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

In the Matter of	)	
	)	
Amendments to Parts 1, 2, 27 and 90 of the	)	WT Docket No. 02 - 8
Commission's Rules to License Services in the	)	RM-9267
216-220 MHz, 1390-1395 MHz, 1427-1429 MHz,	)	RM-9692
1429-1432 MHz, 1432-1435 MHz, 1670-1675	)	RM-9797
MHz, and 2385-2390 MHz Government Transfer	)	RM-9854
Bands	)	RM-9882

REPORT AND ORDER

Adopted: May 16, 2002 **Released: May 24, 2002**

By the Commission: Commissioner Abernathy issuing a statement; Commissioner Copps approving in part, dissenting in part, and issuing a statement.

TABLE OF CONTENTS

Heading **Paragraph #**

I. INTRODUCTION 1

II. EXECUTIVE SUMMARY 3

III. BACKGROUND 4

IV. DISCUSSION 7

A. Licensing Plan 7
1. Overview 7
2. Geographic Area Licensing 13
3. Spectrum Blocks 21
4. Assignment of Licenses 29
5. Flexible Use 37
6. Site-by-Site Licensing 40
7. Primary Telemetry (1429.5-1432 MHz) 44
8. Grandfathered Operations 50

B. Application, Licensing and Processing Rules for New Services 57
1. Regulatory Status 58
2. Eligibility; Foreign Ownership Restrictions 61
3. License Term and Renewal Expectancy 66
4. Performance Requirements 70
5. Application of Title II Requirements to Common Carriers 74
6. Partitioning and Disaggregation 79

7. Individual Station Licenses 84
8. Frequency Coordination for Site-by-Site Applications 87

C. Competitive Bidding Procedures 97
1. Incorporation by Reference of the Part 1 Standardized Auction Rules 98
2. Provisions for Designated Entities 101

D. Technical Rules 109
1. Part 27 109
2. In–Band Interference Control 116
3. Out-of-Band Interference Control 118
4. Part 90 Telemetry 137

E. Coordination 145
1. Incumbent Government Operations 145
2. FAS Coordination 158
3. Greenbelt, Maryland METSAT Station 162
4. Flight Test Telemetry 170
5. Canada and Mexico Coordination 176

F. Other Proposals 178
1. 216-220 MHz Band 178
2. 1.4 GHz Band 189

V. PROCEDURAL MATTERS 207

A. Final Regulatory Flexibility Analysis 207

B. Paperwork Reduction Analysis 208

C. Further Information 209

VI. ORDERING CLAUSES 211

Appendices Page

A. List of Commenters 80
B. List of Reply Commenters 81
C. Final Regulatory Flexibility Analysis 82
D. List of National Weather Service Radiosondes 90
E. Final Rules 93

I. INTRODUCTION

1. By this action, we adopt, in part, service rules proposed in the *Service Rules Notice*[1] to govern the licensing of 27 MHz of electromagnetic spectrum in the 216-220 MHz, 1390-1395 MHz,

[1] Reallocation of the 216-220 MHz, 1390-1395 MHz, 1427-1429 MHz, 1429-1432 MHz, 1432-1435 MHz, 1670-1675 MHz, and 2385-2390 MHz Government Transfer Bands, WT Docket No. 02-8, *Notice of Proposed Rulemaking*, 17 FCC Rcd 2500 (2002) (*Service Rules Notice*).

1427-1429.5 MHz, 1429.5-1432 MHz, 1432-1435 MHz, 1670-1675 MHz, and 2385-2390 MHz bands, which was recently reallocated for non-Government use.[2] The licensing plan we adopt in the instant proceeding continues the implementation of the framework articulated in the Commission's November 1999 *Spectrum Policy Statement*.[3] Further, the service rules we adopt today establish a flexible regulatory and licensing framework. We believe that our decision will provide opportunities for new services to utilize this spectrum to address spectrum scarcity concerns as well as to promote the delivery of technologically innovative services to the public.

2. Of the seven frequency bands subject to this proceeding, the 216-220 MHz, 1432-1435 MHz, and 2385-2390 MHz bands are subject to the provisions of the National Telecommunications and Information Administration Organization Act (NTIA Organization Act), as added by the Strom Thurmond National Defense Authorization Act for Fiscal Year 1999 (NDAA-99), Pub. L. 105-261, 112 Stat. 1920 (1999).[4] Section 113(g) of the NTIA Organization Act requires new non-Government licensees to reimburse Federal users for their relocation costs.[5] It also requires the Federal user to notify the National Telecommunications and Information Administration (NTIA) prior to auction of the "marginal costs anticipated to be associated with such relocation or with modifications necessary to accommodate prospective licensees," and requires the NTIA to provide the Commission with that information prior to auction.[6] The NDAA-99 also directs the NTIA and the Commission to develop reimbursement procedures.[7] Our implementation of NDAA-99 is heavily dependent on reimbursement procedures being promulgated by the NTIA, which have not yet been released.[8] Following the release of NTIA's rulemaking, any actions necessary for the Commission to adopt additional rules or procedures to supplement NTIA's reimbursement regulations will be resolved in a separate proceeding.

---

[2] Reallocation of the 216-220 MHz, 1390-1392 MHz, 1427-1429 MHz, 1429-1432 MHz, 1432-1435 MHz, 1670-1675 MHz, and 2385-2390 MHz Government Transfer Bands, ET Docket No. 00-221, *Report and Order and Memorandum Opinion and Order*, 17 FCC Rcd 368 (2002) (*Reallocation Report and Order*). The Commission reallocated these bands pursuant to the provisions of the Omnibus Budget Reconciliation Act of 1993 (OBRA-93), Pub. L.103-66, 107 Stat. 312 (1993), and the Balanced Budget Act of 1997 (BBA-97), Pub. L.105-33, 111 Stat. 251 (1997). Section 6001(a) of the OBRA-93 (codified at 47 U.S.C. § 925(b)(1)) and Section 3002(e) of the BBA-97 (codified at 47 U.S.C. § 925 (c)(1)).

[3] *Principles for Reallocation of Spectrum to Encourage the Development of Telecommunications Technologies for the New Millennium, Policy Statement*, 14 FCC Rcd 19868 (1999) (*Spectrum Policy Statement*).

[4] *Reallocation Report and Order*, 17 FCC Rcd at 372 ¶ 7.

[5] 47 U.S.C. § 923(g)(1)(A).

[6] *Id.* In a recent letter from NTIA to the Commission, NTIA reports that there are "no longer any marginal costs subject to mandatory federal reimbursement for the 216-220 and 1432-1435 MHz bands." NTIA noted, however, that the projected costs for the 2385-2390 MHz band "have been more difficult to finalize." *See* Letter to Bruce Franca, Acting Chief, Office of Engineering and Technology, Federal Communications Commission, from William T. Hatch, Associate Administrator, Office of Spectrum Management, National Telecommunications and Information Administration (dated December 19, 2001).

[7] 47 U.S.C. § 923(g)(1)(E).

[8] *See* Mandatory Reimbursement Rules for Frequency Band or Geographic Relocation of Federal Spectrum-Dependent Systems, National Telecommunications and Information Administration, Docket No. 001206341-0341-01, *Notice of Proposed Rule Making*, 66 Fed. Reg. 4771 (Jan. 18, 2001). We previously sought comment on proposed general rules and guidelines to implement NDAA-99. Reallocation of the 216-220 MHz, 1390-1395 MHz, 1427-1429 MHz 1429-1432 MHz, 1432-1435 MHz, 1670-1675 MHz, and 2385-2390 MHz Government Transfer Bands, *Notice of Proposed Rulemaking*, ET Docket No. 00-221, 15 FCC Rcd 22657, 22677-22682 ¶¶ 54-66 (2000) (*Reallocation Notice*).

II. EXECUTIVE SUMMARY

3. In this *Report and Order*, we make the following major determinations regarding the subject bands:

- Assign the 1390-1392 MHz band by Major Economic Areas (MEAs), the paired 1392-1395 MHz and 1432-1435 MHz bands by Economic Area Groups (EAGs), the 1670-1675 MHz and the 2385-2390 MHz bands on a single, nationwide basis, and the 1429.5-1432 MHz band on a site-by-site basis with frequency coordination.
- Permit open eligibility for initial licenses assigned by geographic area licensing in the paired 1392-1395 MHz and 1432-1435 MHz bands and in the unpaired 1390-1392 MHz, 1670-1675 MHz, and the 2385-2390 MHz bands.[9] Adopt technical standards that are both consistent with our Part 27 rules and provide licensees flexibility.
- License telemetry on a primary basis in the 1429.5-1432 MHz band and on a secondary basis in the 217-220 MHz and 1427-1429.5 MHz bands using a frequency coordinated site-by-site approach consistent with the technical specifications provided for telemetry operations under our Part 90 rules, as modified herein.[10]
- Adopt our proposed framework for a ten-year license term from the date of grant in the paired 1392-1395 MHz and 1432-1435 MHz bands and in the unpaired 1390-1392 MHz, 1670-1675 MHz, and the 2385-2390 MHz bands. Require licensees to demonstrate that they are providing substantial service when they file their renewal application.
- Allow licensees in the paired 1392-1395 MHz and 1432-1435 MHz bands and in the unpaired 1390-1392 MHz, 1670-1675 MHz, and the 2385-2390 MHz bands to partition and/or disaggregate their licenses.
- Apply the general competitive bidding rules set forth in Part 1, Subpart Q, of the Commission's Rules to the paired 1392-1395 and 1432-1435 MHz bands and in the unpaired 1390-1392 MHz, 1670-1675 MHz, and the 2385-2390 MHz bands.[11]

---

[9] In the *Reallocation Report and Order*, we stated that we would not allow new, co-primary services in either the 216-217 MHz band or the 217-220 MHz band. *Reallocation Report and Order*, 17 FCC Rcd at 380 ¶¶ 26-27. The 216-217 MHz band is licensed by rule on a primary basis to the Low Power Radio Services (LPRS). *See id.* The 217-218 MHz and 219-220 MHz bands are subject to auction and licensed to the Automated Maritime Telecommunication System (AMTS) Service. *See* Amendment of the Commission's Rules Concerning Maritime Communications, WT Docket No. 92-257, *Fourth Report and Order and Third Further Notice of Proposed Rule Making*, 15 FCC Rcd 22585 (2000). The 218-219 MHz service has already been assigned, in part, by auction. *See* Announcing High Bidders for 594 Interactive Video and Data Services (IVDS) Licenses, *Public Notice*, Mimeo No. 44160 (rel. Aug. 2, 1994), *erratum, Public Notice*, Mimeo No. 44265 (rel. Aug. 9, 1994) (awarding MSA licenses by both lottery and auction); Amendment of Part 95 of the Commission's Rules to Provide Regulatory Flexibility in the 218-219 MHz Service, *Report and Order and Memorandum Opinion and Order*, WT Docket No. 98-169, 15 FCC Rcd 1497 (1999) (modifying the regulations governing the licensing of the 218-219 MHz Service).

[10] Prior to the release of the *Reallocation Report and Order*, Section 90.259 of our Rules permitted secondary telemetry operations throughout the entire 216-220 MHz band and in the 1427-1435 MHz band. *See* 47 C.F.R. § 90.259 (2000). We note that as a result of our decision in the *Reallocation Report and Order*, telemetry is authorized on a secondary basis in the 216-220 MHz and 1427-1429.5 MHz bands and on a primary basis in the 1429.5-1432 MHz band. However, as of January 2, 2002, new telemetry operations in the 216-217 MHz portion of the 216-220 MHz band are not permitted in order to protect LPRS from harmful interference. *See Reallocation Report and Order*, 17 FCC Rcd at 380 ¶ 26.

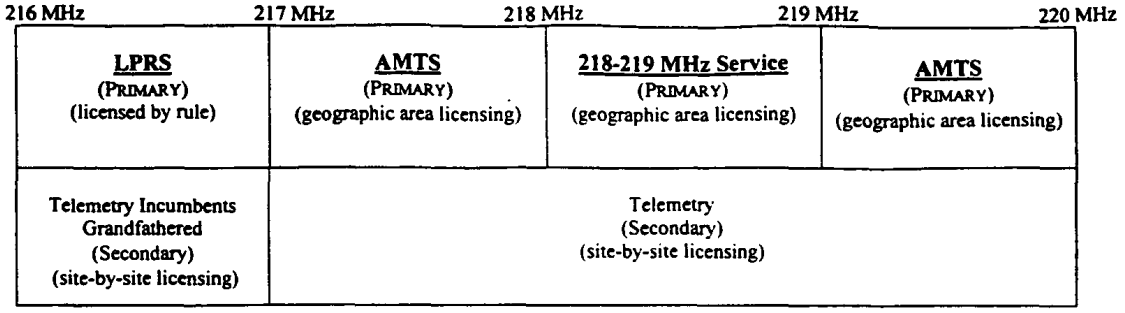
[11] 47 C.F.R. § Part 1, Subpart Q.

- Require non-Government users to file an application on the Universal Licensing System (ULS) requesting Frequency Assignment Subcommittee (FAS) coordination of fixed sites and mobile operations within the protection radii of co-primary Government incumbents. We specify that geographic area licensees are responsible for determining whether a particular operation requires FAS approval. We also clarify that a licensee may request coordination of multiple fixed and mobile stations via a single application. Finally, we indicate that users of the Low Power Radio Services (LPRS) are not required to coordinate with FAS.
- Establish coordination procedures for licensees in the 2385-2390 MHz band operating near non-Government aeronautical flight-test telemetry sites and interim coordination procedures for terrestrial licenses along the Canadian and Mexican borders.
- Implement the band "flip" portion of the AHA-Itron Joint Agreement and switch the primary allocation between Wireless Medical Telemetry Service (WMTS) in the 1427-1429.5 MHz band and Telemetry in the 1429.5-1432 MHz band, in seven defined geographic areas.[12]

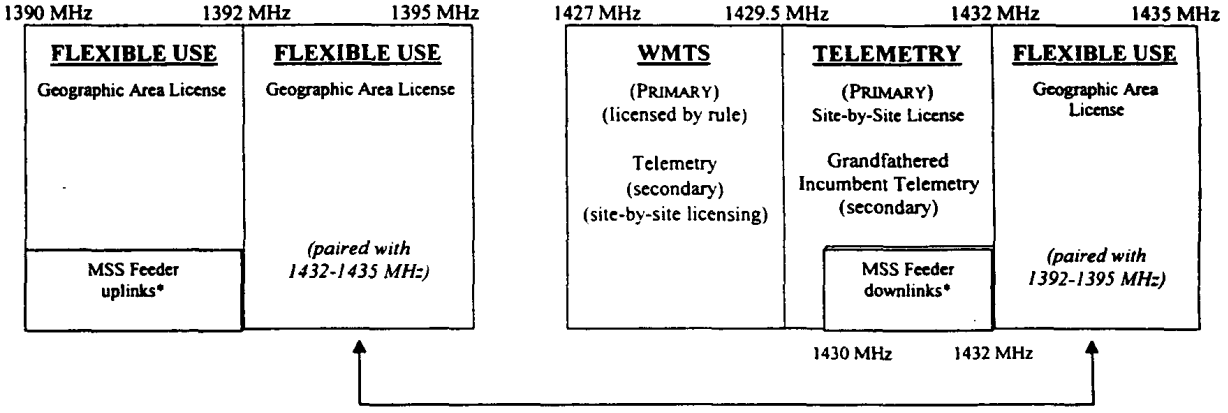
The following chart summarizes the licensing approaches we adopt herein.

[12] This particular aspect of the AHA-Itron band "flip" agreement is discussed further in Section IV.A.3.c, *infra*.

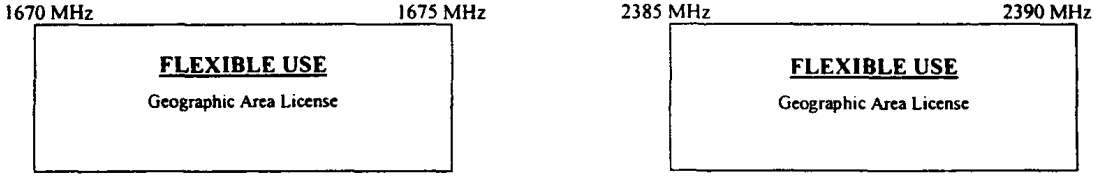
216-220 MHz Band



1.4 GHz Bands



1670-1675 MHz Band and 2385-2390 MHz Band



*MSS Feeder Uplinks and Downlinks are contingent on the adoption of an international allocation and other conditions.[13]

[13] 47 C.F.R. § 2.106, footnote US368. *See Reallocation Report and Order*, 17 FCC Rcd at 392 ¶ 52.

III. BACKGROUND

4. On January 2, 2002, we released a *Reallocation Report and Order* in ET Docket 00-221.[14] Upon consideration of the record, we implemented a band plan to reallocate the subject spectrum bands for non-Government use consistent with the framework established in the *Spectrum Policy Statement.*[15] Generally, we allocated the 216-220 MHz band to the fixed and mobile (except aeronautical telemetry) services on a co-primary basis and elevated the LPRS from secondary to primary status in the 216-217 MHz band.[16] In making this allocation, we stated that the reallocation of the 216-220 MHz band does not disturb the status of the Automated Maritime Telecommunication Systems (AMTS) or 218-219 MHz Services.[17] We allocated the 1390-1392 MHz, 1392-1395 MHz, 1432-1435 MHz, and 1670-1675 MHz bands to the fixed and mobile service (except aeronautical mobile) on a primary basis.[18] The 2385-2390 MHz band was allocated to the fixed and mobile services on a primary basis.[19] We shifted the allocation of WMTS from the 1429-1432 MHz band to the 1427-1429.5 MHz band and maintained the secondary status of non-medical telemetry systems in the band.[20] Telemetry in the 1429.5-1432 MHz band was elevated to primary status.[21] Finally, we conditionally allocated the 1390-1392 MHz band for Non-Geosynchronous Satellite Orbit (NGSO) MSS Feeder Uplinks and the 1430-1432 MHz band for NGSO MSS Feeder downlinks.[22]

5. On February 6, 2002, we released a *Service Rules Notice* in WT Docket 02-8, in which we proposed licensing and service rules to govern both incumbent and new licensees in the subject bands.[23] As we noted in the *Service Rules Notice*, this proceeding is not intended to affect, and does not adopt rules governing the regulatory framework or service rules for the 218-219 MHz Service, AMTS, or LPRS.[24] Under the band plan we adopted in the *Reallocation Report and Order*, AMTS, the 218-219 MHz Service and LPRS will continue to be licensed on a primary basis in the 216-220 MHz band.[25] We

[14] *Reallocation Report and Order, supra* note 2.

[15] *See* Amendment of the Commission's Rules Concerning Maritime Communications, PR Docket 92-257, FCC 02-74, *Second Memorandum Opinion and Order and Fifth Report and Order* (released April 8, 2002).

[16] *Reallocation Report and Order*, 17 FCC Rcd at 379-380 ¶¶ 25-26.

[17] *Id.* at 377-378 ¶ 21, citing Amendment of the Commission's Rules Concerning Maritime Communications, PR Docket No. 92-257, *Fourth Report and Order and Third Notice of Proposed Rule Making*, 15 FCC Rcd 22585 (2000) (*AMTS Fourth Report and Order*) and Amendment of Part 95 of the Commission's Rules to Provide Regulatory Flexibility in the 218-219 MHz Service, WT Docket No. 98-169, *Report and Order and Memorandum Opinion and Order*, 15 FCC Rcd 1497 (1999).

[18] *Reallocation Report and Order*, 17 FCC Rcd at 391-397 ¶¶ 49-68. We note that aeronautical mobile is authorized to operate throughout the 216-220 MHz band on a secondary basis. *See* 47 C.F.R. § 2.106.

[19] *Reallocation Report and Order*, 17 FCC Rcd at 397 ¶¶ 67-71.

[20] *Id.* at 391-394 ¶¶ 48-60.

[21] *Id.*

[22] *Id.* at 394 ¶ 59. The NGSO MSS Feeder allocation is conditioned on the adoption of a similar international allocation.

[23] *Service Rules Notice, supra* note 1.

[24] *Id.* at 2519 ¶ 44.

[25] *Reallocation Report and Order*, 17 FCC Rcd at 377 ¶¶ 18-19.

will continue to assign licenses in the 218-219 MHz service by competitive bidding, and we have already adopted a geographic area licensing approach for AMTS in the 217-218 MHz and 219-220 MHz bands.[26]

6. In the *Service Rules Notice*, we proposed to adopt a licensing method that would allow for the filing of mutually exclusive applications for new licenses in the paired 1392-1395 and 1432-1435 MHz bands and in the unpaired 1390-1392 MHz, 1670-1675 MHz, and the 2385-2390 MHz bands and to apply the our Part 27 rules as modified to reflect the particular characteristics and circumstances of these bands.[27] We also proposed to apply competitive bidding procedures under our Part 1 competitive bidding rules for future licensing of these bands.[28] We sought comment on our proposals to assign initial licenses to these bands on a flexible use basis. We also sought comment on the efficacy of certain additional technical specifications and coordination procedures to minimize the potential of harmful interference on either a co-channel or adjacent channel basis to incumbent operations.

IV. DISCUSSION

A. Licensing Plan

1. Overview

7. Background. In the *Service Rules Notice*, we sought comment on whether licensees in the paired 1392-1395 MHz and 1432-1435 MHz bands and in the unpaired 1390-1392 MHz, 1670-1675 MHz, and the 2385-2390 MHz bands would benefit from the regulatory construct and additional flexibility in our Part 27 rules.[29] We sought comment as to whether new terrestrial services in these bands should be governed by Part 27 of the Commission's Rules[30] and whether the application of our Part 27 rules to these bands would further the public interest by contributing to technological and service innovation and improving the national telecommunications infrastructure.[31] Further, we sought comment on the benefits and costs, including potential interference, associated with affording licensees such flexibility.

8. Additionally, we sought comment on licensing approaches for secondary telemetry in the 217-220 MHz[32] and 1427-1429.5 MHz bands, and primary telemetry in the 1429.5-1432 MHz band as

[26] *See supra* note 9.

[27] *Service Rules Notice*, 17 FCC Rcd at 2509 ¶ 17.

[28] We note that AMTS at 217-218 MHz and the 218-219 MHz Service are also subject to the Commission's Part 1 competitive bidding rules, but these bands are not affected by our decision today. *See* discussion *supra* ¶ 5.

[29] *Service Rules Notice*, 17 FCC Rcd at 2509 ¶ 17. We did not seek comment on the applicability of our Part 27 rules to services authorized to operate in the 217-220 MHz band for the reasons previously stated in Section III, *supra*.

[30] 47 C.F.R. Part 27.

[31] The Commission has recognized that, where appropriate, "[f]lexibility can be permitted through the use of relaxed service rules . . . ." *Spectrum Policy Statement*, 14 FCC Rcd at 19870 ¶ 9 (1999). As the Commission observed when it adopted service rules for the 39 GHz bands: "It is in the public interest to afford [ ] licensees flexibility in the design of their systems to respond readily to consumer demand for their services, thus allowing the marketplace to dictate the best uses for this band." Amendment of the Commission's Rules Regarding the 37.0- 38.6 GHz and 38.6-40 GHz Bands, *Report and Order and Second Notice of Proposed Rulemaking*, 12 FCC Rcd 18600, 18616 ¶ 26 (1997).

[32] We also note that in the *Reallocations Report and Order*, we grandfathered incumbent secondary telemetry operations in the 216-217 MHz band, and precluded new assignments for secondary telemetry operations in the 216-217 MHz band after January 1, 2002. *Reallocations Report and Order*, 17 FCC Rcd at 380 ¶ 26.

well as in the geographic "carve-out" areas.[33] With regard to these particular bands, we sought comment on our proposal to apply our general Part 90 technical and service rules to telemetry operations in these bands.[34]

9. We also sought comment on whether permitting flexible use would be appropriate for the spectrum under consideration, pursuant to Section 303(y)(2) of the Communications Act,[35] as amended by the Balanced Budget Act of 1997.[36] In this connection, we requested comment on whether permitting flexible use of this spectrum would (1) be in the public interest; (2) not deter investment in communications services and systems, or technology development; or (3) not result in harmful interference among users.[37]

10. Discussion. We note, as an initial matter, that the licensing plan and service rules we adopt here are consistent with the fundamental guidelines and framework established in the Commission's November 1999 *Spectrum Policy Statement*.[38] As indicated in the *Spectrum Policy Statement*, we believe that a flexible licensing approach will allow licensees the freedom to determine the services to be offered and the technologies to be used in providing those services.[39] This flexibility will better enable licensees to use their assigned frequencies in response to market forces. We also believe that our approach will facilitate a robust and competitive market in the provision of current and future wireless services.

11. In light of these considerations, and the overwhelming concurrence of the commenters to the *Service Rules Notice*, we believe that the general application of our Part 27 licensing and operating rules will promote flexible and efficient use of the unpaired 1390-1392 MHz, 1670-1675 MHz, and 2385-2390 MHz bands and the paired 1392-1395 MHz and 1432-1435 MHz bands. We agree with the commenters that application of our Part 27 rules will provide licensees a streamlined licensing framework that will foster innovation, flexible use and regulatory certainty.[40] Although we generally adopt our Part 27 rules for the unpaired 1390-1392 MHz, 1670-1675 MHz, and 2385-2390 MHz bands and the paired 1392-1395 MHz and 1432-1435 MHz bands, we also recognize that the technical characteristics and potential use of each band varies depending on externalities separate and apart from strictly technical aspects.[41] Accordingly, we have added technical and definitional rules to Part 27 of our rules, as necessary, to assure spectrum efficiency and to maximize the potential for the highest valued end use of

[33] *Service Rules Notice*, 17 FCC Rcd at 2524-25 ¶¶ 59-63. As discussed in Section IV.A.3.c, *infra*, AHA and Itron proposed a band plan that would permit primary telemetry operations in specifically designated geographic "carve-out" areas in the 1427-1429 MHz and 1431.5-1432 MHz bands. The band plan would also permit primary WMTS operations in the 1429-1431.5 MHz band in the same geographic "carve-out" areas.

[34] *Service Rules Notice*, 17 FCC Rcd at 2526-27 ¶¶ 64-69.

[35] *See* 47 U.S.C. § 303(y)(2).

[36] *See* BBA-97, *supra* note 2.

[37] *See* 47 U.S.C. § 303(y)(2)(B).

[38] *Spectrum Policy Statement*, *supra* note 3.

[39] *Id.* at 19870 ¶ 9.

[40] *See, e.g.*, ArrayComm Comments at 2 (supporting application of our Part 27 rules to the 1670-1675 MHz band).

[41] We note that we will amend Section 87.173 of our rules to indicate that after January 1, 2007, all operations pursuant to Part 87 in the 2385-2390 MHz portion of the 2310-2390 MHz band will be secondary to WCS operations in accordance with Subpart K of our Part 27 rules. *See infra* Appendix E – Definition and Rules.

the spectrum.[42] Consistent with our approach in other services, we also note that licensees will be required to comply with rules contained in other Parts of the Commission's Rules.[43]

12. We are also adopting rules to license secondary telemetry in the 217-220 MHz band[44] and the 1427-1429.5 MHz band, and primary telemetry in the 1429.5-1432 MHz band[45] under Part 90 of our rules. Accordingly, we are adopting general technical and service rules to our Part 90 rules, as modified herein, governing telemetry operations in these bands.

2. Geographic Area Licensing

13. Background. In the *Service Rules Notice*, we stated that it has been our experience that "significant improvements in spectrum utilization" can be realized through wide-area licensing.[46] As a result, we proposed to license new services by geographic area in the paired 1392-1395 MHz and 1432-1435 MHz bands and the unpaired 1390-1392 MHz, 1670-1675 MHz and 2385-2390 MHz bands.[47] In requesting comment on our proposal generally, we also sought specific comment on whether a particular geographic area size was appropriate for each of these bands.[48]

a. 1390-1392 MHz Band

14. Discussion. Based on our review of the record herein, we will license new services in the 1390-1392 MHz band by geographic area licensing. We note, as an initial matter, that only one commenter, the American Petroleum Institute (API), addressed the issue of geographic licensing with respect to the 1390-1392 MHz band. API states that geographic area licensing would make it difficult for potential users from the oil and natural gas industry, which rely on smaller operating areas, to make use of this band.[49] API states that a site-by-site licensing approach would facilitate spectrum access by oil and natural gas companies, because these users only need coverage in sparsely populated areas, like rural areas, where other conventional telecommunications services are not readily available.[50] We believe that our overall spectrum management goals would best be met through a geographic licensing approach rather than a site-by-site licensing approach. For example, geographic area licensing will provide licensees with substantial flexibility to respond to market demand. In this connection, licensees will be able to coordinate usage across an entire geographic area and maximize use in areas where the demand is highest. Moreover, this approach streamlines the licensing process, reducing administrative burdens and operating costs by allowing licensees to modify, move, or add to their facilities within a particular

[42] *See infra* Section IV.D. Technical Rules.

[43] 47 C.F.R. § 27.3. For example licensees will be required to comply with the practices and procedures listed in Part 1 of our rules for license applications, adjudicatory proceedings, etc.

[44] We also note that in the *Reallocations Report and Order*, we grandfathered incumbent secondary telemetry operations in the 216-217 MHz band, and precluded new assignments to secondary telemetry operations in the 216-217 MHz band after January 1, 2002. *Reallocations Report and Order*, 17 FCC Rcd at 380 ¶ 26.

[45] We note that within seven designated geographic "carve-out" areas, as discussed, *infra* Section IV.A.3.c. telemetry will operate on a primary basis in the 1427-1429.5 MHz band and on a secondary basis to WMTS in the 1429.5-1432 MHz band.

[46] *Service Rules Notice*, 17 FCC Rcd at 2514 ¶ 30.

[47] *Id.*

[48] *Id.* at 2514-15 ¶ 31.

[49] API Comments at 6.

[50] *Id.*

geographic area without prior Commission approval.[51] We also believe that those who desire smaller operating areas can be accommodated within a geographic area licensing construct.[52] As a result, we decline to adopt a site-by-site licensing approach here in favor of providing licenses with the flexibility noted above.

15. We agree with API, however, that nationwide licensing is not appropriate for the 1390-1392 MHz band. We believe that smaller economic areas and the eligibility of band managers (see discussion below) will help to alleviate spectrum access concerns of users with smaller and/or more localized spectrum needs such as those described by API.[53] Given these considerations, we will license this band using fifty-two (52) Major Economic Areas (MEAs).[54] We believe that MEAs will facilitate a larger number and more diverse pool of licensees than nationwide or larger regional licensing areas. We also note that the use of MEAs here should result in (i) lower costs for participating in an auction; (ii) greater efficiencies by making it easier for a bidder to acquire licenses for only as much area as required for its prospective service; and (iii) increased competition.[55]

b. 1392-1395 MHz and 1432-1435 MHz bands

16. For the paired 1392-1395 and 1432-1435 MHz bands, we also conclude that geographic area licensing is the most appropriate licensing construct for these bands.[56] The commenters are split as to what size geographic area is most appropriate for these bands.[57] Specifically, some commenters suggested as few as six licensing areas (namely--Economic Area Groupings (EAGs))[58] whereas others suggested as many as 734 licensing areas (namely--Metropolitan Statistical Areas (MSAs) and Rural Statistical Areas (RSAs)).[59] However, no commenters support licensing these bands on a nationwide basis. In determining the appropriate licensing area size, we believe it is necessary to consider the likely

[51] *See, e.g.*, Amendment of Part 90 of the Commission's Rules to Facilitate Future Development of SMR Systems in the 800 MHz Frequency Band, PR Docket No. 93-144, *Second Report and Order*, 12 FCC Rcd 19079, 19087 ¶ 10 (1997).

[52] *See* Service Rules for the 746-764 and 776-794 MHz Bands, and Revisions to Part 27 of the Commission's Rules, WT Docket No. 99-168, *First Report and Order*, 15 FCC Rcd 476 (2000) (*700 MHz First Report and Order*) Service Rules for the 746-764 and 776-794 MHz Bands, and Revisions to Part 27 of the Commission's Rules, WT Docket No. 99-168, *Second Report and Order*, 15 FCC Rcd 5299 (2000) (*700 MHz Second Report and Order*).

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

[54] MEAs, which are based on Economic Areas (EAs) defined by the Department of Commerce, were first developed by the Commission to define geographic license areas for the Wireless Communications Service. *See* Amendment of the Commission's Rules to Establish Part 27, the Wireless Communications Service ("WCS"), *Report and Order*, 12 FCC Rcd 10785, 10814, ¶ 54 (1997) (*WCS Report and Order*). In the *WCS Report and Order*, we aggregated EAs into 52 MEAs, including 46 in the continental United States and an additional six areas covering Alaska (MEA #47), Hawaii (MEA #48), Guam and the Northern Mariana Islands (MEA # 49); Puerto Rico and the U.S. Virgin Islands (MEA #50); American Samoa (MEA #51); and the Gulf of Mexico (MEA #52).

[55] *Id.* at ¶ 57.

[56] *See* 1390-1392 MHz discussion, *supra*..

[57] *See, e.g.*, American Mobile Telecommunications Association, Inc. (AMTA) Comments at 6 (suggesting use of six Regional Economic Area Groupings); National Telecommunications Cooperative Association (NTCA) Comments at 2 (suggesting use of 734 Metropolitan Statistical Areas and Rural Statistical Areas).

[58] AMTA Comments at 6; LMCC Comments at 5,6.

[59] *See* NTCA Comments at 2; Rural Telecommunications Group (RTG) Reply Comments at 2-3. Office of Advocacy, U.S. Small Business Administration (Advocacy) Reply Comments at 3-4 (stating that smaller geographic areas rather than nationwide licenses will encourage small businesses to provide services in these spectrum bands).

services in the band and deployment of those services. Based on the record in this proceeding, we believe that the bands will most likely be used to accommodate private radio services, including private land mobile radio operations.[60] In our *Spectrum Policy Statement*, in recognizing the need to relieve congestion and to provide new opportunities to enhance business radio communications, we specifically identified the 1390-1395 MHz band for consideration to support a "Land Mobile Communications Service."[61] Moreover, in the *Spectrum Policy Statement*, we expressed an interest to allow manufacturers to design cost-effective equipment.[62]

17. Against this backdrop, we believe that EAGs are the most appropriate size licensing area for these bands. In this connection, we note that the LMCC states that there is currently no equipment to support fixed or mobile operations in this band.[63] In this case, we believe that larger geographic areas, such as EAGs, will afford manufacturers an opportunity to supply conforming equipment to support a larger demand base. We further believe that larger areas will facilitate flexibility for nascent operations to allocate resources according to demand, thus permitting them to rollout service quickly and to develop an active subscriber base.[64] In another licensing context, we have noted that use of EAGs "facilitates the acquisition of spectrum by different providers with spectrum needs that are confined to their particular region or market."[65] Therefore, we believe that EAGs will accommodate a variety of uses, including PLMR and other particularized communications needs.

18. While we do not believe that MSAs and RSAs are appropriate for these bands, we nonetheless are mindful of the concerns expressed by representatives of the rural telecommunications community. In this regard, we intend to develop a more current and substantial record on the Commission's mandate to ensure that rural telecommunications companies are given the opportunity to participate in the provision of spectrum-based services pursuant to Section 309(j)(4)(d) of the Act. Accordingly, before the end of the year, we plan to initiate a Notice of Inquiry regarding a number of topics related to the provision of spectrum-based service to rural areas including (a) the nature of spectrum supply and demand and the services currently provided and planned in rural areas, (b) the effectiveness of our current regulatory tools (including partitioning and disaggregation, bidding credits, auction service area policies, build out requirements) in facilitating the delivery of services to these areas; (c) how the Commission could modify its policies to fulfill its statutory mandate.

c. 1670-1675 MHz Band

19. For the 1670-1675 MHz band, we are adopting a single nationwide license as proposed in the *Service Rules Notice*.[66] We believe that nationwide licensing provides licensees flexibility to develop and provide new services ubiquitously across the entire band, as currently proposed by ArrayComm,

[60] *See generally* AMTA Comments at 2 (stating that additional spectrum is needed to address the "PLMR" community). We also note that, in 1998, the LMCC filed a petition with the Commission requesting that these bands be designated for private land mobile use. *See Petition for Rule Making* filed by LMCC on April 22, 1998.

[61] *Spectrum Policy Statement*, 17 FCC Rcd at 19878 ¶ 24.

[62] *Id.* at 19879 ¶ 24.

[63] *See* LMCC Comments at 6.

[64] Licensees may afford themselves of the options of partitioning and disaggregation where it would serve their interests, and where the market permits. In this regard, we note that a number of Personal Communications Services (PCS) licensees have utilized these options.

[65] Reallocation and Service Rules for the 698-746 MHz Spectrum Band (Television Channels 52-59), GN Docket 01-74, *Report and Order*, 17 FCC Rcd 1022, 1060-61 ¶ 94 (2002).

[66] *Service Rules Notice*, 17 FCC Rcd at 2516 ¶ 33.

AeroAstro, and InsideTrax. These commenters all agree that a single, five megahertz nationwide license for this band would be the most appropriate licensing approach, given the particular type of wireless services each commenter proposes to provide.[67] While NTCA and RTG oppose a nationwide licensing approach for this band, suggesting instead smaller geographic area licensing throughout the government transfer bands,[68] we believe that nationwide licensing in the 1670-1675 MHz band serves the public interest by promoting flexibility and efficient spectrum markets and facilitates the deployment of ubiquitous, innovative communications services to the public. We also believe nationwide licensing in this band will provide economies of scale for those seeking to offer new technology.[69] In this connection, we have on more than one occasion noted that nationwide assignments are more likely to stimulate investment in new technologies and can provide a critical means of achieving greater spectrum efficiency and promoting research and development.[70] In addition, we note that we have adopted smaller license areas in the unpaired 1390-1392 MHz band and the paired 1392-1395 MHz and 1432-1435 MHz bands in light of the current and proposed uses of those bands.

d. 2385-2390 MHz band

20. For the 2385-2390 MHz band, because we believe that a prospective licensee would be able to maximize its operational flexibility through a single, five megahertz nationwide license, we are adopting our proposal to implement nationwide licensing for this band. Although commenters did not address the license size issue for this particular band, we believe that a nationwide license will provide the most flexibility to licensees and will best promote the deployment of ubiquitous and innovative communications services to the public. As we indicated above for the 1670-1675 MHz band, nationwide licensing will provide economies of scale for those seeking to offer new technology.[71] Accordingly, as with the 1670-1675 MHz band, we will award a single nationwide license for this band.

3. Spectrum Blocks

21. Background. In the *Service Rules Notice*, we sought comment on the appropriate amount of spectrum to be provided for each licensee, in each band, for the new services that we proposed to license on a geographic area basis.[72] The paired 1392-1395 MHz and 1432-1435 MHz bands offer a total of six megahertz of spectrum. The unpaired 1390-1392 MHz band offers a total of two megahertz of spectrum while the unpaired 1670-1675 MHz and 2385-2390 MHz bands offer a total of five megahertz of spectrum each. We sought comment on whether the spectrum in each of these bands should be licensed as one block, or broken down into two or more bandwidths, and whether there should be a mixture of spectrum blocks, depending on the service areas used for licensing.

---

[67] *See* ArrayComm, Inc. (ArrayComm) Comments at 6; AeroAstro, Inc. (AeroAstro) Comments at 5; InsideTrax (InsideTrax) Comments at 6. ArrayComm proposes to market wide-area portable wireless broadband Internet access via its new *i-Burst*™ and IntelliCell® technology. ArrayComm Comments at iv. AeroAstro proposes a "satellite-based" personal location and monitoring service that it believes would be unduly restricted by a regional licensing plan. AeroAstro Comments at 5. InsideTrax states that a nationwide license would provide it with maximum flexibility to implement its personal location and monitoring services. InsideTrax Comments at 8.

[68] NTCA Comments at 2; RTG Comments at 2.

[69] *See* Reallocation and Service Rules for the 698-746 MHz Spectrum Band (Television Channels 52-59), GN Docket No. 01-74, Report and Order, 17 FCC Rcd 1022, 1059 (2002).

[70] *See, e.g.*, *WCS Report and Order*, 12 FCC Rcd at 10807-08 ¶ 45; 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, *Report and Order*, 6 FCC Rcd 2356, 2361 ¶ 34 (1991).

[71] *Id.*

[72] *Service Rules Notice*, 17 FCC Rcd at 2516 ¶ 34.

a. 1390-1392 MHz band

22. Discussion. While no commenters specifically addressed the spectrum block issue with respect to the 1390-1392 MHz band, we believe that using a single two megahertz block in each of the fifty-two MEAs will encourage flexible and efficient use of this spectrum by allowing licenses to offer the wider range of services that two megahertz, rather than one megahertz, might allow. Moreover, in those cases where a lesser bandwidth is required, licensees would be able to coordinate spectrum under their control so as to maximize its use.

b. 1392-1395 MHz and 1432-1435 MHz Bands

23. We believe that the paired 1392-1395 MHz and 1432-1435 MHz bands will best be utilized by dividing each three megahertz spectrum block so that each license will consist of two, paired 1.5 megahertz channels from each band, totaling three megahertz of spectrum. Thus, we will award two licenses in each paired EAG. We believe that this approach equitably balances our efforts to provide additional spectrum to help relieve congestion in existing land mobile bands[73] and to promote innovation in a market driven environment.[74] Because having more than one licensee per market will likely enhance competition from both an equipment manufacturing as well as a service provider aspect, we believe that our approach will foster new opportunities, including prospective licensees with either more specific or localized spectrum needs.[75]

c. 1427-1429.5 MHz and 1429.5 -1432 MHz Bands

24. Because we have decided not to adopt a geographic area licensing approach for services in the 1427-1432 MHz band, we need not consider the issue of an appropriate spectrum block size for this band. Nonetheless, at this juncture we direct our attention to a separate but related spectrum aspect of the five megahertz at issue in this band.

25. *AHA-Itron Joint Agreement.* We requested comment on a band flip proposal from AHA and Itron.[76] Generally, the AHA/Itron proposal[77] would in effect switch the primary allocation between Medical Telemetry and Telemetry in seven defined geographic areas.[78] The AHA/Itron proposal also would subdivide the band into smaller segments. We tentatively concluded to adopt the terms of the AHA/Itron agreement.[79] We also proposed to add a footnote to the Table of Frequency Allocations that would elevate the telemetry allocation to primary status in the 1427-1429.5 MHz band in seven

[73] *Reallocation Report and Order,* 17 FCC Rcd at 391-392 ¶¶ 49, 51.

[74] *Cf.* 47 C.F.R. § 27.5(b)(1). We licensed the 700 MHz Guard Bands as paired 2 MHz and 1 MHz spectrum blocks.

[75] *See* LMCC Comments at 5-7; AMTA Comments at 6; API Comments at 7.

[76] *See Service Rules Notice,* 17 FCC Rcd at ¶¶ 50-52.

[77] *See* Attachment A to Itron comments. Attachment is entitled Joint Statement of Position by the American Medical Hospital Association Task Force on Medical Telemetry and Itron, Inc. (*Joint Statement*).

[78] *See* Itron Comments at 7, n.24; and Itron Comments, Attachments A (Joint Statement of Position by the American Medical Hospital Association Task Force on Medical Telemetry and Itron, Inc.) and B (Ex Parte Presentation, American Hospital Association Task Force on Medical Telemetry, ET Docket No. 00-221). The Joint Agreement proposes switching the primary allocation between medical telemetry and telemetry in the following locations: Pittsburgh, PA, Washington, DC metropolitan area, Richmond/Norfolk, VA, Austin/Georgetown, TX, Battle Creek, MI, Detroit, MI and Spokane, WA.

[79] *See Service Rules Notice,* 17 FCC Rcd at ¶ 52.

geographic areas and elevate WMTS as primary in the corresponding seven geographic areas in the 1429.5-1432 MHz band.[80]

26. We agree with the majority of commenters that support the "band flip" proposal from AHA and Itron.[81] We are particularly encouraged that AHA and Itron were able to address concerns regarding potential interference issues and devise a plan for submission to the Commission. In commenting on its own proposal, AHA states that the Commission did not fully implement the AHA-Itron "band flip" proposal with regard to an integral element of the agreement. Accordingly, AHA now requests that the Commission reassess the band proposal.[82] AHA states that the Commission should modify slightly the proposal put forth in the *Service Rules Notice* to provide greater protection for WMTS from high power operations in the upper-adjacent 1432-1435 MHz band.[83] Specifically, AHA requests that we shift the bandwidth in which WMTS is primary in seven geographic carve out areas from the 1429.5-1432 MHz to the 1429-1431.5 MHz band segment. Under this slight refinement, primary telemetry operating in the corresponding seven geographic carve out areas would occupy the 1427-1429 MHz and 1431.5-1432 MHz portions of this band. AHA indicates that this "flip" to the "inside of the telemetry allocation" will provide a guard band of 0.5 MHz to protect WMTS from potentially higher powered land mobile operations in the 1432-1435 MHz band.[84] In addition, this 0.5 MHz shift can be made without adversely affecting telemetry operations in this band.[85] Because we find that this refinement to the AHA-Itron proposal would enhance protection of WMTS throughout the 1.4 GHz band without disturbing the integrity of the licensing scheme for this band, we adopt AHA's refinement.

d. 1670-1675 MHz Band

27. As proposed in the *Service Rules Notice*, we will license the 1670-1675 MHz band as a single, five megahertz spectrum block.[86] This approach is consistent with the comments received on the issue and also logically follows our decision to license this band as a single, nationwide license.[87] As a few commenters noted, dividing this spectrum into two or more blocks might discourage "new entry and investment" in this frequency band.[88] Accordingly, because we seek to encourage the development and implementation of new and innovative services, and we believe that our approach to license this band as a single, five megahertz spectrum block is therefore warranted.

---

[80] *Id.*

[81] *See* Itron Comments at 7, AHA comments at 5-6, UTC Comments at 4, Spacelabs Comments at 2.

[82] AHA Comments at 6.

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

[84] *Id.* at 6.

[85] We note that this shift in the seven geographic "carve-out" areas to allow telemetry to operate in the upper 0.5 MHz portion of the 1427-1432 MHz band is consistent with the allocation for telemetry outside the seven geographic "carve-out" areas where telemetry operates in the 1429.5-1432 MHz band adjacent high powered systems in the 1432-1435 MHz band.

[86] *Service Rules Notice,* 17 FCC Rcd at 2516 ¶ 35.

[87] *See* ArrayComm Comments at 7; Insidetrax Comments at 5.

[88] ArrayComm Comments at 8; *see also* Insidetrax Comments at 6-7.

e. 2385-2390 MHz Band

28. For reasons similar to those articulated with regard to the 1670-1675 MHz band, we will adopt our proposal to license the 2385-2390 MHz band as a single, five megahertz spectrum block.[89] Although commenters did not address the issue of spectrum blocks in this particular band, we believe that our approach here is consistent with our prior decision to license this band as a single, nationwide license. We believe that this approach will permit a licensee maximum operational flexibility to utilize this spectrum in new and innovative ways.

4. Assignment of Licenses

29. Background. The Balanced Budget Act of 1997 revised the Commission's auction authority.[90] Specifically, it amended Section 309(j) of the Act to require the Commission to grant licenses through the use of competitive bidding when mutually exclusive applications for initial licenses are filed, unless certain specific statutory exemptions apply.[91] The BBA-97 also added to Section 309(j)(1) a reference to the Commission's obligation under Section 309(j)(6)(E) to use engineering solutions, negotiation, threshold qualifications, service regulations, or other means to avoid mutual exclusivity where it is in the public interest to do so.[92] BBA-97 did not amend Section 309(j)(3)'s directive to consider certain public interest objectives in identifying classes of licenses and permits to be issued by competitive bidding.[93]

30. In the *BBA Report and Order*, the Commission established a framework for exercise of its auction authority, as amended by the Balanced Budget Act.[94] In identifying which classes of licenses should be subject to competitive bidding, the *BBA Report and Order* affirmed that the Commission is required to pursue the public interest objectives set forth in Section 309(j)(3).[95] As part of this public interest analysis, the *BBA Report and Order* also affirmed that the Commission must continue to consider alternative procedures that avoid or reduce the likelihood of mutual exclusivity.[96] The Commission concluded, however, that its obligation to avoid mutual exclusivity does not preclude it from adopting licensing processes in the non-exempt services that result in the filing of mutually exclusive applications where it determines that such an approach would serve the public interest.[97]

---

[89] *Service Rules Notice*, 17 FCC Rcd at 2516 ¶ 35.

[90] *See* 47 U.S.C. § 309(j)(1), (2) (as amended by Balanced Budget Act, § 3002). As explained above, in BBA-97, Congress also directed the Secretary of Commerce to identify spectrum for transfer to non-Government use to be assigned in compliance with Section 309(j). NTIA identified the 216-220 MHz, 1432-1435 MHz, and 2385-2390 MHz bands. *See supra* ¶ 2.

[91] *Id.* 47 U.S.C. § 309(j)(2) exempts from auctions licenses and construction permits for public safety radio services, digital television service licenses and permits given to existing terrestrial broadcast licensees to replace their analog television service licenses, and licenses and construction permits for noncommercial educational broadcast stations and public broadcast stations described in 47 U.S.C. § 397(6) of the Communications Act.

[92] *See* 47 U.S.C. §§ 309(j)(1), 309(j)(6)(E).

[93] *See* 47 U.S.C. § 309(j)(3).

[94] *See* Implementation of Sections 309(j) and 337 of the Communications Act of 1934 as Amended, *Report and Order and Further Notice of Proposed Rule Making*, WT Docket No. 99-87, 15 FCC Rcd 22709 (1999) (*BBA Report and Order*).

[95] *Id.* at 22718-22723 ¶¶ 20-27.

[96] *Id.*

[97] *Id.*

31. In determining whether to assign licenses through competitive bidding in this proceeding, we intend to follow the approach set forth in the *Balanced Budget Act proceeding* regarding the exercise of our auction authority. We note, too, that subsequent to the adoption of the Balanced Budget Act, the U.S. Court of Appeals for the D.C. Circuit concluded that the Section 309(j)(6)(E) obligation does not foreclose new licensing schemes that are likely to result in mutual exclusivity.[98] The court stated that if the Commission finds such schemes to be in the public interest, it may implement them "without regard to [S]ection 309(j)(6)(E) which imposes an obligation only to minimize mutual exclusivity 'in the public interest,' and 'within the framework of existing policies.'"[99]

32. Discussion. We agree with the majority of commenters who support our tentative proposal in the *Service Rules Notice* to adopt a geographic area licensing scheme for the paired 1392-1395 MHz and 1432-1435 MHz bands, the unpaired 1670-1675 MHz band and the unpaired 2385-2390 MHz band.[100] As discussed in Section IV.A.2., *supra*, we believe that the geographic licensing areas we are designating for these bands will promote the objectives of Section 309(j)(3) including promoting economic opportunities and competition by disseminating licenses among a wide variety of applicants.[101] Because we find that it would serve the public interest to implement a geographic area licensing scheme, under which mutual exclusivity is possible, we must resolve mutually exclusive applications for initial licenses in the paired 1392-1395 MHz and 1432-1435 MHz bands, the unpaired 1670-1675 MHz band and the unpaired 2385-2390 MHz band through competitive bidding.

33. We also adopt our tentative proposal in the *Service Rules Notice* to license the unpaired 1390-1392 MHz band for terrestrial use based on geographic areas.[102] We have allocated the 1390-1392 MHz band for fixed and mobile, except aeronautical mobile, services. We also have allocated this band for satellite (uplink) service, but only on a conditional basis.[103] Because the satellite allocation in this band will not become effective until the U.S. first secures an international allocation, any future licensing of such satellite services would be addressed in a separate rulemaking proceeding.[104] Thus, because we find the public interest will be served by adopting a geographic area licensing scheme that permits the filing of mutually exclusive applications for terrestrial services in the 1390-1392 MHz band, we also find it will be consistent with our statutory mandate to resolve any such mutually exclusive applications accepted for filing by competitive bidding.

34. We will not receive mutually exclusive applications for WMTS licenses in the unpaired 1427-1429.5 MHz band or in the seven geographic "carve-out" areas in the 1429-1431.5 MHz band because WMTS is licensed by rule under Part 95 and required to coordinate.[105] Thus, our statutory

[98] *See Benkelman Telephone Co., et al. v. FCC*, 220 F.3d 601, 606 (D.C. Cir. 2000), *petition for rehearing on other grounds pending*.

[99] *Id.* (citations omitted) (citing *DIRECTV, Inc. v. FCC*, 110 F.3d 816, 828 (D.C. Cir. 1997)).

[100] *See e.g.*, ArrayComm Comments at 6, InsideTrax Comments at 6, AeroAstro Comments at 5, AMTA Comments at 6. *But see* Spacelabs Comments at 4 (supporting site-by-site licensing), Watchman Reply Comments at 2 (stating that a site-by-site licensing scheme may be more appropriate for agricultural services).

[101] *See supra* ¶¶ 13-18; 47 U.S.C. § 309(j)(3).

[102] *Service Rules Notice*, 17 FCC Rcd at 2514 ¶ 29.

[103] MSS Feeder Uplinks and Downlinks are contingent on the adoption of an international allocation and other conditions. *See* 47 C.F.R. § 2.106, footnote US368.

[104] *See Reallocation Report and Order*, 17 FCC Rcd at 389-394 ¶¶ 46-58.

[105] 47 C.F.R. § 95.1101, *et seq.*

obligation to use competitive bidding under Section 309(j) is not applicable to the assignment of WMTS licenses in these portions of the 1.4 GHz band.[106]

35. We note that the 217-218 MHz band will be paired with the 219-220 MHz band for licenses in the AMTS service, and that the rules for assigning licenses will be addressed in a separate rulemaking proceeding.[107] The 218-219 MHz band is licensed as the 218-219 MHz Service and the competitive bidding rules were established in a prior proceeding.[108] In addition, because we have allocated the 216-217 MHz portion of the band for LPRS, which is licensed by rule under Part 95 of our Rules, there will be no mutually exclusive applications and therefore no competitive bidding under Section 309(j).[109]

36. We also note that applications in these terrestrial services will be filed using the Universal Licensing System (ULS).[110] ULS is the Commission's automated licensing system and integrated database for wireless terrestrial services. ULS includes consolidated applications forms, which will enable licensees and applicants to file applications electronically, thus increasing the speed and efficiency of the application process. All licensees filing applications and other filings using FCC Forms 601 through 605 or associated schedules must make these filings in accordance with ULS.[111] Use of ULS will permit Commission staff to process filings more efficiently and will enhance the availability of pertinent licensing information to the public.

5. Flexible Use

37. Background. In the *Service Rules Notice*, we sought comment on "approaches by which we may permit more flexible use of the spectrum" reallocated to non-government use in this proceeding.[112] We also proposed a licensing construct that would afford licensees maximum flexibility to promote efficient spectrum use and the development of more efficient spectrum markets.[113] In this connection, for the frequency bands that we proposed to license on a geographic area basis, we proposed to permit an entity to hold a Commission license as either a traditional licensee[114] or as a band manager.[115]

---

[106] 47 U.S.C. § 309(j).

[107] *See AMTS Fourth R&O and Third NPRM, supra* note 17.

[108] *See* Amendment of Part 95 of the Commission's Rules to Provide Regulartory Flexibility in the 218-219 MHz Service, WT Docket No. 98-169, *Report and Order and Memorandum Opinion and Order*, 15 FCC Rcd 1497, 1558-1560 ¶¶ 116-121 (1999) (*218-219 MHz Report and Order*). *See also* 47 C.F.R. § 95.816.

[109] *See Reallocation Report and Order*, 17 FCC Rcd at ¶¶ 22-26. *See also supra* note 28.

[110] Biennial Regulatory Review -- Amendment of Parts 0, 1, 13, 22, 24, 26, 27, 80, 87, 90, 95, 97, and 101 of the Commission's Rules to Facilitate the Development and Use of the Universal Licensing System in the Wireless Telecommunications Services, WT Docket No. 98-20, Amendment of the Amateur Service Rules to Authorize Visiting Foreign Amateur Operators to Operate Stations in the United States, WT Docket No. 96-188, RM-8677, *Report and Order*, 13 FCC Rcd 21027 (1998) (*ULS Report and Order*).

[111] 47 C.F.R. § 1.913(b).

[112] *Service Rules Notice*, 17 FCC Rcd at 2517 ¶ 38.

[113] *Id.*; *see supra* ¶¶ 10-11.

[114] A traditional licensee could be a commercial provider of wireless telecommunications services, or serve its own telecommunications needs.

[115] A band manager would act as a "spectrum broker" with the ability to lease the rights to use its licensed spectrum to third parties through private, contractual agreements, without having to secure prior approval by the Commission." *Service Rules Notice*, 17 FCC Rcd at 2517 ¶ 39.

38. Discussion. As discussed *supra*, we have adopted a geographic area licensing approach for the paired 1392-1395 MHz and 1432-1435 MHz bands and the unpaired 1390-1392 MHz, 1670-1675 MHz and 2385-2390 MHz bands. In light of this decision, we believe that licensees should be afforded optimal ability to develop and deploy the spectrum for a variety of uses, subject to our allocation[116] and technical requirements.[117] We further believe that the most appropriate mechanism to provide such flexibility in these bands is by allowing licensees to avail themselves of both traditional licensing and band manager options.[118] This licensing approach is consistent with our goals of promoting spectrum efficiency and diversity of uses. Within this framework, we recognize the potential viability of a band manager as a permissive use that constitutes one of many approaches to spectrum management.[119]

39. Subject to the rules we are adopting herein, licensees operating as band managers will be qualified to engage in spectrum leasing activities, as defined below, and subject to the outcome of our pending *Secondary Markets* Proceeding.[120] The band manager approach here represents a conceptual outgrowth from our earlier decision in the *700 MHz Proceeding*.[121] We are therefore applying the 700 MHz Guard Band Manager rules with some exceptions.[122] Specifically, we will not apply the following rules to the band managers in these frequency bands: (i) Section 27.2(b)'s prohibition against employing a cellular system architecture;[123] (ii) Section 27.601(d)'s requirement to notify public safety frequency coordinators;[124] (iii) Section 27.603(c)'s requirement that band managers must lease a predominant amount of spectrum to non-affiliates;[125] (iv) Section 27.604's limitations on licenses won at auction;[126] and (v) Section 27.605's restrictions on partitioning and disaggregation.[127] We believe that our limited departure from some of the Part 27 band manager rules in this instance is consistent with our goal of providing the licensees with optimal flexibility and will accommodate a variety of business plans. This

[116] *See Reallocation Report and Order*, *supra* note 2.

[117] *See* Section IV.D. Technical Rules, *infra*.

[118] *See, e.g.*, ITA Comments at 4; LMCC Comments at 4 and American Petroleum Comments at 7, (supporting band manager licensing of the paired 1392-1395 MHz and 1432-1435 MHz bands.) *But see* ArrayComm Comments at 8 and AeroAstro Comments at 6 (opposing band manager licensing of the 1670-1675 MHz band).

[119] We have previously recognized that band manager licensing can "increase the diversity of users of private spectrum . . . with fewer transactional costs and regulatory burdens..." *BBA Report and Order* at 2517 ¶ 39. *See generally* "700 MHz Guard Band Auction Closes – Winning Bidder Announced," Report No. AUC-38-F, *Public Notice*, DA 01-478 (rel. February 22, 2001) (announcing winning bidders). Access Spectrum, LLC was a winning bidder in this auction and currently operates as a Guard Band Manager licensee in the 700 MHz band.

[120] *See* Promoting Efficient Use of Spectrum Through Elimination of Barriers to the Development of Secondary Markets, WT Docket No. 00-230, *Notice of Proposed Rule Making* 15 FCC Rcd 24,203 (2000) (*Secondary Markets Notice*). We note that traditional licensees in this band who want to engage in spectrum leasing arrangements will also be governed by the ultimate outcome of the *Secondary Markets Proceeding*.

[121] Service Rules for the 746-764 and 776-794 MHz Bands, and Revisions to Part 27 of the Commission's Rules, WT Docket No. 99-168, *First Report and Order*, 15 FCC Rcd 476 (2000) (*700 MHz First Report and Order*) Service Rules for the 746-764 and 776-794 MHz Bands, and Revisions to Part 27 of the Commission's Rules, WT Docket No. 99-168, *Second Report and Order*, 15 FCC Rcd 5299 (2000) (*700 MHz Second Report and Order*).

[122] *See* generally 47 C.F.R. Part 27 - Miscellaneous Wireless Communications Services (Subpart G).

[123] 47 C.F.R. § 27.2(b).

[124] 47 C.F.R. § 27.601(d).

[125] 47 C.F.R. § 27.603.

[126] 47 C.F.R. § 27.604.

[127] 47 C.F.R. § 27.605.

departure also recognizes differences in the technical and coordination considerations between the 700 MHz band and the bands at issue here. For example, as ArrayComm states, a cellular architecture, in the absence of the particular public safety concerns we faced in licensing the 700 MHz band,[128] may actually facilitate the protection of adjacent band services.[129]

6. Site-by-Site Licensing

40. The Commission historically has licensed telemetry operations in the 217-220 MHz and 1427-1432 MHz bands on a site-by-site basis under Part 90 of our rules.[130] Pursuant to 309(j) of the Communications Act, as amended, the Commission has the flexibility to continue to make determinations "on a service-by-service basis of whether to adopt geographic area licensing, site-by-site licensing, or any other licensing scheme" based upon our statutory public interest obligations.[131] In making such a determination, we also recognize that, as part of our public interest analysis, we should "give significant consideration to the effectiveness of the existing licensing mechanism that avoids mutual exclusivity, and should weigh the potential costs of changing such mechanisms against the potential benefits."[132]

a. Secondary Telemetry (217-220 MHz and 1427-1429.5 MHz)

41. In the *Service Rules Notice*, we tentatively concluded that it would not serve the public interest goals of Section 309(j)(3) to license secondary telemetry on a geographic area basis in the 217-220 MHz and 1427-1429.5 MHz bands and within the seven geographic "carve-out" areas in the 1429-1431.5 MHz band.[133] While we generally favor geographic area licensing for new services, we indicated that that this type of licensing approach is not appropriate for every licensing situation.[134]

42. In this connection, we note that the majority of commenters to this proceeding favor the retention of a site-by-site licensing method for secondary telemetry in the 217-220 MHz and 1427-1429.5 MHz bands and within the seven geographic "carve-out" areas in the 1429-1431.5 MHz band.[135] In this instance, we note that the secondary status of telemetry operators in the 217-220 MHz band means that they must not cause harmful interference to the primary operations of AMTS and the 218-219 MHz Service. Similarly, the secondary status of non-medical telemetry operators in the 1427-1429.5 MHz band and within the seven geographic "carve-out" areas in the 1429-1431.5 MHz band means that they must not cause harmful interference to the primary operations of WMTS. Because secondary operations

[128] In the *700 MHz Second Report and Order*, the Commission prohibited this type of system design because, based on the record in that proceeding, we were concerned with protecting adjacent channel public safety operations. *700 MHz Second Report and Order*, 15 FCC Rcd at ¶ 19.

[129] *See* ArrayComm Comments at 33. ArrayComm states that a cellular architecture established around a system of base stations whose downlink coverage areas can be limited in conjunction with mobile stations operating on a "listen before talk" protocol may help ensure interference to adjacent band systems. *Id.* citing ArrayComm Comments filed in ET Docket 00-221 at 29. *Cf.* Itron Reply Comments at 10 (stating that that prohibiting a cellular architecture in the 1427-1432 MHz band would not help protect Government operations or radio astronomy monitoring stations).

[130] *See* 47 C.F.R. § 90.259. To date, these operations have not been coordinated. *Service Rules Notice*, FCC Rcd at 2526 ¶ 64.

[131] *See BBA Report and Order*, 15 FCC Rcd at 22725 ¶ 31. *See also* 47 U.S.C. § 309(j).

[132] *BBA Report and Order*, 15 FCC Rcd at 22723 ¶ 27; *Service Rules Notice*, 17 FCC Rcd at 2523-24 ¶ 58.

[133] *Service Rules Notice*, 17 FCC Rcd at 2524 ¶ 59.

[134] *Id.*

[135] *See* Paging Systems Comments at 5-6; Spacelabs Comments at 3.

must always defer to primary operations, we do not believe it would be feasible to license secondary operations by geographic overlay in an environment where primary incumbents have preference and may generally increase operations without prior Commission approval. In addition, we believe the future development of primary services such as AMTS, the 218-219 MHz Service and WMTS could be unduly hindered by possible interference problems associated with geographically-licensed secondary telemetry.[136] We therefore adopt our tentative conclusion to retain a site-by-site licensing approach under Part 90 of our Rules for secondary telemetry applicants in the 217-220 MHz and 1427-1429.5 MHz bands and within the seven geographic "carve-out" areas in the 1429-1431.5 MHz band.[137]

43. For the reasons stated above, we will prohibit site-by-site telemetry operating on a secondary basis from specifying operations over a wide area[138] or on an itinerant basis.[139] Rather, we believe that secondary telemetry operators should specify their area of normal day-to-day operations in terms of a maximum distance from a geographical center. Under this approach, the applicant would identify a geographical center and, as a general matter, we would envision that its area of normal day-to-day operations would not exceed a 50-mile radius from such geographical center. Once licensed, the entity would be able to conduct telemetry operations at various points within such area without needing an additional authorization. We believe that this procedure will identify secondary operators more easily should harmful interference arise while providing them with some operational flexibility.

7. Primary Telemetry (1429.5-1432 MHz)

44. With respect to the primary telemetry service licenses in the 1429.5-1432 MHz band and within the seven geographic "carve-out" areas in the 1427-1429 MHz and 1431.5-1432 MHz bands, the *Service Rules Notice* tentatively concluded to retain our current licensing scheme (*i.e.*, site-by-site), but also sought comment on whether we should assign licenses based on geographic areas for the primary telemetry services in these bands.[140] We also indicated that a site-by-site licensing method for primary telemetry in the 1429.5-1432 MHz band would not foreclose the possibility that mutually exclusive applications may be filed.[141]

45. The majority of commenters support site-by-site licensing of the primary telemetry service licenses in the 1429.5-1432 MHz band and within the seven geographic "carve-out" areas in the 1427-1429 MHz and 1431.5-1432 MHz bands.[142] Itron states that geographic area licensing would not

[136] *See* UST/Datex Comments at 5 (with respect to the 218-219 MHz service).

[137] *Service Rules Notice*, 17 FCC Rcd at 2524 ¶ 59.

[138] Because the extent to which telemetry services are utilized may vary in any given service area, for purposes of this rule, we will consider each application for secondary telemetry operations on a case-by-case basis. We note, however, that to the extent an application specifies a service area that exceeds its area of normal day-to-day operations, the application will be returned as defective. *See* In the Matter of Replacement of Part 90 by Part 88 to Revise the Private Land Mobile Radio Services and Modify the Policies Governing Them, *Fifth Memorandum Opinion and Order*, PR Docket 92-235, 16 FCC Rcd 416, 421 ¶ 13 (2000) (requiring licensees to specify the coordinates of the center of an operating area and a radius extending from that center that defines a circle corresponding to the licensee's service area). *See also* 47 C.F.R. § 90.267(a)(4).

[139] Itinerant operation is defined as operation of a radio station at unspecified locations for varying periods of time. 47 C.F.R. § 90.7.

[140] *See Service Rules Notice*, 17 FCC Rcd at 2524-25 ¶ 60.

[141] *Id.* at 2525 ¶ 61.

[142] *See, e.g.*, UTC Comments at 7 (stating that the filing of mutually exclusive applications is "rare"); Spacelabs Comments at 4 (stating that site-by-site licensing would enable location identification and coordination with WMTS operations).

provide adequate protection to WMTS.[143] Comsearch points out that non-WMTS operations in the band are analogous to Multiple Address System (MAS) operations and thus a site-by-site licensing approach is appropriate.[144] We agree with the majority of commenters on this issue that the public interest will best be served by adopting a site-by-site licensing approach for primary telemetry in the 1429.5-1432 MHz band and within the seven geographic "carve-out" areas in the 1427-1429 MHz and 1431.5-1432 MHz bands. Accordingly, we adopt a site-by-site licensing approach for these bands.

46. In considering our licensing approach for this band, we must consider those licensing mechanisms that best achieve this end without adversely affecting the overall use of this band for new and existing telemetry services. In light of these considerations, we are not persuaded that the public interest would be served if we were to adopt a geographic licensing scheme here. In this connection, Hexagram proposes that in addition to a site-by-site licensing scheme, the Commission should require frequency coordination as a condition to filing.[145] On balance, we find merit to Hexagram's proposal. We believe that a site-by-site licensing scheme with frequency coordination in this instance will facilitate a more expeditious and predictable administration of licenses in this band, with minimal regulatory intrusion consistent with our overall spectrum management objectives.

47. Given the heightened degree of complexity involved in protecting WMTS from harmful interference, and the important public interest WMTS serves to our communities, we are also adopting frequency coordination as a condition precedent to filing applications for terrestrial Part 90 telemetry operations in the 1427-1432 MHz band.[146] Frequency coordination as a precondition to filing an application for license with the Commission will militate against the receipt of mutually-exclusive applications because frequency coordinators are required to assure that the best frequency is chosen given the intended use of the spectrum.[147] By avoiding the filing of mutually exclusive applications, the site-by-site licensing mechanism we adopt, coupled with a requirement for frequency coordination, thereby obviates the need to assign licenses in the unpaired 1429.5-1432 MHz band and the seven geographic carve-out areas in the 1427-1429 MHz and 1429-1431.5 MHz bands, by competitive bidding.[148]

48. As we indicated for secondary telemetry above, we will prohibit site-by-site primary telemetry from specifying operations over a wide area or on an itinerant basis.[149] Rather we believe that primary telemetry operators should specify their area of normal day-to-day operations in terms of a

[143] Itron Comments at 4.

[144] Comsearch Reply Comments at 2.

[145] Hexagram Reply Comments at 7.

[146] *See* Hexagram Comments at 9.

[147] *See infra.* ¶¶ 92-95.

[148] We emphasize that, contrary to the comments of Hexagram, our decision to adopt a licensing scheme that precludes the filing of mutually exclusive applications arises from service-specific interference issues as opposed to the class of users of this spectrum. *See* Hexagram Reply Comments at 12-13. The Commission has determined that the public safety radio services exemption of Section 309(j)(2)(A) applies to particular services rather than to particular classes or groups of licensees within a service, *i.e.*, the exemption applies only to spectrum that the Commission specifically designates for the particular uses that Congress intended to benefit. *See BBA Report and Order*, 15 FCC Rcd at 22741 ¶ 66; *see also* Implementation of Sections 309(j) and 337 of the Communications Act of 1934 as Amended, *Memorandum Opinion and Order*, WT Docket No. 99-87, FCC 02-82, paras. 22-29 (rel. April 19, 2002).

[149] *See supra* notes 138, 139 and accompanying text.

maximum distance from a geographical center in order to allow WMTS operators to more easily identify co-primary telemetry operators should harmful interference arise.[150]

49. Itron requests that we clarify that a site-by-site licensing approach for telemetry does not require coordinates for every fixed site.[151] Itron indicates that such a limitation would be overly restrictive.[152] For example, Itron states that, in some markets, a utility may have tens of thousands of telecommand stations situated on utility poles communicating with hundreds of thousands of meter modules located at customer homes.[153] Itron states that it would be onerous to require each pole or home should not have to be licensed individually.[154] We agree with Itron that requiring coordinates for each individual transmitter site would be unduly burdensome for licensees who operate thousands of fixed sites within a particular market. Consequently, we will allow primary telemetry operators the option to license fixed sites as "temporary fixed" locations.[155] We will allow these "temporary fixed" locations to be operated indefinitely without requiring separate authorization. Applicants will be required to specify these "temporary fixed" operations in terms of a maximum distance from a geographical center. We believe that this approach is consistent with the flexible licensing approach we are adopting throughout this proceeding.

8. Grandfathered Operations

50. *216-220 MHz Band.* In the *Reallocation Report and Order,* we determined that the public interest would best be served by retaining "the secondary amateur service allocation at 219-220 MHz, the wildlife and ocean tracking allocation, as well as the secondary Government allocation."[156] Further, because we determined that it would be difficult for secondary telemetry licensees to coordinate with LPRS, we concluded that we would no longer accept new applications for Government and non-Government operations in the 216-217 MHz band after January 1, 2002.[157] In comment to the instant proceeding, Fleetwood requests that we clarify certain issues regarding our actions in the *Reallocation Report and Order.*

51. As an equipment manufacturer, Fleetwood is concerned that its existing customers will be adversely affected by the reallocation of the 216-220 MHz band.[158] First, Fleetwood asks whether the "grandfathering" of existing licensees would permit those licensees to apply for new or modified applications for the purpose of adding new transmitters to their existing systems.[159] As we stated before, the reallocation of the 216-220 MHz band does not significantly disturb the current use of the spectrum.[160] We clarify, however, that the addition of new transmitters to current operations in the 216-217 MHz band

[150] Fixed and Mobile operations in the 1427-1432 MHz band will be discussed in following sections. *See* discussion *infra* Section IV.F.2.b.ii.

[151] Itron Comments at 5.

[152] *Id.*

[153] *Id.*

[154] *Id.*

[155] 47 C.F.R. § 90.137.

[156] *Reallocation Report and Order,* 17 FCC Rcd at 377 ¶ 19.

[157] *Id.* at 380 ¶ 26.

[158] Fleetwood Comments at 1.

[159] *Reallocation Report and Order,* 17 FCC Rcd at 380 ¶ 26.

[160] *See id.* at 377-78 ¶ 21.

will be prohibited. The addition of new transmitters to these existing operations would constitute a new assignment in the 216-217 MHz band and would be inconsistent with the reallocation of this band. The addition of new transmitters for secondary telemetry operations in the 217-220 MHz band would be consistent with our reallocation of this band as long as no harmful interference is caused to primary licensees.[161] To the extent that primary status is necessary, however, operators would not be precluded from obtaining primary status by acquiring a license at auction for the 217-218 MHz Service or AMTS, or by negotiating with a licensee in the desired area.[162]

52. Fleetwood also expresses concern that our reallocation of this band will create uncertainty with regard to its "FCC certified equipment".[163] With regard to this concern, nothing in our reallocation of this band alters the regulatory or technical status of existing licensees' "FCC certified equipment". Our reallocation in this regard is technology-neutral and neither favors nor prejudices one manufacturer or technology over another.

53. In light of existing licensees operating throughout the 216-220 MHz band, the *Service Rules Notice* did not propose rule changes in this proceeding with regard to AMTS,[164] LPRS[165] or the 218-219 MHz service.[166] Rather, we sought comment on outstanding proposals from Data Flow, Securicor and Warren Havens. We received several comments regarding the licensing of this band and consider each proposal in Section IV.F.1, *infra*.

54. *1.4 GHz Band.* In the *Service Rules Notice*, we noted the secondary status of all incumbent telemetry operations licensed prior to adoption of final rules in this proceeding.[167] We requested comment on whether grandfathered secondary users in the 1429.5-1432 MHz band should have the option to request primary status prior to licensing new entrants to the band. In Appendix B of the *Service Rules Notice*, we included a list of all incumbents in the 1429.5-1432 MHz band.[168]

---

[161] As an aside, we note that this approach does not disturb our treatment of amateur stations participating in the 219-220 MHz band pursuant to our Part 97 rules. *See* 47 C.F.R. § 97.303, *et.seq.*

[162] *Id.*

[163] *Id.*

[164] AMTS base stations are currently licensed on a site-by-site basis along U.S. coastlines and inland waterways. *See* Amendment of the Commission's Rules Concerning Maritime Communications, PR Docket No. 92-257, *Second Memorandum Opinion and Order and Fifth Report and Order*, FCC 02-74 at ¶ 23 (released April 8, 2002). *See also* Amendment of the Commission's Rules Concerning Maritime Communications; Petition for Rule Making filed by RegioNet Wireless License, LLC, PR Docket 92-257, *Fourth Report and Order and Third Further Notice of Proposed Rule Making*, PR 92-257, 15 FCC Rcd 22585 (2000) (proposing to transition the AMTS from site-by-site licensing to geographic service area licensing) (*AMTS Fourth R&O and Third NPRM*).

[165] 47 C.F.R. § 95.1009. The Low Power Radio Service operates on frequencies between 216-217 MHz. LPRS is a private, short-distance communication service providing auditory assistance to persons with disabilities, health care assistance for the ill, law enforcement tracking services in cooperation with law enforcement and point-to-point network control for AMTS coast stations. LPRS is licensed by rule under Part 95 of our Rules, therefore, no individual station license is needed for LPRS operations.

[166] The service rules for the 218-219 MHz Service were updated in the *218-219 MHz Order*. Amendment of Part 95 of the Commission's Rules to Provide Regulatory Flexibility in the 218-219 MHz Service, *Report and Order and Memorandum Opinion and Order*, WT Docket No. 98-169, 15 FCC Rcd 1497, 1499 ¶ 2 (1999) (*218-219 MHz Order*) (Recons. pending).

[167] *See Service Rules Notice*, 17 FCC Rcd at 2524-25 ¶ 60.

[168] *Id.* at 2563 Appendix B.

55. All commenters who discuss this issue state that incumbents should retain their secondary status. UTC states that incumbents are operating in remote locations where secondary status will not as a practical matter impact operations.[169] Itron states that incumbents should be permitted to continue operating as secondary users following adoption of service rules for the band.[170] Itron states that if a secondary user wishes to upgrade to primary status it should have to follow the same application procedures as new applicants.[171] In its reply comments, however, Itron changes its position and states that it would be inequitable to subject these incumbents to a risk of displacement by new, non-Governmental primary licensees.[172] Therefore, Itron states that incumbents should be given first priority.[173] We received no comments from incumbents in this band besides Itron.

56. Based on the record before us, we will retain the secondary status of grandfathered incumbents. They will neither "convert" to primary status nor be allowed to seek "conversion" to primary status before the new rules become effective. Rather, all entities who wish to operate primary telemetry systems in the 1429.5-1432 MHz band or in the "carve-out" areas in the 1427-1429 MHz and 1431.5-1432 MHz bands will be required to file an application on our Universal Licensing System after the effective date of final rules in this order. These applications will require frequency coordination.[174] We believe that the service rules we adopt today best implement the allocations designated for this band and will best accommodate the needs of all parties on an equal footing.

B. Application, Licensing and Processing Rules for New Services

57. By this proceeding, we will assign initial licenses for terrestrial operations in the paired 1392-1395 MHz and 1432-1435 MHz bands and in the unpaired 1390-1392 MHz, 1670-1675 MHz, and the 2385-2390 MHz bands, under a flexible licensing framework governed by our Part 27 rules, as modified, herein. Telemetry licenses in the 216-220 MHz and 1427-1432 MHz bands will be assigned under our Part 90 rules, as amended, herein.[175] AMTS licenses in the 217-218 MHz and 219-220 MHz bands will continue to be assigned under our Part 80 rules.[176] Licenses for the 218-219 MHz Service in the 218-219 MHz band will continue to be assigned under our Part 95 rules.[177] Licenses for LPRS in the 216-217 MHz band and WMTS in the 1427-1432 MHz band will also continue to be licensed by rule under our Part 95 rules.[178] We now turn our attention to the application, licensing, and processing rules we adopt for new terrestrial services.

1. Regulatory Status

58. Background. In the *Service Rules Notice*, we tentatively concluded to adopt our Part 27 rules with regard to the regulatory status of services in the paired 1392-1395 MHz and 1432-1435 MHz

[169] UTC Comments at 8.

[170] Itron Comments at 7.

[171] *Id.*

[172] Itron Reply Comments at 6.

[173] *Id.*

[174] *See* discussion *infra* Section IV.B.8.

[175] 47 C.F.R. § 90.259.

[176] 47 C.F.R. § 80.385.

[177] *See* Subpart F of Part 95. 47 C.F.R. §§ 95.801-861.

[178] *See* Subpart G of Part 95 for LPRS and Subpart H of Part 95 for WMTS. 47 C.F.R. §§ 95.1001-1019 and §§ 95.1101-1129.

bands and in the unpaired 1390-1392 MHz, 1670-1675 MHz and 2385-2390 MHz bands.[179] The flexible licensing framework of our Part 27 rules permits a licensee to provide a combination of services under more than one regulatory status in a single license.[180] The licensee will be able to provide potentially a variety of services anywhere within its licensed area at any time, consistent with its regulatory status.

59. We proposed to permit applicants to request common carrier status as well as non-common carrier status for authorization in a single license, rather than to require the applicant to choose between common carrier and non-common carrier services.[181] We stated that a licensee would be required to indicate a regulatory status based on any services they choose to provide. Apart from this designation of regulatory status, we would not require applicants to describe the services they seek to provide.[182] In providing guidance on this issue to applicants, the Commission pointed out that an election to provide service on a common carrier basis requires that the elements of common carriage be present;[183] otherwise, the applicant must choose non-common carrier status.[184] We sought comment on this proposal. We also proposed that if a licensee were to change the service or services it offers, such that its regulatory status would change, the licensee must notify the Commission.[185] Although a change in a licensee's regulatory status would not require prior Commission authorization, we proposed that a licensee be required to notify the Commission within 30 days of the change.[186]

60. Discussion. Although no commenter objects to our proposal regarding a flexible approach, at least one commenter agrees that our proposal to adopt Part 27 of our rules would enhance the overall efficiencies in the licensing and administrative process of this spectrum.[187] Accordingly, because we believe that a broad licensing framework will encourage licensees to develop new and innovative services with minimal regulatory restraint, we are adopting our proposal. Under the flexible regulatory approach we are adopting, licensees in the subject bands will be permitted to provide any combination of services anywhere within their licensed areas at any time, consistent with the regulatory status specified by the licensee on its FCC Form 601 (*i.e.*, common carrier and/or non-common carrier) and with applicable interference protection requirements. To fulfill our enforcement obligations and to ensure the compliance with the statutory requirements of Titles II and III of the Communications Act, we will require all licensees, except band managers, to identify the regulatory status of the service(s) they intend

[179] *Service Rules Notice*, 17 FCC Rcd at 2531 ¶ 78.

[180] *See* 47 C.F.R. § 27.10(a).

[181] *See WCS Report and Order*, 12 FCC Rcd at 10846, 10848 ¶¶ 119, 122.

[182] *See id.* at 10848 ¶ 121; *see also* Rulemaking to Amend Parts 1, 2, 21, and 25 of the Commission's Rules to Redesignate the 27.5-29.5 GHz Frequency Band, to Reallocate the 29.5-30.0 GHz Frequency Band, to Establish Rules and Policies for Local Multipoint Distribution Service and Fixed Satellite Services, CC Docket No. 92-297, *Second Report and Order, Order on Reconsideration, and Fifth Notice of Proposed Rule Making*, 12 FCC Rcd 12545, 12644 ¶ 223 (1997) (*LMDS Second Report and Order*); 47 C.F.R. § 101.1013.

[183] *See* 47 U.S.C. § 153(44) ("A telecommunications carrier shall be treated as a common carrier under this Act ..."); *see also* 47 U.S.C. § 332(C)(1)(A) ("A person engaged in the provision of a service that is a commercial mobile service shall, insofar as such person is so engaged, be treated as a common carrier for purposes of this Act ...").

[184] *WCS Report and Order*, 12 FCC Rcd at 10790-91 ¶ 121. The Commission examined services in the *LMDS Second Report and Order* and explained that any video programming service would be treated as a non-common carrier service. *LMDS Second Report and Order*, 12 FCC Rcd at 12639-41 ¶¶ 213-215.

[185] *See* 47 C.F.R. § 27.66 (a)-(b).

[186] *Service Rules Notice*, 17 FCC Rcd at 2532 ¶ 80.

[187] *See* ArrayComm Comments at 3; InsideTrax Comments at 5 and AeroAstro Comments at 4 supporting adoption of Part 27 for the 1670-1675 MHz band. See also Spacelabs Comments at 4; LMCC Comments at 7 and Philips Reply Comments 2 supporting adoption of Part 27 for the paired 1392-1395 MHz and 1432-1435 MHz band.

to provide.[188] Consistent with Section 27.10 of the Commission's Rules, licenses in the subject bands will not be required to describe their particular services, but only to designate the regulatory status of the service(s).[189] Licensees will also be required to notify the Commission within 30 days of service changes that alter their regulatory status.[190] We note, however, that a different time period may apply, as determined by the Commission, where the change results in the discontinuance, reduction, or impairment of the existing service.[191] Thus, under the framework we are adopting pursuant to our Part 27 rules, licensees in the paired 1392-1395 MHz and 1432-1435 MHz bands, and in the unpaired 1390-1392 MHz, 1670-1675 MHz and 2385-2390 MHz bands will be authorized to provide a variety or combination of fixed, mobile, common carrier, and non-common carrier services.

2. Eligibility; Foreign Ownership Restrictions

61. Background. In the *Service Rules Notice*, we stated that by opening this spectrum to as wide a range of applicants as possible, we would encourage entrepreneurial efforts to develop new technologies and services, while helping to ensure efficient use of this spectrum.[192] We sought comment on whether open eligibility poses a significant likelihood of substantial competitive harm in specific markets, and, if so, whether eligibility restrictions are an effective method to address that harm.[193] We proposed that there be no restrictions on eligibility for a license, other than the foreign ownership restrictions set forth in Section 310 of the Communications Act.[194]

62. Sections 310(a) and 310(b) of the Communications Act, as modified by the Telecommunications Act of 1996, impose foreign ownership and citizenship requirements that restrict the issuance of licenses to certain applicants.[195] We also noted that Section 27.12 of the Commission's Rules, which implements Section 310 of the Act,[196] would by its terms apply to applicants for licenses in the bands subject to this proceeding.[197] In this connection, we sought comment on our proposal that under Part 27 of our rules, common carriers and non-common carriers should not be subject to varied reporting obligations.

63. Discussion. The use of eligibility restrictions can be an effective tool to ensure that spectrum does not become concentrated in the hands of incumbent monopolists.[198] ArrayComm states that the 1670-1675 MHz band in particular does not pose a situation to warrant eligibility restrictions.[199] We agree, and we also believe that an open licensing eligibility framework will encourage investment in all the bands subject to this proceeding and thus will promote the public interest. We further believe that

[188] *See* discussion *supra* Section IV.A.5.

[189] 47 C.F.R. § 27.10.

[190] *See* 47 C.F.R. § 27.66 (a)-(b). A change in regulatory status would require Commission prior authorization, however, if the change raised issues concerning the benchmark contained in Section 310(b)(4) of the Act.

[191] *See* 47 C.F.R. § 27.66 (a)-(b).

[192] *Service Rules Notice*, 17 FCC Rcd at 2532 ¶¶ 81-82.

[193] *Id.*

[194] *See* 47 U.S.C. § 310(a), (b), and (d).

[195] 47 U.S.C. §§ 310(a), 310(b).

[196] 47 C.F.R. § 27.12. *See also* Section 27.302 of the Commission's Rules, 47 C.F.R. § 27.302.

[197] *See* 47 C.F.R. § 27.12.

[198] *See* ArrayComm Comments at 10-11.

[199] *Id.*

this approach will promote economic opportunity and competition in the paired 1392-1395 MHz and 1432-1435 MHz bands and in the unpaired 1390-1392 MHz, 1670-1675 MHz, and the 2385-2390 MHz bands.

64. Additionally, because we are adopting a flexible approach to regulatory status, as discussed above, all licensees will be subject to the same requirements to file changes in foreign ownership information to the extent required by our Part 27 rules. In the filing of an application under the proposed service rules, we do not believe that common carriers and non-common carriers should be subject to varied reporting obligations. EDS claims that our proposal places an inappropriate foreign ownership reporting requirement on license applicants not subject to Section 310(b) of the Communications Act, 47 U.S.C. § 310(b).[200] As support, EDS cites to a public notice announcing modification to Part 25 of our rules and the introduction of FCC Form 312.[201] EDS's comment, however, is misplaced and we take this opportunity to clarify the issue.

65. This proceeding concerns the assignment of licenses for terrestrial operations as governed by Part 27 of our rules.[202] We do not consider the licensing of non-terrestrial (satellite) services in this proceeding. Under Part 27 of our rules, licensees are able to provide broadcast, common carrier, and non-common carrier services. Further, to the extent required by our Part 27 rules, all subject licensees, even non-common carriers, must report alien ownership on a consistent basis, to better enable the Commission to monitor compliance.[203] By establishing parity in reporting obligations, however, we do not propose a single, substantive standard for compliance. Thus, by way of example, we do not and would not disqualify an applicant requesting authorization exclusively to provide non-common carrier and non-broadcast services under a license simply because its citizenship information would disqualify it from a common carrier or broadcast license. Because we find the reporting requirements and unrestrictive eligibility requirements we adopt in this proceeding to be consistent with Commission policy and appropriate for the flexible service uses we envision in this proceeding, we adopt our proposal to allow open eligibility in the Government transfer bands that will be governed under Part 27 of our rules.

3. License Term and Renewal Expectancy

66. Background. In the *Service Rules Notice*, we sought comment on the license term and renewal expectancy requirements for new licensees in the paired 1392-1395 MHz and 1432-1435 MHz bands and unpaired 1390-1392 MHz, 1670-1675 MHz and 2385-2390 MHz bands.[204] We proposed a license term of 10 years, with a renewal expectancy similar to that afforded broadband PCS and cellular licensees. We stated that we believed a 10-year license term, combined with renewal expectancy, would help to provide a stable regulatory environment that would be attractive to investors and, thereby, encourage development of this frequency band.[205] We also sought comment on whether a license term longer than 10 years would be appropriate to achieve these goals and better serve the public interest. While we indicated an initial preference for a substantial service requirement, we also invited comment

[200] EDS Comments at 1-3.

[201] *Id. citing* Implementation of New Part 25 Regulations for Satellite Space and Earth Station Application and Licensing Procedures, *Public Notice*, DA 97-1967 (rel. September 16,1997).

[202] MSS Feeder Uplinks and Downlinks are contingent on the adoption of an international allocation and other conditions. *See* 47 C.F.R. § 2.106, footnote US368; *Reallocation Report and Order*, 17 FCC Rcd at 392 ¶ 52.

[203] *See* Reallocation and Service Rules for the 698-746 MHz Spectrum Band (Television Channels 52-59), GN Docket No. 01-74, *Report and Order*, 17 FCC Rcd 1022, 1074 n.376 (2002).

[204] *Service Rules Notice*, 17 FCC Rcd at 2534 ¶ 86.

[205] *Id.*

on whether a build-out requirement would be more appropriate for service licensed under Part 27 of our rules.[206] In addition, we proposed that on the renewal application licensees must, at a minimum, include specific showings in order to claim renewal expectancy.[207]

67. Discussion. Based on the record in this proceeding,[208] we adopt a ten-year license term, in conjunction with a renewal expectancy based on substantial service.[209] Hence, a renewal applicant shall receive a preference or renewal expectancy if the applicant has provided substantial service during its previous license term and has complied with the Communications Act and Commission rules and policies.[210] We have made significant efforts to establish consistency and promote regulatory parity with respect to policies governing the wireless services.[211] In other contexts, we have recognized the advantages that a ten-year license term and renewal expectancy based on a substantial service requirement affords nascent providers and, thus, endorsed this approach.[212] Similarly, we believe that adopting a requirement that licensees make a showing of substantial service at renewal in order to acquire an expectancy will further the public interest.[213]

68. The renewal application of a licensee in the paired 1392-1395 MHz and 1432-1435 MHz bands and unpaired 1390-1392 MHz, 1670-1675 MHz and 2385-2390 MHz bands[214] must include, at a minimum, the following showings in order to claim a renewal expectancy:[215]

- A description of current service in terms of geographic coverage and population served or links installed and a description of how the service complies with the substantial service requirement.

- Copies of any Commission Orders finding the licensee to have violated the Communications Act or any Commission rule or policy, and a list of any pending

[206] *Id.* at 2536 ¶ 94.

[207] *Id.* at 2534 ¶ 87.

[208] *See* ArrayComm Comments at 13; InsideTrax at 7. *But see* AeroAstro Comments at 6 (requesting a twenty-year licensing period because of the time delays involved with spacecraft construction).

[209] Incumbent licensees that currently have a license term of less than ten years will receive a ten-year term upon renewal.

[210] *See* 47 C.F.R. § 24.14(c).

[211] *See, e.g.*, *LMDS Second Report and Order*, 12 FCC Rcd at 12545; *39 GHz MO&O*, 14 FCC Rcd 12428; *218-219 MHz Report and Order* at 1497.

[212] *See 39 GHz Report and Order*, 12 FCC Rcd 18600, 18623; Amendment of the Commission's Rules Regarding Multiple Address Systems, WT Docket 97-81, *Report and Order*, 15 FCC Rcd 11956, 11995 ¶ 95 (2000) (*MAS Report and Order*).

[213] *See* discussion *infra* Section IV.4. – Performance Requirements.

[214] Because our Part 27 rules will not apply to services operating in the 216-220 MHz and 1427-1432 MHz bands, licensees in these bands must comply with the specific rules applicable to the services under which they are authorized to operate. *See supra* ¶¶ 12, 35.

[215] *See* 47 C.F.R. §§ 27.14(c)(1)-(4); *see also* 47 C.F.R. § 101.1011 (LMDS context). We will address the issue of whether use of the spectrum for MSS feeder links would meet the substantial service requirement in any subsequent proceeding adopting service rules for the 1390-1392 MHz band.

proceedings that relate to any matter described by the requirements for the renewal expectancy.[216]

- A description of how the licensee has complied with the substantial service requirement, including an explanation of its expansion and a timetable for new construction to met changes in demand for service.

69. These requirements are in the public interest because these showings will ensure that the licensee is using the spectrum efficiently to provide services to the public, has operated its facilities in compliance with the Commission's rules, and has the requisite qualifications to be a Commission licensee. For similar reasons, we also adopt these rules with respect to band managers under Part 27 of our rules.[217] We also adopt our proposal that if a license is partitioned or disaggregated, any partitionee or disaggregatee would be authorized to hold its license for the remainder of the partitioner's or disaggregator's original license term.[218] Because we do not believe that a licensee, either by partitioning or disaggregation, should be able to confer greater rights than it was awarded under the terms of its initial license grant, a partitionee or disaggregatee must also demonstrate that it has met the substantial service requirements in any renewal application. This approach is similar to the partitioning provisions the Commission adopted in other services.[219]

4. Performance Requirements

70. Background. We sought comment on whether licensees in the paired 1392-1395 MHz and 1432-1435 MHz bands and unpaired 1390-1392 MHz, 1670-1675 MHz and 2385-2390 MHz bands should be subject to a substantial service requirement or a minimum coverage requirement as a condition of license renewal.[220] We noted that the Commission has imposed such requirements on licensees in other services to ensure that spectrum is used effectively and service is implemented promptly.[221] Accordingly, we sought comment on whether licensees should be required to provide "substantial service" to the geographic license area within ten years or any other license term which we adopt for this service.[222] The Commission has defined substantial service as "service which is sound, favorable, and substantially above a level of mediocre service which just might minimally warrant renewal."[223] Further, we sought comment on whether there should be a construction requirement as an alternative, safe harbor

[216] *See* 47 C.F.R. §§ 22.940(a)(2)(i)-(iv).

[217] *See* 47 C.F.R. §§ 27.14(c), 27.607(a)-(d).

[218] *See* 47 C.F.R. § 27.15(a)-(b).

[219] *See* Amendments to Parts 1, 2, 87 and 101 of the Commission's Rules to License Fixed Services, *Report and Order*, WT Docket No. 99-327, 15 FCC Rcd 16934 (2000) (Fixed Services at 24 GHz); Amendment of Parts 21 and 74 of the Commission's Rules With Regard to Filing Procedures in the Multipoint Distribution Service and in the Instructional Television Fixed Service, *Report and Order*, 10 FCC Rcd 9589, 9614 ¶ 46 (1995) (MDS); Geographic Partitioning and Spectrum Disaggregation by Commercial Mobile Radio Services Licensees and Implementation of Section 257 of the Communications Act – Elimination of Market Barriers, *Report and Order and Further Notice of Proposed Rulemaking*, WT Docket No. 96-1148, 11 FCC Rcd 21831, 21870 ¶¶ 76-77 (1996) (*Partitioning and Disaggregation Report and Order*) (Broadband PCS).

[220] *Service Rules Notice*, 17 FCC Rcd at 2536-37 ¶¶ 94-95.

[221] *Cf.* Section 22.940(a)(2)(I) through Section 22.940(a)(2)(iv) of the Commission's Rules, 47 C.F.R. §§ 22.940(a)(2)(i)-(iv).

[222] *See LMDS Second Report and Order*, 12 FCC Rcd at 12659 ¶¶ 263-267.

[223] *See, e.g.*, 47 C.F.R. § 22.940(a)(1)(i); 47 C.F.R. § 27.14(a).

standard.[224] Under the safe harbor, the licensee would be required to reach a minimum of one-third of the population in its licensed area, no later than the mid-point of the license term and two-thirds of the population by the end of the license term.[225] We also sought comment on whether, in the event that a license is partitioned or disaggregated, a partitionee or disaggregatee should be bound by the standard (either substantial service or a construction requirement) that we may adopt in this proceeding.[226]

71. Additionally, as a matter of enforcement against non-compliant licensees, we asked whether the license should be subject to termination automatically.[227] Thus, we sought comment on whether to adopt an automatic cancellation standard or termination only upon action by the Commission.[228] If a geographic area licensee were to lose its license for failure to comply with the performance requirements we are adopting in this proceeding, we also asked whether the licensee should be prohibited from bidding on the geographic area license for the same territory in the future.[229]

72. Discussion. We believe, and the comments support, a performance requirement based on a substantial service showing for the paired 1392-1395 MHz and 1432-1435 MHz bands and the unpaired 1390-1392 MHz, 1670-1675 MHz and 2385-2390 MHz bands.[230] Compared to a construction standard, a substantial service requirement will provide licensees greater flexibility to determine how best to implement their business plans based on criteria demonstrating actual service to end users, rather than on a showing of whether a licensee passes a certain proportion of the relevant population. We also believe that this standard is less burdensome than the alternative proposed by AeroAstro. Under AeroAstro's proposal, a "substantial progress toward providing service" test would be employed, requiring the licensee to satisfy several "benchmarks".[231] We believe that the approach AeroAstro proposes would be impractical and cumbersome to administer.

73. We also adopt our definition of substantial service as "a service that is sound, favorable, and substantially above a level of mediocre service which might minimally warrant renewal."[232] As a result of the flexibility that this standard affords, we have, in past proceedings, provided safe harbor examples to provide guidance to licensees in meeting this requirement. In determining whether a licensee has provided substantial service at the end of the license term, we will consider factors such as: i) whether the licensee's operations service niche markets or focus on serving populations outside of areas serviced by other licensees; ii) whether the licensee's operations serve populations with limited access to telecommunications services; and iii) a demonstration of service to a significant portion of the population or land area of the licensed area. We emphasize that this list is not exhaustive and that the substantial service requirement can be met in other ways. Hence, we will review licensees' showings on a case-by-case basis. If a licensee fails to meet the performance requirement, the subject license will not be renewed. We also note that under Part 27 of our rules, as amended, band managers are subject to our

[224] *Service Rules Notice*, 17 FCC Rcd at 2537 ¶ 95.

[225] *Id.*

[226] *Id.*

[227] *Id.*

[228] *Id.*

[229] *Id.*

[230] *See* ArrayComm Comments at 18.

[231] AeroAStro Comments at 7.

[232] 47 C.F.R. § 27.14(a). *See also WCS Report and Order*, 12 FCC Rcd at 10843-44; *218-219 MHz Service Report and Order*, 15 FCC Rcd at 1537-38; *MAS Report and Order*, 15 FCC Rcd at 11994 ¶ 94.

performance requirements specified in Section 27.14 of the Commission's Rules.[233] Under the flexible licensing framework we adopt herein, we will require licensees to establish a substantial performance showing at renewal.[234] We believe that this approach furthers the public interest and is consistent with our renewal requirements, as discussed above, ensuring efficient use of the spectrum, and expeditious service to the public.

5. Application of Title II Requirements to Common Carriers

74. Background. In the *Service Rules Notice*, we noted our forbearance authority pursuant to Section 10 of the Communications Act and considered the extent to which we should apply Title II requirements to common carriers in this context.[235] We sought comment on whether we should forbear from enforcing any provisions of the Communications Act of 1934, as amended or the Commission's Rules with regard to common carrier licensees operating in the paired 1392-1395 MHz and 1432-1435 MHz bands or the unpaired 1390 MHz, 1670-1675 MHz and 2385-2390 MHz bands.[236] Section 10 directs the Commission to forbear from applying any regulation or provision of the Act to a telecommunications carrier or service, or class of telecommunications carriers or services if a three-prong test is met.[237]

75. Discussion. Only one party filed comment on this issue for any of the bands captioned in this proceeding. ArrayComm states that the Commission should exercise "full forbearance" of the Title II requirements with regard to the 1670-1675 MHz band.[238] Specifically, ArrayComm asserts that, in addition to applying forbearance to sections 203, 204, 205, 211 and 212 of the Act, the Commission should also adopt forbearance from applying the nondiscrimination requirements of sections 201 and 202 of the Act.[239] Because the Commission has, pursuant to its authority under section 332(c)(1)(A),[240] already exercised forbearance with respect to sections 203, 204, 205, 211, 212, and most of the

[233] 47 C.F.R. § 27.14.

[234] *See e.g., 39 GHz Report and Order*, 12 FCC Rcd 18600, 18625 ¶ 47.

[235] *Service Rules Notice*, 17 FCC Rcd at 2535 ¶ 96.

[236] *Service Rules Notice*, 17 FCC Rcd at 2537 ¶ 96. Because the licensing and service rules for 216-217 MHz band, 218-219 MHz band, 1429.5-1432 MHz band and the paired 217-218 MHz and 219-220 MHz bands have been established previously in other proceedings, we do not consider forbearance with regard to these bands.

[237] *See* 47 U.S.C. § 160(a) and (b). Section 10 requires forbearance if we determine that:

> (1) enforcement of such regulation or provision is not necessary to ensure that the charges, practices, classifications, or regulations by, for, or in connection with that telecommunications carrier or telecommunications service are just and reasonable and are not unjustly or unreasonably discriminatory;
>
> (2) enforcement of such regulation or provision is not necessary for the protection of consumers; and
>
> (3) forbearance from applying such provision or regulation is consistent with the public interest.

47 U.S.C. § 160(a).

[238] ArrayComm Comments at 16.

[239] *See* 47 U.S.C. §§ 201, 202, 203, 204, 205, 211, 212.

[240] 47 U.S.C. § 332(c)(3).

applications of section 214, we believe that the substance of ArrayComm's request already has been sufficiently addressed and need not be reinstated here.[241] Consequently, to the extent a prospective licensee in the paired 1392-1395 MHz and 1432-1435 MHz bands or in the unpaired 1390-1392 MHz, 1670-1675 MHz, and the 2385-2390 MHz bands offers Commercial Mobile Radio Services (CMRS), we will exercise forbearance accordingly. But we find no basis to exercise forbearance from these or any other provisions of the Act at this time for services other than CMRS in the absence of a separate and independent showing that satisfies the public interest requirements of section 10 of the Act.[242]

76. Arraycomm also seeks forbearance of sections 201 and 202 of the Act. Under sections 201 and 202, carriers must furnish services upon reasonable request; carriers must establish physical connections with other carriers in accordance with orders of the Commisson; and carriers' rates and practices must be just, reasonable, and non-discriminatory.[243] As ArrayComm notes, the Commission previously declined to forbear from applying section 201 and 202 of the Act for CMRS.[244]

77. ArrayComm states that that a distinction can be drawn between the reasons underlying the Commission's decision not to forbear in the case of CMRS and the platform ArrayComm proposes to implement for the 1670-1675 MHz band.[245] Specifically, ArrayComm states that its proposed service offering in this band would focus on a data-centric-based, wireless Internet access service as opposed to a traditional circuit-switched wireless voice service like CMRS.[246] ArrayComm also alleges that it may also utilize this spectrum for services with public safety applications.[247] Thus, ArrayComm concludes that because the potential use of this band would not likely harm consumers, enforcement of sections 201 and 202 of the Act would be unnecessary.[248]

78. Because the 1670-1675 MHz band is subject to initial licensing pursuant to the rules implemented in this proceeding, we decline to address the merits of ArrayComm's request for forbearance from Sections 201 and 202 as premature. Our consideration of any request for forbearance, as a general matter, is technology-neutral and therefore does not turn on the asserted qualitative merits of a proponent's technology. Accordingly, our decision here does not make any determination or opinion otherwise on ArrayComm's statements with regard to its "data-centric-based" technology.

6. Partitioning and Disaggregation

79. Background. With regard to those bands we propose to license by geographic area, we sought comment on allowing licensees to partition their service areas and to disaggregate their spectrum.[249] We stated that Section 27.15 of the Commission's Rules[250] would apply if we are to allow

[241] *Second CMRS Report and Order*, 9 FCC Rcd at 1478-81, 1485, 1510-11 ¶¶173-182, 196, 272.

[242] *See infra*. note 244.

[243] 47 U.S.C. §§ 201, 202. *See also* 47 C.F.R. § 603(a), (b).

[244] *Id.* citing Implementation of Sections 3(n) and 332 of the Communications Act, GN Docket No. 93-252, *Second Report and Order*, 9 FCC Rcd 1411, 1463-93 ¶¶ 124-219 (1994) (*CMRS Second Report and Order*), *recon. dismissed in part and denied in part*, 15 FCC Rcd 5231 (2000); *see also* 47 C.F.R. § 20.15.

[245] ArrayComm Comments at 17-18.

[246] *Id.* at 15 fn. 52.

[247] *Id.* at 17.

[248] *Id.*

[249] "Partitioning" is the assignment of geographic portions of a license along geopolitical or other boundaries. "Disaggregation" is the assignment of discrete portions of "blocks" of spectrum licensed to a geographic licensee or (continued....)

partitioning and disaggregation. Section 27.15 provides that licensees may apply to partition their licensed geographic service areas or disaggregate their licensed spectrum at any time following the grant of their licenses.[251] In the *Service Rules Notice*, we sought comment on the benefits and costs of this approach, and whether it would promote the public interest.

80. Discussion. Because we continue to believe that partitioning and disaggregation will enhance the spectrum's versatility, we adopt our proposals in the *Service Rules Notice* as applied to the paired 1392-1395 MHz and 1432-1435 MHz bands and in the unpaired 1390-1392 MHz, 1670-1675 MHz, and the 2385-2390 MHz bands.[252] We also adopt the unjust enrichment provisions[253] as well as the remaining provisions governing partitioning and disaggregation set forth in Section 27.15 of our rules.

81. As we state above, any partitionee or disaggregatee is authorized to hold its license for the remainder of the original licensee's (*i.e.*, partitionor or disaggregator) license term and a demonstration must be made that the applicable performance requirements have been met for the partitioned area or disaggregated spectrum at the time of renewal.[254] However, we have determined that participants to a partitioning agreement should be permitted to negotiate whether one party or both will be responsible for compliance with these requirements. We conclude that this approach is appropriate because it will "ensure that licensees have the flexibility to structure their business plans while ensuring that partitioning not be used as a vehicle to circumvent the applicable construction requirements."[255] Thus, parties will be given two options to meet the substantial service construction requirement. Under the first option the parties to the partitioning agreement would certify that they would each separately satisfy the substantial service requirement for their portion of the service area.[256] If either party fails to meet the substantial service requirement by the end of the license term, then the non-performing licensee's authorization would be subject to termination at the end of the initial license term.[257] Under the second option, the original licensee or partitionor certifies that it has met or will meet the substantial service requirement for the entire service area during the license term. If the original licensee fails to make the required showing, then this licensee's authorization will be subject to termination, but the partitionee's license will not be affected by this termination.[258]

82. We also conclude that parties to a disaggregation agreement should be given the flexibility to determine which party will assume responsibility for complying with our construction requirements in regard to the disaggregated portion of the license.[259] As with partitioning agreements,

---

(...continued from previous page)
qualifying entity. Disaggregation allows for multiple transmitters in the same area operated by different companies (thus the possibility of harmful interference increases).

[250] 47 C.F.R. § 27.15.

[251] *WCS Report and Order*, 12 FCC Rcd at 10836-39 ¶¶ 96-103.

[252] ArrayComm Comments at 14-15; Data Flow Comments at 5.

[253] 47 C.F.R. § 27.15(c)(1)(2); *see also* 47 C.F.R. § 1.2111.

[254] *See* 47 C.F.R. § 27.15(d); *see also supra* ¶ 67-70.

[255] *See, e.g., LMDS Fourth Report and Order*, 13 FCC Rcd at 11664-65 ¶ 16.

[256] *See* 47 C.F.R. § 27.15(e)(1); *see, e.g., PCS Order*, 11 FCC Rcd at 21855; *LMDS Report and Order*, 13 FCC Rcd at 11665 ¶ 16.

[257] *See* 47 C.F.R. § 27.15(e)(1); *see, e.g., LMDS Report and Order*, 13 FCC Rcd at 11665 ¶ 16.

[258] *See* 47 C.F.R. § 27.15(e)(1).

[259] *See* 47 C.F.R. § 27.15(e)(2).

parties must certify whether one licensee will fulfill the applicable requirements or whether the parties will share responsibility.[260] In addition, we will permit licensees to enter into combined partitioning and disaggregation agreements. As we have stated in the past, we believe that offering this option will promote spectral efficiency.[261]

83. We consider partitioning and disaggregation to be a form of license assignment that will require prior Commission approval, unless pro-forma in nature.[262] Therefore, a licensee will be required to file a standard application for approval of assignment on a FCC Form 603.[263] We note that if a licensee has negotiated via frequency coordination agreement with another licensee, such agreement shall remain in effect on all parties regardless of an assignment or partitioning and/or disaggregation arrangements unless a new agreement is reached. In effect, the frequency coordination agreement will convey with the license. Finally, licensees who receive bidding credits at auction and subsequently seek to partition or disaggregate their spectrum holding(s) will be subject to the unjust enrichment provisions contained in Section 1.2111(e) of our Rules.[264]

7. Individual Station Licenses

84. Background. As a general matter, under geographic area licensing framework, the licensee has exclusive use to operate within its geographic service area. Thus, a geographic area licensee may operate freely within its licensed service area, subject to any applicable technical specifications, without having to file a separate application for each individual station site added, removed or otherwise modified, within its service area. Nonetheless, in the *Service Rules Notice*, we indicated that there might be situations in which we should require licensees to obtain an individual station license for a particular station within their geographic service area.[265] We indicated that licensees should be required to apply for an individual station license to the Commission for those stations that (1) require submission of an Environmental Assessment under Section 1.1307 of our rules;[266] (2) require international coordination;[267] (3) would operate in the quiet zones listed in Section 1.924 of our rules;[268] or (4) require coordination with the Frequency Assignment Subcommittee (FAS) of the Interdepartment Radio Advisory Committee (IRAC).[269] We also proposed that the licensee should be responsible for determining whether an application for an individual station needs to be filed with the Commission.[270] Further we proposed that

[260] *See* 47 C.F.R. § 27.15(a); *LMDS Report and Order*, 13 FCC Rcd at 11666 ¶ 19.

[261] We note that our decision to allow combined partitioning and disaggregation is consistent with our approach in other services. *See, e.g., MAS Report and Order*, 15 FCC Rcd at 11991 ¶ 88; *39 GHz MO&O*, 14 FCC Rcd at 2460; *Paging Systems Third Report and Order*, 14 FCC Rcd at 10110; *PCS Order*, 11 FCC Rcd at 21866.

[262] *See, e.g., 39 GHz Report and Order*, 12 FCC Rcd at 18635 ¶ 73.

[263] *See* 47 C.F.R. § 1.948.

[264] 47 C.F.R. § 1.2111(e).

[265] *See Service Rules Notice*, 17 FCC Rcd at 2536 ¶ 91.

[266] 47 C.F.R. § 1.1307.

[267] *See, e.g.*, 47 C.F.R. § 1.928 (regarding frequency coordination arrangements between the U.S. and Canada).

[268] 47 C.F.R. § 1.924.

[269] We will discuss FAS coordination in the section describing coordination with Government incumbents. *See* discussion *infra* Section IV.E.2.

[270] *See Service Rules Notice*, 17 FCC Rcd at 2536 ¶ 93.

this requirement would apply to both new stations and station modifications. We sought comment on these proposals.[271]

85. Decision. Consistent with the flexible licensing approach we adopt herein, a geographic area licensee will be permitted to provide all permissible services anywhere within its licensed service area, pursuant to its regulatory status. Accordingly, a geographic area licensee will continue to be permitted to add, remove, or relocate individual sites within its service area without prior Commission approval. As proposed in the *Service Rules Notice*, however, we will require a licensee to comply with separate filing or authorization requirements in modifying an individual station where: (1) there is a National Environmental Policy Act (NEPA) concern pursuant to Section 1.1301 through 1.1319;[272] (2) there are areas where radio frequency quiet zones are in place under Section 1.924;[273] (3) restrictions regarding border areas under international agreement are in place;[274] or (4) coordination with the Frequency Assignment Subcommittee (FAS) of the Interdepartment Radio Advisory Committee (IRAC) is required. Licensees will be responsible for determining whether an addition or modification of a particular site within its geographic service area falls under this requirement.

86. We believe that our treatment of individual station licenses is consistent with the flexible licensing approach we are adopting in this proceeding. Consistent with this flexible approach, we will also permit both multiple fixed and mobile stations, such as a portion of cellular network architecture, to be handled via a single coordination process.[275] We therefore are adopting our procedures regarding individual station licenses as proposed in the *Service Rules Notice* for licenses assigned by geographic area in the paired 1392-1395 MHz and 1432-1435 MHz bands and in the unpaired 1390-1392 MHz, 1670-1675 MHz, and the 2385-2390 MHz bands. With regard to licensees that elect band manager status, Part 27 of our rules will continue to apply. Specifically, Section 27.601(c) requires a band manager to file a separate application with the Commission for stations that require an Environmental Assessment, require international coordination, or would affect radio frequency quiet zones.[276]

8. Frequency Coordination for Site-by-Site Applications

87. *Overview.* In the *Service Rules Notice*, we requested comment on whether we should require traditional land mobile frequency coordination for telemetry operating on a secondary basis in the 217-220 MHz and 1427-1429.5 MHz bands.[277] We proposed that in lieu of the former requirement for FAS approval, we would require traditional land mobile frequency coordination.[278] Under these procedures each application proposing a new telemetry operation or modifying an existing telemetry

[271] *Id.*

[272] *See* 47 C.F.R. §§ 1.1301-1319. We also note that Part 17 of our rules also outlines circumstances by which licensees are required to register with the Commission prior to construction of antennas. *See* 47 C.F.R. Part 17.

[273] 47 C.F.R. § 1.924.

[274] *See supra* note 178.

[275] *See* ArrayComm Comments at 34 (requesting that this be added to Section 1.924(f) of the rules).

[276] 47 C.F.R. § 27.601(c)(1).

[277] *See Service Rules Notice*, 17 FCC Rcd at 2526 ¶ 65. By definition, a frequency coordinator is to recommend a frequency(ies) that will most effectively meet an applicant's needs while minimizing interference to licensees already operating in a band. 47 C.F.R. § 90.7.

[278] *Id.*

operation would be required to include a showing of frequency coordination.[279] Coordination would be conducted pursuant to Section 90.175 of the Commission's Rules.[280]

88. *217-220 MHz.* Most commenters support frequency coordination with regard to the licensing of secondary telemetry in the 217-220 MHz band.[281] Only one commenter, Fairfield, opposes traditional land mobile frequency coordination for secondary telemetry in the 217-220 MHz.[282] Contrary to Fairfield's position, we believe that frequency coordination is warranted for secondary users because FAS coordination for services operating in this band is being phased out. We agree with the majority of those commenters, such as UTC, that frequency coordination would facilitate the efficient and rapid processing of applications by avoiding harmful interference between secondary users in a scarce and highly congested band.[283] Accordingly, we will require applicants to include a showing of frequency coordination for any application proposing a new telemetry operation or modifying an existing telemetry operation.[284] Frequency coordination for secondary telemetry in the 217-220 MHz band will be conducted in accordance with Section 90.175 of our rules.[285] Frequencies will be available only on a shared basis.[286] The frequency coordinator will be required to select the most appropriate frequency.[287] All authorized frequency coordinators under Part 90 of our rules will be eligible to coordinate secondary telemetry in the 217-220 MHz band.

89. Fairfield believes that frequency coordination would not be appropriate for geophysical telemetry operations.[288] Fairfield states that geophysical telemetry operations are too remote, too sensitive and too benign to impose the transaction costs associated with frequency coordination.[289] As support, Fairfield states that the Commission eschewed frequency coordination for geophysical telemetry in the 220-222 MHz service.[290] We believe that Fairfield's argument is misplaced. Unlike operations in the 220-222 MHz band, several entities currently utilize telemetry on a secondary basis in the 217-220 MHz band.[291] Consequently, we believe that for frequency coordination to be effective throughout the band, all forms of secondary telemetry, including geophysical telemetry, must be subject to the same coordination process. Because of the scarcity of spectrum in relation to the high demand and existing use of the 217-220 MHz band, we will require all secondary telemetry users operating throughout the 217-220 MHz band, to have acquired frequency coordination as a condition precedent to our acceptance of any application for filing.

---

[279] *Id.*

[280] 47 C.F.R. § 90.175.

[281] *See* DataFlow Comments at 6, Watchman Comments at 3, UTC Comments at 10.

[282] Fairfield Comments at 11.

[283] *See* UTC Comments at 10.

[284] 47 C.F.R § 1.929.

[285] 47 C.F.R. § 90.175.

[286] Frequencies will be assigned on a shared basis and will not be assigned for the exclusive use of any licensee. 47 C.F.R. § 90.173(a).

[287] 47 C.F.R § 90.175(b)(1).

[288] Fairfield Comments at 11. Geophysical telemetry is telemetry involving the simultaneous transmissions of seismic data from numerous locations to a central receiver and digital recording unit. 47 C.F.R. § 90.7.

[289] *Id.*

[290] *Id.*

[291] *See* comments by DataFlow, Watchman and UTC.

90. Mobex and Paging Systems states that if fixed secondary telemetry is allowed to operate in the band, then fixed secondary telemetry should be held to the same coordination procedures that apply to amateur operators under Section 97.303(e) of our rules.[292] Under Section 97.303(e)(5), no amateur operator may transmit in the 219-220 MHz frequency band from a location within 80 kilometers of an AMTS coast station unless the amateur operator holds written approval from the AMTS licensee.[293] Further, under Section 97.303(e)(4), no amateur operator may transmit in the 219-220 MHz frequency segment from a location within 640 kilometers of an AMTS coast station unless the amateur operator has provided the AMTS licensee with written notification.[294]

91. DataFlow believes the provisions of Section 97.303(e) are not appropriate for secondary telemetry because secondary telemetry operates at a low power and is readily identifiable unlike amateur operations, which operate ubiquitously and at relatively higher power levels compared to secondary telemetry operations.[295] We do not believe that Section 97.303(e) should apply to secondary telemetry. Unlike amateur operations in the band, secondary telemetry in the 217-220 MHz band will be licensed on a site-by-site basis. Thus, primary licensees will be able to determine the source of any interference from secondary users by referring to our ULS database. In light of these distinctions, we believe that a notification procedure for secondary telemetry would not be necessary. We therefore decline to adopt notification procedures for secondary telemetry operations in the 217-220 MHz band.

92. *1.4 GHz Band.* We proposed traditional land mobile radio frequency coordination for secondary telemetry uses in the 1427-1429.5 MHz band.[296] We did not, however, propose traditional land mobile radio frequency coordination for primary telemetry uses in the 1429.5-1432 MHz band. Based on the record before us, we now believe that frequency coordination is appropriate for both secondary and primary telemetry in these bands. Frequency coordination under Part 90 of our Rules will expedite the application process by preventing applicants from seeking frequencies in locations where they are unavailable due to their use by others.[297] We also believe that frequency coordination will further minimize, if not eliminate, the potential of interference to WMTS from telemetry operations.[298]

93. In addition, we are adopting technical restrictions on telemetry operations in this band designed to further minimize the possibility of harmful interference to WMTS operations.[299] To effectively implement these restrictions, we will require frequency coordinators to recommend the best available frequency as well as the most appropriate operating power necessary to avoid causing harmful interference to WMTS.[300] If mobile telemetry is desired, the frequency coordinator will also be responsible for recommending the most appropriate mobile area of operation. We believe that this task would most effectively and efficiently performed by a frequency coordinator rather then individual applicants.

---

[292] Mobex Comments at 3, Paging Systems Comments at 4. *See also* 47 C.F.R. § 97.303(e).

[293] 47 C.F.R. § 97.303(e)(5).

[294] 47 C.F.R. § 97.303(e)(4).

[295] DataFlow Comments at 5.

[296] *See Service Rules Notice,* 17 FCC Rcd at 2526 ¶ 65.

[297] *See* Itron Comments at 8.

[298] *See, e.g.,* UTC Comments at 9-10 (citing the unique co-channel and adjacent channel operation in this band).

[299] *See* discussion *infra* Section IV.F.2.b.

[300] The frequency coordinators recommendation must satisfy the limits detailed in a following section discussing field strength limit for telemetry. *See* discussion *infra* Section IV.F.2.b.iii.

94. Frequency coordination will be particularly important for telemetry operations near the edge of the seven geographic "carve-out" areas.[301] Because of the "band flip," primary telemetry located outside the seven geographic "carve-out" areas will operate co-channel to primary WMTS operations within the geographic "carve-out" areas.[302] Consequently, we will require applicants to include evidence of frequency coordination for any application proposing a new telemetry operation or modifying an existing telemetry operation in the 1427-1429.5 MHz and 1429.5-1432 MHz bands.[303] In this connection, we will add a provision to Section 90.175 of our rules for this frequency coordination.[304] Telemetry frequencies in the 1427-1429.5 MHz and 1429.5-1432 MHz bands will be available only on a shared basis.[305] Therefore, the frequency coordinator will be required to select the most appropriate frequency. Because of the concerns regarding interference to WMTS, frequency coordinators will also be required to recommend the most appropriate operating power and area of operation. All authorized frequency coordinators under Part 90 of our rules will be eligible to coordinate secondary and primary telemetry in the 1427-1429.5 MHz and 1429.5-1432 MHz bands.

95. Finally, Itron and AHA support information exchange between Part 90 frequency coordinators and the WMTS frequency coordinator the American Society of Healthcare Engineers (ASHE).[306] AHA states that ASHE must be made aware of all primary and secondary telemetry operations in the 1427-1429.5 MHz and 1429.5-1432 MHz bands.[307] We agree with Itron and AHA that an exchange of information between the Part 90 frequency coordinators and the WMTS frequency coordinator will be needed to minimize the possibility of harmful interference to WMTS. Therefore, we will require that within one business day of making a frequency recommendation for telemetry operations in the 1427-1432 MHz band, each Part 90 frequency coordinator must notify and provide technical information regarding the proposed telemetry operation to ASHE.[308] We believe that this requirement can be seamlessly incorporated into the procedures which the Part 90 frequency coordinators generally follow for exchanging information on frequency recommendations.[309]

96. With regard to the initial deployment of WMTS equipment to be operated at any healthcare facility in the 1427-1432 MHz band, we will require ASHE to notify all Part 90 telemetry licensees potentially affected by the deployment of WMTS equipment at a given facility.[310] Under this prior notification approach, Part 90 telemetry licensees will need to determine whether their existing telemetry system needs to alter its operating parameters in order to comply with the technical

[301] *See* discussion *supra* Section IV.A.3.c.

[302] Outside the "carve-out" areas telemetry will be primary in the 1429.5-1432 MHz band. Inside the "carve-out" areas, WMTS will be primary in the 1429-1431.5 MHz band.

[303] 47 C.F.R. § 1.929.

[304] 47 C.F.R. § 90.175.

[305] *See supra* note 286.

[306] Itron Comments at 8; AHA Comments at 7.

[307] AHA Comments at 7.

[308] The information ASHE receives via notification from the Part 90 frequency coordinator will also be used to supplement ASHE's database for future coordination purposes with affected Part 90 licensees, as necessary.

[309] Frequency coordinators are generally required, within one business day of making a frequency recommendation, to notify all other frequency coordinators who are certified to coordinate that frequency. 47 C.F.R. §§ 90.176(a), (b).

[310] Because proper notification is a crucial element to the integrity of our licensing approach here, we strongly recommend that ASHE avail itself to the information contained in our ULS as a matter of course in the exercise of its due diligence.

requirements we are adopting here to avoid causing harmful interference to the facility employing WMTS equipment.[311]

C. Competitive Bidding Procedures

97. Because we have adopted a licensing scheme under which mutually exclusive applications may be filed for licenses for the unpaired 1390-1392 MHz, 1670-1675 MHz, and 2385-2390 MHz bands, and the paired 1392-1395 MHz and 1432-1435 MHz bands, such applications must be resolved by competitive bidding.[312]

1. Incorporation by Reference of the Part 1 Standardized Auction Rules

98. *Background.* In the *Part 1 Third Report and Order*, the Commission streamlined its auction procedures by adopting general competitive bidding rules set forth in Part 1, Subpart Q, of the Commission's rules applicable to all auctionable services.[313] In the *Service Rules Notice*, we proposed that if we adopted a licensing scheme that permitted the filing of mutually exclusive applications we would conduct the auction of initial licenses in the unpaired 1390-1392 MHz, 1427-1432 MHz,[314] 1670-1675 MHz, and 2385-2390 MHz bands, and the paired 1392-1395 MHz and 1432-1435 MHz bands in conformity with the general competitive bidding rules set forth in Part 1, Subpart Q, of the Commission's rules, and substantially consistent with the bidding procedures that have been employed in previous auctions.[315] Specifically, we proposed to employ the Part 1 rules governing competitive bidding design, designated entities, application and payment procedures, reporting requirements, collusion issues, and unjust enrichment.[316] In addition, consistent with current practice, we proposed that matters such as the appropriate competitive bidding design for the auction of these licenses, as well as minimum opening bids and reserve prices, would be determined by the Wireless Telecommunications Bureau (Bureau) pursuant to its delegated authority.[317] We also sought comment on whether any of our Part 1 rules or other auction procedures would be inappropriate in an auction of licenses in these bands.[318]

---

[311] *See* discussion *infra* Section IV.F.2.b.iii.

[312] 47 U.S.C. § 309(j).

[313] Amendment of Part 1 of the Commission's Rules — Competitive Bidding Procedures, Allocation of Spectrum Below 5 GHz Transferred from Federal Government Use, *Third Report and Order and Second Further Notice of Proposed Rule Making*, 13 FCC Rcd 374 (1997) (modified by Erratum, DA 98-419 (rel. March 2, 1998)) (*Part 1 Third Report and Order*). The Commission clarified and amended these general competitive bidding procedures. Amendment of Part 1 of the Commission's Rules — Competitive Bidding Procedures, *Order on Reconsideration of the Third Report and Order, Fifth Report and Order, and Fourth Further Notice of Proposed Rule Making*, WT Docket 97-82, 15 FCC Rcd 15293 (2000) (modified by Erratum, DA 00-2475 (rel. Nov. 3, 2000)) (*Part 1 Order on Reconsideration, Fifth Report and Order, and Fourth FNPRM*) (recons. pending).

[314] This proposal applied to initial licenses for primary telemetry services in the 1429.5-1432 MHz band as well as initial licenses for primary telemetry services in the seven geographic "carve-out" areas in the 1427-1429.5 MHz band. *Service Rules Notice*, 17 FCC Rcd at 2549 n.314.

[315] *Id.* at 2549 ¶ 141.

[316] *See* 47 C.F.R. Section 1.2101 *et. seq.*

[317] *See Part 1 Third Report and Order*, 13 FCC Rcd 374, 448-49, 454-55 ¶¶ 125, 139 (directing the Bureau to seek comment on specific mechanisms relating to auction conduct pursuant to the Balanced Budget Act).

[318] *Service Rules Notice*, 17 FCC Rcd at 2549 ¶ 141.

99. We received only one comment on our proposal to use the Part 1 competitive bidding rules. Data Flow endorses the use of the general competitive bidding rules set forth in Part 1 to resolve mutually exclusive applications for the 216-220 MHz band.[319]

100. *Discussion*. We adopt our proposal to conduct the auction of initial licenses in the unpaired 1390-1392 MHz, 1670-1675 MHz, and 2385-2390 MHz bands, and the paired 1392-1395 MHz and 1432-1435 MHz bands in conformity with the general competitive bidding rules set forth in Part 1, Subpart Q, of the Commission's rules. We believe that this decision will increase the efficiency of the competitive bidding process and will provide specific guidance to auction participants.[320] Application of the Part 1 rules will be subject to any modifications that the Commission may subsequently adopt.[321] As we have indicated above, due to band-related interference issues we have decided to employ a site-by-site licensing scheme with the use of a frequency coordinator for licenses in the 1427-1432 MHz band, which avoids the filing of mutually exclusive license applications.[322] Thus, we will not adopt our proposal to apply the Part 1 competitive bidding rules for that band.

2. Provisions for Designated Entities[323]

101. Background. In the *Service Rules Notice*, we proposed to adopt two small business size standards for the unpaired 1390-1392 MHz, 1670-1675 MHz, and 2385-2390 MHz bands, and the paired 1392-1395 MHz and 1432-1435 MHz bands that were consistent with the tiered size standards that we have used in the Wireless Communications Service (WCS) 2.3 GHz band and the 700 MHz Guard Bands.[324] We proposed a small business size standard for entities with average annual gross revenues not exceeding $40 million for the three preceding years, as well as a separate small business size standard for

[319] Data Flow Comments at 7. As noted previously, this proceeding does not adopt rules governing the regulatory framework or service rules in the 216-220 MHz band. *See supra* ¶¶ 5, 53 and note 28.

[320] The Commission has previously observed that "our general competitive bidding rules are intended to streamline our regulations and eliminate unnecessary rules wherever possible, increase the efficiency of the competitive bidding process, and provide more specific guidance to auction participants." *Part 1 Third Report and Order*, 13 FCC Rcd at 376 ¶ 1 (1997). Further, continual changes and improvements "advance our auction program by reducing the burden on the Commission and the public of conducting service-by-service auction rule makings." *Id.*

[321] In the Part 1 proceeding, the Commission has engaged in an on-going effort to clarify and amend its general competitive bidding rules for all auctionable services. *See Part 1 Order on Reconsideration, Fifth Report and Order, and Fourth FNPRM*, 15 FCC Rcd at 15294, ¶¶ 1-2. The Commission recently amended its prohibition on collusion in competitive bidding, which is found in Section 1.2105(c) of the Commission's rules. Amendment of Part 1 of the Commission's Rules — Competitive Bidding Procedures, *Seventh Report and Order*, WT Docket 97-82, 16 FCC Rcd 17546 (2001). In addition, the Commission recently amended its competitive bidding attribution rule, which is found in Section 1.2110(c) of the Commission's rules. Amendment of Part 1 of the Commission's Rules — Competitive Bidding Procedures, *Eighth Report and Order*, WT Docket 97-82, FCC 02-34 (rel. Feb. 13, 2002). Under delegated authority, the Wireless Telecommunications Bureau recently made conforming edits to service-specific competitive bidding rules and portions of the Part 1 general competitive bidding rules. Amendment of Parts 1, 21, 22, 24, 25, 26, 27, 73, 74, 80, 90, 95, 100, and 101 of the Commission Rules – Competitive Bidding, *Order*, DA 02-847 (rel. April 11, 2002).

[322] *See* discussion *supra* at ¶ 47.

[323] We have coordinated the adopted special small business size standards, *see infra*, with the U.S. Small Business Administration.

[324] *Service Rules Notice*, 17 FCC Rcd at 2550-2551 ¶¶ 144-146. *See* Amendment of the Commission's Rules to Establish Part 27, the Wireless Communications Service (WCS), GN Docket No. 96-228, *Report and Order*, 12 FCC Rcd 10785, 10879 ¶ 194 (1997); Service Rules for the 746-764 and 776-794 MHz Bands and Revisions to Part 27 of the Commission's Rules, *Second Report and Order*, WT Docket No. 99-168, 15 FCC Rcd 5299, 5343-5345 ¶¶ 106-110 (2000).

entities with average annual gross revenues not exceeding $15 million for the three preceding years.[325] Correspondingly, the *Service Rules Notice* proposed to provide the former with a bidding credit of 15 percent and the latter with a bidding credit of 25 percent.[326] We sought comment on our proposal to adopt these small business definitions and bidding credits for these bands.[327]

102. The *Service Rules Notice* also proposed separate small business standards for the 1427-1432 MHz band.[328] Specifically, we proposed a small business size standard for an entity with average annual gross revenues not exceeding $15 million for the three preceding years, as well as a separate small business size standard for an entity with average annual gross revenues not exceeding $3 million for the three preceding years.[329] We also proposed to provide the former with a bidding credit of 25 percent and the latter with a bidding credit of 35 percent.[330] The *Service Rules Notice* sought comment on whether these proposed small business definitions and bidding credits were appropriate for the 1427-1432 MHz band.[331] We also sought comment on whether the small business provisions proposed were sufficient to promote participation by businesses owned by minorities and women, as well as rural telephone companies.[332]

103. In addition to small business standards, the *Service Rules Notice* also sought comment on InsideTrax's proposal[333] that the Commission grant bidding credits to commercial entities that propose to use their spectrum to benefit public safety and assist tax-supported public service institutions such as police and fire departments.[334] InsideTrax suggested that such entities receive a bidding credit similar in scope to that provided to small businesses in the broadband PCS auctions.[335] The *Service Rules Notice* sought comment on whether such bidding credits would promote the public interest objectives described in Section 309(j)(3).[336] In particular, we asked commenters to address whether provision of this proposed bidding credit would be inconsistent with the purpose of Section 309(j) in light of the express exemption from competitive bidding provided to public safety radio services licensees.[337] We also asked commenters that favored InsideTrax's proposal to suggest eligibility standards and methods by which the Commission could determine entities' eligibility for such bidding credits.

104. Several commenters supported the *Service Rules Notice*'s proposal to apply the two tiered small business definitions to the 1670-1675 MHz band. ArrayComm states that the Commission's

[325] *Service Rules Notice*, 17 FCC Rcd at 2551 ¶ 146.

[326] *Id.* at 2551 ¶ 148.

[327] *Id.* at 2551 ¶ 146.

[328] *Id.* at 2551 ¶ 147.

[329] *Id.*

[330] *Id.* at 2551 ¶ 148.

[331] *Id.*

[332] *Id.* at 2552 ¶ 150.

[333] *Id.* at 2552 ¶ 151. InsideTrax, formerly known as MicroTrax, previously submitted comments to the *Allocation Notice* in which it proposed that the Commission adopt a public safety bidding credit. *Id. See also* InsideTrax Comments at 1.

[334] *Service Rules Notice*, 17 FCC Rcd at 2552 ¶ 151.

[335] *Id.*

[336] *Id.*

[337] *See* 47 U.S.C. § 309(j)(2).

proposed bidding credit structure for the 1670-1675 MHz band provides an appropriate competitive bidding credit scheme that will allow new companies offering innovative services a meaningful opportunity to bid for licenses.[338] AeroAstro endorses ArrayComm's support for the Commission's proposed bidding credit scheme for the 1670-1675 MHz band.[339]

105. Two commenters opposed the InsideTrax proposal to adopt a public safety bidding credit.[340] ArrayComm contends that the proposal would favor an exclusive public safety use of the 1670-1675 MHz band rather than encouraging free development of innovative value-added services, that the proposed bidding credit would encourage a reversion of the spectrum to "quasi-government use" and unfairly prejudice other applicants that have developed public safety use applications but also intend to provide commercial services.[341] Further, ArrayComm asserts that the proposal would unnecessarily complicate the Commission's designated entity bidding credit structure, particularly when a special bidding credit to ensure public safety is unnecessary since multiple providers have already indicated their intent to adopt a mixed-use service plan.[342] AeroAstro also opposes InsideTrax's proposal on the basis that a public safety bidding credit has no legal or policy support.[343] AeroAstro states that the personal location and monitoring service to be offered by InsideTrax will be primarily a commercial offering, with only occasional public safety use, and thus fails to meet the criteria of a "public safety radio services" exemption from auction under Section 309(j)(2)(A).[344] AeroAstro suggests that InsideTrax, recognizing that it does not qualify for the "public safety radio services" exemption, seeks a partial exemption through a new bidding credit.[345]

106. Discussion. As we proposed in the *Service Rules Notice*, we will adopt small business size standards for the unpaired 1390-1392 MHz, 1670-1675 MHz, and 2385-2390 MHz bands, and the paired 1392-1395 MHz and 1432-1435 MHz bands similar to those applied to the WCS 2.3 GHz band and the 700 MHz Guard Bands.[346] Specifically, with respect to the aforementioned bands, we will define an entity with average annual gross revenues for the three preceding years not exceeding $40 million as a "small business," and an entity with average annual gross revenues for the three preceding years not exceeding $15 million as a "very small business."[347] Correspondingly, we will adopt a bidding credit of

[338] ArrayComm Comments at 35-36.

[339] AeroAstro Reply Comments at 4.

[340] ArrayComm Comments at 37-38 and AeroAstro Reply Comments at 4-6. InsideTrax submitted comments and reply comments in support of its proposal. InsideTrax Comments at 9-11, InsideTrax Reply Comments at 8-9.

[341] ArrayComm Comments at 37-38.

[342] *Id.* at 38-39.

[343] AeroAstro Reply Comments at 4.

[344] *Id.* at 4-6.

[345] *Id.* at 6.

[346] *See Service Rules Notice*, 17 FCC Rcd at 2550-51 ¶¶ 144-146. Because we have adopted a licensing scheme that precludes the filing of mutually exclusive applications for licenses in the 1427-1432 MHz band, we will not be employing competitive bidding for this band and we do not need to adopt corresponding small business definitions and bidding credits as initially proposed in the *Service Rules Notice*. *Id.* at 2551 ¶ 147; *see supra* at ¶ 47. Additionally, we received no comments on the adoption of the Part 1 competitive bidding rules for the 1427-1432 MHz band.

[347] *See Service Rules Notice*, 17 FCC Rcd at 2550-51 ¶¶ 144-146. To be consistent with the size standard of "very small business" proposed for the 1427-1432 MHz band for those entities with average gross revenues for the three preceding years not exceeding $3 million, the *Service Rules Notice* proposed to use the terms "entrepreneur" and "small business" to define entities with average gross revenues for the three preceding years not exceeding $40 million and $15 million, respectively. Because we are not adopting small business size standards for the 1427-1432 (continued....)

15 percent for "small businesses" and a bidding credit of 25 percent for "very small businesses." This bidding credit structure is consistent with our standard schedule of bidding credits, which may be found at Section 1.2110(f)(2) of the Commission's rules.[348] All of the commenters addressing this issue supported our proposal to adopt the two small business definitions that the Commission adopted for the WCS 2.3 GHz band and the 700 MHz Guard Bands.[349] As we noted in the *Service Rules Notice*, the capital requirements and characteristics of the services proposed in the aforementioned bands are comparable to those found in the WCS 2.3 GHz band and 700 MHz Guard Bands.[350] Consequently, as with the WCS 2.3 GHz band and 700 MHz Guard Bands, we believe that these two definitions will provide a variety of businesses seeking to provide a variety of services with opportunities to participate in the auction of licenses for this spectrum and will afford such licensees, who may have varying capital costs, substantial flexibility for the provision of services.[351] The Commission has long recognized that bidding preferences for qualifying bidders provides such bidders with an opportunity to compete successfully against large, well-financed entities.[352] The Commission also has found that the use of tiered or graduated small business definitions is useful in furthering our mandate under Section 309(j) to promote opportunities for and disseminate licenses to a wide variety of applicants.[353]

107. We decline, however, to adopt a public safety bidding credit for the 1670-1675 MHz band. We agree with AeroAstro that there is no support in either the Communications Act or prior Commission decisions for creating a bidding credit for providing public safety services.[354] We also agree with ArrayComm that the proposed bidding credit would unnecessarily complicate the Commission's designated entity bidding credit structure.[355] In authorizing the Commission to use competitive bidding, Congress mandated that the Commission promote the objectives of Section 309(j)(3) and ensure that small businesses, rural telephone companies, and businesses owned by members of minority groups and

(...continued from previous page)
MHz band, we instead use the terms "small business" and "very small business" to define entities with average gross revenues for the three preceding years not exceeding $40 million and $15 million, respectively.

[348] In the *Part 1 Third Report and Order*, we adopted a standard schedule of bidding credits, the levels of which were developed based on our auction experience. *Part 1 Third Report and* Order, 13 FCC Rcd at 403-04 ¶ 47. *See also* 47 C.F.R. § 1.2110(f)(2).

[349] *See* ArrayComm Comments at 35-36, AeroAstro Reply Comments at 4.

[350] *Service Rules Notice*, 17 FCC Rcd at 2550-51 ¶¶ 144-146. Generally, in developing the definitions for bidding preferences, the Commission evaluates the likely characteristics and capital requirements of the specific service. *See Part 1 Third Report and Order*, 13 FCC Rcd at 388 ¶ 18; Implementation of Section 309(j) of the Communications Act – Competitive Bidding, PP Docket No. 93-253, *Second Memorandum Opinion and Order*, 9 FCC Rcd 7245, 7269 ¶ 145 (1994).

[351] *See* Service *Rules Notice*, 17 FCC Rcd at 2550-51 ¶ 145.

[352] *See, e.g.*, Revision of Part 22 and Part 90 of the Commission's Rules to Facilitate Future Development of Paging Systems; Implementation of Section 309(j) of the Communications Act -- Competitive Bidding, WT Docket No. 96-18, PR Docket No. 93-253, *Memorandum Opinion and Order on Reconsideration and Third Report and Order*,14 FCC Rcd 10030, 10091 ¶ 112 (1999).

[353] 47 U.S.C. § 309(j)(3)(B), (4)(C)-(D). We will also not adopt special preferences for entities owned by minorities or women, and rural telephone companies. The Commission did not receive any comments on this issue, and we do not have an adequate record to support such special provisions under the current standards of judicial review. *See Adarand Constructors v. Peña*, 515 U.S. 200 (1995) (requiring a strict scrutiny standard of review for government mandated race-conscious measures); *United States v. Virginia*, 518 U.S. 515 (1996) (applying an intermediate standard of review to a state program based on gender classification).

[354] AeroAstro Reply Comments at 4.

[355] ArrayComm Comments at 37.

women are given the opportunity to participate in the provision of spectrum-based services.[356] In order to promote these objectives, Congress allowed the Commission to consider the use of certain procedures such as bidding preferences.[357] Section 309(j)(4)(D) does not reward a particular use of commercial spectrum, rather, it states that the Commission shall "ensure that small businesses, rural telephone companies, and businesses owned by members of minority groups and women are given the opportunity to participate in the provision spectrum-based services, and, for such purposes, consider the use of tax certificates, bidding preferences, and other procedures."[358] Moreover, there is no indication that Congress intended to expand this group of beneficiaries to include an entity that certifies to the Commission that its sole or principal use of the non-exempt spectrum will be to benefit public safety or assist public safety entities.[359] Rather, to address the needs of the public safety community, Congress has separately authorized the Commission to designate spectrum as "public safety radio services" and exempted those services from competitive bidding under Section 309(j)(2).[360] Also, the Commission has previously

[356] *See* 47 U.S.C. § 309(j)(3)(B).

[357] *See* 47 U.S.C. § 309(j)(4)(D).

[358] *Id.* In the only instance where the Commission has provided for a bidding credit outside of the designated entity context set forth in Section 309(j)(4)(D), it did so to specifically encourage the provision of service to underserved tribal lands. 47 C.F.R. § 1.2110(f)(3). Moreover, both procedurally and in terms of bidding credit eligibility, the requirements of a Tribal Land bidding credit are substantially different from that of a traditional bidding credit. To obtain a Tribal Land bidding credit, a winning bidder is required to submit a long form application (Form 601) in which it must indicate that it seeks such a bidding credit and that it will amend its long form within 90 days to provide a certification from the tribal government that (1) the tribal government will allow the bidder to site facilities and provide service on tribal land; (2) that it will not enter into an exclusive contract with the bidder precluding entry by other carriers, and will not unreasonably discriminate against any carrier; and (3) that its tribal land is a qualifying tribal land as defined in the Commission's rules, i.e., areas that have a telephone penetration at or below 70 percent. Extending Wireless Telecommunications Services to Tribal Lands, *Report and Order and Further Notice of Proposed Rule Making*, WT Docket No. 99-266, 15 FCC 11794, 11805-11806, ¶¶ 31-33 (2000) ("*Tribal Land Report and Order*"). Upon Commission receipt of these certifications, the bidding credit is awarded and the applicant will make payment of the final net adjusted bid amount. *Tribal Land Report and Order*, 15 FCC Rcd at 11806, ¶ 33. Recipients of the bidding credit are also required to meet specific performance and buildout requirements. *Id.* at 11806-09 ¶¶ 39-41.

[359] InsideTrax Comments at 9-10, InsideTrax Reply Comments at 9-10. *See* Implementation of Section 309(J) of the Communications Act-- Competitive Bidding, *Fifth Memorandum Opinion and Order*, PP Docket No. 93-253, 10 FCC Rcd 403, 430-431, ¶¶ 48-49 (1994) ("*Competitive Bidding Fifth MO&O*") (". . . individuals with disabilities are not expressly named as a designated entity in Section 309(j)(4)(D) of the Communications Act, and there is no indication in the legislative record of the statute that Congress intended to expand this group of beneficiaries . . . .").

[360] 47 U.S.C. § 309(j)(2)(A) states:

(2) Exemptions. - The competitive bidding authority granted by this subsection shall not apply to licenses or construction permits issued by the Commission –

(A) for public safety radio services, including private internal radio services used by State and local governments and non-government entities and including emergency road services provided by not – for-profit organizations, that –

(i) are used to protect the safety of life, health, or property; and

(ii) are not commercially available to the public; ...

In addition to Section 309(j)(2), Congress also authorized the Commission to grant licenses to public safety entities that apply for "unassigned" spectrum not otherwise allocated for public safety use. *See* 47 U.S.C. 337(c).

indicated that Congress did not intend the public safety radio services exemption to apply to *any* spectrum license that an individual applicant chooses to use for public safety purposes.[361]

108. Notably, the Commission has not allocated these bands for public safety radio services. We therefore agree with ArrayComm that InsideTrax's proposal, if adopted, would favor an exclusive public safety use of the 1670-1675 MHz band rather than encouraging free development of technologies and services.[362] We also believe that InsideTrax has not established an adequate record regarding the legal and policy implications of a bidding credit for bidders that certify that they will use spectrum in a manner that will benefit public safety or assist public service institutions such as police and fire departments.[363]

D. Technical Rules

1. Part 27

a. General Requirements

109. Background. In the *Service Rules Notice*, we requested comment on whether we should apply Part 27 of the Commission's Rules for new services licensed in the paired 1392-1395 MHz and 1432-1435 MHz bands and the unpaired 1390-1392 MHz, 1670-1675 MHz and 2385-2390 MHz bands.[364]

---

[361] In the *BBA Report and Order*, the Commission found that the exemption should be evaluated in terms of its application to particular radio *services* rather than to particular classes or groups of licensees within a service. *See BBA Report and Order*, 15 FCC Rcd at 22741, ¶ 66; *see also* Amendment of Part 90 of the Commission's Rules to Adopt Regulations for Automatic Vehicle Monitoring Systems, *Order on Reconsideration of the Second Report and Order*, 14 FCC Rcd. 1339, 1344, ¶ 8-9 (1999) (the Commission declined to grant petitioner's request for a public safety exemption, pursuant to Section 309(j)(2), from the bidding process for applicants intending to use a LMS license for public safety purposes.); Implementation of Sections 309(j) and 337 of the Communications Act of 1934 as Amended, *Memorandum Opinion and Order*, WT Docket No. 99-87, FCC 02-82, para. 24 (rel. April 18, 2002).

[362] ArrayComm Comments at 37-38. InsideTrax proposes an eligibility standard for the public safety bidding credit which requires eligible entities to certify that "the sole or princip[al] purpose of the services it intends to offer is to protect the safety of life, health, or property, and that its service will assist public officers in their missions to carry out these same functions." InsideTrax Comments at 10, InsideTrax Reply Comments at 10.

[363] *See* Service Rules for the 746-764 and 776-794 MHz Bands, and Revisions to Part 27 of the Commission's Rules, WT Docket No. 99-168, *Second Report and Order*, 15 FCC Rcd 5299, 5345 ¶ 110 (2000) (the Commission declined to adopt APCO's suggestion that it establish "auction credits" similar to small business bidding credits for state and local governments seeking spectrum for public safety communications because "[s]uch entities have not established a record that they need bidding credits in order to be able to compete in the auction."); Service Rules for the 746-764 and 776-794 MHz Bands, and Revisions to Part 27 of the Commission's Rules, *First Report and Order*, 15 FCC Rcd 476, 530 ¶ 135 (2000) (the Commission declined to adopt a proposal to grant bidding credits to any LPTV licensee that has been or will be displaced by a DTV station because an adequate record regarding the legal and policy implications of such bidding credits had not been established); Rulemaking to Amend Parts 1, 2, 21, and 25 of the Commission's Rules to Redesignate the 27.5-29.5 GHz Frequency Band, to Reallocate the 29.5-30.0 GHz Frequency Band, to establish Rules and Policies for Local Multipoint Distribution Service and for Fixed Satellite Services, *Second Report and Order, Order on Reconsideration, and Fifth Notice of Proposed Rulemaking*, 12 FCC Rcd 12545, 12693-94 ¶¶ 357-358 (1997) (the Commission declined to adopt the bidding credit proposed for commercial entities that set aside part of their capacity for educational institutions at preferential rates because there was no adequate record regarding the legal and policy implications of such bidding credits); *Competitive Bidding Fifth MO&O*, 10 FCC Rcd at 430-431 ¶¶ 48, 432, 50 (the Commission declined to expand definition of minorities to include persons with disabilities because petitioners did not establish a substantial record that demonstrates firms owned by persons with disabilities have any more difficulty accessing capital than any other small business).

[364] *See Service Rules Notice*, 17 FCC Rcd at 2538 ¶ 97.

We indicated that the application of general provisions of Part 27 of our rules would include technical standards relating to equipment authorization, Radiofrequency (RF) safety standards, frequency stability, antenna structures and air navigation safety, and disturbance of AM broadcast station antenna patterns.[365] In addition, we sought comment on other technical restrictions contained in other sections of the Commission's rules that would apply to licensees including Part 17 (antenna registration) and Sections 1.924 (quiet zones) and 1.1307 (environmental requirements) of our rules.[366]

110. Discussion. Because we are adopting a flexible licensing framework in this proceeding, we believe that the application of our Part 27 technical rules to new licenses assigned in the paired 1392-1395 MHz and 1432-1435 MHz bands and the unpaired 1390-1392 MHz, 1670-1675 MHz and 2385-2390 MHz bands would serve the public interest. Accordingly, as supported by the overwhelming majority of commenters, we are adopting our Part 27 technical rules, as modified herein.[367] With regard to the unpaired 1670-1675 MHz band, ArrayComm supports the application of our Part 27 technical rule standards with two significant exceptions: 1) the threshold levels for routine environmental evaluations listed in Section 1.1307 of our rules, and 2) the applicability of AM disturbance requirements of Section 27.63 of our rules.[368] We consider each of ArrayComm's proposals in turn.

111. *Threshold Levels for Routine Environmental Evaluation.* Sections 1.1307(b), 2.1091 and 2.1093 of our rules list services and devices for which an environmental evaluation for RF exposure must be routinely performed.[369] Section 1.1307(b) requires an environmental evaluation for all Part 27 fixed stations operating at an EIRP of 1640 watts or greater.[370] Sections 2.1091 and 2.1093 require routine environmental evaluation for all Part 27 mobile and portable devices.[371] ArrayComm requests that we apply the same threshold levels for routine environmental evaluation as Broadband PCS for fixed stations operating in the 1670-1675 MHz band.[372] The threshold levels for Broadband PCS generally require routine environmental evaluation for all building mounted fixed stations operating at more than 3280 watts EIRP or all non-building mounted fixed stations operating with more then 3280 watts EIRP at an antenna height of less then 10 meters above ground.[373] ArrayComm states that, although threshold levels for Broadband PCS are less restrictive, the safety of Broadband PCS levels is well established through thousands of commercially operating sites.[374] We agree.

112. The threshold levels for routine environmental evaluation are determined to ensure that the public is not exposed to RF levels that could exceed our guidelines. We generally require new transmitting facilities and devices to comply with the RF safety criteria and procedures that are applicable to facilities and devices having similar technical parameters and operating characteristics.[375] Pursuant to

---

[365] *Id.*

[366] *Id.*

[367] ArrayComm Comments at 3; InsideTrax Comments at 5; AeroAstro Comments at 4.

[368] ArrayComm Comments at 20-21.

[369] 47 C.F.R. §§ 1.1307(b), 2.1091 and 2.1093.

[370] 47 C.F.R. § 1.1307(b), Table 1.

[371] 47 C.F.R. §§ 2.1091(c) and 2.1093(c).

[372] ArrayComm Comments at 21.

[373] 47 C.F.R. § 1.1307, Table 1.

[374] ArrayComm Comments at 21.

[375] The Commission has provided guidance on complying with its RF safety exposure limits in OET Bulletin No. 65. OET Bulletin No 65 (Edition 97-01) was issued in August 25, 1997, and is available for downloading at the FCC

(continued....)

Section 1.1310, limits on RF emissions are based on the operating frequency of the transmitter.[376] Any transmitter operating between 1500 MHz and 100,000 MHz like, for example Broadband PCS,[377] will be subject to the same RF emission limits.[378] Because transmitters operating in the 1670-1675 MHz band will be subject to the same limits on RF emissions as applied to other transmitters operating between 1500 MHz and 100,000 MHz, we agree with ArrayComm that the Broadband PCS threshold levels for routine environmental evaluation are applicable to the 1670-1675 MHz band. Accordingly, we will apply the Broadband PCS threshold levels for routine environmental assessment to facilities in the 1670-1675 MHz band.

113. By similar analysis, we will also apply the same threshold levels for routine environmental evaluation to operations licensed in the paired 1392-1395 MHz and 1432-1435 MHz bands and the unpaired 1390-1392 MHz and 2385-2390 MHz bands. Because transmitters operating between 1500 MHz and 100,000 MHz are subject to the same limits on RF emission,[379] the 2385-2390 MHz band will be the subject to the same limits on RF emissions as Broadband PCS. Although the limits on RF emissions become more stringent below 1500 MHz, we do not believe that variance in these limits for the paired 1392-1395 MHz and 1432-1435 MHz bands and the unpaired 1390-1392 MHz band compared to Broadband PCS warrants imposing a different threshold level for routine environmental evaluation. According, we will apply the same threshold level for routine environmental evaluation for the paired 1392-1395 MHz and 1432-1435 MHz bands and the unpaired 1390-1392 MHz band that we currently apply to Broadband PCS transmitters.

114. *AM Disturbance Requirements.* Section 27.63 states that licensees who construct or modify towers in the immediate vicinity of AM broadcast stations are responsible for correcting any disturbance to the AM station's antenna pattern, if the disturbance occurred as a result of such construction or modification.[380] Section 27.63 also requires a licensee to notify an AM station prior to construction or modification of any tower located within 1 kilometer (0.6 mile) of a non- directional AM broadcast station or within 3 kilometers (1.9 miles) of a directional AM broadcast station array.[381] Once notification has occurred, the licensee is responsible for performing measurements to determine whether the construction or modification of the tower would affect the AM station antenna pattern.

115. ArrayComm requests that we change the AM disturbance requirements of Section 27.63 to be applicable only if there is a valid technical concern that an operation might disturb AM broadcast stations.[382] We are not persuaded that there is reason to modify these requirements. The provisions of Section 27.63 ensure that the towers of AM broadcasters are adequately protected from harmful interference that may arise sporadically and unexpectedly from nearby uses of the spectrum. Because ArrayComm's proposal would tend to eviscerate the bright-line certainty of our rule with regard to notification and technical measurements, and thus weaken an AM broadcaster's ability to protect itself

---

(...continued from previous page)
Web Site: www.fcc.gov/oet/rfsafety. Copies of OET Bulletin No. 65 also may be obtained by calling the FCC RF Safety Line at (202) 418-2464.

[376] 47 C.F.R. § 1.1310.

[377] Broadband PCS operates from 1850-1990 MHz.

[378] 47 C.F.R. § 1.1310.

[379] *Id.*

[380] 47 C.F.R.§ 27.63.

[381] *Id.*

[382] ArrayComm Comments at 21.

from disturbances from the surrounding environment, we decline to adopt ArrayComm's proposal on this issue.

2. In-Band Interference Control

116. Background. In the *Service Rules Notice*, we requested comment on additional technical requirements to limit co-channel interference between licensees operating in adjacent geographic service areas.[383] We acknowledged that licensees will be permitted to implement a broad range of services and technologies in this spectrum, and that the implementation of these services and technologies must take into account the potential for interference between licensees using the same spectrum in adjacent service areas.[384] Under our rules, licensees in the paired 1392-1395 MHz and 1432-1435 MHz bands and the unpaired 1390-1392 MHz, 1670-1675 MHz, and 2385-2390 MHz bands will have the flexibility to provide fixed and mobile services including land mobile.[385] We indicated that in the past we have primarily utilized an approach to limit co-channel interference between geographic service areas that includes field strength limits or frequency coordination.[386] Field strength limits have generally been adopted for land mobile services,[387] while frequency coordination requirements have primarily been used in fixed services.[388]

117. Discussion. Because we believe that field strength limits at the licensee's boundaries are essential to limit co-channel interference and can be independently predicted and verified by a commercial operator,[389] we are adopting this approach rather than requiring coordination. Both ArrayComm and AeroAstro support the use of field strength limits employed at the licensee's boundaries to limit co-channel interference.[390] No commenter supported a frequency coordination approach. We received no comments regarding co-channel interference for the paired 1392-1395 MHz and 1432-1435 MHz bands and the unpaired 1390-1392 MHz and 2385-2390 MHz bands. ArrayComm further states that the field strength limit used for PCS, or 47 dBuV/m would be appropriate.[391] AeroAstro believes a maximum emission level into a neighboring license area of –35 dBW/Hz is appropriate.[392] Because experience has demonstrated the adequacy of the field strength limit employed for PCS,[393] and given that this field strength limit is the same value currently used for 2.3 GHz WCS,[394] we decline to adopt AeroAstro's proposal. Instead, we will specify a maximum field strength of 47 dBuV/m at a edge of the licensee's boundaries for the paired 1392-1395 MHz and 1432-1435 MHz bands and the unpaired 1390-1392 MHz band. For additional flexibility in these bands, we will also allow licensees in adjacent areas to negotiate a different field strength limit. There will be no need to impose a field strength limit at the

[383] *See Service Rules Notice*, 17 FCC Rcd at 2538-39 ¶¶ 98-104.

[384] *Id.* at ¶ 98.

[385] *Id.*

[386] *Id.* at ¶ 99.

[387] *See* 47 C.F.R. § 24.236 (for PCS); *see also* 47 C.F.R. § 27.55 (2.3 GHz band).

[388] *See* 47 C.F.R. § 101.103 for fixed microwave services.

[389] *Id.* .

[390] ArrayComm Comments at 21-22; AeroAstro Comments at 8.

[391] ArrayComm Comments at 22.

[392] AeroAstro Comments at 8.

[393] 47 C.F.R. § 24.236.

[394] 47 C.F.R. § 27.55(a).

border for the 1670-1675 MHz and 2385-2390 MHz bands because these bands will be licensed on a nationwide basis.[395]

3. Out-of-Band Interference Control.

118. In the *Service Rules Notice*, we sought comment on appropriate out-of-band emission limits, and/or emission masks, and whether one or both of these methods would be necessary to protect services operating adjacent to the paired 1392-1395 MHz and 1432-1435 MHz bands and unpaired 1390-1392 MHz, 1670-1675 MHz and 2385-2390 MHz bands.[396] In addition, we requested comment on corresponding measurement procedures to confirm emission levels.[397]

a. 1670-1675 MHz Band.

119. Background. For the 1670-1675 MHz band, we sought comment on proposals for out-of-band emission limits submitted by AeroAstro, ArrayComm, and InsideTrax.[398] AeroAstro, ArrayComm, and InsideTrax all reiterated their support for the individual proposals they put forth in response to the *Reallocation Notice*.[399] AeroAstro favors controlling out-of-band emissions with an absolute power spectral density limit.[400] AeroAstro states that an absolute limit, rather than an emission mask tied to in-band power, will permit a less steep emission mask, and hence a less expensive radio.[401] AeroAstro proposes a limit of –80 dBW/Hz.[402] InsideTrax proposes a limit of 55+10log(P). InsideTrax suggests an out-of-band limit, in any 1 MHz bandwidth, of 55+10log(P) where "P" is the highest emission in watts of the transmitter inside the authorized bandwidth.[403] InsideTrax states that the resolution bandwidth of the instrumentation used to measure power should be 100 kHz, except that a minimum spectrum analyzer resolution bandwidth of 300 Hz should be used for measurement of center frequencies within 1 MHz of the edge of the authorized bandwidth.[404]

120. ArrayComm proposes an out-of-band emission limit similar to PCS service, except with an adjustment for "adaptive antenna" systems, a type of technology they propose to deploy. ArrayComm states that where the output of multiple power amplifiers operating at comparable per-carrier powers are coherently combined, the out-of-band emission limit should be 43+10log(P)-10log(M), where "P" is the per-carrier, per-power-amplifier power serving a carrier and "M" is the number of power amplifier/antenna elements serving a carrier.[405] ArrayComm proposes a minimum resolution bandwidth of 500 kHz but indicates that a lower resolution bandwidth may be employed near the band edge.[406] In

[395] *See* discussion *supra* Sections IV.A.2.c, IV.A.2.d. Nationwide licensees who partition their license will have the flexibility to decide how to limit interference at the border of the partition. *See* discussion *supra* Section IV.B.6.

[396] *See Service Rules Notice,* 17 FCC Rcd at 2539-40 ¶105.

[397] *Id.*

[398] *Id.* at 2540 ¶¶ 107-111. These proposals were submitted in response to the *Reallocation Notice* in ET Docket No. 00-221, *supra* note 8.

[399] AeroAstro Comments at 8; ArrayComm Comments at 25; InsideTrax Comments at 12.

[400] AeroAstro Comments at 8.

[401] *Id.*

[402] *Id.*

[403] InsideTrax Comments at 12.

[404] *Id.*

[405] *See* ArrayComm Comments at 21, filed in response to the *Reallocation Notice* in ET Docket No. 00-221.

[406] *See* ArrayComm Reply Comments at Appendix I, p. 7 to *Reallocation Notice* in ET Docket No. 00-221.

the *Service Rules Notice*, we tentatively proposed ArrayComm's limit because it appeared to be the most flexible.[407] Nonetheless, we sought comment on whether ArrayComm's proposal would sufficiently protect lower-adjacent radioastronomy operations from harmful interference.[408]

121. Discussion. In determining whether we should adopt specific out-of-band emission limits, and/or emission masks to protect services operating adjacent to the 1670-1675 MHz band, we must be sensitive to balance the needs of adjacent-band operations with our goals to promote the development of viable services in the 1670-1675 MHz band pursuant to our overall spectrum management objectives. Because we believe that this balance is properly achieved through an approach that is neither technology-specific nor too stringent or too flexible, we are adopting the standard 43 + 10log(P) limit on out-of-band emissions for equipment in the 1670-1675 MHz band. We believe this standard strikes the proper balance between protecting adjacent-band operations and allowing for viable service in the 1670-1675 MHz band. All emissions outside the licensees authorized bandwidth must be limited by a factor of 43 + 10 Log(p) dB below the transmitter power (p). Compliance with this provision shall be based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or less, but at least one percent of the emission bandwidth of the fundamental emission of the transmitter, provided the measured energy is integrated over a 1 MHz bandwidth. These are the same procedures established in Section 27.53(a)(4) of our rules for 2.3 GHz WCS.[409]

122. We decline to adopt the InsideTrax proposal because it proposes a standard that is approximately 12 dB more restrictive then the standard limit on out-of-band emissions that we generally employ for other services. Of all the proposals, the InsideTrax proposal is the most restrictive. We are particularly concerned that this proposal would limit flexibility and thus damage the viability of prospective services offered in this band. Whereas InsideTrax is too restrictive, we decline to adopt the AeroAstro proposal because it presents a standard that would be much less restrictive than the standard limit of 43 + 10log (P).[410] We believe that for the purpose of sound engineering practices equipment in this band should be capable of achieving the minimal standard limit on out-of-band emission limits of 43 + 10log (P). Accordingly, we decline to adopt AeroAstro's proposal.

123. We also decline to adopt ArrayComm's proposal because ArrayComm's proposal is too technology specific. The ArrayComm standard would require most equipment to satisfy the standard out-of-band emission limit of 43 + 10Log(p), while allowing systems with an adaptive antenna to meet a less restrictive out-of-band emission limit of 43 + 10Log(P) – 10Log(m), where m is the number of amplifiers or elements in the array. As an initial matter, for the purpose of good engineering practices, we believe that any standard should be capable of achieving the minimal limit of 43 + 10log (P), which is used for a variety of services. Depending on the design and number of elements in the design, coupled with other factors, ArrayComm's technology would actually exceed the standard 43 + 10log (P) limit on out-of-band emissions by variable amounts. Further, as indicated in the *Service Rules Notice*, we do not know what kind of technologies will eventually be employed in these bands.[411] When establishing technical limits for these bands, we prefer to take a technology-neutral approach that will allow licensees to implement a broad range of services and technologies. Thus we do not believe that the public interest would be served

[407] *See Service Rules Notice*, 17 FCC Rcd at 2540 ¶ 112.

[408] *Id.*

[409] 47 C.F.R. § 27.53(a)(4).

[410] For example, AeroAstro's proposed limit of –80 dBW/Hz will exceed the standard limit of 43 + 10log(p) when measured over a bandwidth larger then 5 kHz.

[411] *Service Rules Notice*, 17 FCC Rcd at 2509 ¶¶ 16-17.

if we were to adopt technical requirements that would tend to favor one technology over another. Accordingly, we decline to adopt ArrayComm's proposal.

b. 1.4 GHz Band.

124. Background. We received no specific comments regarding out-of-band emission limits for the paired 1392-1395 MHz and 1432-1435 MHz bands and the unpaired 1390-1392 MHz.

125. Discussion. As with the 1670-1675 MHz band, we will require all emissions outside the licensees authorized bandwidth to be limited by a factor of 43 + 10 Log(p) dB below the transmitter power (p).[412] As we have previously discussed, we believe this standard strikes the proper balance between protecting adjacent-band operations and allowing for viable services in the paired 1392-1395 MHz and 1432-1435 MHz bands and the unpaired 1390-1392 MHz.[413] As we indicated for the 1670-1675 MHz band. Compliance with this provision shall be based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or less, but at least one percent of the emission bandwidth of the fundamental emission of the transmitter, provided the measured energy is integrated over a 1 MHz bandwidth.

126. We note, however, that the 1392-1395 MHz band is immediately adjacent to the WMTS band at 1395-1400 MHz.[414] Therefore, in addition to the limits on out-of-band emissions we impose here we will also limit the emission from stations in the 1392-1395 MHz band into the adjacent WMTS band at the site of any WMTS operations. This limitation will be discussed in a following section.[415]

127. Philips Medical Systems (Philips) states that protecting WMTS operations in the 1395-1400 MHz band from harmful interference could be problematic if band managers are allowed to operate in the paired 1392-1395 MHz and 1432-1435 MHz bands because the spectrum user is not actually a Commission licensee.[416] Philips contends that it would be more difficult to hold such operators accountable for causing harmful interference to WMTS.[417] We note, however, that band managers in this proceeding are governed by Part 27 of our rules. Therefore, band managers are specifically required to terminate any operation causing harmful interference, and that spectrum operators are required to comply with all Commission Rules.[418] In addition, band managers will be subject to the limits we establish in Part 27 for emissions into the WMTS band.[419] Therefore, we believe that the approach we adopt in this proceeding will adequately address the concerns raised by Philips.

c. 2385-2390 MHz Band.

128. Background. XM Radio requests that we adopt strict out-of-band emission limits for the 2385-2390 MHz band to protect Satellite Digital Audio Radio Service (SDARS) from interference.[420]

---

[412] *See* discussion *supra* ¶ 121.

[413] *Id.*

[414] 47 C.F.R. § 2.106.

[415] *See* discussion *infra* Section IV.F.2.b.

[416] Philips Medical Systems Comments at 6.

[417] *Id.* at 6.

[418] 47 C.F.R. § 27.602 (e-f).

[419] *See* discussion *infra* Section IV.F.2.b.

[420] XM Comments at 4.

Specifically, XM Radio requests that we apply the out-of-band emission limits of the WCS bands at 2305-2320 MHz and 2345-2360 MHz to the 2385-2390 MHz band.[421] XM Radio states that SDARS licensees are somewhat more susceptible to interference from out-of-band emissions than other spectrum users because the SDARS downlink signal power available to the receiver is much lower than terrestrial-based communications systems.[422]

129. Discussion. Because we are not convinced that the limits on out-of-band emissions for the 2385-2390 MHz band are analogous to that of WCS operations in the 2305-2320 MHz and 2345-2360 MHz bands, we deny XM Radio's request. Instead, we will require the new licensee in 2385-2390 MHz band to limit all emissions outside the authorized bandwidth by the standard factor of 43 + 10 Log(p). We believe that this standard strikes the proper balance between protecting adjacent-band operations and allowing for a viable service in the 2385-2390 MHz band. Compliance with this provision shall be based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or less, but at least one percent of the emission bandwidth of the fundamental emission of the transmitter, provided the measured energy is integrated over a 1 MHz bandwidth.

130. Unlike existing WCS operations in the 2305-2320 MHz and 2345-2360 MHz bands, which are immediately adjacent to the SDARS band, the 2385-2390 MHz band is separated by 40 MHz from the edge of the SDARS band. The potential for harmful interference to SDARS from operations in the 2385-2390 MHz band is therefore much less than that from existing WCS operations. In addition, the WCS operations are likely to be located in predominantly in urban areas. We note that SDARS has been granted special temporary authority and requested permanent authorization to provide "fill-in" service with terrestrial base stations.[423] If granted, this will generally increase the signal strength of the SDARS signals in these areas and surrounding areas. For these reasons and in consideration of the potential cost or service implications a stricter technical standard would impose on the development of mobile operations in this band, we disagree with XM's position.

d. Power and Antenna Height Limits

131. Background. In the *Service Rules Notice*, we requested comment on what power limits and antenna height limits would be necessary for operations in these bands.[424] We observed that transmitters used in the private land mobile service, cellular radio service, and point-to-point microwave services typically employ substantially different output powers.[425] Accordingly, we invited comments as to what those limits should be and the basis for the suggested limits.[426]

132. Discussion. Because we do not know what technologies will eventually be deployed in these bands,[427] we prefer to adopt an approach that will allow licensees to implement a broad range of services and technologies. As we have previously stated, we do not want to set limits that will exclude

[421] *Id.*

[422] *Id.* at 3.

[423] *See* XM Radio, Inc., Application for Special Temporary Authority to Operate Satellite Digital Audio Radio Service Complimentary Terrestrial Repeaters, Order and Authorization, DA 01-2172 (rel. September 17, 2001) and Sirius Satellite Radio, Inc., Application for Special Temporary Authority to Operate Satellite Digital Audio Radio Service Complementary Terrestrial Repeaters, Order and Authorization, DA 01-2171 (rel. September 17, 2001).

[424] *Service Rules Notice,* 17 FCC Rcd at 2539 ¶ 104.

[425] *Id.*

[426] *Id*

[427] *Id.* at 2509 ¶16-17.

one type of technology or offer one type of technology an advantage over another. Under the flexible licensing construct we adopt in this proceeding, we therefore are adopting power and antenna height requirements that we deem conducive to sound spectrum management principles.

133. With regard to the 1670-1675 MHz band, we are adopting a 2000 watt EIRP maximum for base equipment and a 4 watt EIRP maximum for mobile equipment, as proposed by ArrayComm.[428] We believe that these values seem to strike the proper balance between allowing flexible use of the band while limiting RF to safe levels. These limits will enable a licensee to deliver a wide-area broadband data service.[429] We believe that even with these power levels, protection of adjacent-band and co-channel Government operations can be achieved through the out-of-band emission limits discussed above and through coordination procedures discussed in following sections.[430] This approach is consistent with out spectrum management goals than either AeroAstro's[431] or InsideTrax's[432] proposal because it will ensure protection from interference without compromising flexibility.

134. AeroAstro states that limits on output power and EIRP must be consistent with protection of adjacent band operations at 1660.5-1670 MHz and co-channel meteorological-satellite earth stations.[433] AeroAstro states that low operating power will make it easy to assure co-channel protection at specified sites.[434] InsideTrax states that high power transmitters would necessitate substantially larger exclusion zones around protected Government facilities.[435] We believe, however, that the strict limits proposed by AeroAstro and InsideTrax would limit the viability of service in the 1670-1675 MHz band. As we indicated above, we believe that protection even with the higher limits power proposed by ArrayComm, protection of Government facilities can still be achieved. Therefore, we decline to adopt the power limits proposed by AeroAstro or InsideTrax. We find no technical basis to impose limitations on antenna height in the 1670-1675 MHz band. Nonetheless, we reserve the right to revisit this future should circumstances or facts warrant.

135. We received no comments regarding power limits or antenna height limits for the unpaired 1390-1392 MHz and 2385-2390 MHz bands. We believe that a similar flexible approach is applicable for these bands as well. Consequently, for the unpaired 1390-1392 MHz and 2385-2390 MHz bands we will establish a maximum limit of 2000 watt EIRP for fixed sites and 4 watts EIRP for mobile units. In the 2385-2390 MHz band, the power limitation for mobile units will apply to aeronautical mobile as well as terrestrial mobile units. As with the 1670-1675 MHz band, we see no compelling reason to set antenna height limits in these bands.

136. We received no comments regarding power limits for the paired 1392-1395 MHz and 1432-1435 MHz bands. Philips Medical Systems, however, expresses concern regarding operation in the 1392-1395 MHz band causing adjacent band interference to WMTS.[436] We note that the 1392-1395 MHz

[428] ArrayComm Comments at 22.

[429] *Id.*

[430] *See* discussion *infra* Section IV.E.1.

[431] AeroAstro proposes a peak output power of 1 watt, a peak EIRP of 10 watts and an antenna height of 6 meters above ground or building for the 1670-1675 MHz band.

[432] InsideTrax generally supports AeroAstro power limits but requests less stringent levels of 4 watts peak power and 0.25 watts average power limit over 60 second time interval. InsideTrax Reply Comments at 11.

[433] *Id.*

[434] *Id.*

[435] *Id.*

[436] Phillips Comments at 5-6.

portion of the paired bands is adjacent to the WMTS band at 1395-1400 MHz. Interference to adjacent-band WMTS operations is difficult to control because WMTS is licensed by rule and operations may occur at various locations throughout a metropolitan area. Therefore, in order to reduce the possibility of interference to adjacent-band WMTS, we will impose less flexible limits on maximum power for stations in the 1392-1395 MHz band. Specifically, we will limit fixed stations to a maximum power of 100 watts EIRP and mobile units to a maximum power of 1 watt. These values are comparable to the maximum power limits we establish for the 1429.5-1432 MHz band that is also adjacent to WMTS.[437] The 1432-1435 MHz portion of the paired bands does not have the same adjacent-band issues with regard to WMTS, therefore, we will establish more flexible limits of 2000 watt EIRP for fixed sites and 4 watts EIRP for mobile units. As with the other bands in this proceeding, we see no compelling reason to set antenna height limits for these paired bands.

4. Part 90 Telemetry

137. Background. In the *Service Rules Notice*, we requested comment on technical restrictions for secondary telemetry operations in the 217-220 MHz band, the 1427-1429.5 MHz band, and primary telemetry operations in the 1429.5-1432 MHz band.[438] We noted that telemetry operations in these bands are authorized under Part 90 of our rules and that Part 90 provides no technical specifications or channel plan for telemetry operations in these bands.[439] Rather, power and authorized bandwidth for telemetry are specified on the authorization on a case-by-case basis. Because telemetry applications in these bands will no longer require FAS approval, we now believe that technical specifications and a channel plan are now necessary for these bands.[440]

a. 217-220 MHz.

138. Discussion. *Channel Plan.* In lieu of the FAS approval process, frequency coordination will now be employed for secondary telemetry in this band. We therefore believe that a channel plan is necessary to assist frequency coordinators in assigning frequencies for secondary telemetry operations in this band. To maximize the utility and efficiency of this band and in consideration of the record on this issue, we are adopting a 6.25 kHz channel spacing requirement for narrowband operations in this band.[441] Similar to our approach in the MAS Services, we will also permit secondary telemetry licensees to combine contiguous channels of up to 50 kHz, or more than 50 kHz upon a showing of adequate justification.[442] We believe that this channel plan will provide licensees the flexibility to customize their operations within a variety of bandwidths without promoting one technology or application over another.[443]

139. *Power/Antenna Height.* We continue to believe that power and antenna height restrictions on secondary telemetry in the 217-220 MHz band are necessary to minimize the possibility of harmful

[437] *See* discussion *infra* Section IV.F.2.b.

[438] *See Service Rules Notice*, 17 FCC Rcd at 2526-27 ¶¶ 66-69.

[439] *Id.* at 2526 ¶ 66.

[440] *Id.*

[441] DataFlow Comments at 6; Watchman Comments at 3.

[442] 47 C.F.R. § 101.147(b).

[443] *See* Fairfield Comments at 10, 11. *See also* Fleetwood Comments at 2 (opposing any channel plan that would limit the channel bandwidth to less then 25 kHz).

interference to primary users in the 217-220 MHz band.[444] Based on the record before us, we will limit the transmitter output power of secondary telemetry in the 217-220 MHz band to 2 watts.[445] We will also limit the antenna height above average terrain (HAAT) to 152 meters (500 feet).[446] Although Fairfield does not believe that height and power restrictions for the 217-220 MHz band are necessary,[447] we believe that the limits we are adopting here strike a balance between allowing flexible secondary telemetry operations and limiting harmful interference from secondary operations to primary operations. Further, because geophysical transmitters such as those employed by Fairfield operate at a very low power, we believe that the possibility for any adverse impact arising from the flexible height and power restrictions we are adopting here would be minimal.

140. *Out-of-Band Emission/Frequency Stability.* Because we are not convinced that new out-of-band emission standards would promote the public interest, we decline to adopt new rules and thus retain the current emission mask standards. We believe that the current emission masks standards B and C in Section 90.210 of our rules are sufficient to address adjacent channel interference concerns arising from spurious emissions.[448] With regard to frequency stability, we note that our rules do not currently subject equipment in the 217-220 MHz band to a particular frequency stability standard. Because we believe that a frequency stability standard will promote use of equipment that satisfies a minimum acceptable standard for operability, we are adopting a frequency stability requirement. Specifically, given the current and prospective service uses of the 217-220 MHz band, we believe that the frequency stability standard for land mobile systems in the nearby 150-174 MHz band[449] is equally applicable in this band. Accordingly, we are adopting a standard that will allow a frequency stability of 1 part per million for fixed and base stations and 1 part per million for mobile units.[450] One commenter has proposed a similar approach.[451]

141. *Minimum Antenna Gain.* DataFlow states that a requirement for minimum front-to-back ratio of 18 dB for antennas will decrease co-channel spacing.[452] No other commenter proposed or discussed minimum antenna gain requirements. Because we find no reason to adopt rules requiring a minimum antenna gain and in the absence of a substantial record on the same, we decline to adopt rules implementing an antenna gain requirement at this time, but reserve the right to revisit this issue in the future.

---

[444] AMTS is primary in the 217-218 MHz and 219-220 MHz portions of the band. The 218-219 MHz service is primary in 218-219 MHz portion of the band.

[445] *See* DataFlow Comments at 6 (stating that a maximum antenna height above average terrain of 500 feet will cover even the largest local governmental unit with a single frequency); Watchman Comments at 3.

[446] *See, e.g.,* DataFlow Comments at 6.

[447] *See* Fairfield Comments at 4 (stating that the Commission should not adopt generic rules that may hamper the ability of companies like Fairfield that provide conduct geophysical research).

[448] 47 C.F.R. §§ 90.210(b) and (c). DataFlow and Fleetwood recommend technical specifications that we believe would be redundant and therefore onerous in consideration of our existing emission mask standards. *See* DataFlow Comments at 6 (stating that spurious emissions should be attenuated by at least 60 dB to decrease adjacent channel interference); Fleetwood Comments at 2 (stating that radiated out-of-band emission limits should be greater or equal to 84 dBuV and that conducted out-of-band emission limits should be greater or equal to 94 dBuV).

[449] *See* 47 C.F.R. § 90.213(a).

[450] *Id.*

[451] Fleetwood Comments at 2 (specifying a standard of 5 parts per million).

[452] DataFlow Comments at 6.

b. 1427-1432 MHz[453]

142. Discussion. *Channel Plan.* As generally noted above, because these bands will now be subject to frequency coordination, we will require a channel plan to assist coordinators in assigning frequencies for both secondary telemetry and primary telemetry in the 1.4 GHz band. Although commenters express mixed opinions with regard to proper channel size as well as whether a channel plan should be adopted at all,[454] we believe that the public interest will benefit from the added protections provided by a channelization of the entire 1427-1432 MHz band. Based on the record before us, we believe that spectrum efficiency will be maximized by implementing a channel plan that promotes flexibility and minimizes the potential for harmful interference. Accordingly, we are adopting a channel spacing requirement of 12.5 kHz. We note that this channel plan is also consistent with the majority of narrowband operations described by commenters in this band.[455] Similar to our approach in the MAS Services, we will also permit licensees in this band to combine contiguous channels of up to 50 kHz, or more than 50 kHz upon a showing of adequate justification.[456] We believe that this channel plan will provide licensees the flexibility to customize their operations within a variety of bandwidths without promoting one technology or application over another.

143. *Power/Antenna Height.* Power limits for telemetry operations in the 1427-1432 MHz band are discussed in Section IV.F.2.b.iii. This section deals with the AHA-Itron Joint Agreement which proposes several limitations for telemetry operations in order to protect WMTS from harmful interference.[457] The Joint Agreement does not propose antenna height limits for telemetry operations in the 1427-1432 MHz band. Nor did we receive any comments regarding limiting the antenna height of telemetry operations in this band. In light of the technical restrictions we employ on telemetry to protect WMTS from harmful interference, we believe that antenna height limits for telemetry operations in the 1427-1432 MHz band are unnecessary.[458]

144. *Mileage Separation.* In the *Service Rules Notice*, we requested comment on standards for determining whether specific telemetry systems in the 1429.5-1432 MHz band can coexist.[459] We proposed a mileage separation standard of 112 km (70 mi.) for co-channel systems. Because we are requiring frequency coordination for primary and secondary telemetry throughout this band, we decline to adopt our tentative proposal. Rather than impose a mileage separation standard, we will require the frequency coordinator to determine the appropriate separation distance for co-channel and adjacent channel telemetry systems. While Itron and UTC support our initial 112 km (70 mi.) standard,[460] we believe that our decision will also accommodate telemetry systems, such as Hexagram's, that can be spaced closer because they operate with 1 to 2 watts transmitter power output.[461] This approach will promote greater frequency reuse and more efficient use of the spectrum.

---

[453] The technical restrictions we discuss below will also apply to secondary and primary telemetry operations in the seven geographic "carve-out" areas.

[454] Itron opposes a channel plan for this band. Itron Comments at 8; *see also* UTC Comments at 10 (stating that no channel plan is necessary for secondary telemetry at 1427-1429.5 MHz).

[455] *See* Hexagram Comments at 10.

[456] 47 C.F.R. § 101.147(b).

[457] *See supra* note 77.

[458] *See* discussion *infra* Section IV.F.2.b.

[459] *Service Rules Notice*, 17 FCC Rcd at 2525 ¶ 61.

[460] *See* Itron Comments at 5.

[461] *See* Hexagram Comments at 7.

E. Coordination

1. Incumbent Government Operations

145. In the *Service Rules Notice,* we listed Federal Government incumbents who would remain in these bands on a co-primary basis as identified in the Reallocation *Report and Order.*[462] We received several comments regarding these incumbents.

a. RadioAstronomy

146. Background. Pursuant to footnote US311 of Section 2.106, radioastronomy is performed throughout the 1350-1400 MHz band.[463] The location of these radioastronomy sites is listed in footnote US311.[464] Under footnote US311, licensees in the 1.4 GHz band will need to make every practicable effort to avoid causing interference to these extremely sensitive radioastronomy receivers.[465] In addition, radioastronomy operations will continue to operate in the 1660-1670 MHz band.[466] This band is lower-adjacent to the 1670-1675 MHz band. In the *Service Rules Notice,* we stated that protection of radioastronomy operations in this lower-adjacent band will be accomplished through technical limits established for equipment operating in the 1670-1675 MHz band, namely out-of-band emission requirements.[467]

147. Discussion Several commenters suggest that we establish additional technical specifications or procedures to protect Radioastronomy from harmful interference.[468] The National Academy of Sciences through the National Research Council's Committee on Radio Frequencies (CORF) indicates that threshold levels for interference detrimental to radioastronomy are described in a report published by the International Telecommunication Union.[469] CORF states that these threshold levels should be the basis for Commission rules on out-of-band emission limits or emission masks for services operating in the 1.4 GHz and 1.6 GHz bands.[470] CORF states as an alternative to out-of-band emission limits, protection of radioastronomy operations in the 1350-1427 MHz and 1660-1670 MHz bands could be accomplished through exclusion and coordination zones.[471]

148. Cornell agrees with CORF that emission limits should be established using threshold levels recommended by ITU.[472] Alternatively, Cornell suggests that protection of radioastronomy in the 1350-1427 MHz and 1660-1670 MHz bands could be accomplished through exclusion zones and coordination zones.[473] ArrayComm states that as a practical matter, meaningful protection of

[462] *See Service Rules Notice,* 17 FCC Rcd at 2541-44 ¶¶ 115-123. *See also* 47 C.F.R. § 2.106, footnotes US229, US352, US361, US352, US362 and US363.

[463] *See Service Rules Notice,* 17 FCC Rcd at 2544 ¶ 123. *See also* 47 C.F.R. §2.106, footnote US311.

[464] 47 C.F.R. §2.106, footnote US311.

[465] *See Service Rules Notice,* 17 FCC Rcd at 2544 ¶ 123.

[466] *Id.*

[467] *Id.*

[468] *See* NAS Comments; ArrayComm Comments and Cornell Comments.

[469] NAS Comments at 4. *See also* ITU Report ITU-R RA.769-1.

[470] NAS Comments at 4.

[471] *Id.* at 5.

[472] Cornell Comments at 4.

[473] *Id.*

radioastronomy operations in the 1660-1670 MHz band can only be achieved if the commercial systems in the 1670-1675 MHz band are prevented from operating in the immediate vicinity of protected radioastronomy sites.[474] ArrayComm supports CORF proposal for protecting radioastronomy cites listed in footnote US311 and also supports proposed threshold levels for interference recommended in ITU Report.[475]

149. We acknowledge the importance of information gathered from radioastronomy observations in the 1350-1400 MHz and 1660-1670 MHz bands. As CORF states, Radioastronomy measurements have identified the birth sites of stars in our own galaxy and characterized the complex evolution and distribution of galaxies in the universe.[476] We note, however, that under footnote US311 radioastronomy operations in the 1350-1400 MHz band are conducted on an unprotected basis.[477] While we remain sensitive to the need to protect sensitive radioastronomy sites, the imposition of coordination requirements and exclusion zones on primary licensees – as suggested by CORF – would be tantamount to upgrading radioastronomy from secondary to primary status. Therefore, we decline to adopt the coordination requirements and exclusion zones proposed by CORF for these secondary operations. We believe that, given the small number and remote locations of observatories, licensees in the 1390-1392 MHz and 1392-1395 MHz bands can easily accommodate radioastronomy operations in these bands on a case-by-case basis. We note that footnote US311 requires parties to make every practicable effort to protect radioastronomy facilities that operate on an unprotected basis.[478]

150. Furthermore, we note that under footnote US74, radioastronomy observations in the 1660-1670 MHz band are conducted on a primary basis.[479] These operations, however, are protected from adjacent-band interference only to the extent that adjacent-band radiation exceeds the limits on out-of-band emissions established for that service.[480]

151. We believe that such coordination procedures could be unnecessary depending on the type of technology that is eventually deployed in the 1670-1675 MHz band. For instance InsideTrax indicates that their proposed power limits for the 1670-1675 MHz band would be sufficiently low that all likelihood of interference to radioastronomy operations in the 1660-1670 MHz band would be minimized.[481] Given the small number and remote locations of observatories, we believe that the 1670-1675 MHz licensee can easily accommodate adjacent-band radioastronomy on a case-by-case basis. Along these lines, AeroAstro states that they are committed to protection of radioastronomy in the 1660-1670 MHz band and that, if necessary, they will consult with radioastronomy operators to find the best means of achieving needed protection.[482] Therefore, we decline to adopt the coordination procedures proposed by CORF and supported by ArrayComm for licensees in the 1670-1675 MHz band.

---

[474] ArrayComm Comments at 27.

[475] *Id.* at 15-16.

[476] NAS Comments at 1.

[477] 47 C.F.R.§ 2.106, footnote US311.

[478] *Id.*

[479] 47 C.F.R.§ 2.106, footnote US74.

[480] *Id.* We note that radioastonomy antennas are highly directional and pointed skyward, therefore, radioastronomy operations are more apt to discriminate signals from terrestrial stations.

[481] InsideTrax Comments at 13.

[482] AeroAstro Comments at 8-9.

152. ArrayComm requests that the Commission specifically identify radioastronomy sites to be afforded protection. We note that footnote US311 already lists the location of radioastronomy sites by city, state and coordinates. In order to clarify the location of radioastronomy observations, we will indicate that the radioastonomy observations specified in footnote US74 occur at the locations listed in footnote US311. Finally, Cornell requests we clarify that the procedures established in Section 1.924(a) and 1.924(d) for protection of the radioastronomy site in Green Bank, West Virginia and Arecibo, Puerto Rico will apply to licensees in the bands which are the subject of this proceeding.[483] We note that in the *Service Rules Notice*, we indicated that the quiet zone requirements of Section 1.924 would apply to licensees in the paired 1392-1395 MHz and 1432-1435 MHz bands and unpaired 1390-1392 MHz, 1670-1675 MHz and 2385-2390 MHz bands.[484] These are the procedures applicable to the Green Bank and Arecibo facilities.

b. Radiosondes

153. Background. We did not propose additional rules or approaches with regard to our treatment of radiosondes in the *Service Rules Notice*.[485] As part of the reallocation to non-Government use, radiosondes were reallocated from the 1670-1675 MHz band.[486] Radiosondes are still allocated on a primary basis in the upper and lower adjacent bands to the 1670-1675 MHz band.[487]

154. Discussion. ArrayComm claims that the *Service Rules Notice* is in conflict with the *1995 NTIA Spectrum Reallocation Report* regarding the protection of radiosonde operations.[488] Specifically, ArrayComm points to the fact that protection criteria for radiosonde operations are outlined in Appendix C of the *1995 NTIA Spectrum Reallocation Report*.[489] ArrayComm believes that the conflict arises because the *Service Rules Notice* does not propose codifying these protection criteria into the service rules for the 1670-1675 MHz band. ArrayComm suggests that spectral power flux density limits specified in Appendix C of the *1995 NTIA Spectrum Reallocation Report* be the criteria for the protection of radiosonde operations in the adjacent band,[490] and that these protection limits be codified into the service rules.

155. We note that the protection criteria listed in Appendix C of the *1995 NTIA Spectrum Reallocation Report* were established to allow mixed Government and non-Government use of the 1670-1675 MHz band – on a more restricted basis – prior to the transfer of the spectrum.[491] Moreover, we note that the allocation for radiosonde operations in the adjacent 1668.4-1670 MHz and 1675-1700 MHz bands offers no special protection from interference by operations in the 1670-1675 MHz band.[492] Adjacent-band radiosonde operations will receive protection from interference only to the extent that such radiation

[483] Cornell Reply Comments at 5.

[484] *See Service Rules Notice*, 17 FCC Rcd at 2538 ¶ 97.

[485] A radiosonde is an automatic radio transmitter in the meteorological aids service usually carried on an aircraft, free balloon, kite, or parachute that transmits meteorological data. *See* 47 C.F.R. § 2.1.

[486] *See 1995 NTIA Spectrum Reallocation Report* § 5, p.4.

[487] 47 C.F.R. § 2.106. In the lower-adjacent 1668.4-1670 MHz, footnote US99 states that meteorological aid services (radiosonde) will avoid operations to the maximum extent practicable. 47 C.F.R. § 2.106, footnote US99.

[488] *See* ArrayComm ex parte letter dated February 26, 2002.

[489] *See1995 NTIA Spectrum Reallocation Report*, Appendix C.

[490] *See* ArrayComm Comments at 34, filed in response to the *Reallocation Notice*, ET 00-221.

[491] *See 1995 NTIA Spectrum Reallocation Report*, Appendix C.

[492] 47 C.F.R. § 2.106.

exceeds the limits we establish for out-of-band emissions in the 1670-1675 MHz band.[493] Finally, ArrayComm states that the location of radiosonde sites must be known in advance by the 1670-1675 MHz licensee. In Appendix D, we provide an informational list of radiosonde sites supplied by the NTIA.

c. Earth Exploration Satellite Service

156. Background. CORF requests that we provide protection to the Earth Exploration Satellite Service (EESS).[494] The EESS is a satellite system that monitors the global atmosphere and surface state of the Earth.[495] The EESS measures the total power upwelling from the Earth in 80 kilometer by 80 kilometer cells.[496] CORF requests that we limit the maximum out-of-band emissions into the 1400-1427 MHz band by limiting the maximum number of transmitters which can be placed in any 80 kilometer by 80 kilometer cell.[497]

157. Discussion. Because EESS operations will receive protection from adjacent-band primary terrestrial operations only to the extent that such radiation exceeds the limits we establish for out-of-band emissions in the 1392-1395 MHz and 1427-1432 MHz bands, we decline to adopt CORF's proposal. While we remain sensitive to the need to protect this passive service, the imposition of protection requirements specified by CORF would pose onerous constraints on primary terrestrial operations in the bands adjacent to the 1400-1427 MHz band. Thus while we encourage prospective licensees to maintain such protection wherever feasible, we decline to mandate the protection criteria proposed by CORF.

2. FAS Coordination

a. LPRS

158. In the *Service Rules Notice*, we proposed to allow LPRS, which is licensed by rule, to operate within the SPASUR protection radii without requiring individual station licenses.[498] Because we continue to believe that standard coordination procedures would be overly burdensome, impractical, or ineffective for LPRS, we are adopting our proposal in the *Service Rules Notice*. Specifically, although we still prohibit LPRS devices form causing harmful interference to SPASUR operations, LPRS are nonetheless permitted to operate within the SPASUR protection radii without requiring individual station licenses.[499] We believe that this approach is especially viable in this instance, given that LPRS operates at a maximum transmitter output power of 100 milliwatts[500] and thus poses little threat of interference to SPASUR.[501] We received no comment on this issue.

---

[493] This applies to both existing and future radiosondes.

[494] CORF Comments at 6.

[495] *Id.* at 1.

[496] *Id.* at 6.

[497] *Id.* at Attachment A.

[498] *See Service Rules Notice*, 17 FCC Rcd at 2544 ¶ 124.

[499] *See Service Rules Notice*, 17 FCC Rcd at 2544 ¶ 124.

[500] 47 C.F.R. § 95.639(e).

[501] *Id.*

b. Fixed and Mobile Sites

159. Background. In the *Service Rules Notice*, we proposed a method to coordinate fixed and mobile operations within the protection zone of a Government incumbent and elaborated on how the process would work for site-by-site licensees and geographic area licensees.[502] We received no comment on either of these issues, and for the reasons stated below we are adopting our proposals in the *Service Rules Notice*.

160. Discussion. For services assigned on a site-by site basis, the Commission will review all ULS applications to determine if the operation is located within the protection radii of a co-primary Government incumbent. If we determine that the operation is located within the protection radii of a co-primary Government incumbent, then the Commission will refer the application to the FAS as described in the *Reallocation Report and Order*.[503]

161. Unlike services licensed on a site-by-site basis, services licensed on a geographic area basis will not be required to file an application for each individual operation. Geographic area licensees, as prescribed by service-specific technical parameters, operate throughout their area of operation without needing prior consent of the Commission for each individual station. Taking into consideration this distinction, geographic licensees, by virtue of the nature of their operations, will be responsible for making a determination of whether a particular operation requires FAS approval on a case-by-case basis. Upon making such a determination, we will require the geographic area licensee to file an application through ULS, requesting FAS coordination of any fixed station located within the protection radii of a co-primary Government incumbent or any mobile unit which would operate within the protection radii of the co-primary Government incumbent. When an application requesting FAS coordination is received, the Commission will forward the relevant data to FAS for comment. If no objections are received within a specified time period, the Commission will grant the application if it is otherwise acceptable. FAS coordination will be required prior to activation of any fixed or mobile station within the co-primary Government incumbent's protection radii.

3. Greenbelt, Maryland METSAT Station

162. Background. In the *Service Rules Notice*, we addressed coordination procedures relevant to licensees in the 1670-1675 MHz band operating near the METSAT station located at Greenbelt, MD.[504] We indicated that the Greenbelt, MD facility serves as a back-up to the Wallops Island, VA facility and is therefore inactive most of the time.[505] We noted that the facility is operational for testing purposes approximately once per month.[506] We indicated that NTIA proposed a 65-kilometer protection radii around the Greenbelt, MD facility.[507] We sought comment on the protection radii.[508] Further, we proposed to require all fixed and mobile licensees to coordinate operations within the NTIA protection radii.[509] Under this proposal, we envisioned that coordination would take place before the activation of

---

[502] *See Service Rules Notice*, 17 FCC Rcd at 2545-46 ¶¶ 126-129.

[503] *See Reallocation Report and Order*, 17 FCC Rcd at 399-400 ¶ 73.

[504] *See Service Rules Notice*, 17 FCC Rcd at 2546-47 ¶¶ 130-134.

[505] *Id.* at 2546 ¶ 130.

[506] *Id.*

[507] *Id.* at 2546 ¶ 131.

[508] *Id.*

[509] *Id.*

new facilities or any modifications to existing facilities. We indicated that we believed that the coordination procedures established for the METSAT facilities located at Wallops Island, VA and Fairbanks, AK would also suffice for the Greenbelt, MD facility.[510] Finally, we noted that protection of the Greenbelt, MD site is necessary only while the station is in operation.[511] Therefore, we proposed that the 1670-1675 MHz licensee would be required to reduce power or shut down any fixed site or mobile unit located within the coordination zone and which could cause interference to the Greenbelt, MD facility, when the Greenbelt, MD facility is active.[512]

163. Discussion. *Protection Radii.* We believe that the 65-kilometers protection radius approach is appropriate because licensees in the 1670-1675 MHz band have the flexibility to operate fixed sites up to a maximum power of 2000 watts EIRP. InsideTrax does not believe that a 65-kilometers radius of protection around the Greenbelt, MD site is necessary.[513] InsideTrax states that protection radius should take into account the nature of the transmitters, rather then setting a single limit.[514] InsideTrax believes that a 16-kilometer zone may be more appropriate for low-power, low duty-cycle devices.[515] We note, however, that the 65-kilometer radius will provide the Greenbelt, MD facility protection from both high powered and low powered operation. Further, the 65-kilometer radius is a protection zone rather then an exclusion zone, thus providing the 1670-1675 MHz licensee with greater flexibility and regulatory certainty to coordinate operation within the 65-kilometer radius than would be provided by a protection zone determined by the type of transmitters deployed.

164. *Coordination of Fixed and Mobile.* We received no comments opposed to our proposal to coordinate all fixed and mobile sites. Consequently, we will implement our plan to require all fixed and mobile licensees operating in the 1670-1675 MHz band to coordinate operations within the NTIA protection radii. As we indicated in the *Service Rules Notice*, under this proposed plan, coordination would take place before the activation of new facilities or any modifications to existing facilities. As we indicated in a previous section, coordination of multiple fixed sites and mobile units may be performed via a single application.

165. *Coordination Procedures.* Based on the record before us, we will implement the same coordination procedures for Greenbelt, MD that were established in the *Reallocation Report and Order* for Wallops Island, VA and Fairbanks, AK.[516] These procedures are listed in Section 1.924(f).[517] We believe these procedures are appropriate because they offer the 1670-1675 MHz licensee maximum flexibility. Section 1.924(f) requires the 1670-1675 MHz licensee to notify the National Oceanic and Atmospheric Administration (NOAA) of operations that require coordination.[518] The 1670-1675 MHz licensee must then file an application with the Commission requesting an individual station license.[519] The Commission allows a 20-day period for objections to be filed.

---

[510] *Id.* at 2546 ¶ 132.

[511] *Id.* at 2546 ¶ 133.

[512] *Id.*

[513] InsideTrax Comments at 13.

[514] *Id.*

[515] *Id.*

[516] *See Reallocations Report and Order*, 17 FCC Rcd at 399-400 ¶ 73.

[517] 47 C.F.R. § 1.924(f).

[518] *Id.*

[519] *See* discussion *supra* Section IV.B.7.

166. We believe that maximum flexibility is needed with coordination because we do not know what kind of technology will eventually be employed in this band. We note that each commenter who discusses the 1670-1675 MHz band proposes a different technology.[520] We also note that each commenter proposes a different method to protect Greenbelt, MD facility from harmful interference.[521] Under the procedures described above the eventual licensee will be able to negotiate directly with NOAA to establish protection. Consequently, we will decline to adopt ArrayComm's additional refinements to the coordination procedure.

167. ArrayComm states that the coordination procedures for established for Wallops Island, VA and Fairbanks, AK are applicable to the Greenbelt, MD facility, provided that additional refinements to the coordination procedures are adopted.[522] Specifically, ArrayComm proposes a coordination procedure whereby, prior to operation of any site within the protection radii, the 1670-1675 MHz licensee would prepare a plan or model, based on a generally accepted cellular planning tool, of all proposed base stations and mobile units.[523] The results of this modeling plan would be submitted to NOAA prior to operation for verification and testing at the Greenbelt, MD facility.[524] The Government operator would then have 30 days to complete and verify the measurements.[525] Under ArrayComm's proposal, the Government operator would also notify the 1670-1675 MHz licensee within 30 days of any scheduled Government operation at the Greenbelt, MD facility.[526] Additionally, in the event that the Greenbelt, MD facility is activated unexpectedly, the ArrayComm proposal would require the Government operator to alert the 1670-1675 MHz licensee. In those instances where the facility is activated unexpectedly, ArrayComm suggests that the 1670-1675 MHz licensee be afforded 120 minutes to transition to a mode where protection is provided to the Greenbelt, MD facility.[527]

168. We believe that the coordination procedures put forth by ArrayComm would limit a licensee's flexibility to negotiate alternative methods for protection.[528] While we decline to incorporate ArrayComm's suggestion, we note that under the procedures adopted here the 1670-1675 MHz licensee is free to negotiate any procedures with NOAA. AeroAstro states that they accept the need to undertake coordination prior to operation in the 1670-1675 MHz band.[529] AeroAstro states that they will work with NOAA to reduce coordination zones around METSAT facilities.[530] In addition, AeroAstro states that

[520] *See, e.g.,* ArrayComm Comments; InsideTrax Comments; AeroAstro Comments.

[521] InsideTrax Comments at 13 (requesting a 16 kilometer coordination zone for low-power devices), AeroAstro Comments at 9-10 (proposing a scheme in lieu of coordination whereby transmitters automatically cease operation within coordination zone), ArrayComm Comments at 35 (supporting coordination based on generally accepted cellular planning tool.)

[522] ArrayComm Comments at 35.

[523] *See* attachment to *Ex Parte* Letter from Randall S. Coleman, ArrayComm, to Magalie Roman Salas, Secretary, Federal Communications Commission, dated December 21, 2001.

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

[525] *Id.*

[526] *Id.* at 3.

[527] *Id.* at 2.

[528] *See* InsideTrax Reply Comments at 11 (advocating a more progressive rule based on the output power of the licensed service).

[529] AeroAstro Comments at 9.

[530] *Id.* at 10.

they may propose a scheme in lieu of coordination whereby transmitters automatically cease operation within coordination zones.[531]

169. *Protection needed when active.* The Greenbelt, MD facility serves as a back up to the Wallops Island, VA facility and is therefore inactive most of the time. This facility is operational for testing purposes approximately once per month. ArrayComm states that protection should be afforded to the Greenbelt, MD facility only during the periods when it is in use.[532] In addition, ArrayComm believes that commercial operation in the vicinity should otherwise be allowed to exceed special protection criteria.[533] We agree with ArrayComm and we will indicate in our rules that protection of the Greenbelt, MD facility is necessary only while the station is in operation. Therefore, as we proposed in the *Service Rules Notice*, 1670-1675 MHz licensee will be required to reduce power or shut down any fixed site or mobile unit located within the coordination zone and which could cause interference to the Greenbelt, MD facility, only when the Greenbelt, MD facility is active. Conversely, when this facility is inactive, the 1670-1675 MHz licensee will be permitted to operate fixed and mobile units that exceed the designated protection criteria without prior coordination. We believe that these procedures strike an appropriate balance that both supports existing Government operations and promotes the opportunity for new licensees to offer services in this band to the Washington, DC-Baltimore, MD metropolitan areas.

4. Flight Test Telemetry

170. Background. In the *Reallocation Report and Order*, we indicated that new entrants to the 2385-2390 MHz band would need to protect nine non-Governmental aeronautical flight test sites until 2007.[534] Accordingly, we sought comment on the best method for coordinating operations between licensees in the 2385-2390 MHz band and incumbent non-Government aeronautical flight test telemetry operations.[535] The nine non-Governmental aeronautical flight test sites for which we established protection radii are listed in footnote US363 of Section 2.106 of our Rules.[536]

171. We proposed a procedure to require operations in the 2385-2390 MHz band to be coordinated with the Aerospace and Flight Test Radio Coordinating Council (AFTRCC).[537] Under this proposal, licensees in the 2385-2390 MHz band would be required to coordinate fixed and mobile operations within the protection radii of the non-Government aeronautical flight test sites listed in footnote US363 of Section 2.106.[538] We proposed that upon receipt of the 2385-2390 MHz licensee's filing of its application, including all pertinent technical information regarding the proposed operation via the ULS, we would refer the application to AFTRCC for coordination.[539] Only upon AFTRCC approval of the application would we then issue an individual station license for the application referred to AFTRCC.

---

[531] *Id.*

[532] ArrayComm Comments at 35.

[533] *Id.*

[534] *Reallocation Report and Order*, 17 FCC Rcd at 399 ¶ 71.

[535] *See Service Rules Notice*, 17 FCC Rcd at 2547 ¶ 137.

[536] 47 C.F.R. § 2.106, footnote US363.

[537] *See Service Rules Notice*, 17 FCC Rcd at 2548 ¶ 138. AFTRCC is an association of aerospace companies engaged in the design, development, manufacturing and testing of commercial and military aircraft, space vehicles, missiles and weapons systems. AFTRCC Comments at 2.

[538] *Id.*

[539] *Id.*

172. Discussion. We are adopting our proposal in general, with a slight modification as proposed by AFTRCC because this approach will facilitate a more streamlined processing mechanism than the approach we proposed in the *Service Rules Notice*.[540] Thus, under the coordination procedures we are adopting here, prospective operators will contact AFTRCC to secure a frequency recommendation prior to filing an application with the Commission.[541] We believe that this approach is consistent with existing procedures and facilitates the resolution of potential interference problems before an application is formally filed.[542] According, we will require licensees in the 2185-2390 MHz band to receive AFTRCC approval before filing an application via the ULS.[543]

173. Thus, under the coordination rules we adopt herein, licensee in the 2385-2390 MHz band will be required to coordinate fixed and mobile operations within the protection radii of the non-Government aeronautical flight test sites listed in footnote US363 of Section 2.106 of our rules. An individual station license will be issued for each coordinated operation. Further, licensees will need to obtain approval from AFTRCC prior to filing an application for an individual station license via the ULS. Applications filed in our ULS should contain all relevant technical information regarding the proposed operation. Additionally, all applications requiring AFTRCC approval must contain a statement that AFTRCC approval was obtained.

174. On a separate but related issue, AFTRCC expresses concern that out-of-band emissions from the 1432-1435 MHz band could affect upper adjacent-band flight test operations in the 1435-1525 MHz band and that out-of-band emissions from the 2385-2390 MHz band could effect lower adjacent-band flight test operations in the 2360-2390 MHz band.[544] To limit adjacent-band interference, AFTRCC suggest that we also require licensees in the 1432-1435 MHz and 2385-2390 MHz bands to coordinate their operations within the protection radii of the non-Government aeronautical flight test sites listed in footnote US363 of Section 2.106.[545] AFTRCC suggests that the basis for coordination be determined by power flux density limits at the receiver site of the flight test telemetry operation.[546]

175. Although we recognize the importance of aeronautical flight test telemetry, we believe that imposing AFTRCC's coordination requirements on licensees in the 1432-1435 MHz and 2385-2390 MHz bands would be onerous and potentially harmful to the viability of operations in these bands overall. Because we believe that the existing coordination procedures, which require coordination of in-band 2385-2390 MHz operations within 160 kilometers (100 miles) of each flight test site, is adequate protection, we will decline to incorporate AFTRCC's instant adjacent-band coordination proposal. Rather, we believe that the more appropriate approach is to afford aeronautical flight test telemetry operations protections from adjacent-band interference only to the extent that such radiation exceeds the limits on out-of-band emissions established for that service. Because there are a limited number of sites where aeronautical flight test operations may arise, we believe that such operations can be accommodated on a case-by-case basis.

[540] AFTRCC Comments at 6-8.

[541] *Id.* at 7.

[542] *Id.*

[543] *See id.* at 7-8.

[544] *Id.* at 5.

[545] *Id.* at 5.

[546] *Id.*

5. Canada and Mexico Coordination

176. In the *Service Rules Notice*, we proposed certain interim requirements for terrestrial licenses along Mexico and Canada borders. We stated that the U.S. currently does not have agreements with Canada and Mexico covering the paired 1392-1395 MHz and 1432-1435 MHz bands or the unpaired 216-220 MHz, 1390-1392 MHz, 1427-1432 MHz, 1670-1675 MHz and 2385-2390 MHz bands.[547] We tentatively concluded that until such time as agreements are completed, licensees should operate at specific emission levels at the border.[548]

177. After careful consideration, we have decided to decline adoption of an emission limit at the border. Rather, in order to provide the most flexibility to licensees near the border areas, we have decided that "near the border" licensees must protect stations in Canada and Mexico from harmful interference. This will permit licensees to maximize their operations depending on the spectrum use, terrain, and other factors at the border areas, while still protecting operations across the border. We note, however, that operation in the paired 1392-1395 MHz and 1432-1435 MHz bands and the unpaired 216-220 MHz, 1390-1392 MHz, 1427-1432 MHz, 1670-1675 MHz and 2385-2390 MHz bands may be subject to future agreements with Canada and Mexico and therefore may be subject to further modification

F. Other Proposals

1. 216-220 MHz Band

a. Data Flow

178. Background. In the *Service Rules Notice*, we sought comment on Data Flow's Petition requesting that the Commission amend Sections 90.35 and 90.259 of the Commission's Rules.[549] Specifically, Data Flow requests that the "Class of Stations" column for frequency band 216-220 of the Industrial/Business Pool Frequency Table in Section 90.35, be amended from "Base or mobile" to "Fixed, base, or mobile."[550] Data Flow Systems also requests that Section 90.259 be amended to substitute the word "shall" for "may" to read as follows: "Base stations authorized in these bands *may* be used to perform telecommand functions with associated mobile telemetering stations."[551]

179. Discussion. We take this opportunity to rectify the apparent uncertainty here by amending Section 90.35(b) of our rules to permit secondary telemetry operators the flexibility to utilize

[547] The 216-220 MHz band is currently covered in an agreement with Canada for operations above 30 MHz. This agreement, though, applies only to Fixed Installation Radars in the 216-220 MHz band and would therefore not be applicable to the current planned use. A separate agreement will have to be negotiated for non-radar uses. See USA: *Treaties and Other International Acts Series* (TIAS) 5205; CAN: *Canada Treaty Series* (CTS) 1962 No. 15. *Agreement Between the United States of America and Canada Revising the Technical Annex to the Agreement of October 24, 1962* (TIAS 5205/CTS 1962 No. 15). Effected by Exchange of Notes at Ottawa, Canada, June 16 and 24, 1965. Entered into force June 24, 1965. USA: TIAS 5833/CAN: CTS 1962 No. 15, as amended June 24, 1965.

[548] *See* ArrayComm Comments at 33. ArrayComm believes that the 47 dBuV/m field strength limit for the 1670-1675 MHz band would provide adequate protection for a wide range of co-channel commercial services in Canada and Mexico.

[549] *Data Flow Petition* at 3. Data Flow is a Florida corporation that manufactures and sells Supervisory Control and Data Acquisition (SCADA) telemetry systems to public and private water utility companies throughout the United States. *Id.*

[550] *Id. See* 47 C.F.R. § 90.35.

[551] 47 C.F.R. § 90.259 (emphasis added).

this band. Accordingly, we grant Data Flow's petition, in part, and hereby amend section 90.35(b) to include fixed uses in the 217-220 MHz band. We also deny, in part, Data Flow's request with regard to the 216-217 MHz portion of the band. Because we reallocated the 216-217 MHz portion of the band to LPRS, we will not grant new licenses in this portion of the band.[552] We believe that the changes we adopt here will enhance the use of the 217-220 MHz band for radio services provided by utilities and pipeline companies.[553] We further believe that these amendments will remove any uncertainty regarding whether fixed telemetry can operate in the 217-220 MHz portion of the band under the Commission's rules.[554]

180. Mobex opposes Data Flow's proposed amendments. Mobex, citing a 1971 Commission rulemaking, states that historically, the Commission has made no provision for fixed uses in this band.[555] We note, however, that the circumstances surrounding the use of this band since our 1971 rulemaking have not remained static. Other than SPASUR, since 1971, the Federal Government has ceased to use this band for high-powered radiolocation. Additionally, in light of this band's reallocation to non-Federal Government use and growing congestion and scarcity of spectrum that provide important public utility services, we believe that Data Flow's petition is both timely and relevant to this proceeding. Both the technological capabilities as well as the applicable scope of telemetering services throughout this band have matured significantly.

181. PSI believes that if the Commission grants Data Flow's request, it should also adopt coordination requirements for fixed telemetry operations that mirror those requirements adopted for secondary amateur stations under section 97.303(e) of our rules.[556] We disagree. We do not currently require mobile telemetry operations in the band to follow such stringent coordination requirements, and we find no reason to adopt such requirements here. Rather, we believe that frequency coordination under Section 90.175 of our rules, coupled with a requirement on the fixed telemetry operator to notify the geographic area licensee, is more than adequate to protect primary operations in the band.

182. In response to the *Service Rules Notice*, Data Flow also submits a new request, separate and apart, from its initial petition for rulemaking. In its latest filings to this proceeding, Data Flow requests that water utility telemetry be limited to the 217-220 MHz band and that it correspondingly be upgraded from secondary to primary.[557] Data Flow points out that water utility companies utilize fixed telemetry to ensure safe drinking water for the public and to protect the environment from contaminated runoff.[558] Data Flow contends that because of the dearth of satisfactory channels available in the 150-174 MHz or 450-470 MHz bands, water utility companies have needed to use the 216-220 MHz band for

[552] In the *Reallocation Report and Order*, we recognized the important functions LPRS provides to the public. Accordingly, in allocating the 216-217 MHz to LPRS, we decided to cease licensing new non-LPRS in this band on either a primary or secondary basis so as to afford LPRS maximum protection from harmful interference, without having to impose additional technical or regulatory restrictions. *Reallocation Report and Order*, 17 FCC Rcd at 380 ¶ 26.

[553] *See* UTC Comments at 3 (permitting fixed telemetry in this band would provide necessary spectrum to facilitate the deployment and use of critical services provided by utilities and pipeline companies).

[554] *See* Itron Comments at 10 (stating that Section 90.35, as it currently reads, arguably precludes fixed telemetry, and further, that there is no basis to prohibit fixed telemetry in a band in which mobile telemetry is permitted).

[555] Mobex Comments at 2.

[556] PSI Comments at 5.

[557] Data Flow Comments at 4. On this point, we note that one other commenter agreed with Data Flow's position that telemetry ought to be elevated to primary status. *See* Watchman Comments at 3.

[558] Data Flow Comments at 1, 3.

fixed telemetry purposes.[559] Data Flow cites to previous waiver grants allowing water utility companies to operate fixed telemetry in the 216-220 MHz band.[560]

183. PSI opposes Data Flow on this point. PSI opposes new licensing of primary telemetry in the 217-218 MHz and 219-220 MHz "AMTS bands" and proposes that secondary telemetry be "confined to the under utilized 218-219 MHz band."[561] Fairfield believes that Data Flow's new request and PSI's proposal to limit telemetry to the 218-219 MHz band are both procedurally deficient.[562] Fairfield also points out that as a matter of policy as well as procedure, a grant of either proposal would have the effect of limiting critical geophysical telemetry operations throughout the band.[563]

184. The parties raise comments that serve to underscore anecdotally our position regarding the importance of a spectrum use management approach that promotes efficiency as well as diversity. As Watchman states, "reliable telemetry is needed ... [but] water utilities are not the only important users in the band . . . ."[564] In considering the claims of the parties, we must be mindful of the circumstances surrounding the current and prospective uses of this band. In assessing the proposals before us, we find no basis to change our approach to this band. To adopt either PSI's proposal or Data Flow's latest request would require us to at least revisit and potentially alter the existing framework for the 216-220 MHz band. We also note that neither PSI nor Data Flow is precluded from promoting their interests in the band as either a participant in future auctions of this band or as a principal in a contractual arrangement with primary licensees in this band. We therefore decline to entertain either PSI's proposal to limit telemetry to the "218-219" MHz band or Data Flow's latest request to elevate secondary water telemetry to primary throughout the 217-220 MHz band.

b. Securicor

185. Background. In its comments to the *Reallocation Notice*, Securicor sought to license "white space" in the 216-220 MHz band under a paradigm similar to the 220-222 MHz band (220 MHz Service).[565] Securicor states that expansion of the spectrally-efficient technology of the 220 MHz service to the 216-220 MHz band would allow greater use of the limited amount of unencumbered spectrum.[566] In the *Reallocation Report and Order*, we declined Securicor's request with respect to the 216-217 MHz portion of the band because of the need to protect LPRS operations.[567] We now address Securicor's request as it relates to the remaining portion of the 216-220 MHz band.[568] Specifically, in the *Service Rules Notice*, we sought comment on whether there are efficiencies to be gained by implementing Securicor's proposal because of the adjacent 220-222 MHz Service.[569]

---

[559] *Id.* at 3.

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

[561] PSI Comments at 5.

[562] Fairfield Reply Comments at 3.

[563] *Id.* at 3-6.

[564] Watchman Comments at 3.

[565] *See* Securicor Comments at 5. Securicor is a service provider in the 220 MHz Service.

[566] *Id.* at 5.

[567] *See Reallocation Report and Order*, 17 FCC Rcd at 384 ¶ 35.

[568] *Id.*

[569] *Service Rules Notice*, 17 FCC Rcd at 2521 ¶ 49. According to Warren Havens, Securicor no longer manufactures and markets 5 kHz equipment. Warren Havens Late-Filed Comments at 4. Notwithstanding the current operating (continued....)

186. Discussion. Because we believe that it would be premature to implement a new licensing scheme for this band at this time, we deny Securicor's request. While we recognize that this band is heavily encumbered thus lending support to Securicor's position,[570] we do not believe that an implementation of Securicor's proposal would be prudent.[571] As we mentioned earlier in this proceeding, the balance of the 217-220 MHz band is either already subject to competitive bidding (218-219 MHz) or proposed to be assigned by competitive bidding (AMTS).[572] Datex/UST asserts that Securicor's proposal would subject the "white areas" in this band to competitive bidding on a geographic area basis that, in turn, would cause "significant harm to the nascent 218-219 MHz Service."[573] In this connection, we note that prospective parties interested in utilizing this band to implement a particular business plan are not foreclosed from doing so should they elect to participate in and ultimately win a license at auction in either of these bands.[574]

c. Warren Havens

187. Background. In comments filed in response to the *Reallocation Notice*, Warren Havens requests the Commission to authorize "advanced technologies services" in the 216-225 MHz band which would be governed under a corollary set of service rules.[575] Havens suggests that new "advanced technologies services" could include a National Environmental Wireless Service (NEWS) for environmental and wildlife monitoring, or 4th generation wireless technologies.[576] In the *Reallocation Report and Order*, we declined to make changes to the 216-217 MHz portion of the band in order to protect LPRS operations.[577] Nonetheless, in the *Reallocation Report and Order*, we deferred action on Havens' request as it relates to the remaining portion of the 216-220 MHz band.[578] We now turn our attention to Havens' proposal as it relates to the remaining portion of the 216-220 MHz band.[579]

(...continued from previous page)
status of Securicor's business, the issue raised by Securicor is far from settled. We believe that this issue, having been brought properly before the Commission, and given the issue's relevancy to the instant proceeding as evidenced by the record, is not moot as Warren Havens contends.

[570] The SMR Advisory Group, LC and BIZCOM USA, Inc., (collectively, "SMR/BIZCOM") filed joint reply comments in support of Securicor's general position.

[571] *See, e.g.*, PSI Comments at 3 (stating that the Securicor plan provides no reason to support a remodeling of the 216-220 MHz band similar to the 220-222 MHz band). *But see* SMR/BIZCOM Reply Comments at 8 (claiming that Securicor's 5 kHz narrowband technology would enhance compatibility between the 218-220 MHz and 220-222 MHz bands). SMR/BIZCOM believes that the Commission should restructure the 218-220 MHz band similar to the 220-222 MHz band to enhance spectrum efficiency and to promote the variety of services that could be offered. *Id.* at 7-8.

[572] *See supra* ¶ 35.

[573] *See* Datex/UST Comments at 3 (stating that incumbent operators, who raised operating capital and created business plans in reliance on uniform spectrum rules for the 218-219 MHz band, would suffer serious setbacks). In its joint filing UST and Datex indicate that they have already constructed systems and initiated operations in the Baton Rouge and Bakersfield markets, with plans for more. *Id.*

[574] *See e.g.*, Mobex Comments at 5.

[575] *See* Havens Comments at 3. Havens holds AMTS authorizations to serve five inland navigable waterways and also holds licenses in the 220-222 MHz service.

[576] *Id.* at 4-8.

[577] *See Reallocation Report and Order*, 17 FCC Rcd at 384 ¶ 35.

[578] *Id.*

[579] *Id.*

188. Discussion. The majority of comments oppose Havens' petition as overly broad and speculative.[580] Havens proposes to use this band for environmental and wildlife monitoring. Though laudable, we are not persuaded that this proposal would be feasible primarily because of significant incumbent use of the 217-220 MHz band, especially in light of the Commission's reallocation of the lower portion of this band to LPRS on a primary basis. Further, Havens would have the Commission postpone any plans to assign licenses in this rulemaking, at the expense of existing and prospective licenses, so that it can submit a proposed rulemaking to promulgate its advanced technologies services concept. We fail to see how Havens' proposal promotes the public interest with regard to our spectrum management goals and the immediate goals of this instant rulemaking. Lastly, we note that no Commission rule would prohibit the type of service Havens proposes. Havens, as well as current and prospective AMTS or 218-219 licensees have the opportunity to offer any type of acceptable service in this band through the competitive bidding process. Accordingly, we deny Havens' proposal to designate the 216-225 MHz band as an "advanced technologies services" band.

2. 1.4 GHz Band

189. In a proposed joint agreement (Joint Agreement), AHA and Itron present a band plan to facilitate the shared operations of WMTS and telemetry operations in the 1427-1429.5 MHz and 1429.5-1432 MHz bands.[581] In addition to proposing a band "flip" as part of the overall band plan,[582] the Joint Agreement, *inter alia*, outlines the terms between AHA and Itron governing telemetry operations throughout the band, including secondary usage as well as technical restrictions on telemetry to protect WMTS from harmful interference. AHA and Itron request that we codify the major elements of the Joint Agreement as part of the instant proceeding. We now address the major elements of the Joint Agreement with regard to secondary operations and technical restrictions.

a. Secondary Operations

190. Itron urges the Commission to adopt that portion of the Joint Agreement with regard to secondary operations. Under the Joint Agreement, secondary operations would be permitted as follows: (i) telemetry would operate on a secondary basis in the lower portion of the band (1427-1429.5 MHz) where WMTS is primary, and (ii) WMTS would operate on a secondary basis in the upper portion of the band (1429.5-1432 MHz) where Part 90 telemetry is primary.[583] In the *Reallocation Report and Order*, we allocated telemetry on a secondary basis in the lower portion of the band (1427-1429.5 MHz) where WMTS is primary.[584] However, in that proceeding, we did not establish an allocation for WMTS in the upper portion of the band (1429.5-1432 MHz) where telemetry is primary.[585] We note, however, that because WMTS is a subset of telemetry, the existing allocation for telemetry in this band would allow WMTS to operate in the upper portion of the band (1429.5-1432 MHz) on a primary basis under the provisions of Part 90 of our Rules.[586] Because WMTS equipment is generally prohibited from operating

[580] *See, e.g.*, Datex/UST Comments, Mobex Comments, SMR/BIZCOM Reply Comments.

[581] *See* Joint Agreement, *supra* note 77.

[582] *See supra* ¶¶ 25-26.

[583] Itron Comments at 9.

[584] *See Reallocation Report and Order*, 17 FCC Rcd at 392 ¶ 54.

[585] *Id.*

[586] 47 C.F.R. § 90.259.

on Part 90 frequencies,[587] in this limited instance, we will allow WMTS equipment to operate on Part 90 frequencies throughout the 1427-1429.5 MHz and 1429.5-1432 MHz bands.[588]

b. Limitations on Telemetry

191. In the *Service Rules Notice* we indicated that AHA provided several suggestions for restricting telemetry in these bands to protect WMTS from harmful interference.[589] Specifically, AHA proposed: 1) restricting telemetry operations to utility telemetry; 2) restricting telemetry operations to fixed telemetry; and/or 3) limiting the power levels of telemetry operations from 100 watts to 10 watts to 1 watt as frequencies approach where WMTS operations are primary (1427-1429.5 MHz).[590] In their Joint Agreement, AHA and Itron also propose to limit the field strength telemetry may radiate – into the WMTS band – at the site of any WMTS operations. We discuss each of these issues as follows.

(i) Utility use

192. AHA, Itron, UTC, and Hexagram all endorse limiting telemetry at 1.4 GHz for utility use only.[591] In support, Itron points to the Joint Agreement, which specifies utility telemetry as a form of telemetry that is wholly compatible with WMTS operations.[592] AHA states that comments in this proceeding demonstrate that wireless utility telemetry services are more compatible with WMTS.[593] In the *Service Rules Notice*, however, we specifically asked commenters who support limiting telemetry in these bands to utility-specific operations to explain whether other forms of telemetry operations (*i.e.*, non-utility) would cause harmful interference to WMTS.[594] Although several commenters generally cite their support for utility use only, no commenter clearly explains how or whether non-utility telemetry operations would cause harmful interference to WMTS. Given the record in this proceeding, we believe that telemetry interference to WMTS is better addressed by establishing technical parameters to minimize interference that will apply to all forms of telemetry, rather than prohibiting non-telemetry. Accordingly, we decline to limit telemetry in these bands to utility use only.

(ii) Fixed vs. Mobile Operation

193. Since telemetry operating within the WMTS primary band poses the greatest threat of interference, we agree with AHA that secondary telemetry should be limited to fixed operation only.[595] We believe that in the absence of conclusive empirical data on the levels of interference,[596] fixed only

[587] 47 C.F.R. § 90.203.

[588] *See* also discussion at *infra* ¶¶ 25-26.

[589] *See Service Rules Notice*, 17 FCC Rcd at 2523 ¶ 56.

[590] *Id.*

[591] *See* AHA Reply Comments at 1-2, Itron Comments at 2, UTC Comments at 6, Hexagram Comments at 3-4.

[592] Itron at 2

[593] AHA Comments at 2.

[594] *See Service Rules Notice*, 17 FCC Rcd at 2523 ¶ 56.

[595] This limitation to allow only fixed telemetry will apply to secondary telemetry outside the seven geographic "carve-out" areas in the 1427-1429.5 MHz band and to secondary telemetry within the seven geographic "carve-out" areas in the 1429.5-1432 MHz band. *See* AHA Comments at 5.

[596] *See* General Electric Comments at 2-3.

operations for secondary telemetry will help to identify, isolate and resolve interference conflicts quickly.[597]

194. Unlike co-channel operations, we believe that the potential for harmful interference to WMTS arising from primary telemetry operations in the adjacent band is minimal. Therefore, we decline to prohibit mobile operations for primary telemetry. Primary telemetry will be authorized for fixed, base or mobile operations.[598] Licensees will be required to specify their mobile area of operations as a radius around a fixed point.[599] Although we decline to prohibit mobile operations for primary telemetry, we nonetheless impose other technical restrictions, such as field strength limits, to provide protection to WMTS operations from harmful interference. This issue is discussed below.

(iii) Power Limitations

195. *Fixed Sites:* The Joint Agreement proposes a sliding scale power limitation on fixed telemetry as the transmit frequency approaches the WMTS primary band.[600] Specifically, AHA and Itron would limit the power of fixed telemetry from 100 watts to 10 watts to 1 watt as the frequency approaches the WMTS band.[601] Based on the record before us, we will adopt the sliding scale power restriction on fixed telemetry proposed by AHA and Itron.[602] Commenters generally support the sliding scale power limitation although one commenter supports an even stricter limitation on power for telemetry.[603] We are concerned that stricter power limits may limit the viability of telemetry operations in this band. We believe that the limits proposed by AHA and Itron strike the proper balance between minimizing the possibility of harmful interference to adjacent-band WMTS operations and allowing viable telemetry operations.

196. Specifically, the maximum EIRP for secondary fixed telemetry will be 1 watt in the 1427-1429.5 MHz band. The maximum EIRP for primary fixed telemetry will be limited by frequency as follows (1) 1 watt for 1429.5-1430.5 MHz; (2) 10 watts for 1430.5-1431.5 MHz and (3) 100 watts for 1431.5-1432 MHz. In the "carve-out" areas,[604] the maximum EIRP for secondary fixed telemetry will be 1 watt in the 1429-1431.5 MHz band. For primary telemetry in the "carve-out" areas, the maximum EIRP will be limited by frequency as follows (1) 100 watts for 1427-1428 MHz; (2) 10 watts for 1428-1428.5 MHz; (3) 1 watt for 1428.5-1429 MHz and (4) 1 watt for 1431.5-1432 MHz.[605]

---

[597] AHA Comments at 3. *But see* Itron Comments at 3-4 (stating that mobile authority should be confined to utility entities holding a fixed telemetry license).

[598] Fixed, base or mobile telemetry will be authorized for primary telemetry outside the seven geographic "carve-out" areas in the 1429.5-1432 MHz band and for primary telemetry within the seven geographic "carve-out" areas in the 1427-1429.5 MHz band.

[599] *See supra* ¶ 48.

[600] Joint Agreement at 4.

[601] *Id.*

[602] We will also adopt the sliding scale power limit for fixed telemetry operations in the seven geographic "carve-out" areas.

[603] *See* Itron Comments at 2 and General Electric Reply Comments at 2 (supporting the AHA-Itron sliding scale power limitation), UTC Comments at 12 (suggesting a slightly modified sliding scale power limitation). *But see* Hexagram Reply Comments at 5 (supporting a more strict power limitation).

[604] *See* note 78, *infra*.

[605] We note that the Joint Agreement contemplates a 10-watt maximum EIRP for operations at 1431.5-1432 MHz. This 10-watt maximum limit, however, would be inconsistent with the intent of the sliding scale power limitation (continued....)

197. In addition, we will limit "temporary fixed" sites to a maximum EIRP of 1 watt on any frequency.[606] Because licensees will not be providing the specific coordinates of "temporary fixed" sites, we believe that these sites should be limited to the lowest power on the sliding scale to minimize the possibility of harmful interference to adjacent-band WMTS operations.

198. *Mobile Units:* Itron proposes a sliding scale power limitation for mobile telemetry as the transmit frequency approaches the WMTS primary band.[607] Specifically, Itron would limit the power of mobile telemetry from 1 watt to 25 milliwatts as the frequency approaches the WMTS band.[608] We believe that the sliding scale limit on mobile units proposed by Itron strikes the proper balance between minimizing the possibility of harmful interference to adjacent-band WMTS operations and allowing viable mobile telemetry operations. Therefore, we will adopt Itron's sliding scale power limitation for mobile operations.

199. Specifically, the maximum EIRP for mobile telemetry will be limited by frequency as follows (1) 25 milliwatts for 1429.5-1430 MHz and (2) 1 watt for 1430-1432 MHz. In the "carve-out" areas, the maximum EIRP for mobile telemetry will be limited by frequency as follows (1) 1 watt for 1427-1428.5 MHz; (2) 25 milliwatts for 1428.5-1429 MHz and (3) 25 milliwatts for 1431.5-1432 MHz.[609]

200. AHA recommends that mobile telemetry operations be limited to an operating power no greater then 25 milliwatts in the non-WMTS portions of the 1427-1432 MHz band.[610] AHA believes that mobile operations restricted to no more than 25 milliwatts will limit adjacent-band and in-band interference to WMTS operations.[611] We believe, however, that such a strict power limitation will render mobile operations unusable for practical applications. Therefore, we decline to adopt AHA's proposed limit of 25 milliwatts.

201. AHA indicates that an adjacent-band mobile unit operating at 1 watt EIRP would have to be located at least 226 feet from a WMTS facility in order to avoid causing harmful interference to WMTS operations.[612] We believe that such a buffer zone between adjacent-band mobile telemetry and WMTS facilities can easily be maintained. Mobile telemetry will be limited to a specific radius around a fixed point therefore no wide-area operations will be permitted.[613] Further, mobile telemetry will be subject to frequency coordination.[614] Thus, we are confident that frequency coordinators will be able to recommend mobile areas of operation which will maintain the necessary distance between adjacent-band mobile units and WMTS facilities.

(...continued from previous page)
because it would place 10-watt telemetry operations immediately adjacent to WMTS operations at 1429-1431.5 MHz. Therefore, we adjust the maximum EIRP for telemetry at 1431.5-1432 MHz from 10-watts to 1-watt.

[606] *See supra* ¶ 49. "Temporary fixed" sites are authorized on any frequency where telemetry is primary.

[607] Itron *ex parte* filing at 1 (May 7, 2002).

[608] *Id.*

[609] Itron did not provide a sliding scale for mobile operations within the "carve-out" areas. We have converted their sliding scale for mobile operations within the "carve-out" areas.

[610] AHA *Ex Parte* filing at 4, 6. (May 8, 2002)

[611] *Id.* at 2-6.

[612] AHA *Ex Parte* filing at 3. (May 8, 2002)

[613] *See supra* ¶ 48.

[614] *See supra* ¶¶ 92-96.

202. AHA also indicates that the potential for interference to WMTS operations from mobile telemetry is greatly increased at the edge of the geographic "carve-out" areas which are subject to the "band flip."[615] Because non-WMTS telemetry located outside the geographic "carve-out" areas will be operating on a co-channel basis with WMTS operations within the geographic "carve-out" areas, AHA indicates that a mobile telemetry unit operating at 1 watt EIRP would need to maintain a distance of 20 miles from a WMTS facility.[616] We do not believe that all mobile telemetry nationwide should be limited by a situation which is unique to operations at the edge of the seven geographic "carve-out" areas. Rather, we believe that operations of non-WMTS telemetry at the edge of the geographic "carve-out" areas can be accommodated on a case-by-case basis. Accordingly, we expect frequency coordinators to examine these situations carefully to ensure that non-WMTS telemetry operations maintain the field strength limit at the location of co-channel WMTS facilities inside the geographic "carve-out" areas.

(iv) Field Strength Limits

203. In addition to the restrictions on telemetry we have discussed above, we believe that the balance between protecting WMTS operations from harmful interference and allowing flexible non-WMTS systems to operate in bands co-channel and adjacent to WMTS operations is best achieved by defining the permissible field strength non-WMTS facilities may radiate into the WMTS bands.[617] In this connection, AHA and Itron propose to limit emissions from non-WMTS telemetry – into the WMTS band – to a field strength of less than 150 uV/m at the site of any WMTS operation.[618] AHA and Itron would make this requirement applicable to secondary and primary non-WMTS telemetry in the 1427-1432 MHz band. In a similar manner, Philips proposes to minimize interference to WMTS operations in the 1395-1400 MHz band by limiting the out-of-band emissions from co-primary operations in the 1392-1395 MHz band.[619]

204. Because we believe that the proper balance between allowing viable co-channel and adjacent channel operations while still protecting WMTS from harmful interference is best achieved by a field strength limit of 150 uV/m, we are adopting this value as proposed by AHA and Itron. Consequently, we will limit the field strength that non-WMTS telemetry in the 1427-1432 MHz band may radiate – into the WMTS portions of the band[620] – to a measured or predicted field strength of 150 uV/m at the site of any WMTS operation.[621] We will also limit the field strength that facilities in the

[615] AHA *Ex Parte* filing at 4-5. (May 8, 2002) WMTS will operate on the frequencies 1429-1431.5 MHz inside the "carve-out" areas while primary non-WMTS telemetry will operate on the frequencies 1429.5-1432 MHz outside the "carve-out" areas.

[616] *Id.* at 5.

[617] In this instance, we believe that the potential safety of life concerns that are raised when WMTS devices receive interference distinguishes WMTS from other services that have requested similar protection in this proceeding.

[618] Joint Agreement at 3-4.

[619] *See* Phillips Comments at 5 and Phillips Reply Comments at 2. Phillips would limit the out-of-band emission from transmitters in the 1392-1395 MHz band to 500 uV/m at 3 meters from the radiator.

[620] WMTS operates in the 1427-1429.5 MHz band except in the seven geographic "carve-out" areas where WMTS operates in the 1429-1431.5 MHz band.

[621] This limit on the field strength radiated by a telemetry operation will apply at the location of any healthcare facility employing WMTS equipment in the 1427-1432 MHz band. Healthcare facilities are defined in 47 C.F.R § 95.1103(b).

1392-1395 MHz band may radiate – into the WMTS band at 1395-1400 MHz – to a measured or predicted field strength of 150 uV/m at the site of any WMTS operation.[622]

205. We believe that the rules we are adopting in this regard are consistent with our overarching spectrum management objectives to promote both a flexible and efficient use of the electromagnetic spectrum. Under this approach, licensees will be responsible for maintaining this limitation on field strength radiated at a WMTS facility when a new location is activated. Therefore, licensees may need to adjust their operations to comply with these field strength limits if a new WMTS facility causes their existing system to exceed the 150 uV/m limit.

206. The Joint Agreement proposes measurement procedures for verifying compliance with the field strength limits at WMTS facilities.[623] Specifically, Itron and AHA specify that the horizontal and vertical component of the field strength should be measured over a 1 MHz bandwidth using an averaging detector.[624] Because we find that this resolution bandwidth is consistent with measurement procedures the Commission has established to verify out-of-band emission compliance for other services,[625] we will require a resolution bandwidth of 1 MHz for equipment used to verify compliance with the field strength limit. Consistent with measurement procedures established in Part 15 of our rules for equipment operating above 1000 MHz,[626] we will also require that measurement equipment employ an averaging detector. We believe, however, that the field strength limit should apply for any polarization and should not be limited to just horizontal or vertical polarizations. Therefore, we will not specify a polarization in the measurement procedures.

V. PROCEDURAL MATTERS

A. Final Regulatory Flexibility Analysis

207. A Final Regulatory Flexibility Analysis has been prepared for the *Report and Order* and is included in Appendix C.

B. Paperwork Reduction Analysis

208. This *Report and Order* contains either a new or modified information collection. As part of the Commission's continuing effort to reduce paperwork burdens, we invite the general public and the Office of Management and Budget (OMB) to take this opportunity to comment on revision to the information collections contained in the *Report and Order* as required by the Paperwork Reduction Act of 1995.[627] Public and agency comments are due ***[60 days after date of publication in the Federal Register]***. Comments should address:

- Whether the proposed collection of information is necessary for the proper performance of the functions of the Commission, including whether the information shall have practical utility.

[622] This limit on the field strength radiated by telemetry operations will apply at the location of any healthcare facility employing WMTS equipment in the 1395-1400 MHz band. Healthcare facilities are defined in 47 C.F.R § 95.1103(b).

[623] Joint Agreement at 3-4.

[624] *Id.*

[625] *See* 47 C.F.R. §§ 27.53(a)(4) and 90.210(m).

[626] 47 C.F.R. § 15.209(d).

[627] *See* Pub. L. No. 104-13.

- The accuracy of the Commission's burden estimates.
- Ways to enhance the quality, utility, and clarity of the information collected.
- Ways to minimize the burden of the collection of information on the respondents, including the use of automated collection techniques or other forms of information technology.

Written comments by the public on the proposed and/or modified information collections are due 60 days after the date of publication in the Federal Register. Written comments must be submitted by the OMB on the proposed and/or modified information collections on or before 120 days after the date of publication in the Federal Register. In addition to filing comments with the Secretary, a copy of any comments on the information collections contained herein should be submitted to Judith B. Herman, Federal Communications Commission, Room 1-C804, 445 12th Street, SW, Washington, DC 20554, or via the Internet to jherman@fcc.gov, and to Ed Springer, OMB Desk Officer, Room 10236 New Executive Office Building, 725 Seventeenth Street, N. W., Washington, D.C. 20503, or via the Internet to Edward.Springer@omb.eop.gov. For additional information concerning the information collection(s) contained in this document, contact Judith B. Herman at 202-418-0214, or via the Internet at jboley@fcc.gov.

C. Further Information

209. For further information concerning the *Report and Order*, contact Zenji Nakazawa or Guy Benson regarding legal matters, and/or Brian Marenco or Tim Maguire regarding engineering matters via phone at (202) 418-0680, via TTY (202) 418-7233, or via e-mail at znakazaw@fcc.gov, gbenson@fcc.gov, bmarenco@fcc.gov or tmaguire@fcc.gov, respectively, Wireless Telecommunications Bureau, Federal Communications Commission, Washington, D.C. 20554.

210. Alternative formats (computer diskette, large print, audio cassette, and Braille) are available to persons with disabilities by contacting Brian Millin at (202) 418-7426, TTY (202) 418-7365, or via e-mail to bmillin@fcc.gov. This *Report and Order* can be downloaded from the Commission's website at www.fcc.gov/wtb/orders.

VI. ORDERING CLAUSES

211. ACCORDINGLY, IT IS ORDERED that, pursuant to Sections 1, 4(i), 301, 302, 303(f) and (r), 309(j) and 332 of the Communications Act of 1934, as amended, 47 U.S.C. 1, 154(i), 301, 302, 303(f) and (r), 309(j) and 332, this *Report and Order* is ADOPTED.

212. IT IS FURTHER ORDERED that, Parts 1, 2, 27, 90, and 95 of the Commission's Rules ARE AMENDED as specified in Appendix E, effective 60 days after publication in the Federal Register. Information collections contained in these rules will be effective upon OMB approval.

213. IT IS FURTHER ORDERED that, the Petition for Rulemaking filed by Data Flow Systems, IS GRANTED, IN PART, AND DENIED IN PART as described herein.

214. IT IS FURTHER ORDERED that, the Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, SHALL SEND a copy of this REPORT AND ORDER, including the Final Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch
Secretary

APPENDICES

APPENDIX A – List of Commenters

AeroAstro, Inc.
Aerospace Flight Test Radio Coordinating Council
American Hospital Association Task Force on Medical Telemetry
American Mobile Telecommunications Association, Inc.
American Petroleum Institute
Data Flow Systems, Inc.
Dates Spectrum, L.L.C.
GE Medical Systems Wireless Center of Excellence
Industrial Telecommunications Association, Inc.
Industrial Telecommunications Association, Inc.
InsideTrax
Itron, Inc.
Land Mobile Communications Council (Late-filed)
Mobex Communications, Inc.
National Academy of Sciences
National Telecommunications Cooperative Association
Paging Systems, Inc.
Philips Medical Systems
United Telecom Council
XM Radio, Inc.

APPENDIX B – List of Reply Commenters

AeroAstro, Inc
ArryComm, Inc.
Comsearch
Cornell University
Data Flow Systems, Inc.
EDS Corporation
Fleetwood Group, Inc
GE Medical Systems
Hexagram, Inc.
InsideTrax
Itron, Inc.
Jonathan Peterson
Land Mobile Communications Council
LMS Wireless, Telesaurus Holdings GB LLC
Maerican Hospital Association Task Force on Medical Telemetry
Office of Advocacy, U.S. Small Business Administrations
Paging Systems, Inc.
Phillips Medical Systems
Rural Telecommunications Group
SMR Advisory Group, LC and Bizcom USA, Inc.

APPENDIX C – FINAL REGULATORY FLEXIBILITY ANALYSIS

(for *Report and Order*)

1. As required by the Regulatory Flexibility Act (RFA),[628] an Initial Regulatory Flexibility Analysis (IRFA) was incorporated in the *Notice of Proposed Rule Making* (*Service Rules Notice*).[629] The Commission sought written public comment on the proposals in the *Service Rules Notice*, including comment on the IRFA. The comments received are discussed below. This present Final Regulatory Flexibility Analysis (FRFA) conforms to the RFA.[630]

Need for, and Objectives of, the *Report and Order*:

2. In this *Report and Order*, we adopt rules for the licensing and operation of fixed and mobile services in the 216-220 MHz, 1390-1395 MHz, 1427-1429.5 MHz, 1429.5-1432 MHz, 1432-1435 MHz, 1670-1675 MHz and 2385-2390 MHz bands pursuant to the provisions of the Communications Act of 1934, as amended, the Omnibus Budget Reconciliation Act of 1993 (OBRA-93), and the Balanced Budget Act of 1997 (BBA-97). These seven bands have a variety of continuing Government protection requirements and incumbent Government and non-Government uses. Despite these constraints and the relatively narrow bandwidth contained in each of the bands, we believe that the rules adopted herein will foster a variety of potential applications in both new and existing services. The transfer of these bands to non-Government use should enable the development of new technologies and services, provide additional spectrum relief for congested private land mobile frequencies, and fulfill our obligations as mandated by Congress to assign this spectrum for non-Government use.

3. The *Report and Order* also establishes competitive bidding rules and small business definitions for the unpaired 1390-1392 MHz, 1670-1675 MHz, and 2385-2390 MHz bands, and the paired 1392-1395 MHz and 1432-1435 MHz bands similar to those applied to the WCS 2.3 GHz band and the 700 MHz Guard Bands.[631] Consistent with the Commission's responsibility under Section 309(j) to promote opportunities for, and disseminate licenses to, a wide variety of applicants,[632] the *Report and Order* adopts small business size standards and bidding preferences for qualifying bidders that will provide such bidders with opportunities to compete successfully against large, well-financed entities. Specifically, with respect to the aforementioned bands, we will define a "small business" as any entity with average annual gross revenues for the three preceding years not exceeding $40 million, and a "very small business" as any entity with average annual gross revenues for the three preceding years not exceeding $15 million.[633] Correspondingly, we will adopt a bidding credit of 15 percent for "small businesses" and

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

[629] Reallocation of the 216-220 MHz, 1390-1395 MHz, 1427-1429 MHz, 1429-1432 MHz, 1432-1435 MHz, 1670-1675 MHz, and 2385-2390 MHz Government Transfer Bands, WT Docket No. 02-8, *Notice of Proposed Rulemaking*, 17 FCC Rcd 2500 (2002) Appendix A.

[630] *See* 5 U.S.C. § 604.

[631] *See supra* ¶ 112. Because we have decided not to use competitive bidding procedures to resolve any mutually exclusive initial applications for licenses in the 1427-1432 MHz band, we will not adopt corresponding small business definitions and bidding credits as initially proposed in the *Service Rules Notice*. *Service Rules Notice*, 17 FCC Rcd at 2551 ¶ 147; *see supra* ¶ 53.

[632] 47 U.S.C. § 309(j)(3)(B), (4)(C)-(D).

[633] *See Service Rules Notice*, 17 FCC Rcd at 2550-51 ¶¶ 144-146. To be consistent with the size standard of "very small business" proposed for the 1427-1432 MHz band for those entities with average gross revenues for the three (continued....)

a bidding credit of 25 percent for "very small businesses." This bidding credit structure is consistent with our standard schedule of bidding credits, which may be found at Section 1.2110(f)(2) of the Commission's rules.[634] All of the commenters addressing this issue supported our proposal to adopt the two small business size standards that the Commission adopted for the WCS 2.3 GHz band and the 700 MHz Guard Bands.[635] As we noted in the *Service Rules Notice*, the capital requirements and characteristics of the services proposed in the aforementioned bands are comparable to those found in the WCS 2.3 GHz band and 700 MHz Guard Bands.[636] Consequently, as with the WCS 2.3 GHz band and 700 MHz Guard Bands, we believe that these two size standards will provide a variety of businesses with the opportunity to participate in the auction of licenses for this spectrum and will afford such licensees, who may have varying capital costs, substantial flexibility for the provision of services.[637] The Commission has long recognized that bidding preferences for qualifying bidders provides such bidders with an opportunity to compete successfully against large, well-financed entities.[638] The Commission also has found that the use of tiered or graduated small business definitions is useful in furthering our mandate under Section 309(j) to promote opportunities for and disseminate licenses to a wide variety of applicants.[639]

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

4. Although no comments were submitted specifically in response to the IRFA, some commenters expressed concern with our proposals to license new services on a wide geographic area basis. For example, the National Telecommunications Cooperative Association (NTCA) and the Rural Telecommunications Group (RTG) support smaller geographic area licensing, rather than the use of nationwide or very large economic areas, in order to promote smaller carriers and rural

---

(...continued from previous page)
preceding years not exceeding $3 million, the *Service Rules Notice* proposed to use the terms "entrepreneur" and "small business" to define entities with average gross revenues for the three preceding years not exceeding $40 million and $15 million, respectively. Because we are not adopting small business size standards for the 1427-1432 MHz band, we instead use the terms "small business" and "very small business" to define entities with average gross revenues for the three preceding years not exceeding $40 million and $15 million respectively.

[634] In the *Part 1 Third Report and Order*, we adopted a standard schedule of bidding credits, the levels of which were developed based on our auction experience. *Part 1 Third Report and* Order, 13 FCC Rcd at 403-04 ¶ 47. *See also* 47 C.F.R. § 1.2110(f)(2).

[635] *See* ArrayComm Comments at 35-36, AeroAstro Reply Comments at 4.

[636] *Service Rules Notice*, 17 FCC Rcd at 2550-51 ¶¶ 144-146. Generally, in developing the definitions for bidding preferences, the Commission evaluates the likely characteristics and capital requirements of the specific service. *See Part 1 Third Report and Order*, 13 FCC Rcd at 388 ¶ 18; Implementation of Section 309(j) of the Communications Act – Competitive Bidding, PP Docket No. 93-253, *Second Memorandum Opinion and Order*, 9 FCC Rcd 7245, 7269 ¶ 145 (1994).

[637] *See Service Rules Notice*, 17 FCC Rcd at 2550-51 ¶ 145.

[638] *See, e.g.*, Revision of Part 22 and Part 90 of the Commission's Rules to Facilitate Future Development of Paging Systems; Implementation of Section 309(j) of the Communications Act -- Competitive Bidding, WT Docket No. 96-18, PR Docket No. 93-253, *Memorandum Opinion and Order on Reconsideration and Third Report and Order*, 14 FCC Rcd 10030, 10091 ¶ 112 (1999).

[639] 47 U.S.C. § 309(j)(3)(B), (4)(C)-(D). We will not, however, adopt special preferences for entities owned by minorities or women, and rural telephone companies. The Commission did not receive any comments on this issue, and we do not have an adequate record to support such special provisions under the current standards of judicial review. *See Adarand Constructors v. Peña*, 515 U.S. 200 (1995) (requiring a strict scrutiny standard of review for government mandated race-conscious measures); *United States v. Virginia*, 518 U.S. 515 (1996) (applying an intermediate standard of review to a state program based on gender classification).

telecommunications development.[640] We have considered the effect of these rule changes on small entities and considered other alternatives. We expect, however, that our actions will benefit all entities subject to these rule changes, including small entities.

5. The policies and rules adopted in this *Report and Order* affect all small entities that seek to acquire licenses in the unpaired 1390-1392 MHz, 1670-1675 MHz, and 2385-2390 MHz bands, and the paired 1392-1395 MHz and 1432-1435 MHz bands. As noted above, the Commission has adopted small business size standards that define a "small business" as any entity with average annual gross revenues for the three preceding years not exceeding $40 million and a "very small business" as any entity with average annual gross revenues for the three preceding years not exceeding $15 million. The SBA has approved these small business size standards for the aforementioned bands.[641] However, the Commission cannot know until the auction begins how many entities will seek small or very small business status. The Commission will allow partitioning and disaggregation, yet it cannot determine in advance how many licensees will partition their license areas or disaggregate their spectrum blocks. In view of our lack of knowledge of these factors, it is therefore assumed that, for purposes of our evaluations and conclusions in the FRFA, all of the prospective licenses are small entities, as that term is defined by the SBA or the Commission's small business definitions for these bands.

Description and Estimate of the Number of Small Entities To Which the Rules Will Apply:

6. The RFA directs agencies to provide a description of, and, where feasible, an estimate of the number of small entities that may be affected by the proposed rules, if adopted.[642] The RFA defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small business concern" under section 3 of the Small Business Act.[643] A small business concern is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the SBA.[644] Nationwide, as of 1992, there were approximately 275,801 small organizations.[645] "Small governmental jurisdiction" generally means "governments of cities, counties, towns, townships, villages, school districts, or special districts, with a population of less than 50,000."[646] As of 1992, there were approximately 85,006 such jurisdictions in the United States.[647] This number includes 38,978 counties, cities, and towns; of these, 37,566, or ninety-six

[640] *See* NTCA Comments at 1-3; RTG Reply Comments at 2.

[641] *See* Letter from Hector V. Barreto, Administrator, Small Business Administration, to Margaret W. Wiener, Chief, Auctions and Industry Analysis Division, Wireless Telecommunications Bureau, Federal Communications Commission, dated January 18, 2002 (approving the size standards proposed and described in the *Service Rules Notice*). *See also* Letter from Margaret W. Wiener, Chief, Auctions and Industry Analysis Division, Wireless Telecommunications Bureau, Federal Communications Commission, to Hector V. Barretto, Administrator, U.S. Small Business Administration, dated January 29, 2002 (follow-up letter clarifying how the approved small business standards are applied in the seven geographic carve-out areas in the 1427-1432 MHz band). But *see discussion supra* note 6.

[642] 5 U.S.C. § 603(b)(3).

[643] *Id.* § 601(3).

[644] *Id.* § 632.

[645] 1992 Economic Census, U.S. Bureau of the Census, Table 6 (special tabulation of data under contract to the Office of Advocacy of the Small Business Administration).

[646] 5 U.S.C. § 601(5).

[647] U.S. Dep't of Commerce, Bureau of the Census, *1992 Census of Governments*.

percent, have populations of fewer than 50,000.[648] The Census Bureau estimates that this ratio is approximately accurate for all governmental entities. Thus, of the 85,006 governmental entities, we estimate that 81,600 (ninety-one percent) are small entities.

7. *Wireless Service Providers.* The SBA has developed a definition for small business within the two separate categories of Cellular and Other Wireless Telecommunications or Paging. Under that SBA definition , such a business is small if it has 1,500 or fewer employees.[649] According to the Commission's *Telephone Trends Report* data, 1,495 companies reported that they were engaged in the provision of wireless service.[650] Of these 1,495 companies, 989 reported that they have 1,500 or fewer employees and 506 reported that, alone or in combination with affiliates, they have more than 1,500 employees. We do not have data specifying the number of these carriers that are not independently owned and operated, and thus are unable at this time to estimate with greater precision the number of wireless service providers that would qualify as small business concerns under the SBA's definition. Consequently, we estimate that there are 989 or fewer small wireless service providers that may be affected by the rules. Below, we further describe and estimate the number of small entity licensees and regulatees that may be affected by the rules adopted herein. Except as noted, these services are associated with the above SBA small business size standard.

8. With respect to the 1390-1392 MHz band, the Commission will award a single 2 MHz license in each of fifty-two Major Economic Areas (MEAs). For the 1670-1675 MHz, and 2385-2390 MHz bands, the Commission will award a single nationwide license in each band. For the paired 1392-1395 MHz and 1432-1435 MHz bands, the Commission will award a pair of 1.5 MHz licenses in each of six Economic Area Groupings (EAGs). For the 1432-1435 MHz band, the Commission will award licenses on a site by-site basis. The Commission does not yet know how many applicants or licensees in any of these bands will be small entities.

9. Existing services in other bands include entities that might be affected by the rules, either as existing licensees or potential applicants or licensees. Incumbent services in the 1427-1429.5 MHz and 1429.5-1432 MHz bands include wireless medical telemetry (WMTS) and general telemetry.

10. *Telemetry.* Incumbent non-medical telemetry operators in the 1427-1429.5 MHz and 1429.5-1432 MHz bands include Itron, Inc., Pueblo Service Company of Colorado and E Prime, Inc., and large manufacturers such as Deere and Company, Caterpillar, and General Dynamics. None of these licensees are likely to be small businesses. Itron, Inc. is the primary user of the 1427-1429.5 MHz and 1429.5-1432 MHz bands. Itron, Inc., with an investment of $100 million in equipment development, is not likely to be a small business. One licensee, Zytex, a manufacturer of high-speed telemetry systems, may be a small business. The Commission does not yet know how many applicants or licensees in these bands will be small entities.

11. *WMTS.* Users of medical telemetry are hospitals and medical care facilities, some of which are likely to be small businesses. The broad category of Hospitals consists of the following categories and the following small business providers with annual receipts of $29 million or less: General Medical and Surgical Hospitals, Psychiatric and Substance Abuse Hospitals, and Specialty Hospitals.[651] For all these health care providers, census data indicate that there is a combined total of 330 firms that operated in 1997, of which 237 or fewer had revenues of less than $25 million.[652] An additional 45 firms

[648] *Id.*

[649] 13 C.F.R. § 121.201, NAICS code 513322.

[650] *Telephone Trends Report* (Aug. 2001), Table 5.3.

[651] 13 C.F.R. § 121.201, NAICS Codes 622110, 622210, 622310.

[652] *1997 Health Care Data.*

had annual receipts of $25 million to $49.99 million.[653] We therefore estimate that most Hospitals are small, given SBA's size categories.

12. The broad category of Nursing and Residential Care Facilities consists of the following categories and the following small business size standards.[654] The category of Nursing and Residential Care Facilities with annual receipts of $6 million or less consists of: Residential Mental Health and Substance Abuse Facilities, Homes for the Elderly, and Other Residential Care Facilities. The category of Nursing and Residential Care Facilities with annual receipts of $8.5 million or less consists of Residential Mental Retardation Facilities. The category of Nursing and Residential Care Facilities with annual receipts of less than $11.5 million consists of: Nursing Care Facilities and Continuing Care Retirement Communities. For all of these health care providers, census data indicate that there is a combined total of 18,011 firms that operated in 1997.[655] Of these, 16,165 or fewer firms had annual receipts of below $5 million.[656] In addition, 1,205 firms had annual receipts of $5 million to $9.99 million, and 450 firms had receipts of $10 million to $24.99 million.[657] We therefore estimate that a great majority of Nursing and Residential Care Facilities are small, given SBA's size categories.

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

13. Applicants for licenses to provide terrestrial fixed and mobile services in the paired 1392-1395 MHz and 1432-1435 MHz bands, and the unpaired 1390-1392 MHz, 1670-1675 MHz, and 2385-2390 MHz bands will be required to submit short-form auction applications using FCC Form 175.[658] In addition, winning bidders must submit long-form license applications through the Universal Licensing System using FCC Form 601,[659] FCC Ownership Disclosure Information for the Wireless Telecommunications Services using FCC Form 602, and other appropriate forms.[660] Licensees will also be required to apply for an individual station license by filing FCC Form 601 for those individual stations that (1) require submission of an Environmental Assessment under Section 1.1307 of our Rules;[661] (2) require international coordination;[662] (3) would operate in the quiet zones listed in Section 1.924 of our Rules;[663] or (4) require coordination with the Frequency Assignment Subcommittee (FAS) of the Interdepartment Radio Advisory Committee (IRAC).[664]

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

---

[653] *Id.*

[654] 13 C.F.R. § 121.201, NAICS Codes 623110, 623210, 623220, 623311, 623312, 623990.

[655] *1997 Health Care Data.*

[656] *Id.*

[657] *Id.*

[658] 47 C.F.R. § 1.2105.

[659] 47 C.F.R. § 1.913(a)(1).

[660] 47 C.F.R. § 1.2107.

[661] 47 C.F.R. § 1.1307.

[662] *See, e.g.*, 47 C.F.R. § 1.928 (regarding frequency coordination arrangements between the U.S. and Canada).

[663] 47 C.F.R. § 1.924.

[664] We discuss FAS coordination in the section describing coordination with Government incumbents. *See supra* Section IV.E.2.

14. The RFA requires an agency to describe any significant alternatives that it has considered in reaching its proposed approach, which may include the following four alternatives (among others): (1) the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance or reporting requirements under the rule for small entities; (3) the use of performance, rather than design standards; and (4) an exemption from coverage of the rule, or any part thereof, for small entities.[665]

15. Regarding our decision to apply generally our Part 27 rules to the unpaired 1390-1392 MHz, 1670-1675 MHz, and 2385-2390 MHz bands and the paired 1392-1395 MHz and 1432-1435 MHz bands, *see* paras. 11-12 *supra*, we do not anticipate any adverse impact on small entities. The flexibility afforded by Part 27 of our rules should benefit large and small entities alike, because licensees will be in a stronger position to meet changes in demand for services. Under this approach, all licensees will have the freedom to determine the services to be offered and the technologies to be used in providing those services. An alternative to this decision would have been to determine specific allowable services in each frequency band and apply the applicable rule part to the licensing of such services. This approach, however, would be unsatisfactory because it is too restrictive, and in any event, it is unclear that this would benefit small entities more than the flexible licensing approach we have decided upon today.

16. Regarding our decision to license the unpaired 1390-1392 MHz, 1670-1675 MHz, and 2385-2390 MHz bands and the paired 1392-1395 MHz and 1432-1435 MHz bands by geographic area, *see* paras. 14-20 *supra*, we anticipate that on balance small entities will benefit from this licensing approach. Geographic licensing in these bands supports the Commission's overall spectrum management goals in that it allows licensees to quickly respond to market demand. Small entities that acquire spectrum that is licensed on a geographic area basis will benefit from such flexibility. Moreover, we have attempted to strike a balance here by using varying sizes of geographic areas. For example, small entities may be more interested in spectrum licensed by smaller geographic areas rather than in spectrum licensed on a nationwide basis. Consequently, we have decided to license the 1390-1392 MHz band using fifty-two MEAs and the paired 1392-1395 MHz and 1432-1435 MHz bands using six EAGs. Combined with our decision to employ flexible use licensing, which includes band manager licensing (see discussion below), small entities should be able to acquire spectrum that fits their individual needs. An alternative to our decision to use geographic areas to license the subject frequency bands would have been to employ a site-by-site licensing approach. Site-by-site licensing, however, would be an inefficient licensing method for the unpaired 1390-1392 MHz, 1670-1675 MHz, and 2385-2390 MHz bands and the paired 1392-1395 MHz and 1432-1435 MHz bands, due to a greater strain on Commission resources and less flexibility for licensees.

17. Regarding our decision to license secondary telemetry in the 217-220 MHz and 1427-1429.5 MHz bands and primary telemetry in the 1429.5-1432 MHz band on a site-by-site basis, *see* paras. 40-49, *supra*, we anticipate no adverse impact on small entities. In fact, our approach here is particularly beneficial for small entities that have more localized spectrum needs, because such entities can apply for just the site that is needed for their communications systems. An alternative to this approach would have been to license telemetry in these bands on a geographic area basis. This is unsatisfactory, however, because, *inter alia*, of potential harmful interference issues that a geographic overlay would entail.

18. Regarding our decision to license the 1390-1392 MHz band using a single 2 MHz block in each MEA, *see* para. 22, *supra*, we do not anticipate any adverse impact on small entities. Our approach here provides maximum flexibility for both small and large entities to offer a wide range of communications services. In addition, in those cases where less than 2 MHz is required, band managers

[665] *See* 5 U.S.C. § 603(c).

would be able to coordinate spectrum under their control so as to maximize its use. An alternative to this decision would have been to divide the spectrum available in the 1390-1392 MHz band into two or more blocks. While this might promote diversity, it makes more sense to license this band using a single 2 MHz spectrum block in order to allow both small and large entities the opportunity to offer a wider range of services and to quickly meet changes in market demand.

19. Regarding our decision to license the paired 1392-1395 MHz and 1432-1435 MHz bands using two pairs of 1.5 MHz spectrum blocks, *see* para. 23, *supra*, we do not anticipate any adverse impact to small entities. Our approach here promotes competition by allowing more than one licensee in each market and thus offers a greater opportunity for small entities to acquire spectrum. An alternative to this approach would have been to license these bands using a single pair of 3 MHz spectrum blocks. This approach, however, is less desirable than the one we adopt today because of the competition and diversity benefits realized by dividing the spectrum into two blocks.

20. Regarding our decision to adopt the AHA-Itron Joint Agreement's band flip proposal, *see* para. 26, *supra*, we do not anticipate any adverse impact to small entities. Our implementation of this private agreement should benefit small and large entities by allowing telemetry and WMTS to operate where such services are needed the most. An alternative to this approach would have been to keep telemetry primary only in the 1429.5-1432 MHz band and WMTS primary only in the 1427-1429.5 MHz band. However, allowing telemetry and WMTS to operate in the seven geographic carve-out areas in each other's primary allocation allows greater flexibility in operations while avoiding harmful interference.

21. Regarding our decision to license the 1670-1675 MHz band using a single 5 MHz spectrum block, *see* para. 27, *supra*, we do not believe that there will be any adverse impact on small entities. Although dividing this spectrum into two or more blocks might offer more opportunities for small entities to compete for a license, we agree with the commenters that a single 5 MHz spectrum block will promote the development of new technologies and services[666] and therefore, promotes the public interest.

22. Regarding our decision to license the 2385-2390 MHz band using a single 5 MHz spectrum block, *see* para. 28, *supra*, we do not believe that there will be any adverse impact on small entities. Although dividing this spectrum into two or more blocks might offer more opportunities for small entities to compete for a license, this is outweighed by the benefits that a larger spectrum block provides in terms of flexibility. In addition, we note that no commenters, including small entities, proposed an alternate spectrum block size for this frequency band.

23. Regarding our decision to employ a flexible use licensing scheme for the unpaired 1390-1392 MHz, 1670-1675 MHz, and 2385-2390 MHz bands and the paired 1392-1394 MHz and 1432-1435 MHz bands, *see* paras. 38-39, *supra*, we do not anticipate any adverse impact on small entities. In fact, this approach should generally provide small entities with greater opportunities to acquire spectrum specifically tailored for their needs. For example, through a band manager licensee, small entities can obtain spectrum rights that are suited for operations of a local nature, rather than obtaining an entire geographic area that would result in less efficient spectrum use. An alternative to this approach would have been to prohibit band managers from being licensed in these frequency bands. We find that this would be unsatisfactory, however, because the results would be less efficient spectrum markets and less spectrum access for small entities.

[666] *See* ArrayComm Comments at 7; Insidetrax Comments at 5.

24. Regarding our decision to require a showing of "substantial service" at license renewal time, *see* paras. 72-73, *supra*, we do not anticipate any adverse impact on small entities. An alternative would have been to adopt a "minimal coverage" requirement. We believe, however, that the substantial service standard is better because it will provide both small and large entities the flexibility to determine how to best implement their business plans based on actual service to end users.

25. Regarding our decision to allow licensees in the unpaired 1390-1392 MHz, 1670-1675 MHz, and 2385-2390 MHz bands and the paired 1392-1395 MHz and 1432-1435 MHz bands to partition and/or disaggregate their spectrum, *see* paras. 80-83, *supra*, we do not anticipate any adverse impact on small entities. In fact, allowing licensees to partition/disaggregate their licensed spectrum should improve opportunities for small entities to acquire spectrum for their particular needs. An alternative to this approach would have been to prohibit partitioning/disaggregation, but we received no comments proposing such a prohibition.

26. Regarding our decision to require frequency coordination for primary and secondary telemetry operations in the 217-220 MHz, 1427-1429.5 MHz and 1429.5-1432 MHz bands, *see* paras. 88-98, *supra*, we do not anticipate any adverse impact on small entities. Although there are certain costs associated with filing an application through an FCC-certified frequency coordinator, on balance, the benefits of frequency coordination, especially the avoidance of harmful interference, outweigh any costs. An alternative to this approach would have been to not require frequency coordination, but this is unacceptable because of high congestion, primary incumbent operations that must be protected, and the fact that licensees in these bands must share frequencies.

Report to Congress:

27. The Commission will send a copy of this Order, including this FRFA, in a report to be sent to Congress pursuant to the Congressional Review Act.[667] In addition, the Commission will send a copy of this Order, including this FRFA, to the Chief Counsel for Advocacy of the Small Business Administration. A copy of this Order and FRFA (or summaries thereof) will also be published in the *Federal Register*.[668]

[667] 5 U.S.C. § 801 (a)(1)(A).

[668] *See* 5 U.S.C. § 604(b).

APPENDIX D – List of National Weather Service Radiosondes

ID	Location	State	Latitude	Longitude
1	ANCHORAGE	AK	611000N	1500100W
2	ANNETTE	AK	550200N	1313400W
3	BARROW	AK	711800N	1564700W
4	BARTER	AK	700800N	1434000W
5	BETHEL	AK	604700N	1614800W
6	BETTLES	AK	665500N	1513100W
7	COLD BAY	AK	551200N	1624300W
8	FAIRBANKS	AK	644900N	1475200W
9	FORT YUKON	AK	663400N	1451600W
10	GALENA	AK	644300N	1565400W
11	KING SALMON	AK	584100N	1563900W
12	KODIAK	AK	574500N	1523000W
13	KOTZEBUE	AK	665200N	1623800W
14	MCGRATH	AK	625800N	1553700W
15	NOME	AK	643000N	1652600W
16	SAINT PAUL IS	AK	570900N	1701300W
17	SHEMYA	AK	524300N	1740600E
18	TANACROSS	AK	662300N	1432000W
19	YAKUTAT	AK	593100N	1394000W
20	ALABASTER	AL	331048N	0864658W
21	LITTLE ROCK	AR	345000N	0921500W
22	FLAGSTAFF	AZ	351350N	1114911W
23	TUCSON	AZ	3207XXN	11056XXW
24	OAKLAND	CA	374500N	1221300W
25	RIVERSIDE	CA	3359XXN	11721XXW
26	SAN DIEGO	CA	325040N	1170723W
27	VANDENBURG	CA	3445XXN	12034XXW
28	DENVER	CO	394628N	1045247W
29	GRAND JUNCTION	CO	390712N	1083128W
30	MARSHALL	CO	3957XXN	10511XXW
31	JACKSONVILLE INTL	FL	302900N	0814202W
32	KEY WEST	FL	243500N	0814200W
33	MIAMI	FL	254517N	0802302W
34	TALLAHASSEE	FL	302345N	0842102W
35	TAMPA	FL	275800N	0823200W
36	CHUUK	FSM	072735N	1515040E
37	POHNPEI	FSM	065800N	1581230E
38	YAP	FSM	092918N	1380506E
39	PEACHTREE CITY	GA	332122N	0843403W
40	TAGUAC	GUM	133300N	1445000E
41	BARKING SANDS	HI	220200N	1594700W
42	HILO	HI	194300N	1550400W
43	LIHUE	HI	215900N	1592100W
44	DAVENPORT	IA	413645N	0903455W

45	BOISE	ID	4334XXN	11613XXW
46	LINCOLN	IL	395121N	0894026W
47	JOHNSTON IS	JON	164400N	1693100W
48	DODGE CITY	KS	374537N	0995806W
49	TOPEKA	KS	390420N	0953749W
50	LAKE CHARLES	LA	300700N	0931300W
51	SHREVEPORT	LA	322709N	0935028W
52	SLIDELL	LA	302100N	0894900W
53	CHATHAM	MA	413943N	0695757W
54	CARIBOU	ME	465206N	0680045W
55	PORTLAND	ME	435334N	0701524W
56	KWAJALEIN	MHL	084400N	1674400E
57	MAJURO	MHL	070513N	1712238E
58	WATERS	MI	445430N	0844259W
59	WHITE LAKE	MI	424159N	0832819W
60	CHANHASSEN	MN	445050N	0933352W
61	INTERNATIONAL F	MN	483352N	0932349W
62	SPRINGFIELD	MO	371517N	0932303W
63	JACKSON	MS	321900N	0900500W
64	GLASGOW	MT	481221N	1063733W
65	GREAT FALLS	MT	472738N	1112304W
66	GREENSBORO	NC	360553N	0795635W
67	MOREHEAD CITY	NC	344635N	0765241W
68	BISMARCK	ND	464619N	1004540W
69	NORTH PLATTE	NE	410800N	1004100W
70	VALLEY	NE	411913N	0962202W
71	ALBUQUERQUE	NM	3503XXN	10637XXW
72	SANTA TERESA	NM	315220N	1064152W
73	DESERT ROCK ARP	NV	363714N	1160100W
74	ELKO	NV	405138N	1154428W
75	RENO	NV	393411N	1194740W
76	YUCCA PASS	NV	365721N	1160259W
77	ALBANY	NY	424133N	0734956W
78	BROOKHAVEN	NY	405154N	0725148W
79	BUFFALO	NY	425622N	0784328W
80	WILMINGTON	OH	392514N	0834917W
81	NORMAN	OK	351400N	0972700W
82	MEDFORD	OR	422253N	1225240W
83	SALEM	OR	4455XXN	12301XXW
84	PITTSBURGH	PA	403152N	0801259W
85	KOROR	PLW	072000N	1342840E
86	SAN JUAN	PR	182600N	0660000W
87	ABERDEEN	SD	452720N	0982447W
88	RAPID CITY	SD	440437N	1031259W
89	PAGO PAGO	SMA	142000S	1704300W
90	NASHVILLE	TN	3615XXN	08634XXW
91	AMARILLO	TX	3514XXN	10142XXW

92	BROWNSVILLE	TX	2554XXN	09726XXW
93	CORPUS CHRISTI	TX	274600N	0973000W
94	DEL RIO	TX	2922XXN	10055XXW
95	FORT WORTH	TX	325002N	0971751W
96	MIDLAND	TX	315600N	1021200W
97	SALT LAKE CITY	UT	404713N	1115805W
98	BLACKSBURG ARPT	VA	371221N	0802452W
99	STERLING	VA	385838N	0772817W
100	WALLOPS ISLAND	VA	375542N	0752834W
101	QUILLAYUTE	WA	475603N	1243339W
102	SPOKANE	WA	474054N	1173738W
103	WAKE ISLAND	WAK	1917XXN	16639XXE
104	GREEN BAY	WI	442920N	0880629W
105	RIVERTON	WY	430358N	1082836W
106	GREENBELT	MD	385958N	0765031W
107	ALBUQUERQUE	NM	350200N	1063700W
108	TONOPAH TEST RA	NV	374800N	1164500W
109	WALLOPS ISLAND	VA	375000N	0752930W

Appendix E – Final Rules

Part 1 of Title 47 of the Code of Federal Regulations, is revised to read as follows:

PART 1 – PRACTICE AND PROCEDURE

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

AUTHORITY: 47 U.S.C. 151, 154(i), 154(j), 155, 225, 303(r), 309, and 325(e) unless otherwise noted.

28. Section 1.924(f) is amended to read as follows:

§ 1.924 Quiet zones.

* * * * *

(f) GOES. The requirements of this paragraph are intended to minimize harmful interference to Geostationary Operational Environmental Satellite earth stations receiving in the band 1670-1675 MHz, which are located at Wallops Island, Virginia; Fairbanks, Alaska; and Greenbelt, Maryland.

(1) Applicants and licensees planning to construct and operate a new or modified station within the area bounded by a circle with a radius of 100 kilometers (62.1 miles) that is centered on 37° 56' 47" N, 75° 27' 37" W (Wallops Island) or 64° 58' 36" N, 147° 31' 03" W (Fairbanks) or within the area bounded by a circle with a radius of 65 kilometers (40.4 miles) that is centered on 39° 00' 02" N, 76° 50' 31" W (Greenbelt) must notify the National Oceanic and Atmospheric Administration (NOAA) of the proposed operation. For this purpose, NOAA maintains the GOES coordination web page at http://www.osd.noaa.gov/radio/frequency.htm, which provides the technical parameters of the earth stations and the point-of-contact for the notification. The notification shall include the following information: requested frequency, geographical coordinates of the antenna location, antenna height above mean sea level, antenna directivity, emission type, equivalent isotropically radiated power, antenna make and model, and transmitter make and model.

(2) Protection.

(a) Wallops Island and Fairbanks. Licensees are required to protect the Wallops Island and Fairbanks sites at all times.

(b) Greenbelt. Licensees are required to protect the Greenbelt site only when it is active. Licensees should coordinate appropriate procedures directly with NOAA for receiving notification of times when this site is active.

(3) When an application for authority to operate a station is filed with the FCC, the notification required in paragraph (f)(1) of this section should be sent at the same time. The application must state the date that notification in accordance with paragraph (f)(1) of this section was made. After receipt of such an application, the FCC will allow a period of 20 days for comments or objections in response to the notification.

(4) If an objection is received during the 20-day period from NOAA, the FCC will, after consideration of the record, take whatever action is deemed appropriate.

29. Section 1.1307 is amended to read as follows:

§ 1.1307 Actions that may have a significant environmental effect, for which Environmental Assignments (EAs) must be prepared.

* * * * *

(b) * * *

TABLE 1 - TRANSMITTERS, FACILITIES AND OPERATIONS SUBJECT TO ROUTINE ENVIRONMENTAL EVALUATION

SERVICE (TITLE 47 CFR RULE PART)	EVALUATION REQUIRED IF:
*****	*****
Wireless Communications Service (Part 27)	(1) for the 1390-1392 MHz, 1392-1395 MHz, 1432-1435 MHz 1670-1675 MHz and 2385-2390 MHz bands: *Non-building-mounted antennas*: height above ground level to lowest point of antenna < 10 m *and* total power of all channels > 2000 W ERP (3280 W EIRP) *Building-mounted antennas*: total power of all channels > 2000 W ERP (3280 W EIRP) (2) for the 746-764 MHz, 776-794 MHz, 2305-2320 MHz, and 2345-2360 MHz bands Total power of all channels > 1000 W ERP (1640 W EIRP)
*****	*****

Part 2 of title 47 of the Code of Federal Regulations is revised to read as follows:

PART 2 – FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS

The authority citation for Part 2 continues to read as follows:

AUTHORITY: 47 U.S.C. 154, 302a, 303, and 336, unless otherwise noted.

30. Section 2.106, the Table of Frequency Allocations, footnotes, US74, US350 and US362 are amended to read as follows:

§ 2.106 Table of Frequency Allocations.

* * * * *

UNITED STATES (US) FOOTNOTES

* * * * *

US74 In the bands 25.55-25.67, 73.0-74.6, 406.1-410.0, 608-614, 1400-1427, 1660.5-1670.0, 2690-2700 and 4990-5000 MHz and in the bands 10.68-10.7, 15.35-15.4, 23.6-24.0, 31.3-31.5, 86-92, 105-116 and 217-231 GHz, the radio astronomy service shall be protected from extraband radiation only to the extent that such radiation exceeds the level which would be present if the offending station were operating in compliance with the technical standards or criteria applicable to the service in which it operates. Radio astronomy observations in these bands are performed at the locations listed in US311.

* * * * *

US350 In the bands 608-614 MHz and 1395-1400 MHz the Government and non-Government land mobile service is limited to medical telemetry and medical telecommand operations. Availability and use of medical telemetry and telecommand and non-medical telemetry and telecommand in the band 1427-1432 MHz are described below:

Location (see §§ 90.259(b)(4) and 95.630(b) of this chapter for a detailed description)	1427-1429 MHz 1431.5-1432 MHz	1429-1431.5 MHz
Austin/Georgetown, Texas	Non-Government land mobile service is limited to telemetry and telecommand operations.	Government and non-Government land mobile service is limited to medical telemetry and telecommand operations. Non-Government telemetry and telecommand use is permitted on a secondary basis.
Battle Creek, Michigan		
Detroit, Michigan		
Pittsburgh, Pennsylvania		
Richmond/Norfolk, Virginia		
Spokane, Washington		
Washington, DC metropolitan area		

Location	1427-1429.5 MHz	1429.5-1432 MHz
Rest of U.S.	Government and non-Government land mobile service is limited to medical telemetry and telecommand operations. Non-Government telemetry and telecommand use is permitted on a secondary basis.	Non-Government land mobile service is limited to telemetry and telecommand operations.

* * * * *

US362 The band 1670-1675 MHz is allocated to the meteorological-satellite service (space-to-Earth) on a primary basis for Government use. Earth station use of this allocation is limited to Wallops Island, VA (37° 56' 47" N, 75° 27' 37" W), Fairbanks, AK (64° 58' 36" N, 147° 31' 03" W), and Greenbelt, MD (39° 00' 02" N, 76° 50' 31" W). Applicants for non-Government stations within 100 kilometers of the Wallops Island or Fairbanks coordinates and within 65 kilometers of the Greenbelt coordinates shall notify NOAA in accordance with the procedures specified in 47 C.F.R. § 1.924.

31. Part 27 of title 47 of the Code of Federal Regulations is revised to read as follows:

PART 27 – MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES

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

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

32. Section 27.1 is amended to read as follows:

§ 27.1 Basis and purpose.

* * * * *

(b) * * *

(4) 1390-1392 MHz.

(5) 1392-1395 MHz and 1432-1435 MHz.

(6) 1670-1675 MHz.

(7) 2385-2390 MHz.

33. Section 27.4 is amended to add the following definition:

§ 27.4 Terms and definitions.

* * * * *

Affiliate. This term shall have the same meaning as that for "affiliate" in part 1, § 1.2110(b)(5) of this chapter.

* * *

Band Manager. The term *Band Manager* refers to a licensee in the paired 1392-1395 MHz and 1432-1435 MHz bands and the unpaired 1390-1392 MHz, 1670-1675 MHz and 2385-2390 MHz bands that functions solely as a spectrum broker by subdividing its licensed spectrum and making it available to system operators or directly to end users for fixed or mobile communications consistent with Commission Rules. A *Band Manager* is directly responsible for any interference or misuse of its licensed frequency arising from its use by such non-licensed entities.

34. Section 27.5 is amended to read as follows:

§ 27.5 Frequencies

* * * * *

(d) *1390-1392 MHz band.* The 1390-1392 MHz band is available for assignment on a Major Economic Area basis.

(e) *The paired 1392-1395 and 1432-1435 MHz bands.* The paired 1392-1395 MHz and 1432-1435 MHz bands are available for assignment on an Economic Area Grouping basis as follows:

Block A: 1392-1393.5 MHz and 1432-1433.5 MHz; and
Block B: 1393.5-1395 MHz and 1433.5-1435 MHz.

(f) *1670-1675 MHz band.* The 1670-1675 MHz band is available for assignment on a nationwide basis.

(g) *2385-2390 MHz band.* The 2385-2390 MHz band is available for assignment on a nationwide basis.

35. Section 27.6 is amended to read as follows:

§ 27.6 Service areas.

* * * * *

(d) *1390-1392 MHz band.* Service areas for the 1390-1392 MHz band is based on Major Economic Areas (MEAs), as defined in paragraphs (a)(1) and (a)(2) of this section.

(e) *The paired 1392-1395 and 1432-1435 MHz bands.* Service areas for the paired 1392-1395 and 1432-1435 MHz bands are as follows. Service areas for Block A in the 1392-1393.5 MHz and 1432-1433.5 MHz bands and Block B in the 1393.5-1395 MHz and 1433.5-1435 MHz bands are based on Economic Area Groupings (EAGs) as defined in paragraph (b)(2).

(f) *1670-1675 MHz band.* Service areas for the 1670-1675 MHz band are available on a nationwide basis.

(g) *2385-2390 MHz band.* Service areas for the 2385-2390 MHz band are available on a nationwide basis.

36. Section 27.10 is revised to read as follows:

§ 27.10 Regulatory status.

Except with respect to Band Manager licenses and Guard Band Manager licenses, which are subject to subpart G of this part, the following rules apply concerning the regulatory status of licensees in the frequency bands specified in § 27.5.

* * * * *

37. Section 27.11 is revised to read as follows:

§ 27.11 Initial authorization.

* * * * *

(e) *1390-1392 MHz band.* Initial authorizations for the 1390-1392 MHz band shall be for 2 megahertz of spectrum in accordance with §27.5(c). Authorizations will be based on Major Economic Areas (MEAs), as specified in §27.6(c).

(f) *The paired 1392-1395 MHz and 1432-1435 MHz bands.* Initial authorizations for the paired 1392-1395 MHz and 1432-1435 MHz bands shall be for 3 megahertz of paired spectrum in accordance with §27.5(d). Authorization for Blocks A and B will be based on Economic Areas Groupings (EAGs), as specified in §27.6(d).

(g) *1670-1675 MHz band.* Initial authorizations for the 1670-1675 MHz band shall be for 5 megahertz of spectrum in accordance with §27.5(e). Authorizations will be on a nationwide basis.

(h) *2385-2390 MHz band.* Initial authorizations for the 2385-2390 MHz band shall be for 5 megahertz of spectrum in accordance with §27.5(f). Authorizations will be on a nationwide basis.

* * * * *

38. Section 27.12 is amended to read as follows:

§ 27.12 Eligibility.

(a) Except as provided in § 27.604, any entity other than those precluded by section 310 of the Communications Act of 1934, as amended, 47 U.S.C. § 310, is eligible to hold a license under this part.

(b) Band Manager licenses. For the 1392-1395 MHz, 1670-1675 MHz, and 2385-2390 MHz bands and the paired 1392-1395 MHz and 1432-1435 MHz bands, applicants applying for an initial license may elect to operate as a Band Manager, subject to the rules governing Guard Band Managers under subpart G, *provided however*, that the following rules do not apply to Band Managers:

(1) The prohibition in Section 27.601(a) and (b) against employing a cellular system architecture;

(2) The requirement in Section 27.601(d)(1) to notify Public Safety frequency coordinators;

(3) The requirement in Section 27.603(c) to lease the predominant amount of its spectrum to non-affiliates;

(4) The prohibition in Section 27.604 against a single applicant becoming the winning bidder of both blocks A and B in a single geographic service area; and

(5) The requirement in Section 27.605 that any entity that acquires a portion of a Guard Band Manager's spectrum or geographic area through partitioning or disaggregation must also act as a band manager.

Section 27.13 is amended to read as follows:

§ 27.13 License period.

* * * * *

(c) *1390-1392 MHz band.* Initial authorizations for the 1390-1392 MHz band will have a term not to exceed ten years from the date of initial issuance or renewal.

(d) *The paired 1392-1395 and 1432-1435 MHz bands.* Initial WCS authorizations for the paired 1392-1395 MHz and 1432-1435 MHz bands will have a term not to exceed ten years from the date of initial issuance or renewal.

(e) *1670-1675 MHz band.* Initial authorizations for the 1670-1675 MHz band will have a term not to exceed ten years from the date of initial issuance or renewal.

(f) *2385-2390 MHz band.* Initial authorizations for the 2385-2390 MHz band will have a term not to exceed ten years from the date of initial issuance or renewal.

39. Section 27.50 is amended by adding new paragraphs (d), (e), and (f) to read as follows

and redesignating paragraphs (d) as paragraph (g) :

§ 27.50 Power and antenna height limits.

* * * * *

(d) The following power limits apply to the paired 1392-1395 MHz and 1432-1435 MHz bands as well as the unpaired 1390-1392 MHz band (1.4 GHz band):

(1) Fixed stations transmitting in the 1390-1392 MHz and 1432-1435 MHz bands are limited to 2000 watts EIRP peak power. Fixed stations transmitting in the 1392-1395 MHz band are limited to 100 watts EIRP peak power.

(2) Mobile stations transmitting in the 1390-1392 MHz and 1432-1435 MHz bands are limited to 4 watts EIRP peak power. Mobile stations transmitting in the1392-1395 MHz band are limited to 1 watt EIRP peak power.

(e) The following power limits apply to the 1670-1675 MHz band:

(1) Fixed and base stations are limited to 2000 watts EIRP peak power.

(2) Mobile stations are limited to 4 watts EIRP peak power.

(f) The following power limits apply to the 2385-2390 MHz band:

(1) Fixed and base stations are limited to 2000 watts EIRP peak power.

(2) Mobile and aeronautical mobile stations are limited to 4 watts EIRP peak power.

* * * * *

Section 27.53 is amended to read as follows:

§ 27.53 Emission limits.

* * * * *

(g) For operations in the unpaired 1390-1392 MHz band and the paired 1392-1395 MHz and 1432-1435 MHz bands, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) by at least 43 + 10 log (P) dB. Compliance with these provisions is based on the procedures described in paragraph (a)(4).

(h) For operations in the 1670-1675 MHz band, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) by at least 43 + 10 log (P) dB. Compliance with these provisions is based on the procedures described in paragraph (a)(4).

(i) For operations in the 2385-2390 MHz band, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) by at least 43 + 10 log (P) dB. Compliance with these provisions is based on the procedures described in paragraph (a)(4).

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

40. Section 27.55(a) is amended to read as follows:

§ 27.55 Field strength limits.

(a) * * *

(3) The paired 1392-1395 MHz and 1432-1435 MHz bands and the unpaired 1390-1392 MHz band (1.4 GHz band): 47 dBuV/m.

We add a new Subpart to Part 27 as follows:

Subpart I – 1.4 GHz Band

§ 27.801 Scope.

This subpart sets out the regulations governing service in the paired 1392-1395 MHz and 1432-1435 MHz bands as well as the unpaired 1390-1392 MHz band (1.4 GHz band).

§ 27.802 Permissible communications.

Licensees in the paired 1392-1395 MHz and 1432-1435 MHz bands and unpaired 1390-1392 MHz band are authorized to provide fixed or mobile service, except aeronautical mobile service, subject to the technical requirements of this subpart.

§ 27.803 Coordination requirements.

(a) Licensees in the 1.4 GHz band will be issued geographic area licenses in accordance with the service areas listed in §27.6(d) and (e).

(b) Licensees in the 1.4 GHz Service must file a separate station application with the Commission and obtain an individual station license, prior to construction or operation, of any station:

(1) that requires submission of an Environmental Assessment under Part 1, § 1.1307;

(2) that requires international coordination;

(3) that operates in the quiet zones listed in Part 1, §1.924; or

(4) that requires approval of the Frequency Advisory Subcommittee (FAS) of the Interdepartment Radio Advisory Committee (IRAC). Stations that require FAS approval are as follows:

(i) licensees in the 1390-1392 MHz and 1392-1395 MHz band must receive FAS approval prior to operation of fixed sites or mobile units within the NTIA recommended protection radii of the Government sites listed in footnote US351 of § 2.106.

(ii) licensees in the 1432-1435 MHz band must receive FAS approval, prior to operation of fixed sites or mobile units within the NTIA recommended protection radii of the Government sites listed in footnote US361 of § 2.106.

(c) Prior to construction of a station, a licensee in the 1.4 GHz Band must register with the Commission any station antenna structure for which notification to the Federal Aviation Administration is required by Part 17 of this chapter.

(d) It is the licensee's responsibility to determine whether an individual station needs referral to the Commission.

(e) The application required in subparagraph (b) must be filed on the Universal Licensing System.

§ 27.804 Field Strength Limits at WMTS Facility.

For any operation in the 1392-1395 MHz band, the predicted or measured field strength – into the WMTS band at 1395-1400 MHz – shall not exceed 150 uV/m at the location of any registered WMTS healthcare facility. When performing measurements to determine compliance with this provision, measurement instrumentation employing an average detector and a resolution bandwidth of 1 MHz may be used, provided it accurately represents the true interference potential of the equipment.

§ 27.805 Geographic partitioning and spectrum disaggregation.

An entity that acquires a portion of a 1.4 GHz band licensee's geographic area or spectrum subject to a geographic partitioning or spectrum disaggregation agreement under § 27.15 must function as a 1.4 GHz band licensee and is subject to the obligations and restrictions on the 1.4 GHz band license as set forth in this subpart.

§ 27.806 1.4 GHz Service licenses subject to competitive bidding.

Mutually exclusive initial applications for 1.4 GHz Band licenses in the paired 1392-1395 MHz and 1432-1435 MHz bands as well as the unpaired 1390-1392 MHz band are subject to competitive bidding. The general competitive bidding procedures set forth in Part 1, Subpart Q of this chapter will apply unless otherwise provided in this subpart.

§ 27.807 Designated entities.

(a) Eligibility for small business provisions for 1.4 GHz band licenses in the paired 1392-1395 MHz and 1432-1435 MHz bands and the unpaired 1390-1392 MHz band.

(1) A very small business is an entity that, together with its controlling interests and affiliates, has average annual gross revenues not exceeding $15 million for the preceding three years.

(2) A small business is an entity that, together with its controlling interests and affiliates, has average annual gross revenues not exceeding $40 million for the preceding three years.

(3) A consortium of very small businesses is a conglomerate organization formed as a joint venture between or among mutually independent business firms, each of which individually satisfies the definition in paragraph (a)(1) of this section. A consortium of small businesses is a conglomerate organization formed as a joint venture between or among mutually independent business firms, each of which individually satisfies the definition in paragraph (a)(2) of this section.

(4) For purposes of determining whether an entity meets any of the definitions set forth in paragraphs (a)(1), (a)(2), or (a)(3) of this section, the gross revenues of the entity, its controlling interests and affiliates shall be considered in the manner set forth in § 1.2110(b) and (c) of this chapter.

(b) Bidding credits. A winning bidder that qualifies as a very small business or a consortium of very small businesses as defined in this section may use the bidding credit specified in § 1.2110(f)(2)(ii) of this chapter. A winning bidder that qualifies as a small business or a consortium of small businesses as defined in this section may use the bidding credit specified in § 1.2110(f)(2)(iii) of this chapter.

We add a new Subpart to Part 27 as follows:

Subpart J - 1670-1675 MHz Band.

§ 27.901 Scope.

This subpart sets out the regulations governing service in the 1670-1675 MHz band (1670-1675 MHz band).

§ 27.902 Permissible communications.

Licensees in the 1670-1675 MHz band are authorized to provide fixed or mobile service, except aeronautical mobile service, subject to the technical requirements of this subpart.

§ 27.903 Coordination requirements.

(a) The Licensee in the 1670-1675 MHz band will be issued a geographic area license on a nationwide basis in accordance with §27.6(f).

(b) Licensees in the 1670-1675 MHz band must file a separate station application with the Commission and obtain an individual station license, prior to construction or operation, of any station:

(1) that requires submission of an Environmental Assessment under Part 1, § 1.1307;

(2) that requires international coordination;

(3) that operates in the quiet zones listed under Part 1, § 1.924.

(c) The application required in subparagraph (b) must be filed on the Universal Licensing System.

(d) Prior to construction of a station, a licensee must register with the Commission any station antenna structure for which notification to the Federal Aviation Administration is required by Part 17 of this chapter.

(e) It is the licensee's responsibility to determine whether an individual station requires referral to the Commission.

§ 27.904 Geographic partitioning and spectrum disaggregation.

An entity that acquires a portion of a 1670-1675 MHz band licensee's geographic area or spectrum subject to a geographic partitioning or spectrum disaggregation agreement under § 27.15 must function as a 1670-1675 MHz licensee and is subject to the obligations and restrictions on the 1670-1675 MHz license as set forth in this subpart.

§ 27.905 1670-1675 MHz Service licenses subject to competitive bidding.

Mutually exclusive initial applications for the 1670-1675 MHz Band license are subject to competitive bidding. The general competitive bidding procedures set forth in Part 1, Subpart Q of this chapter will apply unless otherwise provided in this subpart.

§ 27.906 Designated entities.

(a) Eligibility for small business provisions.

(1) A very small business is an entity that, together with its controlling interests and affiliates, has average annual gross revenues not exceeding $15 million for the preceding three years.

(2) A small business is an entity that, together with its controlling interests and affiliates, has average annual gross revenues not exceeding $40 million for the preceding three years.

(3) A consortium of very small businesses is a conglomerate organization formed as a joint venture between or among mutually independent business firms, each of which individually satisfies the definition in paragraph (a)(1) of this section. A consortium of small businesses is a conglomerate organization formed as a joint venture between or among mutually independent business firms, each of which individually satisfies the definition in paragraph (a)(2) of this section.

(4) For purposes of determining whether an entity meets any of the definitions set forth in paragraphs (a)(1), (a)(2), or (a)(3) of this section, the gross revenues of the entity, its controlling interests and affiliates shall be considered in the manner set forth in § 1.2110(b) and (c) of this chapter.

(b) Bidding credits. A winning bidder that qualifies as a very small business or a consortium of very small businesses as defined in this section may use the bidding credit specified in § 1.2110(f)(2)(ii) of this chapter. A winning bidder that qualifies as a small business or a consortium of small businesses as defined in this section may use the bidding credit specified in § 1.2110(f)(2)(iii) of this chapter.

We add a new Subpart to Part 27 as follows:

Subpart K - 2385-2390 MHz Band.

§ 27.1001 Scope.

This subpart sets out the regulations governing service in the 2385-2390 MHz band (2385-2390 MHz band).

§ 27.1002 Permissible communications.

Licensees in the 2385-2390 MHz band are authorized to provide fixed or mobile service, including aeronautical mobile, subject to the technical requirements of this subpart.

§ 27.1003 Coordination requirements.

(a) The Licensee in the 2385-2390 MHz band will be issued a geographic area license on a nationwide basis in accordance with §27.6(g).

(b) The Licensee in the 2385-2390 MHz Band must file a separate station application with the Commission and obtain an individual station license, prior to construction or operation, of any station:

(1) that requires submission of an Environmental Assessment under Part 1, § 1.1307;

(2) that requires international coordination;

(3) that operates in the quiet zones listed in Part 1, § 1.924;

(4) that requires approval of the Frequency Advisory Subcommittee (FAS) of the Interdepartment Radio Advisory Committee(IRAC). The Licensee in the 2385-2390 MHz Band must receive FAS approval prior to operation of fixed sites or mobile units within the NTIA recommended protection radii of the Government aeronautical telemetry sites listed in footnote US363 of § 2.106.

(c) The Licensee in the 2385-2390 MHz Band must file a separate station application with the Commission and obtain an individual station license prior to construction or operation of any station that would require approval of the Aeronautical Flight Test Radio Coordinating Council (AFTRCC). Any fixed sites or mobile units within the protection radii of the non-Government flight test operations listed in footnote US363 of § 2.106 will require AFTRCC approval. The Licensee in the 2385-2390 MHz Band must receive AFTRCC approval prior to filing an application and the application must contain a showing of AFTRCC approval.

(d) Prior to construction of a station, the 2385-2390 MHz licensee must register with the Commission any station antenna structure for which notification to the Federal Aviation Administration is required by Part 17 of this chapter.

(e) It is the licensee's responsibility to determine whether a referral to the Commission is needed for any individual station constructed.

(f) The application required in subparagraphs (b) and (c) must be filed on the Universal Licensing System.

§ 27.1004 Geographic partitioning and spectrum disaggregation.

An entity that acquires a portion of a 2385-2390 MHz licensee's geographic area or spectrum subject to a geographic partitioning or spectrum disaggregation agreement under § 27.15 must function as a 2385-2390 MHz licensee and is subject to the obligations and restrictions on the 2385-2390 MHz license as set forth in this subpart.

§ 27.1005 2385-2390 MHz Service licenses subject to competitive bidding.

Mutually exclusive initial applications for the 2385-2390 MHz Band license are subject to competitive bidding. The general competitive bidding procedures set forth in Part 1, Subpart Q of this chapter will apply unless otherwise provided in this subpart.

§ 27.1006 Designated entities.

(a) Eligibility for small business provisions.

(1) A very small business is an entity that, together with its controlling interests and affiliates, has average annual gross revenues not exceeding $15 million for the preceding three years.

(2) A small business is an entity that, together with its controlling interests and affiliates, has average annual gross revenues not exceeding $40 million for the preceding three years.

(3) A consortium of very small businesses is a conglomerate organization formed as a joint venture between or among mutually independent business firms, each of which individually satisfies the definition in paragraph (a)(1) of this section. A consortium of small businesses is a conglomerate organization formed as a joint venture between or among mutually independent business firms, each of which individually satisfies the definition in paragraph (a)(2) of this section.

(4) For purposes of determining whether an entity meets any of the definitions set forth in paragraphs (a)(1), (a)(2), or (a)(3) of this section, the gross revenues of the entity, its controlling interests and affiliates shall be considered in the manner set forth in § 1.2110(b) and (c) of this chapter.

(b) Bidding credits. A winning bidder that qualifies as a very small business or a consortium of very small businesses as defined in this section may use the bidding credit specified in § 1.2110(f)(2)(ii) of this chapter. A winning bidder that qualifies as a small business or a consortium of small businesses as defined in this section may use the bidding credit specified in § 1.2110(f)(2)(iii) of this chapter.

41. Part 87 of title 47 of the Code of Federal Regulations, is amended to read as follows:

PART 87 – AVIATION SERVICES

The authority citation for Part 87 continues to read as follows:

AUTHORITY: Sections 4, 303, 307(e), 309, and 332, 48 Stat. 1066, 1082, as amended; 47 U.S.C. 154, 303, 307(e), 309, and 332.

42. Section 87.173 is amended to read as follows:

* * * * *

(b) Frequency table:

Frequency or frequency band	Subpart	Class of station	Remarks
*****	*****	*****	*****
2310-2390 MHz[1]	*****	*****	*****
*****	*****	*****	*****

[1] All operation in the 2385-2390 MHz portion of the 2310-2390 MHz band are secondary to WCS operations in accordance with subpart K of Part 27 except at the locations listed in footnote US363 of § 2.106. Operations at the locations listed in footnote US363 of § 2.106 will remain primary until January 1, 2007. After January 1, 2007, all operations in the 2385-2390 MHz portion of the 2310-2390 MHz band will be secondary to WCS operations in accordance with subpart K of Part 27.

43. Part 90 of title 47 of the Code of Federal Regulations, is amended to read as follows:

PART 90 – PRIVATE LAND MOBILE RADIO SERVICES

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

AUTHORITY: Sections 4(i), 11, 303(g), 303(r), and 302(c)(7) of the Communications Act of 1934, as amended, 47 U.S.C. 154(i), 161, 303(g), 303(r), 332(c)(7).

44. Section 90.20 is amended to read as follows:

* * * * *

(c) * * *

(3) *Frequencies.*

PUBLIC SAFETY POOL FREQUENCY TABLE

Frequency or band	Class of station(s)	Limitations	Coordinator

Kilohertz			
*****	*****	*****	*****
Megahertz			
*****	*****	*****	*****
1427 to 1432	Base, mobile or operational fixed.	72.	
*****	*****	*****	*****

The 1432 to 1435 MHz band is removed from the Public Safety Pool frequency table.

45. Section 90.35 is amended to read as follows:

§ 90.35 Industrial/Business Pool.

* * * * *

(b) * * *

(3) *Frequencies.*

INDUSTRIAL/BUSINESS POOL FREQUENCY TABLE

Frequency or band	Class of station(s)	Limitations	Coordinator
Kilohertz			
*****	*****	*****	*****
Megahertz			
216 to 217.....	Base or mobile.	55.	
217 to 220.....	Base, mobile, or operational fixed.	55.	
*****	*****	*****	*****
1427 to 1432	Base, mobile or operational fixed.	55.	
*****	*****	*****	*****

The 1432 to 1435 MHz band is removed from the Industrial/Business Pool frequency table.

46. Section 90.175 is amended as follows:

§ 90.175 Frequency Coordinator Requirements.

Except for applications listed in paragraph (j) of this section, each application for a new frequency assignment, for a change in existing facilities as listed in § 90.135(a), or for operation at temporary locations in accordance with § 90.137 must include a showing of frequency coordination as set forth below.

(a) Frequency coordinators may request, and applicants are required to provide, all appropriate technical information, system requirements, and justification for requested station parameters when such information is necessary to identify and recommend the most appropriate frequency. Additionally, applicants bear the burden of proceeding and the burden of proof in requesting the Commission to overturn a coordinator's recommendation.

(b) For frequencies between 25 and 470 MHz: (1) A statement is required from the applicable frequency coordinator as specified in §§ 90.20(c)(2) and 90.35(b) recommending the most appropriate frequency. In addition, if the interference contour of a proposed station would overlap the service contour of a station on a frequency formerly shared prior to radio service consolidation by licensees in the Manufacturers Radio Service, the Forest Products Radio Service, the Power Radio Service, the Petroleum Radio Service, the Motor Carrier Radio Service, the Railroad Radio Service or the Automobile Emergency Radio Service, the written concurrence of the coordinator for the industry-specific service, or the written concurrence of the licensee itself, must be obtained. Requests for concurrence must be responded to within 20 days of receipt of the request. The written request for concurrence shall advise the receiving party of the maximum 20 day response period. The coordinator's recommendation may include comments on technical factors such as power, antenna height and gain, terrain and other factors which may serve to minimize potential interference. In addition:

(2) On frequencies designated for coordination or concurrence by a specific frequency coordinator as specified in §§ 90.20(c)(3) and 90.35(b), the applicable frequency coordinator shall provide a written supporting statement in instances in which coordination or concurrence is denied. The supporting statement shall contain sufficient detail to permit discernment of the technical basis for the denial of concurrence. Concurrence may be denied only when a grant of the underlying application would have a demonstrable, material, adverse effect on safety.

(3) In instances in which a frequency coordinator determines that an applicant's requested frequency or the most appropriate frequency is one designated for coordination or concurrence by a specific frequency coordinator as specified in §§ 90.20(c)(3) or 90.35(b), that frequency coordinator may forward the application directly to the appropriate frequency coordinator. A frequency coordinator may only forward an application as specified above if consent is received from the applicant.

(c) For frequencies above 800 MHz: When frequencies are shared by more than one service, concurrence must be obtained from the other applicable certified coordinators.

(d) For frequencies in the 450-470 MHz band: When used for secondary fixed operations, frequencies shall be assigned and coordinated pursuant to § 90.261.

(e) For frequencies between 470 and 512 MHz, 764-776/794-806 MHz, 806-824/851-869 MHz, and 896-901/935-940 MHz: A recommendation of the specific frequencies that are available for assignment in accordance with the loading standards and mileage separations applicable to the specific radio service, frequency pool, or category of user involved is required from an applicable frequency coordinator.

(f) For frequencies in the 929-930 MHz band listed in paragraph (b) of § 90.494: A statement is required from the coordinator recommending the most appropriate frequency.

(g) For frequencies between 1427-1432 MHz: A statement is required from the coordinator recommending the most appropriate frequency, operating power and area of operation in accordance with the requirements of § 90.259(b).

(h) Any recommendation submitted in accordance with paragraphs (a), (c), (d), or (e) of this section is advisory in character and is not an assurance that the Commission will grant a license for operation on that frequency. Therefore, applicants are strongly advised not to purchase radio equipment operating on specific frequencies until a valid authorization has been obtained from the Commission.

(i) Applications for facilities near the Canadian border north of line A or east of line C in Alaska may require coordination with the Canadian government. See § 1.955 of this chapter.

(j) The following applications need not be accompanied by evidence of frequency coordination:

(1) Applications for frequencies below 25 MHz.

(2) Applications for a Federal Government frequency.

(3) Applications for frequencies in the 72-76 MHz band except for mobile frequencies subject to § 90.35(c)(77).

(4) Applications for a frequency to be used for developmental purposes.

(5) Applications in the Industrial/Business Pool requesting a frequency designated for itinerant operations, and applications requesting operation on 154.570 MHz, 154.600 MHz, 151.820 MHz, 151.880 MHz, and 151.940 MHz.

(6) Applications in the Radiolocation Service.

(7) [Reserved]

(8) Applications for frequencies listed in the SMR tables contained in §§ 90.617 and 90.619.

(9) Applications indicating license assignments such as change in ownership, control or corporate structure if there is no change in technical parameters.

(10) Applications for mobile stations operating in the 470-512 MHz band, 764-776/794-806 MHz band, or above 800 MHz if the frequency pair is assigned to a single system on an exclusive basis in the proposed area of operation.

(11) Applications for add-on base stations in multiple licensed systems operating in the 470-512 MHz, 764-776/794-806 MHz band, or above 800 MHz if the frequency pair is assigned to a single system on an exclusive basis.

(12) Applications for control stations operating below 470 MHz, 764-776/794-806 MHz, or above 800 MHz and meeting the requirements of § 90.119(b).

(13) Applications for itinerant operation in the 217-220 MHz band.

(14) Except for applications for the frequencies set forth in §§ 90.719(c) and 90.720, applications for frequencies in the 220-222 MHz band.

(15) Applications for a state license under § 90.529.

(16) Applications for narrowband low power channels listed for itinerant use in § 90.531(b)(4)

47. Section 90.176 is amended as follows:

§ 90.176 Coordinator notification requirements on frequencies below 512 MHz, at 764-776/794-806 MHz, or at 1427-1432 MHz .

(a) *Frequencies below 470 MHz.* Within one business day of making a frequency recommendation, each frequency coordinator must notify and provide the information indicated in

paragraph (g) of this section to all other frequency coordinators who are also certified to coordinate that frequency.

(1) The applicable frequency coordinator for each frequency is specified in the coordinator column of the frequency tables of §§ 90.20(c)(3) and 90.35(b)(3).

(2) For frequencies that do not specify any frequency coordinator, all certified in-pool coordinators must be notified.

(3) For frequencies that are shared between the Public Safety Pool and the Industrial/Business Pool (frequencies subject to §§ 90.20(d)(7), (d)(25), (d)(34), or (d)(46) in the Public Safety Pool, and subject to §§ 90.35(c)(13), (c)(25), or (d)(4) in the Industrial/Business Pool), all certified coordinators of both pools must be notified.

(b) *Frequencies in the 470-512 MHz band.* Within one business day of making a frequency recommendation, each frequency coordinator must notify and provide the information indicated in paragraph (g) of this section to all other certified frequency coordinators in the Public Safety Pool and the Industrial/Business Pool.

(c) *Frequencies in the 764-776/794-806 MHz band.* Within one business day of making a frequency recommendation, each frequency coordinator must notify and provide the information indicated in paragraph (g) of this section to all other certified frequency coordinators in the Public Safety Pool.

(d) *Frequencies in the 1427-1432 MHz band.* Within one business day of making a frequency recommendation, each frequency coordinator must notify and provide the information indicated in paragraph (g) of this section to the WMTS frequency coordinator designated in § 95.113 and to all other frequency coordinators who are also certified to coordinate that frequency.

(e) Each frequency coordinator must also notify all other certified in-pool coordinators on any day that the frequency coordinator does not make any frequency recommendations.

(f) Notification must be made to all coordinators at approximately the same time and can be made using any method that ensures compliance with the one business day requirement.

(g) At a minimum the following information must be included in each notification:

(1) Name of applicant;

(2) Frequency or frequencies recommended;

(3) Antenna locations and heights;

(4) Effective radiated power (ERP);

(5) Type(s) of emissions;

(6) Description of the service area; and

(7) Date and time of recommendation.

(h) Upon request, each coordinator must provide any additional information requested from another certified coordinator regarding a pending recommendation that it has processed but has not yet been granted by the Commission.

(i) It is the responsibility of each coordinator to insure that its frequency recommendations do not conflict with the frequency recommendations of any other frequency coordinator. Should a conflict arise, the affected coordinators are jointly responsible for taking action to resolve the conflict, up to and including notifying the Commission that an application may have to be returned.

48. Section 90.203(a) is amended as follows:

§ 90.203 Certification required.

(a) ***

(1) Effective October 16, 2002, except in the 1427-1432 MHz band, an equipment approval may no longer be obtained for in-hospital medical telemetry equipment operating under the provisions of this part. The requirements for obtaining an approval for medical telemetry equipment after this date are found in subpart H of part 95 of this chapter.

* * * * *

49. Section 90.205 is amended by redesignating paragraphs (f) through (k) as paragraphs (g) through (l), redesignating paragraphs (l) through (o) as paragraphs (n) through (q), and adding new paragraphs (e) and (m) to read as follows:

§ 90.205 Power and antenna height limits.

* * * * *

(e) *217-220 MHz.* Limitations on power and antenna heights are specified in § 90.259.

* * * * *

(m) *1427-1429.5 MHz and 1429.5-1432 MHz.* Limitations on power are specified in § 90.259.

* * * * *

50. Section 90.209 is amended to read as follows:

§ 90.209 Bandwidth limitations.

* * * * *

(b) * * *

(5) * * *

STANDARD CHANNEL SPACING/BANDWIDTH

Frequency band (MHz)	Channel spacing (kHz)	Authorized bandwidth (kHz)
*****	*****	*****
216-220[5]	6.25	6.25

*****	*****	*****
1427-1432[5]	12.5	12.5
*****	*****	*****

* * *

[5] Licensees will be allowed to combine contiguous channels up to 50 kHz, and more than 50 kHz only upon a showing of adequate justification per §90.259(a)(8) and (b)(10).

51. Section 90.213 is amended to read as follows:

§ 90.213 Frequency stability.

(a) * * *

MINIMUM FREQUENCY STABILITY
[Parts per million (ppm)]

Frequency range (MHz)	Fixed and base stations	Mobile stations	
		Over 2 watts output power	2 watts or less output power
*****	*****	*****	*****
216-220	1.0	.....	1.0
*****	*****	*****	*****

* * * * *

52. Section 90.259 is amended to read as follows:

§ 90.259 Assignment and use of frequencies in the bands 216-220 MHz and 1427-1432 MHz.

(a) 216-220 MHz band.

(1) Frequencies in the 216-220 MHz band may be assigned to applicants that establish eligibility in the Industrial/Business Pool.

(2) All operation is secondary to the fixed and mobile services, including the Low Power Radio Service.

(3) In the 216-217 MHz band, no new assignments will be made after January 1, 2002.

(4) In the 217-220 MHz band, the maximum transmitter output power is 2 watts. The maximum antenna height above average terrain (HAAT) is 152 m (500 feet).

(5) In the 217-220 MHz band, base, mobile, and operational fixed is permitted.

(6) Wide area operations will not be authorized. The area of normal day-to-day operations will be described in the application in terms of maximum distance from a geographical center (latitude and longitude).

(7) Assignable frequencies occur in increments of 6.25 kHz from 217.0625 MHz to 219.99375 MHz.

(8) Licensees may combine contiguous channels up to 50 kHz, and more than 50 kHz only upon a showing of adequate justification.

(b) 1427-1432 MHz band.

(1) Frequencies in the 1427-1432 MHz band may be assigned to applicants that establish eligibility in the Public Safety Pool or the Industrial/Business Pool.

(2) All operations in the 1427-1429.5 MHz band are secondary to the Wireless Medical Telemetry Service except in the locations specified in paragraph (b)(4) of this section. At the locations specified in paragraph (b)(4) of this section, all operations are secondary to the Wireless Medical Telemetry Service in the 1429-1431.5 MHz band.

(3) All operations in the 1429.5-1432 MHz band are primary in status except in the locations specified in paragraph (b)(4) of this section. At the locations specified in paragraph (b)(4) of this section, all operations are primary in status in the 1427-1429 MHz and 1431.5-1432 MHz bands.

(4) Locations:

(i) Pittsburgh, Pennsylvania – Counties of Westmoreland, Washington, Beaver, Allegheny and Butler;

(ii) Washington, DC metropolitan area – Counties of Montgomery, Prince George's, Charles, Arlington, Prince William, Fauquier, Loudon, and Fairfax; Cities of Alexandria, Falls Church, Fairfax, and District of Columbia;

(iii) Richmond/Norfolk, Virginia – Counties of Charles City, Chesterfield, Dinwiddie, Goochland, Hanover, Henrico, Isle of Wight, James City, New Kent, Powhatan, Prince George, Southhampton, Surrey, Sussex, and York; Cities of Chesapeake, Colonial Heights, Franklin, Hampton, Hopewell, Newport News, Norfolk, Petersburg, Poquoson, Portsmouth, Richmond, Suffolk, Virginia Beach, and Williamsburg;

(iv) Austin/Georgetown, Texas – Counties of Williamson and Travis;

(v) Battle Creek, Michigan – County of Calhoun;

(vi) Detroit, Michigan – Counties of Oakland, Wayne, Washtenaw, Macomb and Livingston;

(vii) Spokane, Washington – Counties of Spokane, WA and Kootenai, ID.

(5) All operations in the 1429.5-1432 MHz band authorized prior to April 12, 2002 are on a secondary basis.

(6) For secondary operations only fixed stations are permitted. At the locations specified in (b)(4) of this section, secondary operations are performed in the 1429-1431.5 MHz band. For all other locations, secondary operations are performed in the 1427-1429.5 MHz band. The maximum power is 1 watt EIRP.

(7) For primary operations base, mobile, operational fixed and temporary fixed operations are permitted.

(i) At the locations specified in (b)(4) of this section, primary operations are performed in the 1427-1429 MHz and 1431.5-1432 MHz bands. The maximum EIRP limitations are as follows:

Operation	Frequency range (MHz)			
	1427-1428 MHz	1428-1428.5	1428.5-1429	1431.5-1432
Fixed	100 watts	10 watts	1 watt	1 watt
Mobile	1 watt	1 watt	25 milliwatts	25 milliwatts
Temporary fixed	1 watt	1 watt	1 watt	1 watt

(ii) For all other locations, primary operations are performed in the 1429.5-1432 MHz band. The maximum EIRP limitations are as follows:

Operation	Frequency range (MHz)			
	1429.5-1430	1430-1430.5	1430.5-1431.5	1431.5-1432
Fixed	1 watt	1 watt	10 watts	100 watts
Mobile	25 milliwatts	1 watt	1 watt	1 watt
Temporary fixed	1 watt	1 watt	1 watt	1 watt

(8) Wide area operations will not be authorized. The area of normal day-to-day operations will be described in the application in terms of maximum distance from a geographical center (latitude and longitude).

(9) Assignable frequencies occur in increments of 12.5 kHz from 1427.0125 MHz to 1431.9875 MHz.

(10) Licensees, however, may combine contiguous channels up to 50 kHz, and more than 50 kHz only upon a showing of adequate justification.

(11) For any operation in the 1427-1432 MHz band, the predicted or measured field strength – in the WMTS primary band – at the location of any registered WMTS healthcare facility shall not exceed 150 uV/m. For the locations specified in (b)(4) of this section, WMTS is primary in the 1429-1431.5 MHz band. For all other locations, WMTS is primary in the 1427-1429.5 MHz band.

(c) Authorized uses.

(1) Use of these bands is limited to telemetering purposes.

(2) Base stations authorized in these bands shall be used to perform telecommand functions with associated mobile telemetering stations. Base stations may also command actions by the vehicle itself, but will not be authorized solely to perform this function.

(3) Airborne use is prohibited.

53. Part 95 of title 47 of the Code of Federal Regulations, is amended to read as follows:

PART 95 – PERSONAL RADIO SERVICES

The authority citation for Part 95 continues to read as follows:

AUTHORITY: Sections 4, 303, 48 Stat. 1066, 1082 as amended; 47 U.S.C. 154, 303.

54. Section 95.630 is amended to read as follows:

§ 95.630 WMTS Transmitter frequencies.

***

1427-1432 MHz

55. Section 95.1113 is amended to read as follows:

§ 95.1113 Frequency coordinator.

(b) * * *

(5) Notify licensees – who are operating in accordance with § 90.259(b) – of the need to comply with the field strength limit of § 90.259(b)(11) prior to initial activation of WMTS equipment in the 1427-1432 MHz band.

(6) Notify licensees – who are operating in 1392-1395 MHz band in accordance with Subpart I of Part 27 – of the need to comply with the field strength limit of § 27.804 prior to initial activation of WMTS equipment in the 1395-1400 MHz band.

SEPARATE STATEMENT OF COMMISSIONER KATHLEEN Q. ABERNATHY

Re: Amendments to Parts 1, 2, 27 and 90 of the Commission's Rules to License Services in the 216-220 MHz, 1390-1395 MHz, 1427-1429 MHz, 1429-1432 MHz, 1432-1435 MHz, 1670-1675 MHz, and 2385-2390 MHz Government Transfer Bands, WT Docket No. 02-08, Report and Order.

Today's Order is a substantial and important step forward in providing additional spectrum for some essential wireless services that often receive less attention that the traditional CMRS industry. As we develop new and innovative spectrum management policies, we must remember that one size does not fit all. In fact, it is imperative that we adopt a diverse and flexible spectrum management approach that allows a wide variety of services to survive, thrive and serve the American people.

The Commission today does just that. We license some bands site-by-site, others nationwide, and still others in 52 areas. The Commission licensed paired bands and unpaired as well. Some licenses are 5 MHz, others only 2 MHz. The agency also designed some bands to provide additional spectrum resources for private land mobile radio services. These service rules are significant because many of these licensees have unique safety and reliability needs that cannot be met by traditional commercial services. Similarly we chose to auction two five MHz bands as unpaired spectrum blocks to allow new technologies that do not use paired spectrum to enter the marketplace. These various approaches enable a wide variety of licensees to provide spectrum-based services.

As we work to facilitate a more effective secondary market, our initial allocations matter more than they should from a policy perspective. For today, we must adopt policies that reflect the way things are. Thus today, we will need to consider all shapes and sizes of spectrum allocations and service rules to serve the public interest.

I also want to emphasize the importance of the more-detailed-than-usual interference protections advanced by the parties and adopted today in the 1427-1432 MHz band. As I said when we issued the Notice of Proposed Rulemaking in this docket, "[t]he medical and utility telemetry communities privately crafted a solution that advances each of their interests – a job often better done by the parties than by government. There is no question that mutual resolution of their private interests greatly assists the Commission in assessing the broader public interest." The record in this docket did not produce a single party that opposed the interference limits jointly advanced by the medical and utility telemetry communities. While I generally support flexibility in allocations and service rules, I cannot support flexibility in the face of the identified public interest harms associated with that approach for these bands. Wireless Medical Telemetry Service devices are used in hospitals, clinics, nursing homes, and other health care facilities to transmit waveform and other physiological data from patient measurement devices (that are worn or carried by the patient or transported along with the patient) to patient monitoring, data distribution and data storage systems. One of the main purposes of patient monitoring is the early detection of life-threatening developments so that appropriate and timely intervention can be rendered. Based on the supportive record, safety-of-life considerations and the lack of any countervailing commercial interest, I believe the detailed rules we adopt today to protect medical telemetry from harmful interference advances the public interest.

Finally I am pleased that the Commission has committed to issuing an NOI by year's end to examine the availability of wireless services in rural America. The decision-making process would greatly benefit from additional data regarding the spectrum being used, the services being provided, and the needs in these areas. In turn, the Commission has an obligation to ensure that our regulatory tools are effective in facilitating the efficient use of spectrum in rural regions. Thus, secondary markets, partitioning and disaggregation, auction service areas, bidding credits, and our other policies should be

closely reviewed to ensure their efficacy for non-urban settings. This is particularly important because wireless is poised to provide significant competition in rural areas where multiple facilities-based providers have not developed as rapidly in some more densely populated areas. I look forward to this proceeding and gathering a record that will improve our rural spectrum policy process.

SEPARATE STATEMENT OF
COMMISSIONER MICHAEL J. COPPS
Approving in part, dissenting in part

RE: In the Matter of Amendments to Parts 1, 2, 27, and 90 of the Commission's Rules to License Services in the 216-220 MHz, 1390-1395 MHz, 1427-1429 MHz, 1429-1432 MHz, 1432-1435 MHz, 1670-1675 MHz and 2385-2390 MHz Government Transfer Bands (Report and Order).

In an era of scarce spectrum, with all the new technologies and services out there clamoring for additional spectrum, making 27 additional megahertz available for commercial use is good news indeed. And we are continuing the process set in motion by Congress to fully transfer this spectrum from government use to commercial use. I support this process, and I support and the vast majority of the rules that we adopt today.

I have deep misgivings, however, about one aspect of today's Order, the significant extension of our transfer of FCC allocation responsibilities to "band managers."

A "band manager" is a private entity to which the FCC grants spectrum rights to act as a "spectrum broker" rather than as a service provider. Band managers need not provide communications services; they may sell the use of their spectrum to whoever is willing to pay for it. This enables the band manager to gain private profits by brokering public spectrum. The Commission has permitted band managers in limited circumstances in the past for narrow guard bands. To date, we have not adequately analyzed the success of this initiative. In fact, the first annual band manager report is still in preparation. Nevertheless, today's Order represents a significant expansion of the FCC's use of band managers. I recognize the potential theoretical benefits of band managers. They can arguably allocate spectrum more quickly and dynamically than can an overburdened Commission, and the profit motive gives them an incentive to squeeze the most out of the spectrum as possible. But I also see grave risks.

The spectrum is a public asset. The Commission's stewardship of the spectrum is a public trust. Congress gave the Commission the responsibility to allocate spectrum for a reason. While there are often downsides to government management when it comes to speed and innovation, there are sometimes very important advantages. This Commission is legally obligated to operate transparently. Our charter commands us to promote the public interest. And we are accountable to the American people. Our charter is different than a band manager's. A band manager need not reveal its decisions to the public. It is legally obligated to maximize profits for its shareholders rather than serve primarily the public interest. Band managers are accountable to those private interests that control them, not to the people. Probably most band managers would recognize their larger responsibilities and it is not the majority I am worried about; it is the few who may come along and see this as an opportunity to put their private gain ahead of the public interest.

Congress understands the costs and benefits of government versus private stewardship of various assets. Here, I believe, Congress chose the FCC to manage spectrum because the protections inherent in FCC allocation of spectrum outweigh the costs.

Beyond these questions of the general propriety of band management, I also note that practical questions about band management remain unresolved. While we have allowed band managers recently in guard bands, we do not have much experience in their operation. What will happen if a band manager's lessee violates our rules? Will we be able in practice to successfully to enforce our rules against the lessee and the band manager when they start pointing fingers at each other? What will happen if band managers faced with economic distress break our rules to increase profits in a way that helps them in the short term but throws the band into confusion in the long run? Even if we are able to enforce, how will we clean up the mess? What will happen if band managers artificially limit spectrum supply to drive up prices for their own profit? Recent experience in electricity trading should indicate that such destructive tactics are altogether plausible. Our previously established band manager rules attempt to address some of these concerns, but they remain largely untested.

I do not believe that Congress wanted the FCC to delegate its spectrum authority to private speculators who can turn public spectrum into private profits with no intention of providing communications services. I believe that significant questions about the enforcement of our rules and the effect of band managers on the public interest are too uncertain to support an extension of our reliance on band managers at this time. I therefore must dissent from this section of the Order.

I understand resource constraints and all the other arguments used to justify the conferring onto others of the authority reposed in us. In my mind, none of these arguments even begins to offset the Commission's obligation to perform its duties itself as the agent of the American public to manage the American public's spectrum.

On a separate matter, I also believe that the Commission has far too little information to rely on partitioning and disaggregation as fulfilling our statutory responsibility to promote service to rural areas. Section 309(j)(3) states that the Commission must design competitive bidding systems so as to promote objectives including "promoting economic opportunity and competition and ensuring that new and innovative technologies are readily accessible to the American people by avoiding excessive concentration of licenses and disseminating licenses among a wide variety of applicants, including small businesses, rural telephone companies, and businesses owned by minority groups and women."[669]

One theory is that partitioning and disaggregation will accommodate the entry of new entrants and small businesses, and will speed service to unserved or underserved areas, enhance competition, and encourage new entrants into the market. Relying on this theory, the Commission could decide that it can auction spectrum in nationwide blocks or large EAGs, rather than in small geographic blocks geared toward rural service, depending on partitioning and disaggregation to eventually provide spectrum to rural areas. To make such a decision we would have to believe that a nationwide carrier will buy a nationwide license and if it finds that it will not use the rural portion of its spectrum, as is often the case when a national carrier buys such a license, it will strike deals with local carriers using the partitioning and disaggregation rules.

However, rural telecom commenters state emphatically that partitioning and disaggregation do not result in significant new service to rural areas. These rural carriers explain that the cost to a national

[669] 47 U.S.C. § 309(j)(3).

carrier of negotiating and signing a partitioning or disaggregation deal with a small carrier is often higher than the profit the nationwide carrier would gain from the deal. Therefore, they find it better business to let the rural spectrum lie fallow, even if rural carriers are interested in using it.

I believe that section 309(j)(3) compels us to design our auctions to promote service to rural areas. While partitioning and disaggregation theoretically could accomplish this goal, there is no proof that they do so. Therefore, we should not rely on these tools to meet our statutory obligation until we gather far more information.

I support the use of partitioning and disaggregation here only because we do not rely on these tools as fulfilling our statutory duty to rural America, and because we promise to release a formal Notice of Inquiry into tools at our disposal to promote rural service through our auction rules, by the end of the year. This NOI will explore whether partitioning and disaggregation are useful for this goal, whether there are ways to improve partitioning and disaggregation, whether there are additional and better tools that we should adopt in addition to auctioning smaller service areas. I believe that this NOI will give us the information we need to determine how to meet our responsibilities. I note, however, that until this NOI provides me with new information, I will continue to push for RSAs to promote rural service, and will not rely on partitioning and disaggregation for this purpose.