the "28 dBu service contour closely approximates the actual coverage area expected" at the St. Louis base station site, we observe that the predicted 28 dBu contour based on the Section 73.699 curves is approximately 27 miles in radius. The predicted plot shown of the 28 dBu signal using the Okumura/Hata model, which takes into account the terrain surrounding the base station, indicates a non-circular coverage area that, on average, extends about 27 miles from the base station site. We do not see the connection between this showing, which indicates that the predicted coverage of the station based on the actual terrain surrounding the station is similar to the predicted coverage of the station based on the Section 73.699 curves, and the TCG Report's call for the adoption of a 28 dBu protected service contour. In our view, the showing only confirms the validity of the field strength curves in Section 73.699 and does not provide justification for modifying the Commission's existing 38 dBu service contour for the 220 MHz service.

53. PERS asks that we "adopt co-channel separation that properly protects the performance of all [Phase I and Phase II] systems based on the real-world operation of these systems,"[92] and provides a showing to support its argument that we revisit our Phase I/Phase II separation criteria. Specifically, PERS provides three figures that show predicted field strength values in the areas surrounding three different base station sites in the New England area using an unspecified terrain model.[93] Additional figures show the predicted 38 dBu and 28 dBu service contours in the vicinity of these stations, calculated using the Section 73.699 curves.

54. PERS states that the "28 dBu contour comes the closest to the actual real-world coverage in the actual propagation study . . . ."[94] However, PERS's showings only demonstrate that in areas surrounding a base station where the terrain lends itself to greater signal propagation, the 28 dBu signal level as shown by PERS extends beyond the predicted 28 dBu contour as determined by the Section 73.699 curves; while in areas where the terrain lends itself to weaker signal propagation, the 28 dBu signal level as shown by PERS extends less than the distance of the predicted 28 dBu contour as determined by the Section 73.699 curves. As we previously concluded with regard to the TCG Report, we do not see how this type of showing justifies modification of the existing 38 dBu service contour for the 220 MHz service.

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[91] *See also* note 34, *supra*.

[92] PERS Third Order Comments at 3 (unpaginated).

[93] *Id.* at Exhibits 1A, 1B, and 1C. PERS indicates that these figures provide "a propagation study done using formulations refined and verified over the past three years." *Id.* at 4 (unpaginated).

[94] *Id.* at 4 (unpaginated).

(2) Use of Single Sideband Technology

55. AMTA contends that the 220 MHz protection criteria should be changed because of the use by Phase I licensees of single sideband (SSB), rather than FM technology.[95] In particular, AMTA asserts that mobile stations are more likely to suffer from interference due to their use of SSB instead of FM, because FM, with its "capture" effect, enables mobile stations to hear only the desired signal "as long as the undesired signal is at least 10 dB down," while mobile stations using SSB "hear both signals in areas of overlap, irrespective of the relative signal strength of the signals."[96] Petitioners, however, beyond making these observations, do not explain why the use of SSB technology by licensees in the 220 MHz band is reason for changing the 220 MHz service contour from 38 dBu to 28 dBu. In the absence of such explanations, we conclude that petitioners' observations do not provide a sufficient basis for modification of the Commission's protection criteria.

(3) Minimum Co-Channel Distance

56. In its reply comments, SMR asserts that "in order to provide 10 dBu [*sic*] interference protection to the Phase I licensee's 28 dBu contour" we should provide a minimum co-channel distance of 170 km unless "unique terrain or other features justify a lesser distance separation," in which case the Phase II licensee "should be permitted to demonstrate that it could provide 10 dB protection to the 28 dBu contour of the Phase I licensee at the lesser distance."[97]

57. The Commission's rules call for a "standard" 120 km distance separation between co-channel 220 MHz stations, but allow Phase II licensees to afford less than 120 km protection to Phase I stations if they provide 10 dB protection to the 38 dBu contour of the Phase I stations. The 120 km distance results when both the Phase I and Phase II stations are operating at maximum facilities (*i.e.*, 500 watts ERP and 150 meters HAAT).[98] The provision that allows Phase II licensees to provide 10 dB

[95] AMTA Third Order Petition at 7.

[96] *Id.* PERS also notes that "the prevalent use of single-sideband rather than conventional FM technology to meet the technical requirements the Commission established for its 220-222 MHz allocation demands greater co-channel protection to achieve the appropriate service level," and that "the mere fact that sideband operation does not provide the receiver capture effect of FM should underscore the need for further consideration." PERS Third Order Comments at 4 (unpaginated).

[97] SMR Third Order Reply at 7-8.

[98] Using the Section 73.699 curves, the distance of the 38 dBu F(50,50) contour of a protected station operating at 500 watts ERP and 150 meters is calculated to be 45 km, and the distance of the 28 dBu F(50,10) contour of an interfering station operating at 500 watts ERP and 150 meters is calculated to be 75 km. These figures, when added together, produce the 120 km co-channel separation distance.

protection to the 38 dBu contour of the Phase I station[99] enables Phase II licensees to take into consideration the fact that their station or the Phase I station (or both) may be operating at less than maximum facilities, and therefore enables these licensees to locate their stations at a distance less than 120 km from the Phase I station.[100]

58. AMTA, INTEK, SMR, and PERS, in their petitions, call for a change to this rule to require Phase II licensees to provide 10 dB protection to the 28 dBu contour of the Phase I licensee. If such a rule were adopted, the 120 km distance separation, which was based on the provision of 10 dB protection to a 38 dBu contour using the maximum allowable power and antenna height for the 220 MHz service, would have to be recalculated to reflect a separation based on 10 dB protection to a 28 dBu contour. Assuming use of the same maximum allowable power and antenna height, this separation would be the 170 km distance that SMR proposes. It is not clear, however, from SMR's reply comments whether it is simply proposing that, in conjunction with a change of the protected contour from 38 dBu to 28 dBu, we should: (1) concurrently change the "standard" separation distance from 120 km to 170 km; or (2) provide for a *uniform* 170 km separation (regardless of either licensee's power level or antenna height) — with distances of less than 170 km allowed only in areas that contain "unique terrain or other features."

59. The former interpretation of SMR's petition, *i.e.*, changing the standard separation distance, would be a logical consequence if we decided to change the protected contour for Phase I stations from 38 dBu to 28 dBu.[101] The latter interpretation would require a Phase II licensee operating at somewhat less than maximum allowable power and antenna height to protect a Phase I licensee as if both licensees were operating *at* the maximum allowable parameters.[102] If SMR is proposing that Phase II licensees uniformly provide 170 km protection to Phase I licensees, except in areas of "unique terrain or other features," it does not provide an explanation for requesting this degree of protection.

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[99] *See* Section 90.763(b)(1) of the Commission's Rules, 47 C.F.R. § 90.763(b)(1).

[100] This is accomplished by employing the Section 73.699 curves (Figures 10 and 10a) to calculate the appropriate separation distance, based on the use of the 38 dBu F(50,50) contour for the Phase I station and the 28 dBu F(50,10) contour for the Phase II station.

[101] Because we have decided not to change the protected contour for Phase I stations, we have not changed the standard separation distance between Phase I and Phase II stations.

[102] For example, an 18 dBu interfering contour for a Phase II station operating at maximum parameters (*i.e.*, 500 watts ERP/150 meters HAAT) is 104 km, but an 18 dBu interfering contour for a Phase II station operating at 100 watts ERP/50 meters HAAT is only 64 km. Thus, under SMR's apparent proposal, a Phase II licensee operating at these lesser parameters and attempting to provide 10 dB protection to the 28 dBu contour of a Phase I licensee would have to locate its base station 40 km farther from the Phase I base station than necessary. And if the *Phase I* licensee, too, was operating at less than maximum parameters, the Phase II licensee would have to locate its base station an even greater distance from the Phase I base station than necessary.

(4) Provision of Greater Than 10 dB Protection

60. PCIA and SEA contend that in order to adequately protect Phase I stations, we should provide greater than 10 dB protection to the existing service contour. PCIA states that, for the 800 MHz and 900 MHz services, the Commission agreed that "there needed to be a minimum of 18 dB signal difference between the desired and undesired signals for `routine' short-spacing in order to prevent co-channel interference," but that in this proceeding the Commission "has decided to go back to the 10 dB signal difference, thereby going back to a rule which the previously found did not adequately protect co-channel licensees."[103] PCIA asserts that "there is no valid rationale to treat incumbent 220 MHz licensees differently from incumbent 800 MHz licensees."[104] PCIA also argues that our decision was adopted "even though licensees and manufacturers have demonstrated that 220 MHz systems `in the real world' cover areas in excess of the Commission's initial prediction."

61. At the outset, we emphasize that since the initiation of this proceeding with the *Third Notice*, neither the Commission nor any commenters had, until now, suggested that the current 10 dB protection criteria be increased. Regarding the merits of PCIA's arguments, we first question PCIA's claim that the Commission made its decision to employ a 10 dB protection for 220 MHz licensees in the face of demonstrations that 220 MHz systems cover areas beyond the Commission's initial prediction. At the time the Commission made that decision in the 220 MHz Third Report and Order, there were, in fact, claims of coverage beyond what was predicted, but no evidence or demonstrations of such coverage were provided; and as discussed elsewhere in this Order, we do not believe that petitioners have provided adequate justification in this proceeding for claims of greater coverage. Additionally, we note that PCIA provides no discussion or technical analysis in support of its contention that we provide greater than 10 dB protection for Phase I licensees. In the absence of such discussion, we cannot reasonably consider the adoption of PCIA's proposal, and we reject its recommendation to increase the protection criteria for 220 MHz stations.

62. SEA, in its comments, notes that employing an 18 dB protection ratio to a 38 dBu service contour would increase the "nominal Phase I-to-Phase II co-channel separation distance to about 140 km."[105] It therefore recommends that 140 km "be the minimum geographic separation between co-channel

[103] PCIA Third Order Petition at 3.

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

[105] SEA Third Order Comments at 13.

stations."[106] SEA, however, does not provide any discussion or rationale in support of its position,[107] and we thus reject its recommendation, as well.

(5) Protection of Phase I Systems

63. With regard to the general issue of co-channel interference, AMTA believes that such interference affects the operation of both Phase I and Phase II stations, and therefore believes that "there is a commonality of interest between Phase I and Phase II operators in seeing that the FCC adopts co-channel separation criteria that properly protect the performance of all systems."[108]

64. With regard to co-channel interference between Phase I systems, AMTA notes that, while it believes that technical considerations support "an improved co-channel separation standard" between such systems, because Phase I stations are operating pursuant to the existing protection criteria, it does not recommend any change to the "Phase I to Phase I protection requirements." Rather, it states that the industry "hopes to resolve whatever [Phase I to Phase I] interference problems [that] arise without FCC involvement."[109]

65. AMTA also observes that "the likelihood of [resolving Phase I to Phase I interference problems] is significantly increased because both parties will be subject to identical regulatory obligations and entitled to identical regulatory protection," remarking that "unlike the Phase I/II separation criteria adopted in the Order, neither party will have superior regulatory rights."[110]

66. AMTA, however, does not provide an explanation as to why it believes that Phase II licensees have "superior regulatory rights," nor does it explain how the rules we have adopted for Phase I and Phase II operations might affect the resolution of interference disputes between Phase I and Phase II licensees. We therefore do not believe that AMTA's observations lend support to its claim that Phase I/Phase II separation criteria should be modified.

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[106] *Id*. Employing the Section 73.699 curves, the separation between a Phase II station providing 10 dB protection to a Phase I station (where both stations are operating at maximum parameters) is 120 km. The 140 km distance recommended by SEA results fro a Phase II station providing 18 dB protection to a Phase I station — again, where both stations are operating at maximum parameters.

[107] The Vega Report also contends that an 18 dB protection ratio "is the more appropriate measurement for the 220 MHz service" but similarly provides no technical justification for this assertion. *See* Vega Report at 5 n.17.

[108] AMTA Third Order Petition at 4. AMTA also notes that it anticipates that many Phase I incumbents will become successful Phase II licensees because of their existing investment and commitment to the 220 MHz industry. *See id*. at 3 n.5.

[109] *Id.* at 4 n.7.

[110] *Id*.

2. Calculation of Service Contour

67. In the *220 MHz Third Report and Order*, the Commission determined that Phase II EA and Regional licensees should be required to locate their base stations at least 120 km from the base stations of co-channel Phase I licensees, except that such licensees should be permitted to locate their base stations less than 120 km from the base stations of co-channel Phase I licensees if they provide 10 dB protection to the predicted 38 dBu service contour of the base stations of co-channel Phase I licensees.[111] The Commission also decided that the predicted 38 dBu contour of the Phase I licensees would be calculated based on the licensee's authorized ERP and HAAT — not on the maximum allowable ERP and HAAT provided in the Commission's rules for the 220-222 MHz band.[112] The Commissio required licensees to operate at their initially authorized ERP and HAAT, and did not permit licensees to seek modification of their authorization to operate at a higher ERP or HAAT.[113] The Commission further determined that licensees operating at power levels lower than their initially authorized ERP would be required to seek modification of their authorization to reflect the lower ERP.[114]

68. SEA, PCIA, INTEK, and SMR disagree with the Commission's decision to require Phase I licensees to modify their authorizations to reflect the system's actual ERP, and to define the service area based upon actual ERP.[115] PCIA contends that this is a departure from previous Commission policy for Part 90.[116] PCIA and SEA argue that these requirements will result in a significant reduction in the protection afforded to Phase I licensees.[117] Several parties contend that a Phase I licensee's service area should be defined based on maximum authorized power and height levels.[118] INTEK claims that using

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[111] *220 MHz Third Report and Order*, 12 FCC Rcd at 11025 (para. 173).

[112] *Id.* at 11026 (para. 174).

[113] *Id.*

[114] *Id.*

[115] PCIA Third Order Petition at 2-3; SEA Third Order Comments at 13-14; INTEK Third Order Petition at 5-8; SMR Third Order Reply at 8-9.

[116] PCIA Third Order Petition at 2; *see also* SMR Third Order Reply at 9 (arguing that using maximum facility values to determine a licensee's protected service area will more closely track Commission actions in other services).

[117] PCIA Third Order Petition at 2-3; SEA Third Order Comments at 14.

[118] INTEK Third Order Petition at 5-6; PCIA Third Order Petition at 2-3; SEA Third Order Comments at 14; SMR Third Order Rep at 8-9.

maximum facility values will strike the appropriate balance between the interests of Phase I and Phase II licensees.[119]

69. We disagree with petitioners. As indicated in the *220 MHz Third Report and Order*, the Commission's goal was to provide service to the public.[120] In authorizing Phase II licensees to serve a particular geographic area, the Commission sought to allow them to serve "any portion" of that area, "except for portions of the area already being served by co-channel Phase I licensees."[121] The area "already being served" by co-channel Phase I licensees plainly cannot be calculated based on an assumption of the use by such licensees of maximum allowable operating parameters. Nor should this area be calculated based on the licensee's authorized ERP, if the licensee is not operating at its authorized ERP. Rather, it is the area the licensee was serving at the time the decisions adopted in the *220 MHz Third Report and Order* became effective,[122] and must therefore be calculated based on the licensee's ERP and HAAT at that time.[123]

70. In asserting that the *220 MHz Third Report and Order* is inconsistent with previous Part 90 policy, PCIA points to the Commission's actions in protecting Part 90, Subpart S[124] systems from co-channel interference based on maximum allowable ERP. Specifically, PCIA cites the use of the Table in Section 90.621(b)(4) of the Commission's Rules that identifies appropriate co-channel separation distances between existing stations and proposed "short-spaced"[125] stations based on the operating parameters of such stations. While it is true that the Table assumes that existing stations are considered to be operating at maximum allowable ERP, it is important to note that the Table was

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[119] INTEK Third Order Petition at 7-8.

[120] *220 MHz Third Report and Order*, 12 FCC Rcd at 11026 (para. 174).

[121] *Id.*

[122] The decisions adopted in the 220 MHz Third Report and Order became effective on August 21, 1997.

[123] For licensees that relocated from their initially authorized base station site to a new location, in accordance with the provisions of the *220 MHz Second Report and Order*, that new location would likely be at a different HAAT than the initial base station site. The Commission allowed such licensees to be authorized at that new HAAT, even if it was higher than their initially authorized HAAT, but did not permit them to obtain authorization at a higher ERP. *See* paras. 175-184, *infra*. The area being served by a Phase I licensee that relocated its base station is therefore calculated based on the HAAT and the ERP of the relocated base station.

[124] Operations in the 800 MHz and 900 MHz services are governed by Subpart S of Part 90 of the Commission's Rules, 47 C.F.R. § 90.601-90.699.

[125] The term "short-spacing" in Subpart S of Part 90 refers to the locating of base stations at distances closer than the standard separation distance between co-channel Subpart S stations (*i.e.*, 113 km (70 miles)).

designed to provide licensees seeking to "short-space" with a simple, uncomplicated method for doing so that did not require the submission of a technical showing.[126]

71. In developing the Table, the Commission decided that the distance separations would be based on the more conservative approach of providing 18 dB of protection to the 40 dBu contour of an existing station,[127] and of assuming that existing stations were operating at maximum allowable ERP.[128] However, the Commission indicated that an entity providing a technical showing as part of a request to short-space to an existing station by waiver could base that showing on the existing station's *actual* power and antenna height.[129] We therefore disagree with PCIA's assertion that our use of the Table in Section 90.621(b)(4) for the 800 MHz and 900 MHz services demands that we protect Phase I 220 MHz licensees based on the maximum allowable ERP for the 220 MHz band.[130] Rather, we believe that the Commission's decision in the *220 MHz Third Report and Order* to protect Phase I licensees in accordance with their actual facilities is not inconsistent with Commission practices in those services.

72. We continue to believe that our goal should be to facilitate the provision of 220 MHz service to the public. In accomplishing this, we must attempt to ensure that such service is not denied to any geographic areas in the Nation. If we were to assume that all 220 MHz Phase I licensees are operating at the maximum power and antenna height for the 220 MHz service — 500 watts ERP and 150 meters HAAT, respectively — when many are not operating at such parameters and may never operate at such parameters,[131] we could force Phase II licensees to provide considerably greater protection to co-

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[126] Prior to the use of the Table, applicants seeking to short-space without gaining the consent of all affected co-channel licensees were required to file a waiver request that included a technical showing demonstrating 10 dB protection to the 40 dBu contour of all existing co-channel facilities. *See* Amendment of Part 90 of the Commission's Rules to Permit the Short-Spacing of Specialized Mobile Radio Systems Upon Concurrence from Co-Channel Licensees, PR Docket No. 90-34, Report and Order, 6 FCC 4929 (para. 5) (1991) (*Short-Spacing Report and Order*).

[127] *Id*. at 4931 (para. 14). *See also* Amendment of Part 90 of the Commission's Rules to Permit the Short-Spacing of Specialized Mobile Radio Systems Upon Concurrence from Co-Channel Licensees, PR Docket No. 90-34, Memorandum Opinion and Order, 7 FC 6069 (para. 2) (1992) (*Short-Spacing Memorandum Opinion and Order*).

[128] Co-channel Protection Criteria for Part 90, Subpart S Stations Operating Above 800 MHz, PR Docket No. 90-60, Report and Order, 8 FCC Rcd 7293, 7295-96 (para. 13) (1993).

[129] *See Short-Spacing Report and Order*, 6 FCC Rcd at 4936 (n.44) (1991). *See also Short-Spacing Memorandum Opinion and C* FCC Rcd at 6070 (para. 7) (1992).

[130] We assume that SMR, in stating that "applying maximum facilities" in determining a Phase I licensee's service contour "will more closely track actions in other services" is, too, referencing the Commission's rules that apply to Subpart S stations. SMR Third Order Reply at 9.

[131] A height of 150 meters is roughly equivalent to the height of 50-story building.

channel Phase I licensees than necessary, and thereby potentially deny service to the public in areas beyond the Phase I licensee's actual 38 dBu service contour.[132]

73. A 220 MHz Phase I license was granted by the Commission based on a specific location and operating parameters. There was no guarantee that the licensee would be allowed to alter its operating parameters without the possibility of competing applications from others wishing to serve this territory.[133] Similarly, we cannot assume that Phase I licensees that were operating at a particular ERP at the time of the decisions adopted in the *220 MHz Third Report and Order* became effective will some day increase that ERP to their authorized power level. And again, to protect a Phase I licensee's base station in accordance with a power level that the licensee *might* employ at some time in the future could deny service to the public.

74. We thus conclude that the decision made by the Commission in the *220 MHz Third Report and Order* regarding the method to be used to calculate the 38 dBu service contour of Phase I base stations[134] is appropriate, and requests for the adoption of alternative methods made by petitioners are therefore denied. The Wireless Telecommunications Bureau will issue a Public Notice following the adoption of this Order announcing when applications must be filed by Phase I, non-nationwide licensees in order to enable such licensees to comply with the requirement that they modify their authorization to reflect the ERP at which they were operating at the time the decisions adopted in the *220 MHz Third Report and Order* became effective.

3. Emission Masks

75. In the *220 MHz Third Report and Order,* the Commission decided to eliminate the emission mask at the edge of "inside" channels for Phase I and Phase II licensees authorized on contiguous channel assignments.[135] The Commission concluded that, because licensees constructing base stations must adhere to the required co-channel separation criteria with respect to all co-channel licensees in their areas, the increased strength of out-of-band signals would not result in any increased

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[132] The 38 dBu service contour based on maximum operating parameters (*i.e.*, 500 watts ERP and 150 meters HAAT) is approximat 28 miles. The 38 dBu service contour of a base station with operating parameters of 100 watts ERP and 150 meters HAAT, for example, is approximately 20 miles. Thus, if we were to calculate the 38 dBu service contour for such a base station *based* on maximum operating parameters, a potential loss of service to the public could occur in the area between 20 and 28 miles of the Phase I licensee's base station (an area of approximately 1,200 square miles).

[133] In the *220 MHz Third Report and Order*, for example, the Commission emphasized that it did "not think it would be appropriate to allow Phase I licensees to expand their service areas by increasing their power and antenna height without the filing of mutually exclusive applications." *220 MHz Third Report and Order*, 12 FCC Rcd at 11026 (para. 174).

[134] *See id*.

[135] *Id.* at 11000-01 (para. 122).

likelihood of harmful interference to co-channel licensees.[136] This decision met with a generally favorable response.[137] Both Glenayre and PCIA remark that the Commission's action will permit licensees to use the most efficient technology for the service they offer.[138] Comtech, however, raises a concern that "the revised rule section 90.733(d) and (e) only address instances in which licensees use channels that are wider than 5 kHz [and that the] regulations do not clearly address circumstances in which licensees combine multiple authorizations to use channels wider than 5 kHz," and petitions us to clarify this matter.[139]

76. Under the revised rule Section 90.733, the emission limits in Section 90.212(f) must be met only at the outermost edges of contiguous channels. The rule does not address contiguous channels under only one authorization — Section 90.733 simply uses the term "authorized contiguous channels." Therefore, we clarify that emission limits must be met *only* at the outermost edges of contiguous channels, including those cases in which licensees combine multiple authorizations that result in contiguous channels. As the Commission indicated in the *220 MHz Third Report and Order*, because licensees operating on contiguous channels will be providing required protection to all co-channel licensees in their area, interference will not occur to those licensees as a result of the elimination of the emission mask on all "inside" channels. Thus, so long as licensees combining multiple authorizations to create a contiguous channel block maintain the required co-channel protection on all of the channels that comprise the channel block, we clarify that such licensees will be permitted to eliminate the emission mask on all "inside" channels.

4. Antenna Height Above Average Terrain vs. Antenna Height Above Ground

77. In the 220 MHz service, the Commission's rules specify maximum allowable power, both for stations operating on base station frequencies (*i.e.*, channels in the 220-221 MHz band) and for stations operating on mobile station frequencies (*i.e.*, channels in the 221-222 MHz band). In both instances, the maximum allowable power is related to the height of the transmitting antenna. The maximum allowable ERP of a base station, or of a fixed station operating on base station frequencies, is provided in a Table in Section 90.729(a) of the Commission's Rules, and is a function of HAAT.[140] The maximum allowable ERP of stations operating on mobile frequencies is provided in a formula in Section

[136] *Id.*

[137] Glenayre Third Order Petition at 2; PCIA Third Order Reply at 2.

[138] Glenayre Third Order Petition at 2; PCIA Third Order Reply at 2.

[139] Comtech Third Order Petition at 10-11.

[140] 47 C.F.R. § 90.729(a). For references to HAAT in the text of the *220 MHz Third Report and Order*, see 12 FCC Rcd at 11008 (para. 139), 11013 (para. 148), 11026 (para. 174).

90.729(b) of the Commission's Rules as a function of the height of the antenna above ground.[141] SEA petitions the Commission to calculate the maximum allowable ERP of stations operating on mobile frequencies based on HAAT, and INTEK also comments in favor of using the HAAT standard.[142]

78. SEA advocates restricting antenna height to 7 meters above average terrain rather than 7 meters above ground, and characterizes the above-ground standard as a weakening of the rule.[143] SEA believes that measuring antenna height above ground could lead to violations of the intent of the rule, and could cause disruptive interference.[144] According to SEA, allowing construction of fixed and paging antennas in the 221-222 MHz band at 7 meters above ground could permit greater ERP from a paging station operating at a high site than would be allowed by a standard 220-221 MHz repeater transmitter, because the ERP of the standard 220-221 MHz repeater transmitter is a function of HAAT.[145] SEA therefore requests that Sections 90.729(b) and 90.729(c) be modified to reference HAAT instead of height above ground.[146]

79. We agree with SEA and grant its request to modify Sections 90.729(b) and 90.729(c). We believe that it is appropriate to require the height limitation for stations operating on the 221-222 MHz frequencies to be associated with the HAAT of the station's transmitting antenna, rather than the antenna's height above ground. This rule was adopted to minimize interference to adjacent channel operations on the 221-222 MHz channels. By requiring licensees operating stations in this band to limit the height of their transmitting antenna to 7 meters HAAT, we will eliminate instances of licensees inadvertently causing interference to adjacent channel operations by transmitting at an antenna height of 7 meters above ground at a particularly high elevation.[147] We also agree with SEA that

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[141] 47 C.F.R. § 90.729(b). For references to height above ground in the text of the *220 MHz Third Report and Order*, see 12 FCC Rcd at 11007-08 (paras. 138-139), 11012 (para. 145), 11013-14 (paras. 150-151). *See also* Sections 90.729(c) and 90.733(h)(4) of the Commission's Rules, 47 C.F.R. §§ 90.729(c), 90.733(h)(4).

[142] SEA Third Order Petition at 2-5; SEA Third Order Comments at 2; INTEK Third Order Comments at 7.

[143] SEA Third Order Comments at 2.

[144] SEA Third Order Petition at 2-3.

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

[146] *Id.* at 4-5 & n.6. Section 90.729(c) of the Commission's Rules places limitations on the height and power of base stations operating on Channels 196-200. The height limit in this rule is associated with the station transmitting antenna's height above ground. 47 C.F.R. § 90.729(c).

[147] As currently provided in Section 90.729(b) of the Commission's Rules, a licensee may operate a station at a height greater than 7 meters above ground so long as it reduces its power in accordance with the formula provided in that section. In modifying Section 90.729(b) to limit the height of transmitting antennas to 7 meters HAAT, we also modify the rule to indicate that licensees may operate a station at a height greater than 7 meters HAAT so long as they reduce their power in accordance with the

Section 90.729(c), too, should be modified to indicate that the height restriction of base stations operating on channels 196-200 must be associated with such station's transmitting antenna HAAT, rather than the antenna's height above ground. Modification of this rule in this manner will similarly eliminate instances of inadvertent interference to adjacent channel operations in the 221-222 MHz band from transmissions on these channels.

formula. 47 C.F.R. § 90.729(b).

5. Allowable Power Limit for Mobile Channels

80. For the 220 MHz service, the maximum allowable power for transmissions on mobile channels (channels in the 221-222 MHz band) is 50 watts ERP.[148] As the Commission explained in the *220 MHz Third Report and Order*, this restriction is necessary to ensure that such transmissions, including transmissions on mobile channels by licensees operating two-way paging systems, do not cause adjacent channel interference.[149]

81. Comtech and Glenayre petition the Commission to revise the 50 watt ERP limit.[150] Comtech first notes that, with respect to nationwide licensees, there is no danger of interference to co-channel licensees, because no other licensee will be authorized to use their mobile side channels, anywhere in the Nation.[151] Comtech acknowledges, however, that it is adjacent channel users, and not co-channel licensees, that the height and power limitations are intended primarily to protect.[152] Comtech claims that the Commission's approach for the 220 MHz service differs from the Commission's regulations governing similar services.[153] Comtech contends that the potential for interference is no greater in the VHF band than it is for 220-222 MHz systems, and that comparable transmissions in the VHF band are permitted up to 500 watts ERP.[154] Therefore, Comtech argues, the Commission should revise its rule to reflect the same height-power limits and adjacent-channel interference restrictions it provides for the VHF band in Section 22.535 of the Commission's Rules.[155] Glenayre states that limiting the mobile frequency ERP for fixed operations will preclude efficient one-way paging operations, especially for nationwide licensees.[156]

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[148] *See* Section 90.729(b) of the Commission's Rules, 47 C.F.R. § 90.729(b); *220 MHz Third Report and Order*, 12 FCC Rcd at 11 08 (paras. 138-139), 11013-14 (paras. 150-151). The 50 watt ERP limit applies to all 220 MHz service mobile transmitters, including Phase I and Phase II licensees, both nationwide and non-nationwide.

[149] *220 MHz Third Report and Order*, 12 FCC Rcd at 11007-08 (paras. 138-139), 11013-14 (paras. 150-151).

[150] Comtech Third Order Petition at 4-6; Glenayre Third Order Petition at 4-5.

[151] Comtech Third Order Petition at 4.

[152] *Id.*

[153] *Id.*

[154] *Id.* at 4-5. *See* Sections 22.531 and 22.535 of the Commission's Rules, 47 C.F.R. §§ 22.531, 22.535.

[155] Comtech Third Order Petition at 5, citing 47 C.F.R. § 22.535.

[156] Glenayre Third Order Petition at 4.

82. We do not believe it would be appropriate to grant petitioners' request. In the *220 MHz Third Report and Order*, the Commission decided that fixed stations operating on mobile channels would be limited to 50 watts ERP, with an antenna height of 7 meters above ground, but provided that this height could be exceeded if the power level is decreased below 50 watts ERP in accordance with a formula provided in Section 90.729(b) of the Commission's Rules. The Commission imposed this antenna height limit for fixed stations operating on the 221-222 MHz frequencies because of its concern about the possibility of interference to traditional, two-way land mobile operations if adjacent channel licensees transmitting on these frequencies operated fixed paging stations at high elevations. That is, if a licensee operates a fixed paging station at a high elevation, its signal could interfere with the signal of an adjacent channel mobile station attempting to transmit to its base station receive site.

83. If 220 MHz licensees were to be permitted, as petitioners propose, to operate fixed stations in the 221-222 MHz band at a power level of 500 watts ERP — ten times higher than the current limit — we would have a similar concern about the possibility of interference to adjacent channel 220 MHz land mobile operations. In its comments in this proceeding, SEA — which "petitioned the Commission to strengthen the current rule" with regard to mobile channel operations — argues against petitioners' request to allow an increase in the power limit on the mobile channels, stating that it "vigorously oppose[s] any weakening of [the] rule" relating to operations on such channels.[157] We conclude that permitting 500 watt ERP fixed station transmissions on the mobile channels in the 220 MHz band could cause interference to adjacent channel operations, and therefore reject the adoption of a rule that would allow for such transmissions.

84. Petitioners further argue that, because the Commission permits a 500 watt ERP power level for paging base stations operating on Part 22 VHF channels that are adjacent to channels used for mobile transmissions, we should similarly provide for such power limits in the 220 MHz band. In support of this argument, they contend that the existence of 500 watt ERP stations presents no more potential for interference in the 220-222 MHz band than currently exists in the Part 22 VHF band. We reject petitioners' argument because it assumes a commonality between the technical characteristics of VHF land mobile equipment operating under Part 22 of the Commission's Rules and equipment used in the 220-222 MHz band. The technical characteristics of VHF equipment operating under Part 22 and equipment operating in the 220 MHz band are, of course, not identical. Thus, we cannot accept petitioners' contention that the same rules that apply to Part 22 paging operations on channels adjacent to channels used for mobile transmissions should be applied to the 220 MHz band.

[157] *See* SEA Comments at 2. In order to reduce the likelihood of interference to adjacent channel operations in the 220 MHz band, we have, in response to SEA's petition in this instant proceeding, modified Section 90.729(b) and (c) of the Commission's Rules to require licensees operating on channels in the 221-222 MHz band to adhere to an antenna height limit associated with their station antenna's HAAT, rather than the antenna's height above ground. *See* paras. 78-80, *supra*.

85. To illustrate how the Commission's rules currently address similar operations in the 220 MHz band, we turn to Section 90.723(d)-(f) of the Commission's Rules. These rules provide the procedures that 220 MHz licensees must follow to ensure that interference is not caused by base station transmitters operating on channels adjacent to channels used for mobile transmissions. In the 220-222 MHz band, where the base station transmit frequencies are situated immediately below the mobile station transmit frequencies,[158] the possibility exists for interference to the reception of signals at base stations receiving on the lower channels in 221-222 MHz band from transmissions from nearby base stations transmitting on the upper channels in the 220-221 MHz band.

86. The Commission, in developing the original 220 MHz service rules, recognized this possibility for interference, and adopted rules that require geographic separation between Phase I base stations transmitting on the upper 40 channels in the 220-221 MHz band (*i.e.*, channels 161-200, referred to in the Commission's rules as "Sub-band B")[159] and Phase I base stations receiving on the lower 40 channels in the 221-222 MHz band (*i.e.*, channels 1-40, referred to in the Commission's rules as "Sub-band A"). Specifically, the rules require a separation of at least 6 km between Phase I base stations transmitting at 500 watts ERP on Sub-band B channels and base stations receiving on Sub-band A channels if the transmitting channel is within 200 kHz of the receive channel.[160] In the *220 MHz Third Report and Order*, the Commission continued to demonstrate its concern about this type of interference by requiring Phase II licensees transmitting on Sub-band B channels to provide protection to existing Phase I licensees operating on Sub-band A channels in accordance with the provisions of Section 90.723(d);[161] and by requiring Phase II licensees operating on Sub-band B and Sub-band A channels to coordinate the location of their base stations with one another to avoid interference.[162]

87. Because the Commission adopted these requirements to ensure that base stations in the 220-221 MHz band do not cause interference to the reception of signals by base station receivers in the adjoining 221-222 MHz band, if we were to allow 500 watt ERP operation by fixed stations transmitting on any and all of the channels in the 221-222 MHz band, we would similarly have to ensure that interference would not be caused to base station receivers attempting to receive signals in that band.

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[158] Base station transmit frequencies are located at 220-221 MHz, and mobile station transmit frequencies are located at 221-222 MHz. *See* Section 90.715 of the Commission's Rules, 47 C.F.R. § 90.715.

[159] There are two-hundred 5 kHz channel pairs in the 220 MHz band. They are numbered from "1" to "200." *See* Section 90.715 o the Commission's Rules, 47 C.F.R. § 90.715.

[160] *See* Section 90.723(d) of the Commission's Rules, 47 C.F.R. § 90.723(d). The Commission also provided a Table in Section 90.723(d) that indicates appropriate geographic separations for base stations operating at power levels below 500 watts ERP.

[161] *220 MHz Third Report and Order*, 12 FCC Rcd at 11015 (para. 153); 47 C.F.R. § 90.723(d). *See also* Section 90.723(e) of the Commission's Rules, 47 C.F.R. § 90.723(e).

[162] *See* Section 90.723(f) of the Commission's Rules, 47 C.F.R. § 90.723(f).

To accomplish this in a manner similar to the way we currently protect base station receivers operating on the Sub-band A channels, we would have to require 500 watt ERP fixed stations transmitting on channels in the 221-222 MHz band to afford protection to any base station receive sites up to 200 kHz removed in accordance with provisions similar to those prescribed in Section 90.723.[163] Thus, for example, if a Phase II, nationwide licensee authorized on channels 81-90 sought to operate a 500 watt ERP fixed station on its mobile channels, then it would have to ensure that all licensees operating up to 200 kHz below channel 81 (*i.e.*, channels 41-80) and all licensees operating up to 200 kHz above channel 90 (*i.e.*, channels 91-130) would be protected.

88. For the licensee seeking to operate a fixed station at a power level of 500 watts ERP, protecting a multitude of Phase I, non-nationwide base stations in its geographic area would be a difficult, but not impossible task. This is because all Phase I licensees were initially authorized to construct only one base station, and have now generally completed the construction of their stations. However, protecting all affected Phase II licensees and all affected Phase I nationwide licensees[164] would, realistically, be impossible. This is because, unlike Phase I non-nationwide licensees, who have constructed a single base station that must be protected, Phase II licensees and Phase I nationwide licensees will be continually adding, relocating, and modifying stations as they develop and implement their systems over the course of their initial ten-year license period and possibly beyond that period. In order not to restrict the development of such licensees' systems, a licensee seeking to operate a fixed station in the 221-222 MHz band at a power level of 500 watts ERP would have to protect all possible sites in an EA or Region where a given EA or Regional licensee might seek to locate a base station, and all possible sites in the Nation where a nationwide licensee might seek to locate a base station. Moreover, we could not simply allow a licensee seeking to operate a 500 watt ERP fixed station to only protect the already-constructed base stations of affected licensees.[165] To do so would deny affected licensees the ability to locate future base stations at any and all available sites.

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[163] The Table in Section 90.723(d) provides the geographic separations for base station receive sites operating on Sub-band A channels and base station transmitter sites operating on Sub-band B channels. The 500 watt ERP power limit and 150 meter HAAT limit for stations transmitting in the 220-221 MHz band form the basis for the geographic separations provided in the Table. As discussed in paras. 78-80, *supra*, the Commission will restrict licensees operating fixed stations on 221-222 MHz channels to an antenna height of 7 meters HAAT. So, if we were to develop a table to protect base station receive sites in the 221-222 MHz band from fixed stations operating in that band, then, because of the lower antenna height restriction for fixed stations operating in the 221-222 MHz band, such a table would provide for lesser geographic protection of base station receive sites than provided in the Table in Section 90.723(d).

[164] An “affected” licensee would be a licensee operating on channels up to 200 kHz removed from the channels of the 500 watt ERP fixed station operating in the 221-222 MHz band.

[165] Under such a scenario, once a 500 watt ERP fixed station was constructed on a 221-222 MHz channel, all Phase II licensees operating on channels up to 200 kHz removed from that channel would risk interference if they situated their base stations too close to the location of the fixed station.

89. We conclude that the only manner in which a licensee could operate a fixed station in the 221-222 MHz band at a power level of 500 watts ERP without disrupting the operations of other 220 MHz licensees would be for that licensee to gain the consent of all affected 220 MHz licensees to operate such a station. We will therefore permit a licensee seeking to operate fixed stations in the 221-222 MHz band at a power level of 500 watts ERP to seek a waiver of Section 90.729(b) of the Commission's rules if the licensee obtains the consent for such operation from the following licensees authorized on channels up to 200 kHz removed from the channels of the licensee: (1) all nationwide licensees; (2) all Phase II non-nationwide licensees that are authorized in an EA or Region that is located within 6 km of the licensee's proposed fixed station;[166] (3) all Government nationwide users; and (4) all Phase I non-nationwide licensees with a base station that is located within 6 km of the licensee's proposed fixed station.[167]

90. Finally, in addressing petitioners' request to permit operations on the 220 MHz mobile channels at a power level of 500 watt ERP, we note Glenayre's contention that limiting the mobile frequency power will "preclude efficient one-way paging, especially for nationwide licensees." SEA, in response, suggests that the "obvious application for the mobile transmit frequency is as a response or `talk-back' channel for two-way paging." In the *220 MHz Third Report and Order* the Commission did not specify how the mobile channels in the 220 MHz band would be used. They could be used as a response channel (as part of a two-way paging system),[168] or they could be utilized to provide 220 MHz licensees

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[166] As discussed in note 163, *supra*, the geographic separations in the Table in Section 90.723(d) are based on the 150 meter HAAT limit for antennas transmitting in the 220-221 MHz band, but because we restrict the antenna height of stations in the 221-222 MHz band to 7 meters HAAT (*see* paras. 78-80, *supra*), a licensee operating a 500 watt ERP fixed station in the 221-222 MHz ba would not have to provide as great a degree of geographic protection to base station receive sites as required by the Table. In the absence of a table that provides the geographic separations required to protect 220 MHz base station receive sites from fixed stations operating at an antenna height of 7 meters, however, we will require a licensee seeking the consent of Phase II non-nationwide licensees to operate at a power level of 500 watts ERP to obtain the consent of all such licensees that are authorized in an EA or Region that is located within 6 km of the licensee's proposed fixed station.

[167] In paras. 95-106, *infra*, we provide procedures under which Phase I non-nationwide licensees may modify their authorizations to add additional transmitters within their existing service area or change the operating parameters or location of their base station. We conclude that a licensee seeking the consent of a Phase I non-nationwide licensee to operate at 500 watts ERP will not be required to obtain the consent of that licensee with regard to any additional transmitters for which the licensee obtains authorization. The licensee will only be required to obtain the consent with regard to the licensee's base station, as authorized at the time the licensee seeks the consent. Also, as indicated in note 166, *supra*, in the absence of a table that provides the geographic separations required to protect 220 MHz base station receive sites from fixed stations operating at an antenna height of 7 meters, we will require a licensee seeking the consent of Phase I non-nationwide licensees to operate at a power level of 500 watts ERP to obtain the consent of all such licensees with a base station that is located within 6 km of the licensee's proposed fixed station.

[168] We note that the Commission currently provides spectrum for two-way paging in the narrowband Personal Communications Service. There, the channels in the 901-902 MHz band are specifically identified as paging "response" channels. These channels may also be used by paging licensees authorized in Part 22 and Part 90 to create two-way paging systems. Significantly, the power limit for stations operating on the 901-902 MHz channels is only 7 watts ERP (much lower than the 50 watt ERP limit for stations

with a second one-way paging channel. We believe the Commission's rules for operation on the mobile channels (*i.e.*, limiting power to 50 watts ERP and antenna height to 7 meters HAAT), will enable 220 MHz licensees who intend to operate paging systems to use these channels to best meet their needs and the needs of their customers — whether this is to implement one-way or two-way paging systems — and will ensure that they do so without causing interference to other licensees in the 220 MHz band.

6. Allowable Power Limit for Nationwide Licensees

91. Comtech and Glenayre petition the Commission to raise the allowable power limit for the base stations of nationwide licensees.[169] Glenayre requests that the Commission permit nationwide licensees to operate their base stations up to a limit of 1400 watts ERP, provided that the transmitter is at least 5 km from a fixed adjacent channel system, with systems within 5 km to be restricted to 500 watts ERP or less, depending on distance, as provided in the Commission's existing rules.[170] Glenayre suggests the Commission could create a sliding scale, similar to the sliding scale established in Section 90.729(a) of the Commission's Rules, for reducing ERP to account for antenna height.[171] Comtech also requests that the maximum ERP be raised to the 1400 watts permitted paging stations in the VHF band.[172]

92. Comtech asks that power limitations imposed by Section 90.729 be modified to reflect that nationwide licensees operate without co-channel interference concerns.[173] Both Glenayre and Comtech stress that raising the permitted ERP is necessary for the competitive operation of 220 MHz service paging systems.[174] Arch and PCIA support Glenayre's and Comtech's proposal to increase the maximum ERP for 220 MHz service nationwide paging base stations to VHF paging levels.[175] Metricom agrees, calling

operating in the 221-222 MHz band).

[169] Glenayre Third Order Petition at 3-5; Comtech Third Order Petition at 4-6.

[170] Glenayre Third Order Petition at 3.

[171] *Id.*

[172] Comtech Third Order Petition at 5. *See* Section 22.535 of the Commission's Rules, 47 C.F.R. § 22.535.

[173] Comtech Third Order Petition at 5-6.

[174] *Id*. at 5; Glenayre Third Order Petition at 5-6.

[175] Arch Third Order Comments at 4; PCIA Third Order Reply at 4. In its reply comments, Arch clarifies that, while it opposes increasing ERP for mobile transmitters, it supports increasing ERP for paging base stations. Arch Third Order Reply at 5.

the ERP limit "artificial," and stating that the limit requires the construction of more base stations, thus placing additional and unnecessary costs on nationwide licensees.[176]

93. In the *220 MHz Report and Order*, which established the 220 MHz service, the Commission adopted technical rules for the 220 MHz service, including a rule providing height-power restrictions for stations operating in the 220 MHz band.[177] In the *220 MHz Third Notice*, the Commission did not seek comment with regard to the appropriateness of this rule. Commenters in that proceeding, however, sought modification of the rule with regard to height-power limitations for stations operating in the 221-222 MHz band. Therefore, in the *220 MHz Third Report and Order*, the Commission modified the rule based upon these comments. Commenters, however, did not seek modification of the rule with regard to height-power limitations for stations operating in the 220-221 MHz band, and the Commission did not address or modify these height-power limitations. We therefore view this matter, as raised by petitioners herein, as being beyond the scope of this reconsideration proceeding. We do, however, believe that an increase in the allowable power for nationwide licensees would be acceptable provided that appropriate technical criteria are established to ensure that interference does not occur to adjacent channel systems. We therefore invite those parties seeking modification of the Commission's rules regarding this matter to submit a petition for rulemaking in order to change the allowable power limit and to develop such criteria.

7. Modification of Phase I Non-Nationwide Licenses

94. Phase I non-nationwide licensees were granted site-specific authorizations. These licensees are authorized to transmit on specific frequencies at a specific set of coordinates. Petitioners point out that neither the *220 MHz Third Report and Order* nor the *220 MHz Second Report and Order* provides a mechanism by which Phase I licensees may modify their authorizations.[178] Petitioners note that in the *220 MHz Third Report and Order*, the Commission stated that Phase I non-nationwide licensees will not be permitted to seek modification of their authorizations to operate at a higher ERP or HAAT.[179] SBT contends that the Commission's position on modifications expresses far more concern for future licensees than for incumbent licensees who are currently providing service to the public.[180]

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[176] Metricom Third Order Comments at 7.

[177] *See* Section 90.729 of the Commission's Rules, 47 C.F.R. § 90.729.

[178] AMTA Third Order Petition at 9-10; SEA Third Order Comments at 14; SMR Third Order Petition at 9; SMR Third Order Repl 8; USMC Third Order Reply at 3. As explained in para. 8, *supra*, the *220 MHz Second Report and Order* provided a one-time mecha for Phase I licensees to modify their authorizations.

[179] *See 220 MHz Third Report and Order*, 12 FCC Rcd at 11026 (para. 174); AMTA Third Order Petition at 9-10; INTEK Third C Petition at 5; PCIA Third Order Petition at 4-5; SEA Third Order Comments at 13.

[180] SBT Third Order Reply at 3-4.

Petitioners also assert that licensees must be permitted to make operational changes that are necessary to maintain the viability of a station and are required in order to compete successfully in the marketplace.[181] Petitioners therefore urge the Commission to adopt procedures for ongoing modifications for Phase I licensees.[182]

95. Several petitioners also urge us to permit Phase I licensees to modify their systems as long as such modifications do not expand their service contour.[183] They note that this flexibility has been granted to incumbents in other Part 90 services.[184] SMR also asks that licensees be permitted to modify their system configurations without prior Commission approval, arguing that a similar rule has been approved in the 800 MHz and 900 MHz services.[185] In addition, AMTA requests that we permit Phase I licensees to convert overlapping incumbent systems into a geographic license, as is currently allowed for incumbent 800 MHz and 900 MHz authorizations.[186]

96. We recognize that licensed sites may become unusable for a variety of reasons.[187] We are also persuaded by petitioners' arguments that, in order to maintain the economic and technical viability of a licensee's 220 MHz service, Phase I incumbent licensees should be permitted to modify their authorizations (*e.g.*, to relocate their base station, to change the ERP or HAAT of their base station) as long as doing so does not expand their service contour, as we have defined that contour in this proceeding. Such licensees will therefore be permitted to make those modifications to their

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[181] AMTA Third Order Petition at 9; PERS Third Order Comment at 5 (unpaginated); SMR Third Order Reply at 8; *see also* USMC Order Reply at 3.

[182] AMTA Third Order Petition at 8-10; INTEK Third Order Petition at 5-7; PERS Third Order Comment at 5 (unpaginated); PCIA Third Order Petition at 4-5; SBT Third Order Reply at 3-4; SEA Third Order Comments at 14-15; SMR Third Order Petition at 9-11; SMR Third Order Comments at 3; SMR Third Order Reply at 8; USMC Third Order Comments at 2-3.

[183] AMTA Third Order Petition at 9-10; INTEK Third Order Petition at 5; PERS Third Order Comment at 5 (unpaginated); PCIA T Order Petition at 4-5; SEA Third Order Comments at 15; SMR Third Order Petition at 9-11; SMR Third Order Comments at 3; SMR Order Reply at 8-9. Petitioners contend that the Phase I licensees' service contours should be variously defined, *e.g.*, by their 28 dBu contour (AMTA Third Order Petition at 10; INTEK Third Order Petition at 5-6), their original 38 dBu contour (SEA Third Order Comments at 15), and at maximum facilities (PCIA Third Order Petition at 4-5; SMR Third Order Comments at 3; SMR Third Reply at 8-9).

[184] AMTA Third Order Petition at 8-10; INTEK Third Order Petition at 6-7; SEA Third Order Comments at 14-15; SMR Third Orc Comments at 3; SMR Third Order Reply at 8.

[185] SMR Third Order Petition at 10-11.

[186] AMTA Third Order Petition at 9-10.

[187] For example, deconstruction of a tower site, refusal of a site lessor to extend a lease, or introduction of incurable interference at a site.

authorizations that do not expand their 38 dBu service contour.[188] Phase I licensees will also be able to add additional transmitters within their 38 dBu service contour without prior authorization from the Commission, *e.g.*, to fill in "dead spots" in coverage or to reconfigure their systems to increase capacity within their service area, so long as signals from such transmitters do not expand their 38 dBu service contour.

97. We note that a Phase I licensee who relocates under the criteria set forth in the *220 MHz Second Report and Order* (and as further considered below in this Order)[189] must first establish its 38 dBu service contour at its new base station site in accordance with the Commission's rules for relocation before it can take advantage of the flexibility provided in this section. Phase I licensees, however, will be required to notify the Commission of any changes in technical parameters or additional stations constructed through a minor modification of their license. These modification applications will not be subject to public notice and petition to deny provisions in the Commission's rules, or mutually exclusive applications.

98. As discussed in paras. 81-91, *supra*, the Commission's Rules require geographic separation between Phase I base stations transmitting on the upper 40 channels in the 220-221 MHz band (*i.e.*, channels 161-200, referred to in the Commission's rules as "Sub-band B") and Phase I base stations receiving on the lower 40 channels in the 221-222 MHz band (*i.e.*, channels 1-40, referred to in the Commission's rules as "Sub-band A"). Also, as indicated *supra*, in the *220 MHz Third Report and Order*, the Commission's Rules require Phase II licensees transmitting on Sub-band B channels to provide geographic protection to Phase I licensees operating on Sub-band A channels;[190] and require Phase II licensees operating on Sub-band B and Sub-band A channels to coordinate the location of their base stations with one another to avoid interference.[191] Our decision herein to permit Phase I, non-nationwide licensees to modify their authorizations to add additional transmitter sites or change the operating parameters or location of their base station, however, raises interference concerns if such stations are authorized to licensees operating in Sub-bands A and B.

99. First, with respect to potential interference among Phase I licensees, we believe that Phase I licensees authorized on Sub-bands A or B channels that may seek to add additional transmitter sites or change the operating parameters or location of their base station should be required to coordinate such actions in a manner similar to the way that Phase II licensees authorized on Sub-bands A and B channels must coordinate the location of their base stations under Section 90.723(f) of the

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[188] A licensee's 38 dBu service contour shall be calculated in accordance with the provisions contained in paras. 68-75, *supra*.

[189] *See* paras. 167-174, *infra*.

[190] *See* Section 90.723(e) of the Commission's Rules, 47 C.F.R. § 90.723(e).

[191] *See* Section 90.723(f) of the Commission's Rules, 47 C.F.R. § 90.723(f).

Commission's Rules. Thus, to ensure that appropriate geographic separations are maintained if licensees authorized on Sub-bands A or B channels seek modifications to add additional transmitter sites or change the operating parameters or location of their base station, we will require licensees authorized on Sub-bands A or B channels to coordinate such actions with one another to avoid interference. These licensees must include with their application for a minor modification of their authorization,[192] a certification that the station has been appropriately coordinated.

100. Second, under Section 90.723(e) we currently require Phase II licensees authorized on Sub-band B channels, in locating their base stations, to provide geographic protection to the base stations of Phase I licensees authorized on Sub-band A channels. However, we do not believe that it would be appropriate to require a Phase II licensee authorized on Sub-band B, as it constructs its EA or Regional systems, to have to protect receivers associated with additional transmitter sites that a Phase I licensee authorized on Sub-band A might add within its service contour at any time in the future. We conclude, therefore, that a Phase II licensee authorized on Sub-band B channels should continue to provide geographic protection to Phase I licensees authorized on Sub-band A, but only to the base station of such licensees, as authorized at the time the Phase II, Sub-band B licensee seeks to construct its station.

101. Third, under our existing rules, there are no protection or coordination requirements among Phase I licensees authorized on Sub-band B and Phase II licensees authorized on Sub-band A. This is because Phase II licensees authorized on Sub-band A, in constructing their systems, would be aware of the location of the base stations of Phase I licensees on Sub-band B and would, in all likelihood, avoid placing their base stations in locations where such Phase I, Sub-band B stations might cause interference. However, if Phase I, Sub-band B licensees are permitted to add additional transmitter sites or modify the operating parameters or location of their base station at any time in the future, such actions could cause unforeseen interference to the base stations of Phase II, Sub-band A licensees. We will therefore require Phase I, Sub-band B licensees, in adding additional transmitter sites or modifying the operating parameters or location of their base station, to coordinate such actions with Phase II licensees authorized on Sub-band A. Phase I, Sub-band B licensees must include with their application for a minor modification of their authorization,[193] a certification that the station has been appropriately coordinated.

102. In addition, we will allow Phase I 220 MHz licensees to convert their site-by-site licenses to a single license authorizing operations throughout the incumbents' contiguous and overlapping 38 dBu service contours of their constructed multiple sites. Phase I licensees seeking such reissued licenses must make a one-time filing of specific information for each of their external

[192] *See* para. 98, *supra*.

[193] *See* para. 98, *supra*.

base station sites to assist the Commission staff in updating the Commission's database. We also will require evidence that such facilities are constructed and placed in operation and that, by operation of the Commission's rules, no other licensee would be able to use these channels within this geographic area. We note that facilities added or modified that do not extend the 38 dBu service contour will not require prior approval under this procedure.

103. We believe this decision strikes a fair balance between the interests of incumbents and Phase II licensees. Under our ruling, a Phase I licensee will be free to maintain full operational flexibility in providing service within its own service contour, while ensuring that the licensee's use of the spectrum does not negatively impact other 220 MHz operations.

104. Finally, we note that SMR contends that Section 309(j)(6)(D) of the Communications Act[194] prohibits the Commission from permitting Phase II licensees to modify their systems unless Phase I licensees are given the same right.[195] SMR asserts that we are therefore compelled to permit Phase I licensees full flexibility to modify their licenses so long as they remain within their contour.[196]

105. Because we have decided to permit Phase I licensees to modify their authorizations it is unnecessary for us to reach a decision on the merits of this issue in the present proceeding.

8. Substantial Service

106. To promote operational flexibility for 220 MHz licensees, and because the Commission recognizes that certain 220 MHz service offerings, such as fixed, point-to-point operations, might not lend themselves to compliance with a construction requirement based on the traditional design of private land mobile radio systems (*i.e.*, the construction and operation of single, high-powered base stations providing signal coverage over an extended area), the *220 MHz Third Report and Order* provides Phase II nationwide 220 MHz licensees with the alternative of meeting their construction requirements by demonstrating the provision of appropriate levels of substantial service to the public at the prescribed 5-year and 10-year construction benchmarks.[197] The option of meeting the substantial service requirement is also available to EA and Regional licensees.[198] The Commission decided not to adopt a particular measure of substantial service for such licensees, but rather to consider such

[194] 47 U.S.C. § 309(j)(6)(D).

[195] SMR Third Order Petition at 9-10.

[196] *Id.*

[197] *220 MHz Third Report and Order*, 12 FCC Rcd at 11016-19 (paras. 156, 158-159), 11082-83 (paras. 328-331), 11086-87 (para 341).

[198] *Id*. at 11020-21 (para. 163).

showings on a case-by-case basis.[199] In the Commission's rules, substantial service is defined as service that is sound, favorable, and substantially above a level of mediocre service that just might minimally warrant renewal.[200]

107. Metricom requests that the Commission specify the criteria that will be used to determine whether licensees have provided substantial service, and reminds the Commission that licensees would risk the loss of their licenses if their understanding of the definition of substantial service differs from that of the Commission.[201] Metricom argues that the imprecision of the substantial service requirement makes it difficult for licensees to determine whether they meet the substantial service requirement, and that elementary fairness requires clarity in such an important a matter.[202] Comtech calls the substantial service requirement "vague," and joins Metricom in seeking clarification.[203]

108. We disagree with the view of the substantial service requirement advanced by Comtech and Metricom that more precision is necessary in the definition. The Commission has found the substantial service standard useful in several contexts, including paging,[204] Personal Communications Services,[205] General Wireless Communications Service,[206] Wireless Communications Service,[207] and Local Multipoint Distribution Service.[208] In the case of Private Land Mobile Radio Service, the Commission has used the

[199] *Id.* at 11017-18, 11020-21 (paras. 158, 163).

[200] The term "substantial service" is defined in Section 90.743(a) and Section 22.940(a)(1)(i) of the Commission's Rules, 47 C.F.R. §§ 90.743(a), 22.940(a)(1)(i). *See also 220 MHz Third Report and Order*, 12 FCC Rcd at 11044 (para. 215) ("We continue to believe it is appropriate for all Phase I and Phase II 220 MHz Service licensees seeking renewal of their authorization to meet the requirements for license renewal similar to those provided in Section 22.940 of our rules.").

[201] Metricom Third Order Comments at 5.

[202] *Id*. at 5-6.

[203] Comtech Third Order Reply at 10.

[204] *See* Section 22.940(a)(1)(i) of the Commission's Rules, 47 C.F.R. § 22.940(a)(1)(i).

[205] *See* Section 24.16(a) of the Commission's Rules, 47 C.F.R. § 24.16(a).

[206] *See* Section 26.14(a) of the Commission's Rules, 47 C.F.R. § 26.14(a).

[207] *See* Section 27.14(b)(1) of the Commission's Rules, 47 C.F.R. § 27.14(b)(1).

[208] *See* Section 101.1011(a) of the Commission's Rules, 47 C.F.R. § 101.1011(a).

substantial service standard in regulations governing the 800 MHz and 900 MHz SMR bands[209] as well as the 220 MHz band.[210]

109. We refer parties who seek clarification of the standard beyond the definition in the Commission's rules to the Commission's stated purpose in applying the standard to 220 MHz service (recognizing the needs of licensees with service offerings such as fixed, point-to-point operations),[211] and to previous examples the Commission has given of substantial service.[212] Any further elaboration of the standard at this time would, we believe, only limit its flexibility and usefulness to licensees and their customers.

9. Spectrum Efficiency Standard

110. In the *220 MHz Third Report and Order*, the Commission concluded that Phase I and Phase II licensees who combine contiguous 5 kHz channels in order to operate on channels wider than 5 kHz would be required to meet the following spectrum efficiency standard: for voice communications, a licensee is required to employ equipment that provides at least one voice channel per 5 kHz of channel bandwidth; for data communications, a licensee is required to employ equipment that operates at a data rate of at least 4,800 bits per second per 5 kHz of channel bandwidth.[213] The standard is implemented through the Commission's equipment type acceptance process.[214]

111. To avoid inadvertently discouraging new, innovative, and efficient technologies, the Commission provided manufacturers with an extra measure of flexibility: type acceptance for equipment not meeting the voice or data efficiency standard could be obtained if (1) the manufacturer submitted a technical analysis with its application for type acceptance demonstrating that the equipment would provide more spectral efficiency than is required by the spectrum efficiency rule; and (2) this

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[209] *See* Sections 90.665(c) and 90.816(b)(1)(i) of the Commission's Rules, 47 C.F.R. §§ 90.665(c), 90.816(b)(1)(i).

[210] *See* Sections 90.725(h), 90.743(a)(1), 90.767(b), and 90.769(b) of the Commission's Rules, 47 C.F.R. §§ 90.725(h), 90.743(a)(1), 90.767(b), 90.769(b).

[211] *220 MHz Third Report and Order*, 12 FCC Rcd at 11016 (para. 156).

[212] *See* Amendment of Part 90 of the Commission's Rules To Facilitate Future Development of SMR Systems in the 800 MHz Frequ Band, PR Docket No. 93-144, RM-8117, RM-8030, RM-8029, Implementation of Sections 3(n) and 332 of the Communications Act - Regulatory Treatment of Mobile Services, GN Docket No. 93-252, Implementation of Section 309(j) of the Communications Act – Competitive Bidding, PP Docket No. 93-253, Second Report and Order, 12 FCC Rcd 19079, 19094-95 (para. 34) (1997) (*800 MHz S Order*).

[213] *220 MHz Third Report and Order*, 12 FCC Rcd at 10998-99 (para. 116).

[214] *Id.* at 10999 (para. 117).

technical analysis was deemed satisfactory by the Commission's Equipment Authorization Division.[215] Licensees would be permitted to employ equipment that failed to meet the spectrum efficiency standard only if such equipment had been thus type accepted.[216]

112. The Commission explained that the efficiency standard furthered one of the Commission's principal goals in establishing the 220-222 MHz service, which was to encourage the development of spectrally efficient technologies.[217] While the Commission did not disagree with the suggestion that the market would supply licensees with the incentive to use their spectrum efficiently, the Commission nevertheless believed that adoption of a mandatory efficiency standard was an appropriate and effective means of ensuring that licensees aggregating contiguous channels would operate efficiently.[218] In response to the claim that the standard could prevent the provision of certain services in the 220-222 MHz band, the Commission emphasized that its purpose was not to prevent the offering of services, but rather to spur, through the adoption of the standard, the development of spectrally-efficient technologies in any number of other wireless communications services that might eventually be provided in the band.[219]

113. The Commission further decided to retain the standard only through December 31, 2001.[220] By allowing the standard to then expire, the Commission intended to balance its goal of stimulating the development of spectrally efficient technology against its desire to grant licensees flexibility and to rely on market forces.[221] The Commission also expressed its confidence that by the time the standard expired, the technology of wireless equipment would have surpassed the requirements of the standard, and that there would no longer be a need to mandate such a standard for the 220-222 MHz band.[222]

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[215] *Id.* at 10999 (para. 118). Upon specific request, the Equipment Authorization Division would advise applicants who desired to develop equipment for this band as to the acceptability of their technical analysis. *Id.* at 10999 (para. 118 n.212).

[216] *Id.* at 10999 (para. 118).

[217] *Id.* at 10998 (para. 113).

[218] *Id.* at 10998 (para. 114).

[219] *Id.* at 10998 (para. 115).

[220] *Id.* at 10999 (para. 119).

[221] *Id.*

[222] *Id.* at 10999-11000 (para. 119).

114. Comtech petitions the Commission to exempt paging from the 220 MHz efficiency standard.[223] Comtech states that it is unaware of any manufacturer investigating one-way paging transmitters capable of meeting the efficiency standard, and that the necessary research and development to meet the standard would prevent the commercial availability of such equipment before the standard sunsets in 2002.[224] Arch and PCIA concur with Comtech that the efficiency standard is so stringent that it effectively negates the Commission's decision to allow paging in the 220 MHz band.[225] Comtech, in arguing for removal of the spectrum efficiency standard, contends that Comtech itself, rather than the Commission, can best ensure the most intensive use of Comtech's 25 kHz of nationwide spectrum.[226] Arch states that 6,400 bits per second in a 25 kHz channel "pushes the limits of practical radio frequency network design for paging using presently available technology."[227]

115. Glenayre agrees that no equipment now exists that meets the Commission's 220 MHz efficiency standard for data.[228] Predicting that "equipment meeting the standard will only become available at about the time the standard is eliminated," Glenayre cautions that the current lack of acceptable data equipment leaves 220 MHz licensees with three choices: to forego data, and implement voice equipment only; to construct voice equipment to meet construction deadlines, and construct data equipment separately when data equipment that meets the standard becomes available; or to delay all construction until acceptable data equipment is on the market.[229] Rather than exempting paging operations, as Comtech requests, Glenayre proposes that the Commission resolve the contradiction by introducing an achievable standard now that would become progressively more strict.[230] Specifically,

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[223] Comtech Third Order Petition at 8. Comtech notes that the Commission exempted paging from the Refarming efficiency standard. *See* Replacement of Part 90 by Part 88 To Revise the Private Land Mobile Radio Services and Modify the Policies Governing Them and Examination of Exclusivity and Frequency Assignment Policies of the Private Land Mobile Radio Services, PR Docket No. 92-235, Amendment of the Commission;s Rules Concerning Maritime Communications, PR Docket No. 92-257, Memoral Opinion and Order, 11 FCC Rcd 17676, 17689 (para. 26) (1996) (*Refarming Reconsideration Order*) (amending Section 90.203(j)(7 the Commission's Rules, 47 C.F.R. § 90.203(j)(7), to state that paging channels are exempted from the newly-adopted narrowband requirements).

[224] Comtech Third Order Petition at 6-7. Comtech states that one-way paging channels are generally 25 kHz wide and transmit at a maximum data rate of 6,400 bits per second, or .256 bits per second per hertz, a rate well below the efficiency standard's 4,800 bit per second per 5 kHz, or .96 bits per second per hertz. *Id.*

[225] Arch Third Order Comments at 2; PCIA Third Order Reply at 3.

[226] Comtech Third Order Reply at 7.

[227] Arch Third Order Reply at 4.

[228] Glenayre Third Order Petition at 5.

[229] *Id.* at 5-6.

[230] *Id.* at 6.

Glenayre advocates the adoption, through the Commission's type acceptance process, of a standard of 0.256 bps/Hz immediately; 1 bps/Hz by December 31, 2001, and 2 bps/Hz by December 31, 2006.[231] Glenayr suggests the standard could be eliminated by December 31, 2011.[232]

116. PERS agrees with Glenayre that strengthening the standard over time, and thus requiring more efficient technologies as they became available, would better serve the public interest.[233] Metricom, however, views Glenayre's proposal as unnecessary and burdensome to licensees, and argues that licensees would have to replace their equipment to keep up with the standard's increasing stringency.[234] In opposing the imposition of any efficiency standard, Metricom argues that the market should dictate the type of equipment to be employed.[235] Arch agrees with Metricom that Glenayre's proposal would artificially require paging operators to upgrade their equipment.[236]

117. Glenayre also petitions the Commission to conform the 220 MHz band spectrum efficiency standard to the 4,800 bits per second per 6.25 kHz channel standard the Commission adopted in the Refarming proceeding.[237] Glenayre argues that this step would offer the benefit of allowing the same equipment to be used in both bands.[238] In a slight variation of this proposal, Rush compares the 220 MHz efficiency standard (4,800 bps per 5 kHz channel) to the Refarming efficiency standard (4,800 bps in a 6.25 kHz channel), and requests that the 220 MHz standard be reduced to 3,840 bits per second, which would produce a consistent .768 b/s/Hz rate between the bands.[239] Such an adjustment, according to Rush, could enhance the potential for equipment development in both bands.[240]

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[231] *Id.*

[232] *Id.*

[233] PERS Third Order Comments at 2 (unpaginated).

[234] Metricom Third Order Comments at 8.

[235] *Id.*

[236] Arch Third Order Comments at 3.

[237] Glenayre Third Order Petition at 6-7. *See* Replacement of Part 90 by Part 88 to Revise the Private Land Mobile Radio Services and Modify the Policies Governing Them, PR Docket No. 92-235, Report and Order and Further Notice of Proposed Rulemaking, 10 FCC Rcd 10076, 10122 (para. 97) (1995) (*Refarming Report and Order*).

[238] Glenayre Third Order Petition at 7.

[239] Rush Third Order Petition at 3-4.

[240] *Id.*

118. INTEK, arguing in favor of the spectrum efficiency standard, reminds the Commission that, from its inception, the 220 MHz band has been especially dedicated to fostering spectrally-efficient narrowband technologies, and that prior to the *220 MHz Third Report and Order*, only narrowband equipment operating on 5 kHz channels was permitted in the 220 MHz band.[241] INTEK consider that in the *220 MHz Third Report and Order*, the Commission struck a "careful balancing of equities" which permits the aggregation of contiguous 5 kHz channels, and allows licensees to conduct paging and fixed operations on a primary basis, but also imposes a temporary efficiency standard on licensees using non-narrowband systems on their aggregated channels.[242]

119. This balance, according to INTEK, accommodates the licensees' desire for flexibility, and yet remains true to the narrowband character of the band, and to the equipment manufacturers who responded to the Commission's creation of a unique test-bed for narrowband technologies.[243] INTEK also maintains that Phase I licensees, including Rush and Comtech, applied for licenses in the expectation that they would be restricted to the use of 5 kHz narrowband equipment.[244]

120. INTEK and SEA dispute the argument that paging operations should be made exempt from the efficiency standard because no suitable equipment is available.[245] INTEK points out that, until the *220 MHz Third Report and Order*, paging was restricted in the 220 MHz band.[246] Therefore, INTEK maintains, any claim that manufacturers will be unable to satisfy 220 MHz band licensees' equipment needs cannot be other than premature and speculative, the more so in light of the prodigious increases in data-rate efficiency over the past five years.[247] SEA views Inflexion technology as indicative of this trend, and argues that application of the standard will encourage further development.[248] SEA

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[241] INTEK Third Order Comments at 2.

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

[243] *Id.*

[244] *Id.* at 4.

[245] *Id.* at 4-5; SEA Third Order Comments at 10-11.

[246] INTEK Third Order Comments at 4-5.

[247] *Id.* Prior to the *220 MHz Third Report and Order*, 220 MHz licensees were permitted to operate paging systems only on an ancillary basis to their land mobile operations. *220 MHz Third Report and Order*, 12 FCC Rcd at 10951 (para. 7).

[248] SEA Third Order Comments at 10-11. INTEK, while observing that it "does not believe . . . that any blanket statement regarding the plans of manufacturers to introduce paging equipment in the 220 MHz band that meets the spectrum efficiency standard can be made by any party . . . with any degree of certainty," also "notes that . . . at least one paging technology exists today (Inflexion) that, if adapted for use in the 220 MHz band, would appear to meet the data efficiency standard." INTEK Third Order Comments at 5.

suggests that parties opposed to applying the standard to paging do not sufficiently appreciate the flexibility provided by Section 90.203(k)(2) of the Commission's Rules, by which the Commission retains the flexibility to type-accept equipment that does not meet the letter of the standard.[249]

121. Comtech maintains that any reliance on Motorola's Inflexion system is misplaced because Inflexion is a two-way technology, and the Commission's rules specifically permit only one-way paging on 220 MHz channels.[250] Moreover, Comtech maintains, Inflexion requires a minimum of 50 kHz of spectrum, which very few 220 MHz licensees will possess.[251] Comtech further states that INTEK's own 220 MHz band data equipment is too large and heavy to be commercially acceptable for paging, and that, in contrast to one-way paging receivers, INTEK's two-way equipment can request re-transmission of information received with errors.[252]

122. We agree with petitioners who argue that our goal of making the 220 MHz service rules more flexible by permitting paging on a primary basis, and by permitting the aggregation of contiguous channels, is threatened by evidence presented in the record of this reconsideration proceeding that paging equipment is not presently capable of meeting the efficiency standard for the band. This concern, coupled with our view that, since adoption of the *220 MHz Third Report and Order*, circumstances have developed in a manner that suggests that 220 MHz spectrum will be used efficiently by service providers regardless of whether we impose any spectrum efficiency standard,[253] has led us to revise the Commission's rules to eliminate the spectrum efficiency standard for the 220 MHz service.

123. While we are convinced by the showings in the record that carriers seeking to offer one-way paging services would be impaired in their ability to take advantage of the licensing flexibility introduced in the *220 MHz Third Report and Order* because of the requirements of the spectrum efficiency standard, there are two reasons why we are not persuaded by the claim of some petitioners that the best solution to this problem is to exempt paging carriers from the standard.

124. First, these petitioners offer what is, at best, a partial cure for the problem illuminated in the record, which is tailored to address their particular interests but which ignores

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[249] SEA Third Order Comments at 11.

[250] Comtech Third Order Petition at 8 n.13. We note that Comtech's claim that only one-way paging is permitted for the 220 MHz service misconstrues the Commission's rules. *See* para. 91, *supra*. We also note that Comtech claims that two-way units are not being developed with a return channel below 800 MHz, because their large size would render them commercially unacceptable. *Id.* at 9.

[251] *Id.* at 8.

[252] Comtech Third Order Reply at 5. Comtech adds that, without a modem, INTEK's data equipment efficiency drops to 1.2 kbps. *Id*.

[253] *See* paras. 136-137, *infra*.

our overall policy objectives. The Commission indicated in the *220 MHz Third Report and Order* that a spectrum efficiency standard would not prevent the offering of services, but would spur the development of spectrum-efficient technologies.[254] The difficulty with the approach proposed by the petitioners is that, in singling out paging services for special treatment while leaving the standard in place, their solution would have the potential effect of impeding the introduction and deployment of other services demanded by consumers that use available equipment that does not comply with the strictures of the efficiency standard.

125. The Metricom case illustrates the anomalous consequences of pursuing the solution posed by the petitioners. Metricom, a relatively new entrant in the wireless service marketplace,[255] indicates that it is interested in employing 220 MHz frequencies to provide innovative non-voice services to the public.[256] Although Metricom does not petition for removal of the efficiency standard, it *does* observe — in arguing against the Glenayre proposal for a "sliding scale" efficiency standard that would be made more lenient now but more stringent in future years[257] — that it "disagrees with the imposition of *any* efficiency standard because Metricom believes that the marketplace should dictate the type of equipment to be employed, and the Commission should not foreclose new technological advances that may, in fact, yield greater efficiencies."[258]

126. We agree with Metricom. We do not believe it is prudent to leave the spectrum efficiency standard in place in the face of evidence that it could impair technological advances while also making it more difficult for carriers to take advantage of licensing flexibility to meet consumer demand. We also conclude that there is not a rational basis for avoiding this problem for carriers choosing to offer one type of service while permitting the problem to stand as a barrier to carriers offering other services.

127. Second, our elimination of the efficiency standard, while avoiding the policy deficiencies that are inherent in an exemption limited to one class of carriers, grants the relief sought by the petitioners. The fact that we have not chosen petitioners' specific solution — for the

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[254] *220 MHz Third Report and Order*, 12 FCC Rcd at 10998 (para. 115).

[255] Metricom Third Order Comments at 2-3.

[256] *Id.* at 3.

[257] *See* para. 117, *supra*.

[258] Metricom Third Order Comments at 8 (emphasis added). *See* para. 117, *supra*. We also note that, in earlier stages of this proceeding, Metricom opposed the spectrum efficiency standard and supported our permitting paging to be offered on a primary basis in the 220 MHz band. *See 220 MHz Third Report and Order*, 12 FCC Rcd at 10989-90 (paras. 93-94), 10997-98 (para. 112 n.1 and accompanying text).

reasons we have presented — in no way diminishes the fact that the petitioners are aided by our decision.

128. As we discussed above, the Commission neither foresaw nor intended that the efficiency standard would effectively bar the offering of paging or other services on the 220 MHz band.[259] The record before us, however, has convinced us that the spectrum efficiency standard impedes those licensees desiring to take advantage of the flexibility that we intended to establish with the *220 MHz Third Report and Order*. Retaining the efficiency standard could also block near-term entry into the 220 MHz market by equipment manufacturers not currently in this market, as well as the entry of different types of service providers, including small businesses.[260] We also continue to believe that market pressures will encourage efficient use of spectrum, and that technological innovation in the coming years will surpass the efficiency level of the adopted standard. These twin engines of progress seem to us a more reliable and reasonable method of promoting spectrum efficiency in the 220 MHz band than an efficiency standard that will soon expire in any case.

129. In this regard, we believe it is instructive to view the efficiency standard in the historical context of the Commission's development of licensing rules for the 220 MHz service and, in doing so, to illustrate why the standard is not necessary to ensure realization of the goals originally established by the Commission in its design of the licensing parameters for the service. "One of [the Commission's] principal goals in establishing the 220-222 MHz band was to encourage the development of spectrally efficient technologies."[261] In 1991, the Commission chose to pursue this goal, in the *220 MHz Report and Order*, by adopting service rules for the assignment of 200 five kHz channel pairs in the 220-222 MHz band, with mutually exclusive applications assigned through random selection procedures.[262]

130. The Commission's objective was to foster the development of efficient technology through a channelization plan that required equipment capable of utilizing extremely small slices of spectrum. The Commission's decision to promote spectrum efficiency through its channelization plan was, in part, the product of the Commission's awareness that the method of awarding licenses — the random selection process — could not serve as an effective tool for advancing this goal. The Commission, of course, did not at this time have statutory authority to employ competitive bidding as a means of awarding 220 MHz licenses.

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[259] *See* para. 113, *supra*.

[260] *See* para. 139, *infra*.

[261] *See 220 MHz Third Report and Order*, 12 FCC Rcd at 10998 (para. 113).

[262] *220 MHz Report and Order*, 6 FCC Rcd at 2364-65 (paras. 59, 62). *See* para. 5, *supra*.

131. In the *220 MHz Third Report and Order*, the Commission sought to combine the objectives of spectrum efficiency and flexible licensing by allowing paging to be offered in the 220 MHz band on a primary basis, by permitting the aggregation of contiguous 5 kHz channels in the band, and also by imposing spectrum efficiency standards intended to replicate the efficiencies demanded by 5 kHz operations.[263] However, as the discussion above suggests, we are now convinced that assigning licenses based on competitive bidding creates incentives for the promotion of spectrum efficiency. In view of the incentives for spectrum efficiency produced by competitive bidding, evidence presented in the record and discussed above that paging cannot be provided consistent with the efficiency standard, and developments that have occurred since the release of the *220 MHz Third Report and Order*, we now believe it is appropriate to rely on the competitive bidding process and marketplace forces to ensure that 220 MHz spectrum will be employed efficiently, even where contiguous 5 kHz channels are aggregated.

132. Unlike the comparative hearing and random selection processes that were the only means by which the Commission could award licenses at the time it established its licensing framework for the 220 MHz service, the Commission has found the competitive bidding process to be an effective tool for promoting efficient spectrum use. The Commission has determined that the auction process tends:[264]

> to reinforce the desire of licensees to make efficient and intensive use of . . . spectrum. Auctions make explicit what others are willing to pay to use the spectrum, and the licensees' need to recoup the out-of-pocket expenditure for a license should provide additional motivation to get the most value out of the spectrum.

In fact, the Commission has found that "the system of competitive bidding . . . will lead to the issuance of licenses to those parties who value the licenses most highly and who thus can be expected to make efficient and intensive use of the spectrum, as contemplated by Section 309(j)(3)(D) [of the Communications Act]."[265]

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[263] In taking this step, the Commission observed:

> In adopting this [spectrum efficiency] requirement, we note that we do not disagree with commenters that suggest that licensees acquiring 220 MHz spectrum through competitive bidding will likely have the incentive to use their spectrum efficiently. We believe, however, that our adoption of a mandatory spectrum efficiency standard at this time is an appropriate and effective means of ensuring that licensees aggregating contiguous channels will operate in an efficient manner.

220 MHz Third Report and Order, 12 FCC Rcd at 10998 (para. 114). *See* para. 113, *supra.*.

[264] Implementation of Section 309(j) of the Communications Act – Competitive Bidding, Second Report and Order, PP Docket No. 93-253, Second Report and Order, 9 FCC Rcd 2348, 2358 (para. 58), *recon.*, Second Memorandum Opinion and Order, 9 FCC Rcd 7 (1994).

265 Allocation of Spectrum Below 5 GHz Transferred from Federal Government Use, ET Docket No. 94-32, Second Report and Orde 11 FCC Rcd 624, 634-44 (para. 46) (1995).

133. Moreover, in services where the Commission has used competitive bidding to award licenses, there is evidence that licensees are using spectrally efficient technologies, despite the decision of the Commission not to impose spectrum efficiency standards. Since 1994, for example, the Commission has granted more than 2,000 licenses for new PCS services, which has contributed to the nationwide deployment of new technologies. Although no efficiency standards were imposed by the Commission in connection with the licensing and operation of PCS services, two widely used digital broadband PCS technologies are achieving spectrum efficiencies that surpass analog cellular technology. Both Code Division Multiple Access (CDMA) and Time Division Multiple Access (TDMA) are significantly more efficient than analog cellular.

134. In addition, in services (such as cellular services) that were not subject to auctions but that compete with broadband PCS, many licensees are replacing older, less efficient analog technologies with these digital technologies. For example, AT&T has started to switch its cellular analog services to TDMA digital technology.

135. A further reason for our decision to eliminate the spectrum efficiency standard is the fact that, since our adoption of the *220 MHz Third Report and Order*, circumstances relating to the development and utilization of the band have continued to change in a manner that suggests that 220 MHz spectrum will be used efficiently by service providers, regardless of whether we impose a spectrum efficiency standard. These circumstances have manifested themselves in two respects. First, subscribership growth, which is driving construction of facilities and deployment of equipment in the band, has continued at a pace that leads us to conclude that the efficient utilization of 5 kHz channels in the band is now well-established.[266] To take one example, an INTEK subsidiary operating 220 MHz business radio systems "recorded a major increase in subscribers during the second fiscal quarter ended March 31, 1998."[267] The widespread use of spectrally efficient equipment, which has gained momentum since the adoption of the *220 MHz Third Report and Order*, suggests that the Commission's original objectives in promoting efficient utilization of spectrum in the band have been largely successful.

136. Second, the Commission has acted in a related rulemaking proceeding to spur flexible use of the band in a manner that promotes further growth in the utilization of spectrally efficient 5 kHz

266 We note that there are currently 1,515 non-nationwide licenses to provide 220 MHz service. A total of 1,190 of those licenses are held by licensees who have met all construction requirements pursuant to the Commission's Rules. As we discuss elsewhere, we also believe there is a sound basis for concluding that future growth in the market for 5 kHz equipment in the 220 MHz band will not be compromised by our decision to eliminate the spectrum efficiency standard. *See* para. 141, *infra*.

267 Intek Global Web Site, http://www.intekglobal.com/newspr.htm#press2, Apr. 8, 1998. Internal subscribership growth increased 109 percent in the quarter ending March 31, 1998, with an acquisition accounting for further subscriber growth. *Id*.

channels. In the *Forty-Mile Rule Order*,[268] the Commission eliminated the requirement that a licensee could not hold more than one channel or channel group within a 64-kilometer (40-mile) area unless that licensee could demonstrate that its communications needs warranted additional channels or channel groups. In taking this action, the Commission concluded that "our service rules will foster efficient spectrum use and discourage uneconomic warehousing by providing licensees with the opportunity to provide a variety of fixed, mobile, and paging services in response to changing market conditions."[269] The Commission also determined that:[270]

> Under the existing 40-mile rule, a Phase I licensee would have to forego the pursuit of additional customer markets until its initial system was fully loaded, even if the additional channels themselves were partially or fully loaded. Removing the 40-mile rule will allow Phase I licensees to acquire additional licenses with which to implement future service plans. Keeping the 40-mile rule with respect to Phase I licensees could unnecessarily interfere with the ability of licensees possessing both Phase I and Phase II licenses to utilize their licenses in a unified fashion.

Thus, we conclude that, subsequent to our adoption of the *220 MHz Third Report and Order*, we have acted to ensure efficient use of 220 MHz spectrum. In particular, we believe our decision in the *Forty-Mile Rule Order* has stimulated deployment of spectrally efficient 5 kHz equipment, a process which was already well under way at the time we made that decision.[271]

137. We therefore conclude that the best public policy (from both a spectrum management and competitive point of view) is to allow 220 MHz service providers to make their own decisions about whether they will build the narrowband systems that are marketed by certain equipment manufacturers, or whether their business plans would be better served through the purchase of alternative equipment

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268 Amendment of Part 90 of the Commission's Rules To Provide for the Use of the 220-222 MHz Band by the Private Land Mobile F Service, PR Docket No. 89-552, Fourth Report and Order, 12 FCC Rcd 13453 (1997) (*Forty-Mile Rule Order*).

269 *Forty-Mile Rule Order*, 12 FCC Rcd at 13459 (para. 13).

270 *Id.* at 13459 (para. 14). The *Forty-Mile Rule Order* applied to Phase I licensees in the 220 MHz service. With respect to Phase II licenses, the Commission, in the *220 MHz Third Report and Order*, did not limit the number of licenses that may be acquired by one entity, and the Commission also allowed licensees to place stations anywhere within their geographically licensed areas. *220 MHz Third Report and Order*, 12 FCC Rcd at 10969, 10982-83 (paras. 53, 80).

271 The chairman of the 220 MHz Council, American Mobile Telecommunications Association (AMTA), in commenting on the *Forty Rule Order*, stated that the 5 kHz channels in the band are not conducive to cellular-like offerings. "`We're doing advanced technologies already, but our bread and butter is plain-vanilla dispatch. We're going to continue to be the low-cost alternative.'" C. Carlson, "Band May Consolidate," Wireless Week, Sept. 1, 1997, at 104 (quoting James Evans). Another industry official stated that "`[t]his [the *Forty-Mile Rule Order*] removes the last shred of uncertainty in the band, especially for companies seeking capital beyond their own resources to expand.'" *Id*. (quoting Alan Shark, President, AMTA).

with other functionalities. Elimination of the standard preserves the Commission policy of maximizing flexible use of spectrum — carriers planning to offer one-way paging or other services on aggregated channels would not be stymied by the current lack of equipment that meets the standard.

138. This policy is particularly important for 220 MHz spectrum because small businesses may be prominent players in developing this spectrum, and these businesses would directly benefit from a flexible spectrum use policy that enables them to respond efficiently to marketplace demand. Given the relatively small amount of spectrum assigned in a 220 MHz license, we think it is reasonable to expect that acquisition of the 220 MHz Phase II licenses may be relatively affordable, and therefore this service may be particularly attractive to small businesses.[272] Since the Commission has chosen to extend service flexibility to licensees acquiring licenses in other spectrum auctions,[273] we see no sound policy basis for retaining a spectrum efficiency standard that will restrict such flexibility in the 220 MHz band.

139. Although we note that no party has petitioned directly for this result, we do not believe that any 220 MHz licensee or applicant will be harmed by this grant of additional flexibility.[274] If we were to grant petitioners' requests to exempt paging from the spectrum efficiency standard, the resulting change in the Commission's existing rules would, we believe, hardly be less extensive than elimination of the standard. Either change would have implications for the business decisions of parties interested in obtaining 220 MHz licenses, particularly licenses with contiguous channel assignments. While we have found it advisable to eliminate the standard in order to preserve and

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[272] A 220 MHz equipment manufacturer representative has observed that the 220 MHz auction will be "the first auction in which small businesses really could participate." *See* D. Wayne, "Unresolved 220 MHz Auction Issues May Delay New Round," Radio Communications Report, Mar. 16, 1998, at 9, 10 (quoting Michael Bayly, land mobile marketing director form Midland SMR). Mr. Bayly also expressed concern that the auction rules for the service could hamper participation by small businesses.

273 *See, e.g., 800 MHz SMR Order*; Amendment of the Commission's Rules Regarding the 37.0-38.6 GHz and 38.6-40.0 GHz Bands, Docket No. 95-183, RM-8553, Implementation of Sections 3(n) and 332 of the Communications Act – Regulatory Treatment of Mobil Services, GN Docket No. 93-252, Implementation of Section 309(j) of the Communications Act – Competitive Bidding, 37.0-38.6 GH and 38.6-40.0 GHz, PP Docket No. 93-253, Report and Order and Second Notice of Proposed Rulemaking, 12 FCC Rcd 18600 (1997 Amendment of Parts 2 and 90 of the Commission's Rules To Provide for the Use of 200 Channels Outside the Designated Filing Areas in the 896-901 MHz and the 935-940 MHz Bands Allotted to the Specialized Mobile Radio Pool, PR Docket No. 89-553, Implementa of Section 309(j) of the Communications Act – Competitive Bidding, PP Docket No. 93-253, Implementation of Sections 3(n) and 332 of the Communications Act – Regulatory Treatment of Mobile Services, GN Docket No. 93-252, Second Order on Reconsideration an Seventh Report and Order, 11 FCC Rcd 2639 (1995).

274 The filing of a petition regarding any decision contained in a Commission Order tolls the running of the 30-day period during which the Commission may *sua sponte* reconsider its earlier disposition of any issue decided in that Order. As a result, the Commission generally retains the authority to reconsider additional issues when it addresses a specific issue raised on reconsideration. *See* Central Florida Enterprises v. FCC, 598 F.2d 37, 48 n.51 (D.C.Cir., 1978), *cert. dismissed*, 441 U.S. 957 (1979).

promote our goal of fostering flexible use of the band, we are confident that market forces and consumer demand will be adequate in driving efficient use of the spectrum.

140. Our decision should not be construed as a lessening of our commitment to using this band to stimulate innovative narrowband technology. Moreover, eliminating the spectrum efficiency standard for combined contiguous channels marks no major shift in Commission policies regarding utilization of the 220 MHz band. Because the efficiency standard applies only to those licensees who may combine contiguous 5 kHz channels to form larger channels, it has only limited effect on the majority of 220 MHz service licensees whose channels are *not* contiguous. The market for efficient narrowband 5 kHz equipment will remain strong, in our view, because most 220 MHz service licenses do not consist of contiguous channels and, thus, service providers will look for reasonably priced, well-designed equipment capable of utilizing 5 kHz channels. We therefore believe that the actions we are taking here will not adversely affect the development and deployment of narrowband equipment.

141. Turning to other arguments made in the record, we do not concur with SEA's suggestion that licensees unable to find paging equipment that meets the standard should turn to Section 90.203(k)(2) of the Commission's Rules for relief.[275] Section 90.203(k)(2) provides for type acceptance of transmitters that do not meet the efficiency standard, but only if such transmitters are accompanied by a technical analysis demonstrating that they will provide more spectral efficiency than would be provided by use of the spectrum efficiency standard.[276] Developments since the time of our adoption of the alternative efficiency showing, however, have made us less confident that equipment manufacturers or service providers are in a position to make the requisite technical showing. First, no party in this reconsideration proceeding has suggested any particular technical analysis as an alternative to the bits-per-second, per 5 kHz channel, measurement used in the efficiency standard. Second, ComTech, in a petition currently pending before the Commission seeking waiver of the efficiency standard,[277] does not advance any technical analysis in support of the waiver request, arguing instead that "a 25 kHz paging system that fails the data efficiency standard could still service several hundred thousand customers . . . ."[278]

142. Furthermore, no party has suggested that equipment that would be capable of achieving superior spectrum efficiency, if it were evaluated by some alternative technical analysis, is either currently or imminently available. Therefore, we believe that there is no reasonable basis upon which

275 "The flexibility available under this rule appears to be unappreciated by those wanting to abolish the efficiency standard for paging." SEA Third Order Comments at 11.

276 47 C.F.R. § 90.203(k)(2).

277 Comtech, Request for Waiver of Rules Pertaining to 220 MHz Specialized Mobile Radio Systems, filed June 18, 1997.

278 *Id*. at 3.

to conclude that manufacturers or licensees could rely on Section 90.203(k)(2) standard to provide an adequate opportunity for paging equipment to be type accepted for the 220-222 MHz band.

143. We also believe that the alternative mechanism contained in Section 90.203(k)(2) could be problematic because it can serve to competitively disadvantage carriers who are required to wait until an alternative showing is accepted by the Commission. The uncertainties associated with whether the Commission will act to grant the alternative showing, together with the time and expense that accompany pursuit of an alternative showing, contribute to this disadvantage. This latter concern could be ameliorated by the opportunity we have provided to equipment manufacturers to seek prospective advice regarding whether equipment they plan to develop would meet the efficiency standard.[279] It remains the case, however, that our principal concerns[280] would not be mitigated by any invocation of this mechanism for prospective advice.

144. We also conclude that allowing the spectrum efficiency standard to sunset would not provide a sufficient solution to the problems with the efficiency standard that have been raised in the record. We believe that this is especially true in the case of small businesses that may be interested in competing for spectrum in the 220 MHz band and taking advantage of the flexible spectrum use that the Commission's rules permit for the band. We think it would be highly unlikely that businesses would be able to change equipment choices when little depreciation of the equipment's value would have occurred by the end of 2001. Thus, companies intending to aggregate channels would either be forced to acquire the spectrum now through the competitive bidding process an then “warehouse” the spectrum until termination of the standard, at which time they could invest in equipment designed to provide services such as paging on the aggregated channels, or they could operate on the spectrum now through the deployment of 5 kHz equipment, and then change out that equipment after the termination of the standard, notwithstanding the depreciation problems this would pose, in order to utilize aggregated channels. Neither choice seems very attractive, especially for small businesses.

145. With regard to INTEK's assertion that the Commission's goal in this proceeding has been to achieve a “careful balancing of equities” among competing carriers and manufacturers, we would insist that our primary goal in this or any proceeding is to formulate sensible policies that promote the public interest. To the extent that maintaining the 220 MHz spectrum efficiency standard has the effect of denying licensees the operational flexibility we provided them in the *220 MHz Third Report*

279 *See 220 MHz Third Report and Order*, 12 FCC Rcd at 10999 (para. 118 n.212).

280 *See* paras. 142-143, *supra*.

and Order, we find that the standard satisfies this test, and we have determined to remove the standard on that basis.[281]

146. Although most of the debate in the record has focused on the standard for data, we are also eliminating the standard for voice. We can discern no reasonable legal or policy basis to make a distinction with respect to the application of a spectrum efficiency standard. Companies desiring to make innovative use of this spectrum for purposes other than paging will likewise be restricted in their ability to do so by a spectrum efficiency standard. Elimination of the standard will grant licensees seeking to provide voice services comparable flexibility to employ the type of technology that best meets their needs. As with 220 MHz licensees that provide data services, we are confident that licensees providing voice services will seek to ensure the success of their business plans by using the most spectrally efficient technologies to serve the maximum number of customers.

147. With regard to other related arguments raised in the record, we disagree with Glenayre's suggestion that we adopt a lenient standard that would become stricter over time.[282] If a stricter standard were phased in, and operators were permitted to continue using equipment they had acquired under the early, more lenient standard, the later standard would probably have little effect. In addition, the further a spectrum efficiency standard for this band stretches into the future, the more difficult judging its usefulness and appropriateness becomes. As we have stated, we believe business considerations are sufficient to induce 220 MHz band licensees to choose spectrally efficient equipment, and it is not our intention to regulate licensees more closely than necessary.

148. In addition, we decline to adopt Rush's and Glenayre's proposal to borrow the efficiency standard from the Refarming proceeding and apply it to the 220 MHz band.[283] Commenters are correct that the Refarming policy was designed in the context of a long-established, congested band with much embedded equipment.[284] The 220 MHz band — a small sector of the radio spectrum, clear of incumbents using older, inefficient technology, in which the Commission has attempted to foster technological innovation — presents quite different circumstances and concerns. We conclude that the argument that application of an identical standard would boost equipment development in both bands, while superficially appealing, offers little benefit. Applying only to aggregated, contiguous channels, and expiring in 2001, the 220 MHz standard touches too few licensees for too short a time to

281 We note that our decision also renders moot the question of whether waiver requests regarding the standards should be subject to public comment, as INTEK requests. *See* INTEK Third Order Petition at 8-9. We therefore do not examine the arguments that have been advanced for and against such a policy.

282 Glenayre Third Order Petition at 6. *See* paras. 116-117, *supra*.

283 *Id.* at 6-7; Rush Third Order Petition at 3-4. *See* para. 118, *supra*.

284 *See* INTEK Third Order Comments at 5-6; SEA Third Order Comments at 8-9.

significantly increase equipment development for the refarmed bands. Thus, we are not persuaded that conformance of the two standards would significantly promote the goals of either docket. We also note that nothing in the Refarming proceeding would preclude the use of 5 kHz equipment in refarmed bands.

10. Construction Requirements in Section 90.769 of Commission's Rules

149. In the *220 MHz Third Report and Order* the Commission established specific geographic or population-based service requirements that a nationwide Phase II licensee must satisfy by the end of 5- and 10-year benchmarks.[285] Comtech and Global seek clarification that Section 90.769 of the Commission's Rules, which establishes these construction benchmarks for Phase II nationwide licensees, does not apply to Phase I nationwide licensees.[286]

150. The discussion of the construction requirements in the *220 MHz Third Report and Order* for nationwide 220 MHz services clearly deals with the construction requirements that will be imposed on Phase II nationwide licensees.[287] In addition, the Commission added a heading to the Commission's Rules following Section 90.757 which reads: "POLICIES GOVERNING THE LICENSING AND USE OF PHASE II EA, F NATIONWIDE SYSTEMS."[288] In order to avoid any confusion on the part of Phase I licensees, however, we clarify that Section 90.769 of the Commission's Rules applies only to Phase II nationwide licensees and not to Phase I nationwide licensees and will amend the title of Section 90.769 accordingly.

11. Return of Pending Nationwide 220 MHz Service Applications

151. The Commission indicated in the *Third Notice* that it had not yet requested the amending information necessary to process the 33 pending Phase I applications for nationwide, non-commercial channels.[289] In the *Third Notice* the Commission therefore sought comment on three different means by which the Commission could address the pending applications.[290]

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285 *220 MHz Third Report and Order*, 12 FCC Rcd at 11017-19 (paras. 158-159).

286 Comtech Third Order Petition at 12; Global Third Order Petition at 9.

287 *220 MHz Third Report and Order*, 12 FCC Rcd at 11017-19 (paras. 158-159).

288 *Id.* at 11125 (Appendix B); 47 C.F.R. § 90.757.

289 *Third Notice*, 11 FCC Rcd at 206 (para. 30).

290 *Id.*

152. After considering the advantages and disadvantages of each of the proposals for handling the 33 pending Phase I nationwide, non-commercial applications, the Commission concluded, in the *220 MHz Third Report and Order*, that it was in the public interest to return the pending applications and the appropriate filing fees.[291] National points out, however, that the pertinent ordering clause in the *220 MHz Third Report and Order* states "that all pending nationwide . . . 220 MHz applications, together with the appropriate filing fees, will be returned to applicants, without prejudice."[292] National seeks partial reconsideration or clarification that the language in the ordering clause of the *220 MHz Third Report and Order* applies only to pending non-commercial, Phase I nationwide licenses and does not apply to any Phase I commercial, nationwide license application that may still be pending.[293]

153. The Commission's discussion and decision dealing with the return of 220 MHz pending nationwide applications in the *220 MHz Third Report and Order* dealt only with applications for non-commercial, nationwide licenses and did not include a consideration of pending commercial, nationwide 220 MHz applications.[294] We therefore take this opportunity to clarify that the language in the ordering clause (paragraph 345 of the *220 MHz Third Report and Order*) did not apply to the then pending commercial, nationwide 220 MHz applications. We note, however, that the applications for nationwide, commercial 220 MHz licenses have since been dismissed.[295]

12. Acquisition of Multiple Nationwide Licenses

154. In the *220 MHz Third Report and Order*, the Commission decided not to impose any limit on the number of Phase II nationwide channel blocks that a licensee may acquire.[296] Comtech asks that the Commission amend its rules to permit entities to obtain more than one Phase I nationwide authorization.[297]

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291 *220 MHz Third Report and Order*, 12 FCC Rcd at 10949, 11038 (paras. 6, 197).

292 *Id.* at 11090 (para. 354).

293 National Third Order Petition at 1-5.

294 *See 220 MHz Third Report and Order*, 12 FCC Rcd 11031-41 (paras. 183-206).

295 *See* Public Notice, Commercial Wireless Division Dismisses Remaining Applications for Nationwide Commercial 220-222 MHz Private Land Mobile Licenses, DA 98-641 (Apr. 3, 1998).

296 *220 MHz Third Report and Order*, 12 FCC Rcd at 10969 (para. 53).

297 Comtech Third Order Petition at 3-4.

155. In the *Forty-Mile Rule Order*, which was adopted after Comtech filed its petition, the Commission repealed Section 90.739(a) of the Commission's Rules for all nationwide and non-nationwide Phase I 220 MHz licensees. This rule provided that a Phase I licensee could not obtain an additional license unless the licensee could demonstrate that an additional system would be justified on the basis of its communications requirements. Section 90.739 of the Commission's Rules[298] was revised to provide that there would be no limit on the number of licenses that may be authorized to a single 220 MHz service licensee. Therefore, no additional action is required by the Commission at this time.

13. Installment Payments

156. To encourage the participation of small businesses in the 220 MHz Service auction, in compliance with Section 309(j) of the Communications Act, the Commission made bidding credits and an installment payment plan available to them. Very small businesses, defined as entities that, together with affiliates and controlling principals, have average gross revenues that are not more than $3 million for the three preceding years, would receive a 25 percent bidding credit. Small businesses that, together with affiliates and controlling principals, have average gross revenues that are not more than $15 million for the three preceding years, would receive a 10 percent bidding credit.[299] In addition, licensees that qualify as small businesses or very small businesses would be entitled to pay their winning bid amount in quarterly installments over the term of the license.[300]

157. In the *Part 1 Third Report and Order*, the Commission considered its use of installment payment plans for future auctions. On the basis of the record in that proceeding and the record developed on installment payment financing for the broadband PCS C block service and on recent decisions eliminating installment payment financing for LMDS and 800 MHz SMR, we concluded that, until further notice, the Commission should no longer offer such plans as a means of financing small businesses and other designated entities seeking spectrum licenses.[301] We note that this conclusion was subject to our request for comment in the Second Further Notice of Proposed Rulemaking portion of the *Part 1 Third Report and Order* on installment payment issues and means other than bidding credits and installment payments by which the Commission might facilitate the participation of small

298 47 C.F.R. § 90.739.

299 *220 MHz Third Report and Order*, 12 FCC Rcd at 11071 (para. 298). *See also* Section 90.1017(a) of the Commission's Rules, 4 C.F.R. § 90.1017(a).

300 *220 MHz Third Report and Order*, 12 FCC Rcd at 11072 (para. 301). *See also* Section 90.1017(d) of the Commission's Rules, 4 C.F.R. § 90.1017(d).

301 Amendment of Part 1 of the Commission's Rules – Competitive Bidding Procedures, WT Docket No. 97-82, Allocation of Spectru Below 5 GHz Transferred from Federal Government Use, 4660-4685 MHz, ET Docket No. 94-32, Third Report and Order and Secor Further Notice of Proposed Rulemaking, 13 FCC Rcd 374, 398-400 (para. 40) (1997) (*Part 1 Third Report and Order*).

businesses in our spectrum auction program.[302] Consistent with this conclusion, we announced that the Commission would shortly suspend the use of installment payment financing for the 220 MHz Service auction.[303]

158. In light of our experience with installment payment plans in previous auctions as outlined in the *Part 1 Third Report and Order*, we conclude that it is in the public interest to eliminate installment payments in the 220 MHz Service auction. In order to facilitate the participation of small businesses by overcoming the barriers they face in mobilizing the necessary financial resources, however, we conclude that it is appropriate to increase the amount of the bidding credits available to small businesses and very small businesses.

159. We, therefore, will amend the Commission's rules to increase bidding credits for the 220 MHz Service, consistent with those established in the *Part 1 Third Report and Order*. Thus, small businesses with gross revenues not to exceed $15 million will receive a 25 percent bidding credit and very small businesses with gross revenues not to exceed $3 million will receive a 35 percent bidding credit. Based on our past auction experience, we believe that the level of these bidding credits will provide adequate opportunities for small businesses of varying sizes to participate in the 220 MHz Service auction.

160. Next, we will amend Section 90.1015 of the Commission's Rules[304] to permit auction winners to make their final payments within ten (10) business days after the applicable deadline, provided that they also pay a late fee of 5 percent of the amount due, without being considered in default. This change will conform our 220 MHz rules with the generally-applicable Part 1 rules.[305]

161. The 220 MHz rules provide that winning bidders have ten (10) business days to make timely payment following notification that their licenses are ready to be granted. As we stated in the *Part 1 Third Report and Order*, we believe that in establishing an additional ten (10) business day period during which winning bidders will not be considered in default, we provide an adequate amount of time to permit winning bidders to adjust for any last-minute problems in arranging financing and making final payment. We decline to have a lengthier late payment period because we believe that extensive relief from initial payment obligations could threaten the integrity, fairness and efficiency of the auction process. A late fee of 5 percent is consistent with general commercial practice and provides

302 *Id.* at 400 (para. 40).

303 *Id.* at 401 (para. 43).

304 47 C.F.R. § 90.1015.

305 *See Part 1 Third Report and Order*, 13 FCC Rcd at 428-30 (paras. 93-96) (amending Section 1.2109(a) of the Commission's Rul 47 C.F.R. 1.2109(a)).

some recompense to the Federal Government for the delay and administrative or other costs incurred. In addition, we believe that a 5 percent fee is large enough to deter winning bidders from making late payments and yet small enough so as not to be punitive. Therefore, applicants that do not submit the required final payment and 5 percent late fee within the 10-day late payment period will be declared in default and will be subject to the default payment specified in Section 1.2104(g).

162. We emphasize that our decision to permit late payments is limited to payments owed by winning bidders that have submitted timely initial down payments. We continue to believe that the strict enforcement of payment deadlines enhances the integrity of the auction and licensing process by ensuring that applicants have the necessary financial qualifications. In this connection, we believe that the *bona fide* ability to pay demonstrated by a timely initial down payment is essential to a fair and efficient auction process. Thus, we have not proposed to modify our approach of requiring timely submission of initial down payments that immediately follow the close of an auction. We believe that it is reasonable to expect that winning bidders timely remit their down payments given that it is their first opportunity to demonstrate to the Commission their ability to make payments toward their licenses. Similarly, we do not allow for any late submission of upfront payments, as to do so would slow down the licensing process by delaying the start of an auction.

163. Finally, we reiterate that the procedures set forth in Part 1, Subpart Q of the Commission's Rules apply to the Phase II 220 MHz service unless otherwise indicated in Part 90 of the Commission's Rules.[306] We therefore clarify that applicants at the short- and long-form application stages are subject to the reporting requirements contained in the newly adopted Part 1 ownership disclosure rule.[307]

306 *See* Section 90.1001 of the Commission's Rules, 47 C.F.R. § 90.1001.

307 *See* Section 1.2112 of the Commission's Rules, 47 C.F.R. § 1.2112.

14. Other Issues

164. Petitions for reconsideration of the *220 MHz Third Report and Order* raise three additional issues concerning Phase I nationwide licensees. Two issues concern the construction benchmarks the Commission had previously set for Phase I licensees. Rush and Metricom contend that the Phase I construction requirements are onerous and unnecessary, and Comtech and Global particularly object to the requirement that Phase I licensees construct all 5 channels at a minimum number of base stations in specified urban areas.[308] The Phase I construction requirements, however, were not developed or addressed in the *220 MHz Third Report and Order*, and we therefore do not believe our reconsideration of that Order to be the appropriate place for us to examine these issues. Concerned parties might consider the option of filing a petition for rulemaking as provided in Section 1.401 of the Commission's Rules.[309]

165. In addition, Comtech, Global, and Rush request that the Commission cease requiring Phase I licensees to obtain specific site licenses for each of their base stations.[310] Again, these Phase I licensing rules were not the subject of the *220 MHz Third Report and Order*. We note that an independent record regarding this issue has already been created in response to a petition for declaratory ruling, and we believe it would be more appropriate to consider the question in the context of that proceeding.[311]

B. 220 MHz Second Report and Order Issues

1. Maximum Distance Relocation Limitations

166. In the *220 MHz Second Report and Order* the Commission adopted a one-time modification procedure that allows licensees to modify their licenses to relocate their authorized base stations to previously unauthorized locations. Under this procedure, licensees with base stations authorized inside any DFA were permitted to relocate their base stations up to one-half the distance over 120 km

308 Rush Third Order Petition at 4-5; Metricom Third Order Petition at 3-6; Global Third Order Petition at 5-9; Comtech Third Order Petition at 13-14.

309 47 C.F.R. § 1.401.

310 Comtech Third Order Petition at 11; Global Third Order Petition at 3-5; Rush Third Order Petition at 2-3.

311 Comtech filed a Petition for Declaratory Ruling regarding this issue with the Wireless Telecommunications Bureau on October 31, 1995. On January 19, 1996, the Commission issued a Public Notice inviting comment and establishing a pleading cycle. *See* Public Notice, Commission Seeks Comment on Comtech Petition for Declaratory Ruling That Licensees of a Nationwide 220 MHz Mo Communications System are Not Required to License Separately Each of the Systems' Base Stations, DA 96-38 (Jan. 19, 1996).

toward any authorized co-channel base station, to a maximum distance of 8 km.[312] Licensees with base stations authorized outside the boundaries of any DFA were permitted to relocate their base stations up to one-half the distance over 120 km toward any authorized co-channel base station, to a maximum distance of 25 km, so long as they did not locate their base station more than 8 km inside the boundaries of any DFA.[313]

167. In their petitions, AMTA, SMR, and Incom contend that the *220 MHz Second Report and Order* is silent regarding the maximum allowable distance of a move from within a DFA to outside a DFA.[314] AMTA and SMR urge the Commission to clarify or reconsider its decision to allow moves up to a maximum distance of 25 km if the licensee is moving from a location within a DFA to a location outside that DFA and will not move into another DFA.[315] Incom asks that the Commission clarify its position to indicate that a licensee whose initially authorized site is located inside a DFA within 8 km of the perimeter and who seeks to modify to a location outside the DFA be permitted to move its site a maximum of 25 km.[316]

168. SMR asserts that licensees close to a DFA boundary moving outside the DFA into a more rural area are likely to face the same difficulties as a licensee already located outside a DFA in terms of finding alternative sites within a short distance.[317] AMTA and Incom argue that since licensees moving outside a DFA are moving away from the center of population they are unlikely to gain any increased population in their service area.[318] SMR further claims that, to the extent that a licensee is moving away from a more populated and presumably more valuable area, the effect would not be adverse to the interests of entities participating in any subsequent auction for 220 MHz service licenses.[319] Incom also argues that the *220 MHz Second Report and Order* contemplates that the defining element of a proposed modification which crosses a DFA boundary would be the ultimate location of the station.[320]

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312 *220 MHz Second Report and Order*, 11 FCC Rcd at 3670 (para. 9).

313 *Id.*

314 AMTA Second Order Petition at 5; Incom Second Order Petition at 15; SMR Second Order Petition at 9.

315 AMTA Second Order Petition at 6; SMR Second Order Petition at 9.

316 Incom Second Order Petition at 15.

317 SMR Second Order Petition at 9.

318 AMTA Second Order Petition at 5-6; Incom Second Order Petition at 15.

319 SMR Second Order Petition at 9.

320 Incom Second Order Petition at 16.

169. The *220 MHz Second Report and Order* sets out a clear and unambiguous framework governing the maximum distance licensees will be permitted to move under the modification procedure. Under this framework, contrary to the assertions in the record, the defining element of a proposed modification is *not* the ultimate location of the base station — the defining element is based on the *initially authorized location*. Under the modification procedure the Commission adopted, licensees with base stations authorized *inside* any DFA are permitted to relocate their base stations up to one-half the distance over 120 km toward any authorized co-channel base station, to a maximum distance of 8 km.[321] Licensees with base stations authorized *outside* the boundaries of any DFA are permitted to relocate their base stations up to one-half the distance over 120 km toward any authorized co-channel base station, to a maximum distance of 25 km.[322]

170. The *220 MHz Second Report and Order* provided for only one qualification to these two rules — if a licensee moves from a site outside a DFA to a site within a DFA, the licensee may relocate only 8 km inside a DFA boundary line.[323] The reason for this qualification is that the Commission concluded that a licensee seeking to relocate from outside a DFA to within a DFA would not require a 25 km radius to locate an available site. Moreover, the 8 km restriction was designed to prevent a licensee who chose to relocate from outside a DFA to within a DFA from having a greater geographic area within which to locate a new site than a licensee that is authorized within the DFA.

171. The Commission found that this modification procedure would enable 220 MHz licensees to provide service in the geographic area they are authorized to serve pursuant to their initial applications, while accommodating their need to relocate their base stations for technical or other legitimate factors.[324] The Commission reasoned that a licensee situated in a DFA should be able to find an alternative base station site within an 8 km radius due to the multiplicity of base station sites in urban areas.[325] On the other hand, the Commission concluded in the *220 MHz Second Report and Order* that the availability of sites in areas outside a DFA might be less numerous and, therefore, a licensee should be given a 25 km radius within which to find an alternative site.[326]

172. The petitioners are asking that we reconsider the Commission's decision allowing moves up to a maximum distance of 8 km if the licensee is moving from a location within a DFA, and instead

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321 *220 MHz Second Report and Order*, 11 FCC Rcd at 3670 (para. 9).

322 *Id.*

323 *Id.*

324 *Id.* at 3671 (para. 10).

325 *Id.* at 3670-71 (paras. 8-9).

326 *Id.*

permit such a licensee to move to a location outside that DFA up to a maximum distance of 25 km. We conclude, however, that the purpose of the modification procedure established by the Commission was to enable 220 MHz licensees to carry out their initial business plans by finding a useable site within their planned area of service. It was not the intent of the Commission for the modification procedure to serve as an opportunity for the licensee to abandon its original plan to serve a particular area in favor of a more attractive or different service area. In our view, a licensee, who is presently authorized within a DFA, would have available to it the same multiplicity of base station sites within an 8 km radius as a licensee who is moving from a location within a DFA to another location within a DFA. There is no basis in the record for a different conclusion.

173. The fact that a licensee initially authorized in a DFA *chooses* to seek a new base station site outside its DFA should not entitle that licensee to be treated in the same manner as a licensee that was initially *authorized* outside a DFA, and therefore, presumably *requires* a larger area, *i.e.*, 25 km, within which to find a new base station site. Petitioners have not presented us with any compelling evidence as to why we should make an exception for this class of licensees. Therefore, we affirm the Commission's determination that a licensee with an authorized base station located in a DFA will be permitted to relocate its base station up to one-half the distance over 120 km toward any co-channel licensee's initially authorized base station, to a maximum distance of 8 km, regardless of whether the relocated base station site is inside or outside the boundaries of the DFA.

2. Non-Relocation Modifications

174. AMTA, SMR, and USMC generally comment favorably upon the Commission's decision in the *2 MHz Second Report and Order* to adopt relocation procedures which provide 220 MHz licensees with flexibility to relocate from sites that are no longer available.[327] Petitioners, however, ask that the Commission reconsider or clarify its decision to exclude modifications, other than site relocation modifications, from the procedures adopted in the *220 MHz Second Report and Order* and permit licensees to file modifications of operating parameters for their original or relocated facilities, including increases in their antenna height and power specifications up to maximum permitted values.[328]

175. AMTA, SMR, and USMC have various interpretations regarding what the *220 MHz Second Rep and Order* actually provides regarding this issue. USMC interprets the *Order* as permitting a licensee who files a relocation modification to also apply for any other changes to its operating parameters at the new location, provided that it does not exceed the height and power limits set out in the

327 *See* AMTA Second Order Petition at 6; SMR Second Order Petition at 4; USMC Comments at 3.

328 AMTA Second Order Petition at 6-7; SMR Second Order Petition at 6.

Commission's rules.[329] USMC contends that the *220 MHz Second Report and Order* does not grant similar flexibility to a licensee that does not relocate.[330] Thus, USMC argues that the Commission's rules lead to an unintended and "absurd" result, forcing licensees to relocate if they were at otherwise sufficient locations but wanted to make changes to their height and power operating parameters in order to be able to provide better service.[331] SMR argues similarly that the *220 MHz Second Report and Order* unfairly discriminates against those licensees prepared to remain at their original locations but who need to modify certain specifications at their original site.[332] AMTA, on the other hand, seems to assume that the *220 MHz Second Report and Order* does not allow such changes even if the licensee is seeking to relocate.[333]

176. USMC argues that because co-channel separation distances are based on the maximum permissible height and power limits, any change within the limits will not cause harmful interference to other co-channel licensees and thus should be allowed.[334] AMTA and SMR assume that existing stations are likely to be protected under new rules based on the service contour that would result from a licensee operating at the maximum antenna height and power.[335] They argue that allowing such "minor" modifications will therefore have no effect on the amount of service area available to future auction participants.[336] SMR further argues that licensees cannot be expected to have foreseen that they would be restricted to the specifications on their original licenses and, therefore, to prevent licensees from modifying their licenses would be unfair and contrary to the public interest.[337]

177. SMR also claims that many of the licensees seeking such modifications already are providing service to the public pursuant to STA grants which have authorized these changes.[338] SMR contends that the Commission's rationale that it was not appropriate to force licensees who have

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329 USMC Second Order Comments at 3.

330 *Id.*

331 *Id.*

332 SMR Second Order Petition at 3-4.

333 *See* AMTA Second Order Petition at 6-7.

334 USMC Second Order Comments at 3.

335 AMTA Second Order Petition at 7; SMR Second Order Petition at 6, citing *Third Notice*, 11 FCC Rcd at 237 (para. 99).

336 AMTA Second Order Petition at 7. *See also* SMR Second Order Petition at 6.

337 SMR Second Order Petition at 4. *See also* AMTA Second Order Petition at 6-7.

338 SMR Second Order Petition at 5.

constructed their systems at relocated sites pursuant to STAs to discontinue such service applies equally to licensees who have constructed at their original sites and obtained STAs to operate with different technical parameters.[339] SMR further contends that forcing existing licensees to either change existing operations or settle for inferior technical specifications at original sites would be contrary to the goal to enhance the competitive potential of 220 MHz services in the CMRS marketplace because 220 MHz licensees would be less able to compete with the providers of other commercial mobile services.[340]

178. In the *220 MHz Second Report and Order*, the Commission sought to accommodate Phase I licensees that "for various unforeseen reasons, . . . are unable to construct at their authorized locations" and therefore provided such licensees with the opportunity to seek modification of their licenses to relocate their base stations.[341] The *220 MHz Second Report and Order* did not provide for licensees to modify their authorizations for any other reason, such as to change their power or antenna height, since, as explained more fully below,[342] such a ruling would have gone beyond the specific purpose for which the *220 MHz Second Report and Order* was adopted. Furthermore, we disagree with USMC's interpretation that the *220 MHz Second Report and Order* allows licensees who seek to relocate also to make changes in these parameters.

179. We continue to believe that the modification procedure set out in the *220 MHz Second Report and Order* appropriately accommodates the needs of licensees who were unable to construct at their authorized locations. The intention of the Commission in the *220 MHz Second Report and Order* was to craft carefully and narrowly drawn relocation parameters to provide relief to existing licensees but not to allow them to enhance their position in the marketplace. The interest of the Commission in establishing precise and narrow criteria was heightened by the fact that the Commission also had decided to take the unusual step of allowing these licensees to file modification applications without providing an opportunity for other potential applicants to file competing initial applications.[343] In light of these considerations, we find no basis for any general extension of the modification parameters to include changes to antenna height and power at a licensee's originally authorized location. We note, however, that, as discussed above,[344] licensees who decided not to relocate under the procedures

339 *Id.*

340 *Id.* at 5-6.

341 *220 MHz Second Report and Order*, 11 FCC Rcd at 3669 (para. 4).

342 *See* para. 180, *infra*.

343 *See 220 MHz Second Report and Order*, 11 FCC Rcd at 3669 (para. 4).

344 *See* paras. 97-98, *supra*.

announced in the *220 MHz Second Report and Order* will be permitted to make changes to their technical parameters as long as such modifications do not expand their 38 dBu service contour.

180. In addition, as a practical matter, because it is highly unlikely that a licensee who relocates its base station will be able to install its antenna at the identical height above average terrain specified in its existing authorization, we clarify that licensees seeking to relocate are also permitted to modify their antenna height above average terrain. On the other hand, it would not be necessary for a licensee who relocates to operate at the new site at a different power level, and thus the *220 MHz Second Report and Order* does not allow a licensee who relocates to change its power level.[345]

181. If, however, as a result of raising the antenna height, the height and power combination exceeds the provisions of the ERP vs. Antenna Height Table in Section 90.729 of the Commission's Rules,[346] the rules require that the licensee's authorized power shall be reduced accordingly so that the operations of the licensee remain in compliance with the provisions of that section. Any applicant seeking to relocate and to alter operating power levels is permitted to relocate (if the application is in conformance with applicable rules), but the *220 MHz Second Report and Order* does not establish any authorization pursuant to which the applicant may alter operating power levels. We note that after a licensee relocates in accordance with the Commission's modification procedures and establishes its 38 dBu service contour, the licensee, as outlined in paras. 95-106, *supra*, will be able to make changes to its authorization, including its power level, provided that doing so does not expand its 38 dBu service contour.

182. As for licensees who were granted STAs at their original locations but at increased height or power, those STAs were granted only on a temporary basis, and they conferred no guarantee that the licensee would be able to obtain a permanent authorization in accordance with those changes. In addition, a licensee with an STA to operate at different height or power parameters would not be precluded from offering service if the licensee is not granted permanent authorization at those parameters. Only the coverage area would be altered.

183. Finally, we note that petitioners base their arguments in part on the assumption that existing stations are likely to be protected under new Phase II rules based on a service contour.[347] AMTA cites the 800 MHz and 900 MHz SMR bands as cases in which the Commission has chosen to protect

345 We note that if a licensee who did not seek to relocate believed it was impossible to remain at the same antenna height above average terrain at the original location there is nothing in the *220 MHz Second Report and Order* that would prevent such a licensee from applying for a waiver of the Commission's rules.

346 47 C.F.R. § 90.729.

347 AMTA Second Order Petition at 7; SMR Second Order Petition at 6.

incumbent licensees to their 22 dBu or 40 dBu contours.[348] Petitioners further assert that such protection is likely to be based on maximum allowable height and power.[349] In fact, the protection afforded Phase I licensees by future Phase II licensees has been addressed by the Commission in the *220 Mhz Third Report and Order*,[350] where the Commission determined that Phase I licensees would be protected to their 38 dBu service contour based on *actual*, as opposed to maximum, height and power. We have affirmed that decision in this Order.[351]

3. Special Temporary Authority

184. In the *220 MHz Second Report and Order* the Commission recognized that a number of licensees had obtained STAs to operate base stations at alternative locations and that some of these locations would not meet the permissible modification requirements established in the *220 MHz Second Report and Order*.[352] The Commission believed that it would not be appropriate to require licensees to discontinue operations if they had obtained STAs to operate at alternate locations and were currently operating or planning to operate at such locations.[353]

185. The *220 MHz Second Report and Order* therefore provided that a licensee who had been granted an STA to operate at an alternative site would be permitted to seek permanent authorization at the STA site if the licensee certified that it had (1) constructed its base station and placed the base station in operation, or commenced service at that site; or (2) taken delivery of its base station transceiver on or before the adoption date of the *220 MHz Second Report and Order*.[354] The Commission provided that such licensees were permitted to seek permanent authorization at the STA site regardless of whether locating at the STA site would be in strict conformance with the relocation distance limitations prescribed in the modification procedure.[355]

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348 AMTA Second Order Petition at 7 n.4.

349 *Id.* at 7; SMR Second Order Petition at 6.

350 *220 MHz Third Report and Order*, 12 FCC Rcd at 11026 (para. 174).

351 *See* paras. 97-98, *supra*.

352 *220 MHz Second Report and Order*, 11 FCC Rcd at 3673 (para. 15).

353 *Id*.

354 *Id.* at 3673 (paras. 15-16).

355 *Id.*

186. The petitioners ask the Commission to reconsider or clarify that licensees who filed STA requests not later than the adoption date of the *220 MHz Second Report and Order* and were granted STAs after January 26, 1996 (the adoption date of the *220 MHz Second Report and Order*), and who otherwise meet the relocation requirements of Section 90.753(c)(2) of the Commission's Rules, will be allowed to seek permanent authorization at their STA sites.[356] Incom concludes that a licensee who had constructed its base station and had placed it in operation or commenced service as of January 26, 1996, must have been granted an STA by January 26, 1996 — otherwise operation at that site would be in contravention of the Commission's Rules.[357] Petitioners claim, however, that it is not clear whether licensees who had only taken delivery of base station transceivers by January 26, 1996, must also have been granted STAs by that date.[358]

187. Petitioners argue that the Commission's speed in processing one STA compared to another is out of the licensee's control and provides no basis for distinguishing among licensees.[359] PERS contends that it is long-standing Commission policy that similarly situated applicants must be treated similarly under the rules.[360] Petitioners also claim that by imposing a cut-off based solely on the grant of an STA request, two similarly situated applicants for modification based on STA requests filed on the same day could be treated dissimilarly, determined only by the timing of the Commission's review of the STA request.[361] Petitioners contend that such disparate treatment could be construed as arbitrary and capricious, and argue that the Commission has typically triggered a moratorium on acceptance of applications, or instituted cut-offs, based upon a deadline for filing applications.[362]

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356 AMTA Second Order Petition at 8; Incom Second Order Petition at 6, 9-10; PERS Second Order Petition at 6-7; SMR Second Or Petition at 8.

357 Incom Second Order Petition at 7.

358 *See* AMTA Second Order Petition at 8; Incom Second Order Petition at 7; PERS Second Order Petition at 2-3; SMR Second Orde Petition at 7.

359 *See* AMTA Second Order Petition at 8; Incom Second Order Petition at 8; PERS Second Order Petition at 3-4; SMR Second Orde Petition at 8.

360 PERS Second Order Petition at 4.

361 *See* AMTA Second Order Petition at 8; Incom Second Order Petition at 8; PERS Second Order Petition at 4; SMR Second Order Petition at 8.

362 *See* Incom Second Order Petition at 9-10. Incom cites the 900 MHz service, in which the Commission granted primary site status to all pending 900 MHz applications filed as of August 9, 1994, rather than restricting such relief to those applications granted as of that date. Incom also references the Commission's moratorium on the acceptance for filing of 929 MHz and 930 MHz applications, based on the filing date. *See also* PERS Second Order Petition at 4 n.6. PERS cites (1) the setting of a filing cut-off for 220 MHz applications as of the date filed; (2) the freezing of acceptance of applications in the 800 MHz specialized mobile radio services as of August 9, 1994; (3) granting 900 MHz licensees primary status for their secondary sites as of the date the applications were filed rather that the date granted; (4) the *Part 22 Rewrite Order*, in which the Commission provided for the

188. Incom also contends that since STAs are generally processed expeditiously, under industry practice it is common for preparatory construction work to be done prior to submitting an STA request.[363] Thus, according to Incom, licensees who took delivery of equipment prior to January 26 and whose STAs were pending at the Commission but not granted by that date have frequently devoted the same time and effort to the construction process as licensees whose STAs were granted by January 26, 1996.[364] Furthermore, PERS states that all of the licensees whose systems are managed by PERS have already constructed or are in the process of constructing their base station facilities and are able to begin providing service to the public.[365] PERS claims that if these licensees are not allowed to file for permanent authorizations at their STA sites and begin providing service to the public, it would undermine the Commission's goal of providing valuable service to the public in the most efficient manner.[366]

189. We conclude, notwithstanding the claims made in the record, that it was the Commission's intent in the *220 MHz Second Report and Order* that the relief provided for licensees operating under STAs be restricted to those licensees who had been granted STAs on or before January 26, 1996. The Commission made this clear, for example, in the provisions of the *220 MHz Second Report and Order* dealing with STAs, by referring to licensees who "have obtained" STAs.[367] In addition, the *220 MHz Second Report and Order* provides that "any licensee that *has been granted* an STA to operate at an alternative site" will be permitted to seek permanent authorization at that site in accordance with the procedures for filing modification applications established in the *Order* if the licensee has constructed its base station and has placed it in operation, or commenced service at that site,[368] or has taken delivery of its base station transceiver on or before the adoption date of the *220 MHz Second Report and Order*.[369]

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reconsideration of dismissed applications in light of new application procedures taking effect while petitions for reconsideration or applications for review are still pending. *See* Revision of Part 22 of the Commission's Rules Governing the Public Mobile Services, CC Docket No. 92-115, Report and Order, 9 FCC Rcd 6513 (1994) (*Part 22 Rewrite Order*).

363 Incom Second Order Petition at 9.

364 *Id.*

365 PERS Second Order Petition at 5.

366 *Id.*

367 *220 MHz Second Report and Order*, 11 FCC Rcd at 3672-73 (paras. 13, 15).

368 *Id.* at 3673 (para. 15) (emphasis added).

369 *Id.* at 3673 (para. 16).

190. We find no basis to conclude that the January 26, 1996, deadline is arbitrary or capricious. The Commission grants STAs to licensees upon a showing of need. Prior to January 26, 1996, the Commission granted STAs because 220 MHz licensees would have been unable to operate at base station sites other than their initially authorized locations, because the Commission had not yet announced final modification rules for the 220 MHz service. As of January 26, 1996, the final modification and relocation procedures had been announced and thus there no longer was any need for an STA.[370] After that date it would have only been necessary to issue an STA in order to meet a licensee's needs in an emergency situation.

191. Petitioners speculate that two similarly situated applicants who filed for STAs on the same date could be treated dissimilarly if one was granted an STA on or before January 26, 1996, and the other was granted an STA after January 26.[371] None of the petitioners, however, presents evidence of a situation in which this actually occurred. Furthermore, as the Commission has previously pointed out, when this issue was first raised in the United States Court of Appeals for the District of Columbia, in an Opposition to an Emergency Motion for Stay, "[t]he Land Mobile Branch quickly approved petitioners' [STA] applications (and every other application received by it on January 26 or filed on January 25) on the next business day, January 29."[372] None of these applications was granted on or before January 26.

192. Petitioners cite several cases in which the Commission established a cut-off date based on the filing of an application rather than on the grant of the application.[373] Incom cites the 900 MHz service, in which the Commission granted primary site status to all pending 900 MHz applications filed as of August 9, 1994, rather than restricting such relief to those applications granted as of that date.[374] Incom also references the Commission's moratorium on the acceptance for filing of 929 MHz and 930 MHz applications, based on the filing date.[375] All of the cases cited by petitioners, however, are distinguishable from the situation presented here. None of the cases cited involved STAs. STAs are issued in circumstances in which there is a need for special action and are always limited to a temporary authorization. All of the cited cases involved either license applications or applications for secondary authorizations. Furthermore, none of these cases involved the special circumstances

370 STAs are always available to meet a licensee's needs in emergency situations.

371 *See* AMTA Second Order Petition at 8; Incom Second Order Petition at 8; PERS Second Order Petition at 4; SMR Second Order Petition at 8.

372 Opposition of the FCC to Petitioner's Emergency Motion for Stay, Case No. 96-1133, Motion filed Apr. 24, 1996, Opposition filed Apr. 29, 1996, at 18.

373 *See* Incom Second Order Petition at 9-10. *See also* PERS Second Order Petition at 4 n.6.

374 Incom Second Order Petition at 10 n.3.

375 *Id.* at 10.

present in this case, namely, that once the final modification and relocation procedures had been announced on January 26, 1996, licensees no longer had a need to obtain an STA.

193. As to those licensees who took delivery of their equipment and expended time and resources preparing their STA site for construction, but who waited to apply for an STA until late January, we note that an STA does not guarantee any right to obtain permanent authorization at the STA site. Further, there was no guarantee in the *Fourth Notice* that licensees who had been granted STAs would be able to relocate at their STA sites. While pre-grant construction may not be an uncommon practice, the Commission's rules provide that licensees who construct prior to receiving an authorization do so at their own risk.[376] Licensees were able to apply for STAs at any time during the planning or construction of their base stations. They had no reason to delay filing their STA applications. At the time the *220 MHz Second Report and Order* was released the construction deadline was February 2, 1996. The Commission's regulations caution applicants to file STA applications at least 10 days prior to the date of proposed operation.[377] Therefore, a licensee who filed an STA application after January 23, 1996, could not reasonably have expected to receive an STA prior to the construction deadline.

194. For these reasons, we conclude that a licensee who had taken delivery of its base station transceiver on or before January 26, 1996, must have been granted an STA on or before January 26, 1996, in order to be allowed to seek permanent authorization at its STA site. We note that licensees who were not granted STAs on or before January 26, 1996, were permitted to modify their base station locations in accordance with the relocation rules set forth in Sections 90.753(a) and 90.753(b) of the Commission's Rules.[378]

4. Alternative Site Proposals

195. While the *220 MHz Second Report and Order* acknowledged that the modification procedure outlined in the *220 MHz Second Report and Order* would accommodate most 220 MHz licensees needing to relocate their base stations, the *220 MHz Second Report and Order* also recognized that in certain areas of the Nation it is possible that the technical characteristics of base station sites available under the relocation procedure may be considerably inferior to the technical characteristics of currently licensed sites and sites that may exist at nearby, more elevated locations.[379] In these cases, the Commission contemplated that licensees would seek a waiver of the modification procedures the

376 *See* Section 90.169(c) of the Commission's Rules, 47 C.F.R. § 90.169(c).

377 *See* Section 90.145 of the Commission's Rules, 47 C.F.R. § 90.145.

378 47 C.F.R. §§ 90.753(a), 90.753(b).

379 *220 MHz Second Report and Order*, 11 FCC Rcd at 3671 (para. 11).

Commission adopted in the *220 MHz Second Report and Order*.[380] AMTA and Incom express concern that tl *220 MHz Second Report and Order* did not provide for a protection mechanism or for a tolling of the construction period for licensees filing such waiver requests.[381] They argue that if a waiver request is ultimately denied, a licensee would lose its authorization for failure to construct by March 11, 1996.[382]

196. Incom claims that such a result would deter licensees from seeking a waiver.[383] Petitioners therefore request that the Commission permit waiver applications to include an alternative site proposal which complies with the Commission's rules, and that the Commission give licensees additional time to construct at the alternative site if the waiver request is denied.[384] Petitioners argue that allowing such an alternative showing would be consistent with the recognition in the *220 MHz Second Report and Order* that alternative, albeit inferior sites may exist.[385] Petitioners also assert that such an alternative showing procedure is utilized for all public mobile services governed by Part 22,[386] and Incom argues that the Budget Act of 1993[387] would appear to require the Commission to extend the Part 22 waiver standard to the 220 MHz service since they are substantially similar services.[388]

197. Section 1.958 of the Commission's Rules provides that "[r]equests for waiver must . . . set forth reasons in support thereof including a showing that unique circumstances are involved and that there is no reasonable alternative solution within existing rules."[389] The *220 MHz Second Report and Order* provided that if a licensee believed that, due to unique terrain features, it wanted to apply for a waiver of the modification procedures established in the *220 MHz Second Report and Order*, it

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380 *Id.*

381 AMTA Second Order Petition at 9; Incom Second Order Petition at 11-12.

382 AMTA Second Order Petition at 9; Incom Second Order Petition at 13.

383 Incom Second Order Petition at 14.

384 AMTA Second Order Petition at 9-10; Incom Second Order Petition at 12-15.

385 AMTA Second Order Petition at 9-10; Incom Second Order Petition at 13.

386 AMTA Second Order Petition at 9 n.5; Incom Second Order Petition at 12.

387 Omnibus Budget Reconciliation Act of 1993, Pub. L. No. 103-66, Title VI, § 6002(d)(3)(B), 107 Stat. 312, 397 (1993) (Budget Act).

388 Incom Second Order Petition at 12 n.5.

389 47 C.F.R. § 1.958.

could choose to do so.[390] In the *220 MHz Second Report and Order* the Commission posed a clear and reasonable choice for 220 MHz licensees. The Commission did not provide licensees with the option of applying for a waiver while at the same time allowing them to attempt to retain their option to construct at an alternate, although inferior, site which complies with the rules.

198. Petitioners note that licensees may utilize an alternative showing procedure when applying for a waiver of the rules contained in Part 22.[391] Such a procedure is specifically provided for in Section 22.119 of the Commission's Rules, which also specifies the showing required for a waiver of Part 22 Rules.[392] We note, however, that there is *no* parallel provision for alternative showing procedures for services licensed under Part 90 of the Commission's Rules. Under the Commission's general waiver rule for services licensed under Part 90, a waiver applicant must show that no reasonable alternative exists within existing rules.[393] Furthermore, the standard for granting waiver requests, as set forth in *Wait Radio,* is that "the very essence of waiver is the assumed validity of the general rule, and also the applicant's violation unless waiver is granted."[394] Thus, a licensee seeking a waiver of the Commission's rules to locate its base station at a site not permitted under the modification procedure must, in order to apply for a waiver, have no alternative available under the rules. If a licensee is able to offer an alternative relocation site, then, it could be argued that there is no reasonable basis for a waiver.

199. Therefore, a 220 MHz licensee seeking a waiver would need to show that site alternatives within the parameters of the Commission's relocation rules would be so inferior that they would preclude a viable system. To decide otherwise and permit licensees to make alternative site showings would not be consistent with this rule and also would impair one of the policy objectives set forth in the *220 MHz Second Report and Order, i.e.*, to provide existing licensees flexibility to complete construction of their systems and provide service while not unreasonably impairing the opportunity of potential competitors to obtain licenses in the 220 MHz service.[395] We believe that we provided sufficient flexibility to incumbent licensees by permitting them to relocate their base stations while at the same time insulating them from any competing filings by new applicants. To go further, as petitioners urge us to do, would risk an adverse impact on the competitive development of the 220 MHz service.

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390 *220 MHz Second Report and Order,* 11 FCC Rcd at 3671 (para. 11).

391 AMTA Second Order Petition at 9 n.5; Incom Second Order Petition at 12.

392 47 C.F.R. § 22.119.

393 Section 1.958 of the Commission's Rules, 47 C.F.R. § 1.958.

394 Wait Radio v. FCC, 418 F.2d 1153, 1158 (D.C. Cir. 1969).

395 *220 MHz Second Report and Order*, 11 FCC Rcd at 3668 (para. 2).

200. The Commission provided licensees with a reasonable framework for modifying their base station locations, and petitioners, in our view, have not presented persuasive arguments that the Commission should now change that framework to allow for alternative site proposals to accompany waiver requests. Furthermore, since we are affirming that licensees may not file alternative location proposals with a waiver request, we do not need to reach the question of whether we will allow licensees whose waiver requests are denied a reasonable period of time to construct their facilities at an alternative site. We note, however, that in the *220 MHz Second Report and Order* The Commission stated that the Commission will extend the deadline for a licensee to construct its station and place it in operation, or commence service, beyond August 15, 1996, by the number of days after June 1, 1996, that pass before a licensee's timely filed modification application is actually granted.[396] Therefore, a licensee who is granted a waiver after June 1, 1996, will have an adequate period of time to construct its station.

5. Other Waiver Issues

201. As we have discussed,[397] in the *220 MHz Second Report and Order* the Commission acknowledged that the modification procedure adopted therein would accommodate most 220 MHz licensees who need to relocate their base stations.[398] The *220 MHz Second Report and Order*, however, also recognized that in certain areas it may be possible that the technical characteristics of base station sites available under the modification procedure may be considerably inferior to the technical characteristics of currently licensed sites and sites that may exist at nearby, more elevated locations.[399] The Commission pointed out that such a scenario could exist, for example, in the Los Angeles or Seattle areas.[400] Therefore, the Commission stated that it would be appropriate to entertain waiver requests by licensees authorized in the Los Angeles and Seattle areas, as well as any other urban areas with comparable terrain features.[401]

202. In Touch expresses concern that the *220 MHz Second Report and* Order mentions only those waiver requests based on elevation differentials unique to certain DFAs, such as Los Angeles and

396 *Id.* at 3674 (para. 23).

397 *See* para. 172, *supra*.

398 *220 MHz Second Report and Order*, 11 FCC Rcd at 3671 (para. 11).

399 *Id.*

400 *Id.*

401 *Id.*

Seattle.[402] In Touch asks that the Commission clarify that waiver requests of the 8 km limitation based on unique DFA terrain issues other than simple elevation differentials of the site location will be accepted.[403] In support of its request In Touch asserts that in Atlanta, Stone Mountain is situated in the middle of one side of the original service area for a number of Atlanta licensees, and therefore relocation outside the 8 km limitation is required.[404]

203. In Touch also contends that inside the Atlanta DFA there are substantial rural areas where the licensee's original site is not available and no other available sites exist within 8 km.[405] In Touch therefore requests that the Commission reconsider or clarify that waiver requests of the 8 km relocation limitation will also be permitted to include situations where the licensee can demonstrate that there are no existing antenna sites available to it within the 8 km limitation.[406]

204. In Touch correctly points out that the *220 MHz Second Report and* Order does specifically mention one particular type of waiver request that the Commission will consider. There is nothing in the *220 MHz Second Report and Order*, however, that would prevent a licensee from seeking an appropriate and timely waiver of the Commission's rules if the licensee believes it has met the Commission's standard for waiver.[407] By mentioning one type of situation in the *220 MHz Second Report and* Order that the Commission believes may be appropriate for a waiver, the Commission did nothing to preclude other types of waiver situations. Therefore, we believe that no additional clarification is required on this point.

IV. PROCEDURAL MATTERS

A. Regulatory Flexibility Act

205. As required by the Regulatory Flexibility Act, the Commission has prepared a Supplemental Final Regulatory Flexibility Analysis (Supplemental FRFA) of the possible impact on small entities of the rules adopted in this Memorandum Opinion and Order on Reconsideration.[408] The

402 In Touch Second Order Petition at 2.

403 *Id.*

404 *Id.*

405 *Id.*

406 *Id.* at 2-3.

407 *See* Section 90.151 of the Commission's Rules, 47 C.F.R. § 90.151.

408 5 U.S.C. § 604.

Supplemental FRFA is set forth as Appendix C. The Office of Public Affairs, Reference Operations Division, will send a copy of the Memorandum Opinion and Order on Reconsideration, including the Supplemental FRFA, to the Chief Counsel for Advocacy of the Small Business Administration, in accordance with the Regulatory Flexibility Act.

B. Paperwork Reduction Act

206. This Order contains new information collection requirements that the Commission is submitting to the Office of Management and Budget requesting emergency clearance under the Paperwork Reduction Act.

C. Further Information

207. For further information concerning this rulemaking proceeding contact Marty Liebman, Mary Woytek, or Jon Reel, Policy Division at (202) 418-1310, or Frank Stilwell, Auctions and Industry Analysis Division, at (202) 418-0660, Wireless Telecommunications Bureau, Federal Communications Commission, Washington, D.C. 20554.

V. ORDERING CLAUSES

208. Accordingly, IT IS ORDERED, that the petitions for reconsideration or clarification filed by American Mobile Telecommunications Association; Incom Communications Corporation, SEA, Inc., In Touch Services, Inc., Philip Adler dba Communications Management Company, and Aircom Communications, Inc.; In Touch Services, Inc.; Police Emergency Services, Inc. and Bostom and Associates Company; and SMR Advisory Group, L.C. with respect to the *220 MHz Second Report and Orde* PR Docket No. 89-552 and GN Docket No. 93-252, ARE GRANTED to the extent provided herein and othe ARE DENIED. This action is taken pursuant to Sections 4(i), 4(j), 303(d), 303(r), 309(j), 332, and 405 of the Communications Act of 1934, 47 U.S.C. §§ 154(i), 154(j), 303(d), 303(r), 309(j), 332, 405.

209. IT IS FURTHER ORDERED, that the petitions for reconsideration or clarification filed by American Mobile Telecommunications Association, Inc.; Comtech Communications, Inc.; Glenayre Technologies, Inc.; Global Cellular Communications, Inc.; INTEK Diversified Corp.; Metricom, Inc.; National Communications Group, Capital Communications Group, Columbia Communications Group, Lones Dove Communications, All-American Communications Partners, and Shiner Bock Group; Personal Communications Industry Association; SEA Inc.; Rush Network Corp.; and SMR Advisory Group L.C. with respect to the *220 MHz Third Report and Order* in PR Docket No. 89-552 and GN Docket No. 93-252, ARE GRANTED to the extent provided herein and otherwise ARE DENIED. This action is taken pursuant to Sections 4(i), 4(j), 303(d), 303(r), 309(j), 332, and 405 of the Communications Act of 1934, 47 U.S.C. §§ 154(i), 154(j), 303(d), 303(r), 309(j), 332, 405.

210. IT IS FURTHER ORDERED that the Commission's Rules ARE AMENDED as set forth in App

IT IS FURTHER ORDERED that the provisions of this Order and the Commission's Rules, as amended in Appendix D, SHALL BECOME EFFECTIVE 60 days after publication of this Order in the Federal Register.

211. IT IS FURTHER ORDERED that a Public Notice will be issued by the Wireless Telecommunications Bureau following the adoption of this Order announcing when applications must be filed by Phase I, non-nationwide licensees in order to enable such licensees to comply with the requirement that they modify their authorization to reflect the ERP at which they were operating at the time the decisions adopted in the *220 MHz Third Report and Order* became effective.

212. IT IS FURTHER ORDERED that the Commission's Office of Public Affairs, Reference Operations Division, SHALL SEND a copy of this Order, including the Supplemental Final Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

FEDERAL COMMUNICATIONS COMMISSION

Magalie Roman Salas
Secretary

APPENDIX A

List of Parties Filing Petitions for Reconsideration or Clarification and Comments Concerning Second Report and Order

Petitions

American Mobile Telecommunications Association (AMTA)
Incom Communications Corporation, SEA, Inc., In Touch Services, Inc., Philip Adler dba Communications Management Company, and Aircom Communications, Inc. (Incom)
In Touch Services, Inc. (In Touch)
Police Emergency Services, Inc. and Bostom and Associates Company (PERS)
SMR Advisory Group, L.C. (SMR)

Comments

US MobilComm, Inc. (USMC)

APPENDIX B

List of Parties Filing Petitions, Comments, and Reply Comments Concerning Third Report and Order

Petitions

American Mobile Telecommunications Association, Inc. (AMTA)
Comtech Communications, Inc. (Comtech)
Glenayre Technologies, Inc. (Glenayre)
Global Cellular Communications, Inc. (Global)
INTEK Diversified Corp. (INTEK)
Metricom, Inc. (Metricom)
National Communications Group, Capital Communications Group, Columbia Communications Group, Lonesome Dove Communications, All-American Communications Partners, and Shiner Bock Group (National)
Personal Communications Industry Association (PCIA)
SEA Inc. (SEA)
Rush Network Corp. (Rush)
SMR Advisory Group L.C. (SMR)

Comments

Arch Communications Group, Inc. (Arch)
INTEK
Metricom
Police Emergency Radio Services, Inc. (PERS)
SEA
SMR
USMC

Reply Comments

AMTA
Arch
Comtech
INTEK
PCIA
Small Businesses in Telecommunications (SBT)
SMR

APPENDIX C

Supplemental Final Regulatory Flexibility Analysis

As required by the Regulatory Flexibility Act (RFA),[1] a Final Regulatory Flexibility Analysis (FRFA) was incorporated in Appendix B of the *220 MHz Second Report and Order*[2] in and Appendix A of th *220 MHz Third Report and Order*[3] in this proceeding. The Commission's Supplemental Final Regulatory Flexibility Analysis (Supplemental FRFA) in this Memorandum Opinion and Order on Reconsideration reflects revised or additional information to that contained in those FRFAs. This Supplemental FRFA is thus limited to matters raised in response to the *220 MHz Second Report and Order* or the *220 MHz Third Report and Order* that are granted on reconsideration in the Memorandum Opinion and Order on Reconsideration. This Supplemental FRFA conforms to the RFA, as amended by the Contract with America Advancement Act of 1996 (CWAAA).[4]

I. Need For and Objectives of the Action

The actions taken in this Memorandum Opinion and Order on Reconsideration are in response to petitions for reconsideration or clarification of the service rules adopted in the *220 MHz Third Report and Order* to implement service in the 220-222 MHz frequency band (220 MHz service), and in response to petitions for reconsideration or clarification of license modification rules adopted in the *220 MHz Second Report and Order*. The petitions are denied, with the following exceptions. The rule changes adopted in the Memorandum Opinion and Order on Reconsideration grant in part the petitions that Phase I licensees be permitted to modify their authorizations to the extent that Phase I licensees will be permitted to make modifications to their authorizations which do not expand their 38 dBu service contours. Phase I licensees will also be permitted to convert their site-by-site licenses to a single license. Our objective in permitting such modifications is to provide Phase I licensees with maximum flexibility while striking a fair balance between the interests of incumbent licensees and Phase II licensees.

We also grant the petition that the antenna height limitation for stations operating in the 220 MHz band be associated with the HAAT of the station's transmitting antenna, rather than the antenna's

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1 *See* 5 U.S.C. § 603.

2 *220 MHz Second Report and Order*, 11 FCC Rcd 3668. Certain abbreviated references used in the Memorandum Opinion and Orde Reconsideration are also used in this Appendix.

3 *220 MHz Third Report and Order*, 12 FCC Rcd 10943.

4 Pub. L. No. 104-121, 110 Stat. 846 (1996), codified at 5 U.S.C. §§ 601-612. Title II of the CWAAA is The Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA).

height above ground. Our objective is to eliminate instances of licensees inadvertently causing interference to adjacent channel operations.

We remove the 220 MHz service spectrum efficiency standard, and thus grant the petition that we eliminate the efficiency standard as applied to paging operations. In light of the observations of petitioners regarding the unavailability of equipment that would meet the standard, we now believe that imposition of the standard could inadvertently deny the provision of certain services in the 220-222 MHz band, contrary to our intent in the *220 MHz Third Report and Order*. Our objective in removing the standard is to facilitate the provision of a wide range of services in the 220 MHz band.

In addition, the Commission addresses certain issues that the *Part 1 Third Report and Order* directs be resolved in this proceeding.[5] Consistent with the conclusions reached in the *Part 1 Third Report and Order*, we eliminate installment payment plans for small and very small businesses participating in the 220 MHz service auction, and increase the level of bidding credits for such entities. We will also amend the Commission's rules to permit auction winners to make their final payments within 10 business days after the applicable deadline, provided that they also pay a late fee of 5 percent of the amount due.

II. Summary of Significant Issues Raised by the Public in Response to the Final Regulatory Flexibility Analyses

No comments were received in direct response to the FRFAs. Small Business in Telecommunications (SBT) commented that the Commission's position regarding license modifications appeared to express more concern for future licensees than for incumbent licensees who are currently providing service to the public.[6] The actions taken in this Memorandum Opinion and Order on Reconsideration reflect the Commission's recognition that licensed sites may become unusable for a variety of reasons. The Commission is persuaded by arguments that, in order to maintain the economic and technical viability of a licensee's 220 MHz service, Phase I incumbent licensees should be permitted to modify their authorizations as long as doing so does not expand their service contour. Modifications to Phase I licensees' authorizations which do not expand their 38 dBu service contour will therefore be permitted.

Phase I licensees will also be able to add new transmitters within their 38 dBu service contour without prior authorization from the Commission so long as signals from such transmitters do not expand the 38 dBu service contour. These modification applications will not be subject to public

5 The Commission, in the *Part 1 Third Report and Order*, temporarily suspended the use of installment payments and stated that it would address installment payment financing for licenses in the 220 MHz service in a manner consistent with this decision in the 220 MHz reconsideration. *See Part 1 Third Report and Order*, 13 FCC Rcd at 384 (para. 7).

6 SBT Third Order Reply at 3-4.

notice and petition to deny provisions in the Commission's rules, and will not be subject to mutually exclusive applications. In addition, we will allow Phase I 220 MHz licensees to convert their site-by-site licenses to a single license authorizing operations throughout the incumbents' contiguous and overlapping 38 dBu service contours of their constructed multiple sites. We believe this decision strikes a fair balance between the interests of incumbents and Phase II licensees.

The Memorandum Opinion and Order on Reconsideration, as provided in the *Part 1 Third Report and Order*, eliminates installment payment financing for small and very small businesses participating in the Phase II 220 MHz service auction. At the same time, in order to offer small and very small businesses a meaningful opportunity to participate in the auction, the Commission has offered higher bidding credits, consistent with those available through a loan.

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

A. Phase II Licensees

As in the FRFAs, the service regulations we adopt to implement the Phase II 220 MHz service would apply to all entities seeking a Phase II 220 MHz license. As discussed in the FRFAs, using the Small Business Administration (SBA) definitions applicable to radiotelephone companies and to cable and pay television services, a majority of 220 MHz service entities may be small businesses.

The Commission had not developed a more refined definition of small entities applicable to the 220 MHz service, prior to the *220 MHz Third Report and Order*, because the Phase II 220 MHz service is a new service. The RFA amendments were not in effect until after release of the *220 MHz Third Notice of Proposed Rulemaking*, and therefore no data was received establishing the number of small businesses associated with the Phase II 220 MHz service. In the *220 MHz Third Report and Order* we adopted criteria for defining small businesses and very small businesses for purposes of determining their eligibility for special provisions such as bidding credits and installment payments.[7] The SBA has approved these definitions for Phase II licensees.[8] We will use the definitions in estimating the potential number of small entities applying for auctionable spectrum.

We defined a small business as an entity that, together with its affiliates and controlling principals, has average gross revenues not exceeding $15 million for the preceding three years. Additionally, bidding credits and an installment payment plan were made available to each applicant that is a very small business, defined as an entity that, together with its affiliates and controlling

7 *220 MHz Third Report and Order*, 12 FCC Rcd at 11068-70 (paras. 291-295).

8 On January 6, 1998, the Commission received approval from SBA for its definitions of a small business and a very small business for Phase II licensees in the 220 MHz service. *See* Letter to D. Phythyon, FCC, from A. Alvarez, SBA, dated Jan. 6, 1998.

principals, has average gross revenues that are not more than $3 million for the preceding three years.[9]

No parties submitting or commenting on the petitions for reconsideration giving rise to this Memorandum Opinion and Order on Reconsideration commented on the potential number of entities that would be small businesses or very small businesses, and we are unable to predict accurately the number of applicants for the Phase II 220 MHz service that would fit the definition of a small business or a very small business for competitive bidding purposes.

In the FRFAs, the Commission estimated that it would receive approximately 2,220 total applications for the Phase II 220 MHz service, *i.e.*, 2,000 Public Safety applications (including 1,000 EMRS applications), 90 applications for Economic Area channels, 20 applications for Regional channels, 100 applications for secondary service, and 10 applications for Nationwide channels. These applicants (many of whom may be small entities), as well as Phase I 220 MHz licensees (discussed below), and at least six equipment manufacturers (three of which may be small entities), were subject to the rules adopted in the *220 MHz Third Report and Order*.[10]

The Commission justified the auctions-related estimate of participation, including an estimate of 120 small entities, by referring to its experience in the auction of the 900 MHz SMR service, a service similar to the 220 MHz service. In the 900 MHz SMR service, which utilized an identical definition for small business, 1,050 licenses were made available and a total of 128 applications were received in the auction. Of these applications, 71 qualified as very small businesses and 30 qualified as small businesses. A total of 908 licenses will be made available for authorization in the 220 MHz service auction. Given that 128 qualified applications were received in the 900 MHz SMR auction, we anticipated receiving slightly fewer or 120 applications in the 220 MHz service auction. Given that 71 applicants qualified as very small businesses and 30 applicants qualified as small businesses in the 900 MHz SMR auction, we estimated that proportionately fewer, or 65 applicants, would qualify as very small businesses and 27 applicants would qualify as small businesses in the 220 MHz service auction.[11]

Because, as we describe *infra*, the elimination of installment payments is counterbalanced by our decision to elevate the size of bidding credits, we anticipate that the figures we have presented regarding the estimated number of small entities participating in the 220 MHz service auction will remain unchanged. We therefore anticipate that approximately 55 percent of the 120 applicants will qualify as very small businesses and 23 percent will qualify as small businesses.

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9 *220 MHz Third Report and Order*, 12 FCC Rcd at 11068-69 (para. 291).

10 *Id*. at 11096, Appendix A.

11 *Id*.

B. Phase I Licensees

The Commission has not developed a definition of small entities applicable to 220 MHz Phase I licensees, or equipment manufacturers for purposes of this Supplemental FRFA, and, since the RFA amendments were not in effect until after the release of the *220 MHz Third Notice of Proposed Rulemaking* and the *220 MHz Fourth Notice of Proposed Rulemaking* was closed, the Commission did not request information regarding the number of small businesses that are associated with the 220 MHz service.[12] To estimate the number of Phase I licensees and the number of 220 MHz equipment manufacturers that are small businesses we shall use the relevant definitions provided by SBA.

There are approximately 1,515 non-nationwide Phase I licensees and four nationwide licensees currently authorized to operate in the 220 MHz band. To estimate the number of such entities that are small businesses, we apply the definition of a small entity under SBA rules applicable to radiotelephone companies. This definition provides that a small entity is a radiotelephone company employing no more than 1,500 persons.[13] According to the Bureau of the Census, only 12 radiotelephone firms out of a total of 1,178 such firms which operated during 1992 had 1,000 or more employees.[14] Therefore, even if all 12 of these firms were 220 MHz service companies, nearly all 220 MHz service companies were small businesses under the SBA's definition.

C. Radio Equipment Manufacturers

We anticipate that at least six radio equipment manufacturers will be affected by our decisions in this proceeding. According to SBA regulations, a radio and television broadcasting and communications equipment manufacturer must have 750 or fewer employees in order to qualify as a small business concern.[15] Census Bureau data indicate that there are 858 U.S. firms that manufacture radio and television broadcasting and communications equipment, and that 778 of these firms have no more than 750 employees and would therefore be classified as small entities.[16] We do not have information that indicates how many of the six radio equipment manufacturers associated with this proceeding are among these 778 firms. However, because three of these manufacturers (Motorola, Ericsson, and E.F.

12 In this Supplemental FRFA, we continue to use the same tentative definition of small entities applicable to 220 MHz Phase I licensees that we used in the regulatory flexibility analysis that accompanied the *220 MHz Third Report and Order*.

13 13 C.F.R. § 121.201, Standard Industrial Classification (SIC) Code 4812.

14 U.S. Bureau of the Census, U.S. Department of Commerce, 1992 Census of Transportation, Communications, and Utilities, UC92-1, Subject Series, Establishment and Firm Size, Table 5, Employment Size of Firms; 1992, SIC Code 4812 (issued May 1995).

15 13 C.F.R. § 121.201, (SIC) Code 3663.

16 U.S. Dept. of Commerce, 1992 Census of Transportation, Communications and Utilities (issued May 1995), SIC category 3663.

Johnson) are major, nationwide radio equipment manufacturers, we conclude that these manufacturers would not qualify as small business.

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

Phase I non-nationwide licensees who modify their authorizations as outlined in this Memorandum Opinion and Order on Reconsideration or add new transmitters within their 38 dBu service contour will be required to file an FCC Form 600 with the Commission. Phase I non-nationwide licensees who decide to convert their site-by-site licenses to a single license authorizing operations throughout the incumbents' contiguous and overlapping 38 dBu service contours of their constructed multiple sites will also be required to file an FCC Form 600. Phase I, non-nationwide licensees will be required to file an FCC Form 600 to comply with the requirement that they modify their authorization to reflect the ERP at which they were operating at the time the decisions adopted in the *220 MHz Third Report and Order* became effective. The FCC Form 600 is currently in use and has already received OMB clearance.

Phase I licensees authorized on Channels 161-200 and Channels 1-40 will be required to coordinate the addition, removal, or modification of station sites among themselves to avoid interference. Such licensees will also be required to include, in their application for minor modification of their authorization to add, remove, or modify a station site, a certification that the station has been appropriately coordinated. Phase I licensees authorized on Channels 161-200 will be required to coordinate the addition, removal, or modification of station sites with Phase II licensees authorized on Channels 1-40. Such Phase I licensees will also be required to include, in their application for minor modification of their authorization to add, remove, or modify a station site, a certification that the station has been appropriately coordinated. Licensees seeking a waiver of Section 90.729(b) of the Commission's Rules to operate fixed stations in the 221-222 MHz band at a power level of 500 watts ERP will be required to gain the consent for such operation from all affected 220 MHz licensees.

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

The actions taken in this Memorandum Opinion and Order on Reconsideration are in response to petitions for reconsideration including, we believe, several filed by small businesses. The changes minimize any possible significant economic impact on small entities, while remaining consistent with the objectives of this proceeding.

We grant the petitions of Phase I licensees to the extent of permitting, upon application, modifications to Phase I licensees' authorizations which do not expand their 38 dBu service contour. Phase I licensees also will be permitted to convert their site-by-site licenses to a single license.

The deregulatory nature of these steps helps minimize the economic impact of telecommunications regulation on small entities.

By removing the 220 MHz service spectrum efficiency standard, we grant the petition that we eliminate the efficiency standard as applied to paging operations.[17] The deregulatory nature of this step helps to minimize the economic impact of telecommunications regulation on small entities. We considered retaining the standard and exempting paging only, but rejected this course as potentially discouraging the provision of innovative services. We also considered replacing the standard with a more lenient standard that would be made stricter over time, but rejected this course because we believe operators would continue using equipment acquired under the more lenient standard, in which case the later standard would have little effect. We also considered conforming the 220 MHz band spectrum efficiency standard to the standard used in the Refarming proceeding. We concluded, however, that because it applies only to aggregated, contiguous channels, and expires in 2001, the 220 MHz standard touches too few licensees for too short a time to significantly increase equipment development for the refarmed bands.

We also believe that small businesses may be prominent players in developing this spectrum, and these businesses would directly benefit from a flexible spectrum use policy that enables them to respond efficiently to marketplace demand. Given the relatively small amount of spectrum assigned in a 220 MHz license, we think it is reasonable to expect that acquisition of the 220 MHz Phase II licenses may be relatively affordable and therefore this service may be particularly attractive to small businesses.

Consistent with the conclusions reached in the *Part 1 Third Report and Order*, we eliminate installment payment plans for small and very small businesses participating in the 220 MHz service auction, and increase the level of bidding credits for such entities. We will also amend the Commission's rules to permit auction winners to make their final payments within 10 business days after the applicable deadline, provided that they also pay a late fee of 5 percent of the amount due.

While installment payment plans for small entities in the 220 MHz service are eliminated in the Memorandum Opinion and Order on Reconsideration, the Commission found that better alternatives to assist small businesses as well as ensure provision of new services to the public are to raise bidding credits for existing categories of small entities.[18] The Commission believes that bidding credits of sufficient size will enable small businesses to secure private financing. This suggestion is consistent with the Commission's experience in other auctions in which installment payments were not offered and small entities nevertheless have been successful (*e.g.*, the auction of Wireless

17 *See* paras. 111-149 of the Memorandum Opinion and Order on Reconsideration, *supra*.

18 *See* paras. 157-164 of the Memorandum Opinion and Order on Reconsideration, *supra*.

Communications Service licenses, for which bidding credits were heightened to accommodate the lack of installment payments). Prior to the Memorandum Opinion and Order on Reconsideration, bidding credits of 10 percent were offered to small businesses and 25 percent to very small businesses. The Commission now offers bidding credits of 25 percent to small businesses and 35 percent to very small businesses. The levels of bidding credits adopted offer a reasonable accommodation for the elimination of installment payments.

VI. Report to Congress

We will send a copy of this Supplemental Final Regulatory Flexibility Analysis, along with the Memorandum Opinion and Order on Reconsideration, in a report to Congress pursuant to the Small Business Regulatory Enforcement Fairness Act of 1996.[19] In addition, the Commission will send a copy of the Memorandum Opinion and Order on Reconsideration, including this Supplemental FRFA, to the Chief Counsel for Advocacy for SBA. A copy of the Memorandum Opinion and Order on Reconsideration and this Supplemental FRFA (or summary thereof) also will be published in the Federal Register.[20]

19 *See* 5 U.S.C. § 801(a)(1)(A).

20 *See* 5 U.S.C. § 604(b).

APPENDIX D

Revisions to Commission's Rules

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

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

AUTHORITY: 47 U.S.C. 154, 303, 309, and 332, unless otherwise noted.

2. Section 90.203 is amended by revising paragraph (k) to read as follows:

Section 90.203 Type acceptance required.

* * * * *

(k) For transmitters operating on frequencies in the 220-222 MHz band, type acceptance will only be granted for equipment with channel bandwidths up to 5 kHz, except that type acceptance will be granted for equipment operating on 220-222 MHz band Channels 1 through 160 (220.0025 through 220.7975/221.0025 through 221.7975), 171 through 180 (220.8525 through 220.8975/221.8525 through 221.8975), and 186 through 200 (220.9275 through 220.9975/221.9275 through 221.9975) with channel bandwidths greater than 5 kHz.

3. Section 90.711 is amended by revising paragraph (a) to read as follows:

Section 90.711 Processing of Phase II applications.

(a) Phase II applications for authorizations on Channels 166 through 170 and Channels 181 through 185 will be processed on a first-come, first-served basis. When multiple applications are filed on the same day for these frequencies in the same geographic area, and insufficient frequencies are available to grant all applications (*i.e.*, if all applications were granted, violation of the station separation provisions of Section 90.723(k) would result), these applications will be considered mutually exclusive and will be subject to random selection procedures pursuant to Section 1.972 of this chapter.

* * * * *

4. Section 90.723 is amended by revising paragraphs (e) and (f), by redesignating paragraphs (g), (h), and (i) as paragraphs (i), (j), and (k), respectively, and by adding paragraphs (g) and (h) to read as follows:

Section 90.723 Selection and assignment of frequencies.

* * * * *

(e) Phase II licensees authorized on 220-221 MHz frequencies assigned from Sub-band B will be required to geographically separate their base station or fixed station transmitters from the base station or fixed station receivers of Phase I licensees authorized on 221-222 MHz frequencies 200 kHz removed or less in Sub-band A in accordance with the Table in paragraph (d) of this section. Such Phase II licensees will not be required to geographically separate their base station or fixed station transmitters from receivers associated with additional transmitter sites that are added by such Phase I licensees in accordance with the provisions of Section 90.745(a).

(f) Phase II licensees with base or fixed stations transmitting on 220-221 MHz frequencies assigned from Sub-band B and Phase II licensees with base or fixed stations receiving on Sub-band A 221-222 MHz frequencies, if such transmitting and receiving frequencies are 200 kHz or less removed from one another, will be required to coordinate the location of their base stations or fixed stations to avoid interference and to cooperate to resolve any instances of interference in accordance with the provisions of Section 90.173(b).

(g) Phase I licensees with base or fixed stations transmitting on 220-221 MHz frequencies assigned from Sub-band B and Phase I licensees with base or fixed stations receiving on Sub-band A 221-222 MHz frequencies (if such transmitting and receiving frequencies are 200 kHz or less removed from one another) that add, remove, or modify station sites in accordance with the provisions of Section 90.745(a) will be required to coordinate such actions with one another to avoid interference and to cooperate to resolve any instances of interference in accordance with the provisions of Section 90.173(b).

(h) Phase I licensees with base or fixed stations transmitting on 220-221 MHz frequencies assigned from Sub-band B that add, remove, or modify station sites in accordance with the provisions of Section 90.745(a) will be required to coordinate such actions with Phase II licensees with base or fixed stations receiving on Sub-band A 221-222 MHz frequencies 200 kHz or less removed.

(i) A mobile station is authorized to transmit on any frequency assigned to its associated base station. Mobile units not associated with base stations (*see* Section 90.720(a)) must operate on "mobile" channels.

(j) A licensee's fixed station is authorized to transmit on any of the licensee's assigned base station frequencies or mobile station frequencies.

(k) Except for nationwide assignments, the separation of co-channel Phase I base stations, or fixed stations transmitting on base station frequencies, shall be 120 kilometers. Except for Phase I licensees seeking license modification in accordance with the provisions of Sections 90.751 and 90.753, shorter separations between such stations will be considered by the Commission on a case-by-case basis upon submission of a technical analysis indicating that at least 10 dB protection will be provided to an existing Phase I station's predicted 38 dBu signal level contour. The existing Phase I station's predicted 38 dBu signal level contour shall be calculated using the F(50,50) field strength chart for Channels 7-13 in Section 73.699 (Fig. 10) of this chapter, with a 9 dB correction factor for antenna height differential. The 10 dB protection to the existing Phase I station's predicted 38 dBu signal level contour shall be calculated using the F(50,10) field strength chart for Channels 7-13 in Section 73.699 (Fig. 10a) of this chapter, with a 9 dB correction factor for antenna height differential.

5. Section 90.729 is amended by revising paragraphs (b) and (c) to read as follows:

Section 90.729 Limitations on power and antenna height.

* * * * *

(b) The maximum permissible ERP for mobile units is 50 watts. Portable units are considered as mobile units. Licensees operating fixed stations or paging base stations transmitting on frequencies in the 221-222 MHz band may not operate such fixed stations or paging base stations at power levels greater than 50 watts ERP, and may not transmit from antennas that are higher than 7 meters above average terrain, except that transmissions from antennas that are higher than 7 meters above average terrain will be permitted if the effective radiated power of such transmissions is reduced below 50 watts ERP by 20 $\log_{10}$(h/7) dB, where h is the height above average terrain (HAAT), in meters.

(c) Base station and fixed station transmissions on base station transmit Channels 196-200 are limited to 2 watts ERP and a maximum antenna HAAT of 6.1 meters (20 ft). Licensees authorized on these channels may operate at power levels above 2 watts ERP or with a maximum antenna HAAT greater than 6.1 meters (20 ft) if:

(1) They obtain the concurrence of all Phase I and Phase II licensees with base stations or fixed stations receiving on base station receive Channels 1-40 and located within 6 km of their base station or fixed station; and

(2) Their base station or fixed station is not located in the United States/Mexico or United States/Canada border areas.

6. Section 90.733 is amended by revising paragraphs (d), (e), and (g) to read as follows:

Section 90.733 Permissible operations.

* * * * *

(d) Licensees, except for licensees authorized on Channels 161 through 170 and 181 through 185, may combine any number of their authorized, contiguous channels (including channels derived from multiple authorizations) to form channels wider than 5 kHz.

(e) In combining authorized, contiguous channels (including channels derived from multiple authorizations) to form channels wider than 5 kHz, the emission limits in Section 90.210(f) must be met only at the outermost edges of the contiguous channels. Transmitters shall be tested to confirm compliance with this requirement with the transmission located as close to the band edges as permitted by the design of the transmitter. The frequency stability requirements in Section 90.213 shall apply only to the outermost of the contiguous channels authorized to the licensee. However, the frequency stability employed for transmissions operating inside the outermost contiguous channels must be such that the emission limits in Section 90.210(f) are met over the temperature and voltage variations prescribed in Section 2.995 of this chapter.

* * * * *

(g) The transmissions of a Phase I non-nationwide licensee's paging base station, or fixed station transmitting on frequencies in the 220-221 MHz band, must meet the requirements of Sections 90.723(d), (g), (h), and (k), and 90.729, and such a station must operate at the effective radiated power and antenna height-above-average-terrain prescribed in the licensee's land mobile base station authorization.

* * * * *

7. Section 90.745 is added to read as follows:

Section 90.745 Phase I licensee service areas.

(a) A Phase I licensee's service area shall be defined by the predicted 38 dBu service contour of its authorized base station or fixed station transmitting on frequencies in the 220-221 MHz band at its initially authorized location or at the location authorized in accordance with §§ 90.751, 90.753, 90.755 and 90.757 if the licensee has sought modification of its license to relocate its initially authorized base station. The Phase I licensee's predicted 38 dBu service contour is calculated using the F(50,50) field strength chart for Channels 7-13 in Section 73.699 (Fig. 10) of this chapter, with a 9 dB correction factor for antenna height differential, and is based on the authorized effective radiated power (ERP) and antenna height-above-average-terrain of the licensee's base station or fixed

station. Phase I licensees are permitted to add, remove, or modify transmitter sites within their existing service area without prior notification to the Commission so long as their predicted 38 dBu service contour is not expanded. The incumbent licensee must, however, notify the Commission within 30 days of the completion of any changes in technical parameters or additional stations constructed through a minor modification of its license. Such notification must be made by submitting the appropriate FCC form and must include the appropriate filing fee, if any. These minor modification applications are not subject to public notice and petition to deny requirements or mutually exclusive applications.

(b) Phase I licensees holding authorizations for service areas that are contiguous and overlapping may exchange these authorizations for a single license, authorizing operations throughout the contiguous and overlapping service areas. Phase I licensees exercising this license exchange option must submit specific information for each of their external base station sites.

8. The section heading of Section 90.769 is revised to read as follows:

Section 90.769 Construction and implementation of Phase II nationwide licenses.

* * * * *

9. The list of sections preceding Section 90.1001 is revised to read as follows:

§ 90.1001 220 MHz service subject to competitive bidding.
§ 90.1003 Competitive bidding design for the 220 MHz service.
§ 90.1005 Competitive bidding mechanism.
§ 90.1007 Withdrawal, default and disqualification payments.
§ 90.1009 Bidding application (FCC Form 175 and 175-S short-form).
§ 90.1011 Submission of upfront payments and down payments.
§ 90.1013 Long-form application (FCC Form 601).
§ 90.1015 License grant, denial, default and disqualification.
§ 90.1017 Bidding credits for small businesses and very small businesses.
§ 90.1019 Eligibility for partitioned licenses.
§ 90.1021 Definitions concerning competitive bidding process.
§ 90.1023 Certifications, disclosures, records maintenance and audits.
§ 90.1025 Petitions to deny and limitations on settlements.

10. Section 90.1011 is revised to read as follows:

Section 90.1011 Submission of Upfront Payments and Down Payments.

(a) The Commission will require applicants to submit an upfront payment prior to the start of a 220 MHz Service auction. The amount of the upfront payment for each geographic area license auctioned and the procedures for submitting it will be set forth by the Wireless Telecommunications Bureau in a Public Notice in accordance with § 1.2106 of this chapter.

(b) Each winning bidder in a 220 MHz Service auction must submit a down payment to the Commission in an amount sufficient to bring its total deposits up to 20 percent of its winning bid within ten (10) business days following the release of a Public Notice announcing the close of bidding.

11. Section 90.1013 is revised to read as follows:

Section 90.1013 Long-form Application (FCC Form 601).

Each successful bidder for a 220 MHz geographic area license must submit a long-form application (FCC Form 601) within ten (10) business days after being notified by Public Notice that it is the winning bidder. Applications for 220 MHz geographic area licenses on FCC Form 601 must be submitted in accordance with § 1.2107 of this chapter, all applicable procedures set forth in the rules in this part, and any applicable Public Notices that the Commission may issue in connection with an auction. After an auction, the Commission will not accept long-form applications for 220 MHz geographic area licenses from anyone other than the auction winners and parties seeking partitioned licenses pursuant to agreements with auction winners under § 90.1019 of this chapter.

12. Section 90.1015 is revised to read as follows:

Section 90.1015 License Grant, Denial, Default, and Disqualification.

(a) Unless otherwise specified by Public Notice, auction winners are required to pay the balance of their winning bids in a lump sum within ten (10) business days following the release of a Public Notice establishing the payment deadline. If a winning bidder fails to pay the balance of its winning bids in a lump sum by the applicable deadline as specified by the Commission, it will be allowed to make payment within ten (10) business days after the payment deadline, provided that it also pays a late fee equal to five percent of the amount due. When a winning bidder fails to pay the balance of its winning bid by the late payment deadline, it is considered to be in default on its license(s) and subject to the applicable default payments. Licenses will be awarded upon the full and timely payment of winning bids and any applicable late fees.

(b) A bidder that withdraws its bid subsequent to the close of bidding, defaults on a payment due, or is disqualified, is subject to the payments specified in § 1.2104(g), § 1.2109, and § 90.1007 of this chapter, as applicable.

13. Section 90.1017 is revised to read as follows:

Section 90.1017 Bidding Credits For Small Businesses and Very Small Businesses.

(a) Bidding Credits. A winning bidder that qualifies as a small business or a consortium of small businesses as defined in Section 90.1021(b)(1) or Section 90.1021(b)(4) may use a bidding credit of 25 percent to lower the cost of its winning bid. A winning bidder that qualifies as a very small business or a consortium of very small businesses as defined in Section 90.1021(b)(2) or Section 90.1021(b)(4) may use a bidding credit of 35 percent to lower the cost of its winning bid.

(b) Unjust Enrichment - Bidding Credits.

(1) If a small business or very small business (as defined in §§ 90.1021(b)(1) and 90.1021(b)(2), respectively) that utilizes a bidding credit under this section seeks to transfer control or assign an authorization to an entity that is not a small business or a very small business, or seeks to make any other change in ownership that would result in the licensee losing eligibility as a small business or very small business, the small business or very small business must seek Commission approval and reimburse the U.S. government for the amount of the bidding credit, plus interest based on the rate for ten year U.S. Treasury obligations applicable on the date the license was granted, as a condition of approval of the assignment, transfer, or other ownership change.

(2) If a very small business (as defined in § 90.1021(b)(2) that utilizes a bidding credit under this section seeks to transfer control or assign an authorization to a small business meeting the eligibility standards for a lower bidding credit, or seeks to make any other change in ownership that would result in the licensee qualifying for a lower bidding credit under this section, the licensee must seek Commission approval and reimburse the U.S. government for the difference between the amount of the bidding credit obtained by the licensee and the bidding credit for which the assignee, transferee, or licensee is eligible under this section, plus interest based on the rate for ten year U.S. Treasury obligations applicable on the date the license was granted, as a condition of the approval of such assignment, transfer, or other ownership change.

(3) The amount of payments made pursuant to paragraphs (b)(1) and (b)(2) of this section will be reduced over time as follows: A transfer in the first two years of the license term will result in a forfeiture of 100 percent of the value of the bidding credit (or the difference between the bidding credit obtained by the original licensee and the bidding credit for which the post-transfer licensee is eligible); in year 3 of the license term the payment will be 75 percent; in year 4

the payment will be 50 percent; and in year 5 the payment will be 25 percent, after which there will be no assessment.

Separate Statement
of
Commissioner Susan Ness

Re: *Use of the 220-222 MHz Band, PR Docket No. 89-552*

I write separately to repeat my long-held view that the Commission should not change its rules on the eve of a spectrum auction.

I strongly support the policy, embodied in the Omnibus Balanced Budget Act of 1993, of assigning radio spectrum through the use of auctions. But reliance on market mechanisms only works if one pays attention to the realities of the market. Business people don't just show up at an auction, ready to bid; first, they need to formulate business plans and secure financing.

Changing the rules for the service on the eve of the auction throws off business plans. While I understand how circumstances have changed and have no particular objection on the merits to eliminating, on our own initiative, the spectrum efficiency standard for 220 MHz services, I also see no compelling need to eliminate the efficiency standard at the eleventh hour or to further complicate the already tortured history of this band.

With or without a prescribed efficiency standard, as a result of the competitive bidding process, licensees will have an incentive to be efficient in their use of the spectrum. But this change in our rules will inevitably necessitate reevaluation of business plans by potential bidders. Some who planned to bid may no longer be interested. Some who planned not to bid may suddenly wish to, but lack the time to formulate a business plan and to secure financial backing.

The only thing worse than changing the rules of the game right before it is played is to change the rules after the fact, as has also occurred with distressing frequency. Of course, new facts or new thinking may justify adjustments, but at a minimum we need to think carefully about the effects of any changes on the operation of market mechanisms. In my view, we can and should do more to avoid auction-eve -- or post-auction -- changes in our rules.