

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

In the Matter of)
)
Amendment of the Commission's Rules to) GN Docket No. 96-228
Establish Part 27, the Wireless)
Communications Service ("WCS"))

REPORT AND ORDER

Adopted: February 19, 1997

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By the Commission: Commissioners Ness and Chong issuing separate statements.

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I. INTRODUCTION AND EXECUTIVE SUMMARY

1. In this *Report and Order*, we fulfill the Congressional mandate expressed in Section 3001 of the Omnibus Consolidated Appropriations Act, 1997 ("Appropriations Act") to reallocate and assign the use of the frequencies at 2305-2320 and 2345-2360 megahertz.¹ We consider the proposals set forth in the *Notice of Proposed Rule Making ("NPRM")*² in GN Docket No. 96-228 concerning amendment of the Commission's rules to establish the Wireless Communications

¹ Omnibus Consolidated Appropriations Act, 1997, P.L. 104-208, 110 Stat. 3009 (1996).

² *Amendment of the Commission's Rules To Establish Part 27, the Wireless Communications Service ("WCS")*, GN Docket No. 96-228, *Notice of Proposed Rule Making*, FCC 96-441, 61 FR 59048 (rel. November 17, 1996) ("NPRM").

Service ("WCS"). We received 55 comments and 38 reply comments in this proceeding.³ Upon consideration of the extensive record in this proceeding, we take the following actions to implement the directives of the Appropriations Act.

2. We reallocate 2305-2320 and 2345-2360 MHz (2.3 GHz band) and give WCS licensees flexibility to provide wireless services that are consistent with the allocation table and associated international agreements. Any service contained in Part 2 of the Commission's Rules for the subject band will be permitted within a licensee's assigned spectrum and geographic area(s).⁴

3. However, because the reallocated WCS spectrum is located on both sides of the spectrum allocated for the satellite Digital Audio Radio Service ("satellite DARS"), we believe that there is a substantial risk that the out-of-band emission limits we are adopting -- which we believe are necessary to protect prospective satellite DARS licensees from interference from WCS operations -- will, at least in the foreseeable future, make mobile operations in the WCS spectrum technologically infeasible. We will require that all emissions from fixed transmitters be attenuated below the maximum spectral power density (p) by at least $80 + 10 \log(p)$ dBW, and that all emissions from mobile transmitters be attenuated below p by at least $110 + 10 \log(p)$ dBW within the 2320-2345 MHz band. In addition, we will require certain WCS transmitters and devices to routinely perform environmental evaluations with respect to our RF safety limits.

4. We will award two 10 MHz WCS licenses for each of 52 Major Economic Areas (MEAs), and two 5 MHz WCS license for each of 12 Regional Economic Area Groupings (REAGs). All WCS licenses will be awarded by means of a simultaneous, multiple-round, electronic auction. In addition, with respect to public safety communications needs, we note here our expectation that additional spectrum will be made available for public safety use as a result of other proceedings. We also note that new sources of funding for public safety are needed, and believe that approaches such as that taken in recent legislation introduced in Congress would substantially aid public safety agencies.

5. We impose no eligibility restrictions for WCS spectrum, with the exception of the foreign ownership restrictions set forth in Section 310 of the Communications Act, to the extent the restrictions are applicable to the particular service in question. We will not consider WCS spectrum holdings for purposes of the CMRS spectrum cap. Consistent with the Commission's

³ A list of the commenters and the reply commenters, with abbreviations used herein, can be found in Appendix A hereto. The Satellite Industry Association ("SIA") and the National Association of Black Owned Broadcasters ("NABOB") each filed a motion for acceptance of late filing. We hereby grant their motions, and consider their submissions as informal comments. In addition, Sun Microsystems, Inc. ("Sun Microsystems") filed its comments after the applicable deadline. We also will consider its submission as informal comments.

⁴ For the 2.3 GHz band, the allocated services in Part 2 are Fixed, Mobile, Radiolocation and Broadcasting-Satellite (sound).

recent decision concerning partitioning and disaggregation by CMRS licensees, we will permit WCS licensees to partition their service areas into smaller geographic service areas and to disaggregate their spectrum into smaller blocks without limitation.

6. We will grant WCS licenses for a term of 10 years; and, they will carry a renewal expectancy similar to that afforded PCS and cellular licensees. Each WCS licensee will be required to provide substantial service in its service area within 10 years.

7. Winning bidders for WCS licenses will designate in their long-form applications the type(s) of WCS service(s) they will provide. Their regulatory treatment will depend on these designations. WCS licensees that provide satellite Digital Audio Radio Service ("satellite DARS") services will be governed by the rules to be adopted in IB Docket No. 95-91.

8. With some exceptions, we adopt the competitive bidding rules set forth in Part 1 of the Commission's Rules for the WCS auction. We will make available on all WCS licenses bidding credits of 25 percent and 35 percent for bidders that qualify as small businesses and very small businesses, respectively, using the revenue standards employed in broadband PCS. We also adopt unjust enrichment restrictions on the transfer of licenses acquired by small businesses similar to those set forth in 47 C.F.R. § 24.839(d).

9. The Commission makes no representations or warranties about the use of this spectrum for particular services. Applicants should be aware that an FCC auction represents an opportunity to become an FCC licensee in this service, subject to certain conditions and regulations. An FCC auction does not constitute an endorsement by the FCC of any particular services, technologies or products, nor does an FCC license constitute a guarantee of business success. Applicants should perform their individual due diligence before proceeding as they would with any new business venture.

II. BACKGROUND

A. Appropriations Act

10. The Appropriations Act directed the Commission to "reallocate the use of frequencies at 2305-2320 megahertz and 2345-2360 megahertz to wireless services that are consistent with international agreements concerning spectrum allocations," to "assign the use of such frequencies by competitive bidding pursuant to Section 309(j) of the Communications Act of 1934."⁵ In making these bands of frequencies available for competitive bidding, we were directed to "seek to

⁵ See 47 U.S.C. § 309(j).

promote the most efficient use of the spectrum" and "take into account the needs of public safety radio services."⁶ The Appropriations Act also requires the Commission to commence the competitive bidding for the assignment of the frequencies made available by this action no later than April 15, 1997, and to conduct the competitive bidding for these frequencies in a manner that ensures that all proceeds of the bidding are deposited in accordance with Section 309(j)(8) of the Communications Act not later than September 30, 1997.⁷ In order to make this spectrum available for licensing quickly, the Appropriations Act grants the Commission permission to use expedited administrative procedures. Specifically, the Appropriations Act states that rules governing the frequencies made available by this proceeding will be effective immediately upon publication in the Federal Register.⁸ The Appropriations Act further provides that 5 U.S.C. Chapter 6 (regulatory flexibility analysis requirements) and 44 U.S.C. §§ 3507 and 3512 (information collection requirements) will not apply to the rules and competitive bidding procedures governing the frequencies at issue here. Further, the statute provides that the Commission may grant a license application for these frequencies no earlier than seven days following issuance of a public notice of the acceptance for filing of the application or major amendment thereto, despite the 30-day public notice provisions of 47 U.S.C. § 309(b). Finally, the statute provides that the Commission may specify a period that is not less than five days following issuance of such public notice for the filing of petitions to deny a license application for these frequencies, despite the 30-day public notice provisions of 47 U.S.C. § 309(d)(1).

B. Existing Spectrum Allocations and Use

1. International

11. We note, as a general matter, that the member nations of the International Telecommunication Union ("ITU") have adopted radio service allocations that apply to use of the frequencies under consideration in this proceeding in the United States.⁹ The 2300-2450 MHz

⁶ Appropriations Act, Sections 3001(a), (b).

⁷ Appropriations Act, Section 3001(d).

⁸ The Appropriations Act makes inapplicable to this rule making proceeding the contrary requirements of 5 U.S.C. § 553(d) (Administrative Procedure Act provision that a substantive rule must generally be published in the Federal Register at least 30 days before its effective date) and 5 U.S.C. §§ 801(a)(3) and 806(a) (Contract With America Advancement Act provisions).

⁹ See ITU *Final Acts of the World Radiocommunication Conference (WRC-95)*, Geneva, 1995.

band is allocated to fixed, mobile, and radiolocation services on a primary basis.¹⁰ In addition, the 2310-2360 MHz band is allocated to broadcasting-satellite service (sound) and complementary terrestrial sound broadcasting service on a primary basis in the United States, with this use being limited to digital audio broadcasting.¹¹ The 2300-2450 MHz band is also allocated to the Amateur Radio Service on a secondary basis.¹²

2. Domestic

12. In the United States, the 2300-2310 MHz band was made available for exclusive non-Government use as of August 10, 1995.¹³ Currently, the only non-Government use of this band is by the Amateur Radio Service, which is on a secondary basis.¹⁴ The 2310-2360 MHz band was recently reallocated to non-Government broadcasting-satellite service on a primary basis.¹⁵ The only broadcasting-satellite service permitted in the United States under this allocation is digital

¹⁰ The aeronautical mobile service for telemetry, however, has priority over other uses by the mobile service in the 2300-2390 MHz band in the United States and the 2300-2483.5 MHz band in Canada. See international footnote S5.394. We also note that the ITU is transitioning to new Simplified Radio Regulations, which use the "S" numbering scheme for international footnotes. In anticipation of the ITU's ultimate conversion to the Simplified Radio Regulations, we are employing the new "S" numbering scheme for international footnotes adopted in this proceeding. The Commission lists the international footnotes immediately following the Table of Frequency Allocations in Section 2.106 of the Rules. See 47 C.F.R. § 2.106. Until such time as this list is revised in its entirety to comport with the new "S" numbering scheme, those international footnotes that are amended to the new scheme in individual proceedings will be listed in Section 2.106 immediately prior to the list of unamended footnotes employing the old numbering scheme.

¹¹ See 47 C.F.R. § 2.106, international footnote S5.393 (formerly 750B) and 47 C.F.R. § 2.106, United States footnote US327. This broadcasting-satellite allocation is also subject to the provisions of ITU Resolution 528. In addition, space stations of the broadcasting-satellite service in the 2310-2360 MHz band operating in accordance with No. S5.393 that may affect the services to which this band is allocated in other countries must be coordinated and notified in accordance with Resolution 33. Complementary terrestrial broadcasting stations are subject to bilateral coordination with neighboring countries prior to commencing their operations. See 47 C.F.R. § 2.106, international footnote S5.396 (formerly 751B).

¹² The Amateur Radio Service is a radiocommunication service for the purpose of self-training, intercommunication and technical investigations carried out by amateurs, that is, by duly authorized persons interested in radio technique solely with a personal aim and without pecuniary interest. See 47 C.F.R. § 2.1.

¹³ During the reallocation process, the National Telecommunications and Information Administration ("NTIA") recommended the following constraints: (1) the 2300-2310 MHz band must not be used for airborne or space-to-Earth links; (2) commercial operations at 2300-2310 MHz must be limited to less than one watt of power; (3) unwanted emission levels of commercial applications on any frequency below 2300 MHz must be attenuated below the mean power of the unmodulated carrier by 70 dB; and (4) operation of commercial devices in the 2300-2310 MHz band must not be permitted on Ft. Irwin, California. See *Spectrum Reallocation Final Report*, U.S. Department of Commerce, February 1995, at pages 4-15 and 4-16.

¹⁴ See 47 C.F.R. § 97.301. The 2300-2310 MHz band is available for use by amateur stations having a control operator who has been granted any class of amateur operator license, except Novice.

¹⁵ See *Amendment of the Commission's Rules with Respect to the Establishment and Regulation of New Digital Audio Radio Services*, GN Docket No. 90-357, *Report and Order*, 10 FCC Rcd 2310 (1995).

audio broadcasting delivered by satellite, commonly known as satellite DARS.¹⁶ In the action allocating this spectrum to satellite DARS, we stated that it would be necessary to accommodate the aeronautical telemetry services now operating in the 2310-2360 MHz band in the 2360-2390 MHz band.¹⁷ The aeronautical telemetry community supported this re-accommodation. Continued use of the 2310-2360 MHz band by aeronautical telemetry and radiolocation users is on a secondary basis. The 2320-2345 MHz band will continue to be available for the Government and non-Government mobile service and Government radiolocation service on a primary basis until such time as a broadcasting-satellite (sound) service has been brought into use in such a manner as to affect or be affected by the mobile and radiolocation services.¹⁸

III. DISCUSSION

A. Licensing Plan for WCS

1. Permitted Services

13. *Background.* In the *NPRM*, we concluded that the Appropriations Act's reallocation directive means that the Commission may allocate the 2305-2320 and 2345-2360 MHz bands to any or all radio services contained in the International Table of Frequency Allocations applicable to the United States. We proposed to allocate this spectrum to the fixed, mobile, and radiolocation services on a primary basis, which are all the services authorized on a primary basis for these entire bands in the International Table. We also proposed to retain the current primary audio broadcasting-satellite allocation that exists in 45 of the 50 MHz of these bands (2310-2320 and 2345-2360 MHz). We did not propose to change the Amateur Radio Service secondary allocation of the 2300-2310 MHz band, nor the authorization for the 2310-2360 MHz band to be used on a secondary basis by aeronautical telemetry operations.

14. We noted that in our Satellite DARS *NPRM* we had requested comment on whether we should delay issuing licenses for DARS in the 2310-2320 MHz portion of the DARS allocated spectrum due to the number and type of Canadian fixed service facilities in that band. We also noted that in February 1996, we had informed DARS applicants that previously unknown additional Canadian operations existed in the 2310-2360 MHz band that particularly impacted

¹⁶ We are considering service, licensing and technical rules for satellite DARS in IB Docket No. 95-91. *See Establishment of Rules and Policies for the Digital Audio Radio Satellite Service in the 2310-2360 MHz Frequency Band*, IB Docket No. 95-91, *Notice of Proposed Rule Making*, 11 FCC Rcd 1 (1996) ("*Satellite DARS NPRM*").

¹⁷ *See* n. 13, *supra*.

¹⁸ *See* Appendix B, footnote US328.

potential use of the 2345-2360 MHz portion of the band for DARS.¹⁹ Accordingly, we requested comment on the feasibility of satellite DARS in parts of the 2305-2320 and 2345-2360 MHz bands.

15. *Comments.* We received extensive comment on permitting WCS licensees, subject to proposed specific technical rules, to provide any of the fixed, mobile, radiolocation, or satellite audio services permitted by the International Table. Those commenters who supported this generally argue that: (1) a market-based allocation will enlarge the universe of potential bidders and permit the spectrum to be valued on the basis of the various services;²⁰ (2) limiting the scope of services that could be provided in the WCS spectrum might unduly limit the number and type of services that could be provided;²¹ (3) such an approach is consistent with our treatment of CMRS providers;²² and (4) there is no compelling record support for any single use.²³

16. Several of the commenters supporting our proposal also contend that an allocation that permits flexible domestic use of this spectrum will help to ensure that new technologies are developed and deployed. For example, Bellcore states that it is technologically and economically feasible to design and deploy on this band a wireless system tailored to provide portable Internet access over wide areas at data rates comparable to ISDN-type connection.²⁴ Because the technical characteristics of such a system would differ significantly from those for some other systems that might utilize this band (*e.g.*, PCS), Bellcore urges the Commission to neither restrict the services provided in this band nor dictate technical standards for operation beyond those required to avoid interference and protect the public health.²⁵ Similarly, Vanguard contends that because the Commission has proposed not to specify any particular use for this spectrum, WCS licensees should be permitted to provide any technically feasible service, rather than only those

¹⁹ See *NPRM* at n. 20.

²⁰ See, *e.g.*, ALLTEL Comments at 2; CPI Comments at 1-7.

²¹ CPI Comments at 7.

²² See, *e.g.*, PRTC Comments at 2-3, citing *Amendment of the Commission's Rules to Permit Flexible Service Offerings in the Commercial Mobile Radio Services*, WT Docket No. 96-6, *First Report and Order*, 11 FCC Rcd 8965, 8967 (rel. August 1, 1996) (CMRS licensees provided flexibility in choosing to offer fixed services on a co-primary basis with mobile services).

²³ See, *e.g.*, Comcast Reply Comments at 2.

²⁴ Bellcore Comments at 1-2.

²⁵ *Id.*

proposed services enumerated in the *NPRM*.²⁶

17. A majority of commenters oppose our flexible use proposal. These commenters generally argue that: (1) unrestricted spectrum flexibility will harm the public interest because it would restrict competition, discourage innovation, and delay the provision of new services;²⁷ (2) lack of concrete guidance from the Commission as to the service offerings permitted on WCS spectrum will inhibit manufacturers' production of equipment necessary for new services and adversely affect the associated costs and arrival of such equipment to the marketplace;²⁸ (3) flexible use of this spectrum cuts against the growing need for worldwide standardized equipment allocations and would hinder manufacturers' efforts to look to the international marketplace for added demand for WCS-appropriate devices;²⁹ (4) uncertainty over the types of services to be offered by adjacent WCS licensees will adversely affect development of efficient spectrum utilization plans and make coordination between adjacent markets costly and complex, which ultimately may require extensive Commission adjudication where adjacent systems are incompatible;³⁰ and (5) the Commission must allocate the

²⁶ Vanguard Comments at 3.

²⁷ ADC Comments at 13; AirTouch Comments at 2-3; PCIA Comments at 5; TIA Comments at 13, Harris Comments at 4 (supporting TIA); Omnipoint Reply Comments at 1-2; SBC Reply Comments at 2.

²⁸ Lucent Comments at 5; PCIA Comments at 5; TIA Comments at 13; Harris Comments at 4 (supporting TIA); ITA Comments at 7; Motorola Comments at 7; ADC Comments at 14-15; Primosphere Reply Comments at 10; ANS Reply Comments at 4; Nextel Reply Comments at 4-5; Mtel Reply Comments at 2-3; SBC Reply Comments at 2.

²⁹ ANS Reply Comments at 6.

³⁰ ADC Comments at 14; Omnipoint Reply Comments at 1-2; Primosphere Reply Comments at 10-11.

2305-2320 MHz and 2345-2360 MHz bands only to services that will not impede the implementation of satellite DARS or impair its usefulness or quality.³¹

18. In addition, six commenters contend that our proposal to permit WCS licensees to provide any fixed, mobile, radiolocation services, or satellite DARS is contrary to the Commission's statutory mandate, under Section 303 of the Communications Act, to allocate frequencies in the public interest.³² These commenters argue that by permitting winning bidders to determine which type of service will be offered using the WCS spectrum, the Commission has impermissibly delegated to third parties the task of spectrum allocation.

19. In this connection, many commenters recommend that the Commission specify particular services for the WCS spectrum. Lucent cites the General Wireless Communications Service ("GWCS") as an example of a failed past attempt by the Commission to rely on the market to specify the initial use of a spectrum band, contending that, lacking a service definition, the development of GWCS has been neither rapid nor efficient.³³ CTIA asserts that the Commission should, at a minimum, provide a preliminary allocation for the band and permit flexibility after use of the band develops.³⁴ CTIA states that, subsequent to adequate initial allocation, flexible use has the benefits of minimizing government intervention in a fully competitive market and promoting the objectives of Section 309(j) of the Communications Act.³⁵ AirTouch states that the Commission should divide the WCS spectrum into bands and assign an exclusive use to each band.³⁶

20. Some commenters argue that the WCS spectrum should be allocated for "specialized services," such as wireless cable and wireless and mobile data, including Internet access and e-mail (both for commercial use and for schools, libraries, and hospitals), for which there is developing consumer demand but little access to sufficient spectrum.³⁷ For example, PCIA, TIA

³¹ Primosphere Reply Comments at 2, 4-5, 9-10.

³² TIA Comments at 2-3; Harris Comments at 3 and 4 (supporting TIA); ANS Comments at 5-6; CTIA Comments at 4-5; PrimeCo Comments at 6-9; NextWave Reply Comments at 1-2.

³³ Lucent Comments at 5.

³⁴ CTIA Comments at 4-5.

³⁵ *Id.* at 6-7.

³⁶ AirTouch Comments at 3.

³⁷ *See, e.g.*, BellSouth Comments at 3-4; ISA Comments at 1-2; Omnipoint Comments at 4-7 and Reply Comments at 2 (advocating wireless local loop and wireless Internet services); Pocket Comments at 2; Nortel Reply Comments at 6-7; Sprint PCS/Sprint Reply Comments at 3-5.

and USIPA recommend that the Commission allocate the WCS spectrum for interactive, high speed, broadband data services, such as wireless Internet access.³⁸ Similarly, CTIA suggests designating a portion of the WCS spectrum to provide schools and libraries with access to a wireless information network.³⁹ BellSouth states that such an approach would increase the overall competitive value and availability of wireless cable services as an alternative to incumbent wireline cable operations (the spectrum already allocated for this purpose being limited for technological reasons).⁴⁰

21. Similarly, ADC recommends allocating the 2345-2360 MHz band solely for satellite DARS,⁴¹ and the 2305-2320 MHz band for fixed terrestrial use.⁴² Specifically, ADC believes that allocating the 2345-2360 MHz band for satellite DARS will ensure the realization of DARS. ADC also states that preclusion of DARS from the 2305-2320 MHz band will avoid concerns about potential interference with Canadian terrestrial facilities.⁴³ With regard to the 2305-2320 MHz band, ADC asserts that this portion of the spectrum would provide a necessary and effective wireless return path for interactive services provided by over-the-air video service providers such as broadcast and wireless cable system operators.⁴⁴ While ADC does not propose that the 2305-2320 MHz band be restricted to those applications, it does advocate that the allocation for the band be only for fixed terrestrial use.⁴⁵

22. Some commenters argue that the WCS spectrum should be used only to offer new services.⁴⁶ For example, 21st Century states that the Commission should not permit fixed and mobile services to be provided using the WCS spectrum because sufficient spectrum already exists

³⁸ PCIA Comments at 2 and Reply Comments at 2, 9; TIA Reply Comments at 11; USIPA Reply Comments at 1-4.

³⁹ CTIA Reply Comments at 6.

⁴⁰ BellSouth Comments at 3-4.

⁴¹ ADC Comments at 3.

⁴² *Id.* at 3, 6.

⁴³ *Id.* at 4, citing *Establishment of Rules and Policies for the Digital Audio Radio Satellite Service in the 2310-2360 MHz Frequency Band*, 11 FCC Rcd 1, 20-22 (1995).

⁴⁴ *Id.* at 3, 6.

⁴⁵ *Id.* at 6.

⁴⁶ *See, e.g.*, SBC Comments at 2.

for the provision of these services.⁴⁷ Rather, 21st Century believes that WCS spectrum should be used to offer "new" services, in particular radiolocation services and/or satellite DARS.⁴⁸ Primosphere recommends that the Commission seek additional comment on the suggestions for services for which there may be a public need, including interactive video, wireless fixed local loop, wireless Internet access, high-speed broadband data, and wireless cable.⁴⁹

23. Other commenters argue that WCS licensees should not be permitted to provide CMRS,⁵⁰ contending that use of WCS spectrum to provide CMRS would be unfair to existing CMRS licensees because it will result in the devaluation of their licenses when they need additional capital to complete construction of their systems,⁵¹ resulting in a shortage of operating capital and added difficulties in obtaining financing.⁵² One commenter argues that these difficulties are more likely given that many current PCS licensees (particularly small businesses) are seen as having overpaid for their PCS licenses.⁵³ Similarly, some commenters argue that permitting flexible use of spectrum licensed on a nationwide basis would put existing CMRS providers at a competitive disadvantage.⁵⁴ Two commenters assert that the Federal Government previously has determined CMRS to already have been allocated sufficient spectrum and that, accordingly, no reasoned basis exists for making the 2.3 GHz band available to CMRS.⁵⁵ PCIA believes that permitting WCS licensees to offer CMRS represents an inefficient use of this spectrum.⁵⁶

⁴⁷ 21st Century Comments at 1.

⁴⁸ *Id.*

⁴⁹ Primosphere Reply Comments at 12-13.

⁵⁰ *See, e.g.*, PrimeCo Comments at 4-6; Motorola Comments at 2; Pocket Comments at 2; Nextel Reply Comments at 3-7.

⁵¹ PrimeCo Comments at 4-6; PCIA Comments at 6; SBC Comments at 1, 2; ADC Comments at 16-17; Nortel Reply Comments at 4-5.

⁵² *See* PCIA Comments at 6; PrimeCo Comments at 6; Motorola Comments at 2; ADC Comments at 16-17. *See also* Dan Shea and Jason Myers, *Navigating Wireless Waters*, Telephony, Aug. 5, 1996. Relatedly, Primosphere asserts the need to promote the confidence of the public and the industry in the orderliness of the Commission's auction processes, and sees the release of additional spectrum for PCS-like service as contrary to that need. Primosphere Reply Comments at 13-14. On the other hand, UTC asserts that it is a well-established principle of communications policy that the Commission is to protect competition and not specific competitors. UTC Reply Comments at 3.

⁵³ ADC Comments at 16-17.

⁵⁴ PCIA Comments at 5-7; SBC Comments at 1-2; AirTouch Comments at 6 and n. 11.

⁵⁵ BellSouth Comments at 5-6; Primosphere Reply Comments at 11-12.

⁵⁶ PCIA Comments at 5.

24. Finally, Primosphere and DSBC oppose our proposal to permit aeronautical telemetry operations to continue in the 2310-2320 and 2345-2360 MHz bands on a secondary basis. They argue that spectrum sharing between satellite DARS and aeronautical telemetry is not technically feasible.⁵⁷ AFTRCC, on the other hand, states that there is no basis for precluding secondary flight test use of the 2310-2320 and 2345-2360 MHz bands.⁵⁸ In addition, ARRL supports our proposal for continued secondary amateur use of the 2305-2310 MHz band, but suggests that the Commission afford amateurs "the interference protection and stability afforded by a primary allocation at 2300-2305 MHz."⁵⁹

25. *Decision.* We conclude that under the totality of circumstances presented, the 2310-2320 and 2345-2360 MHz bands will be allocated on a primary basis for fixed, mobile,⁶⁰ radiolocation, and broadcasting-satellite (sound) services without further designations. The 2305-2310 MHz band will be allocated on a primary basis for fixed, mobile except aeronautical mobile, and radiolocation services.⁶¹ WCS licensees themselves will determine the specific services they will provide within their assigned spectrum and geographic areas. The services that can be provided, however, will be subject to specific technical rules we adopt *infra* to prevent interference to other services. We emphasize that with the current state of technology there is a substantial risk that these rules will severely limit, if not preclude, most mobile and mobile radiolocation uses. Fixed uses will be less severely affected, but still will require equipment that will meet technical standards higher than those used for similar purposes on comparable bands, and therefore may be more costly.

26. We believe that in this instance a flexible use allocation serves the public interest. Permitting a broad range of services to be provided on this spectrum will permit the development

⁵⁷ Primosphere Comments at 7; DSBC Reply Comments at 5. Primosphere also proposes that the aeronautical telemetry allocation at 2320-2345 MHz be deleted. This issue is outside the scope of this proceeding.

⁵⁸ AFTRCC Reply Comments at 3.

⁵⁹ ARRL Comments at 10-11. ARRL states that, while the most significant amateur use of the 2300-2310 MHz band is around 2304 MHz for weak-signal experimentation, there are significant, diverse amateur operations throughout the band, including FM simplex and repeater operations, and fixed links. ARRL argues that a fixed, mobile and radiolocation allocation in the 2305-2310 MHz band makes continued amateur operations distinctly problematic in metropolitan areas. We note that, on November 19, 1996, ARRL filed a Petition for Issuance of Further Notice of Proposed Rule Making in ET Docket No. 94-32, proposing that the secondary amateur service allocation at 2300-2305 MHz be upgraded from secondary to primary status.

⁶⁰ In keeping with our flexible use policy, we decline to adopt international footnote S5.394 domestically. Footnote S5.394 states, *inter alia*, that the use of the 2300-2390 MHz band by the aeronautical mobile service for telemetry has priority over other uses by the mobile service in the United States. *See* Appendix B.

⁶¹ The 2305-2310 MHz band is different from the remainder of the WCS spectrum because the broadcasting-satellite (sound) service is not allocated in this band internationally and because of the need to protect an extremely sensitive Government operation in a nearby band. *See* Subsection III.D.7. for a discussion of this Government operation.

and deployment of new telecommunications services and products to consumers. Moreover, WCS licensees will not be constrained to a single use of this spectrum and, therefore, may offer a mix of services and technologies to their customers.

27. We recognize the concerns raised by commenters about the general application of flexible allocations, and it is our intent to address those concerns fully in future proceedings. In this regard, we emphasize that our decision in this instance to adopt a broadly defined service for this spectrum should not be interpreted as a finding on the merits of flexibility as general allocation policy or prejudging the merits of flexibility in any other proceeding before us. Rather, our decision here is based on the totality of the circumstances and facts particular to this proceeding, not the least of which is the short time mandated by Congress to bring this spectrum to auction. Importantly, in this particular instance the record does not convincingly demonstrate how this spectrum should be distributed among particular uses in a manner that would provide maximum benefit to the public. Specific services advocated by commenters span a wide range of potential uses, including interactive, high-speed, broadband data services, such as wireless Internet access; return links for interactive cable and broadcasting service; mobile data; satellite DARS; fixed terrestrial use; new and innovative services; radiolocation; educational applications; and wireless local loop. While individual commenters advocate specific allocations for one or more of these uses, we have no clear basis in the current record to prefer some uses over others.⁶² Thus, limiting the use as some have suggested would risk precluding potentially beneficial services.

28. We find that allocating this spectrum for fixed, mobile, radiolocation, and audio broadcasting-satellite services is consistent with the international agreements governing this spectrum, the Appropriations Act, the Communications Act, and Commission precedent. We note that the Appropriations Act specifically directs the Commission to reallocate the WCS frequencies to "wireless services that are consistent with international agreements concerning spectrum allocations."⁶³ Nothing in this provision or its legislative history⁶⁴ restricts the Commission's authority to assign or allocate this spectrum to more than one permissible use. Additionally, our allocation to more than one service is consistent with the Commission's obligations under the Communications Act. Section 303 of the Communications Act does not

⁶² Unfortunately, we do not have time to develop a further record because we are under a statutory mandate to commence the competitive bidding for this spectrum no later than April 15, 1997. In any event, as noted above, we wish to emphasize that the Commission makes no representations or warranties about the use of this spectrum for particular services, and an FCC auction neither constitutes an endorsement by the FCC of any particular services, technologies or products, nor does an FCC license constitute a guarantee of business success. Applicants should perform their individual due diligence before proceeding as they would with any new business venture.

⁶³ See Appropriations Act, Section 3001(a)(1).

⁶⁴ See H.R. Rep. 104-863, 142 Cong. Rec. H11644-01 at H12016 (1996).

restrict the Commission's discretion to prescribe the nature of the service to be rendered over radio frequencies or its authority to allocate frequencies to the various classes of stations or assign spectrum to stations for more than one permissible use.⁶⁵ With respect to allocation decisions, the courts have accorded "substantial deference" to Commission determinations.⁶⁶

29. Commission precedent also supports the permissibility of allocating spectrum in a manner that allows for a broad range of uses.⁶⁷ We noted in the *NPRM* that the Commission took this approach in establishing GWCS in August of 1995, where we concluded that authorizing a wide variety of services bounded only by international allocations comported with our statutory authority and served the public interest by fostering the provision of a mix of services.⁶⁸ Because GWCS licenses have yet to be auctioned, the evidence regarding the benefits of having allocated that spectrum to all uses permitted by our international obligations is inconclusive.

⁶⁵ We acknowledge that certain other sections of the Communications Act reflect Congress's expectation that the Commission would utilize some amount of spectrum for particular types of services. *See, e.g.*, 47 U.S.C. § 309(b) (referring to fixed point-to-point microwave stations, industrial radio positioning stations, and aeronautical stations); and 47 U.S.C. § 319 (distinguishing between amateur stations, mobile stations, public coast stations, privately owned fixed microwave stations, common carrier stations, and broadcast stations). Nevertheless, these sections can not be read to limit the Commission's discretion to permit the use of some spectrum for more broadly defined services.

⁶⁶ *See National Association of Regulatory Utilities Commissioners v. FCC*, 525 F.2d 630, 636 (D.C. Cir.), *cert. denied*, 425 U.S. 992 (1976); *see also Teleocator Network of America v. FCC*, 691 F.2d 525, 549 (D.C. Cir. 1982).

⁶⁷ *See, e.g., Amendment of Parts 2 and 22 of the Commission's Rules Relative to Cellular Communications System*, GN Docket Nos. 84-1231, 84-1233 & 84-1234, *Report and Order*, 2 FCC Rcd 1825, 1841 (1986), *recon. denied*, 2 FCC Rcd 6830 (1987).

⁶⁸ *See Allocation of Spectrum Below 5 GHz Transferred from Federal Government Use*, ET Docket No. 94-32, *Second Report and Order*, 11 FCC Rcd 624 (1995).

30. We continue to believe that such broad allocations are permitted under the Communications Act, and we note that we also recently permitted CMRS licensees to provide fixed and mobile services.⁶⁹ The action we take here is consistent with this precedent. We note also that our service designation decision is not so broad as to allow use of the WCS frequencies for any purpose whatsoever. For example, the international allocation for part of this spectrum is for audio broadcast satellite services, and therefore satellite services will be limited to this type of satellite services.⁷⁰

31. We disagree specifically with those commenters who assert that allocating these frequencies for fixed, mobile, radiolocation and audio broadcasting-satellite services is an impermissible allocation by auction or otherwise inconsistent with Section 309(j).⁷¹ The allocation decision we make herein is based on our finding that under the circumstances presented, including the statutory deadline and the lack of a record that supports a specific allocation, this allocation to fixed, mobile, radiolocation, and audio broadcasting-satellite services comports with the public interest and with our statutory authority. Thus, our decision to allocate this spectrum in this manner is unrelated to our decision to award WCS licenses through competitive bidding.

32. In addition, we disagree with those commenters' arguments that by adopting our proposal we are impermissibly delegating our authority to allocate spectrum and set technical rules to other parties.⁷² The allocation we make here is not entirely open-ended, and auction winners will be subject to strict technical rules that are necessary to prevent interference to other services and which also will likely limit the actual services they may be able to offer. As discussed *infra*, these technical rules are necessary to prevent interference. Therefore, we have not delegated to private parties our responsibility to allocate spectrum and adopt appropriate technical standards.

33. We also agree with commenters such as Lucent, Motorola, Nortel and CTIA who argue that economies of scale in equipment supply are important and recognize that our decision to adopt a flexible allocation may make achieving those economies of scale more difficult. However, we have taken several steps that we hope will assist licensees in achieving economies of

⁶⁹ See *Amendment of the Commission's Rules to Permit Flexible Service Offerings in the Commercial Mobile Radio Services*, WT Docket No. 96-6, *First Report and Order*, 11 FCC Rcd 8965 (rel. August 1, 1996).

⁷⁰ Other radio services that will not be permitted on WCS include, for example, direct broadcast satellite service (DBS), fixed-satellite service, terrestrial broadcasting services (other than "complimentary terrestrial broadcasting service" in support of satellite DARS operations), and mobile-satellite service.

⁷¹ See, e.g., TIA Comments at 5-6.

⁷² *Id.* at 4.

scale. For example, we have established relatively large geographic service areas and spectrum block sizes. We also are adopting licensing and auction rules designed to facilitate geographic area and spectrum aggregations that may foster economies of scale and, in developing their bidding and aggregation strategies, bidders can consider the benefits of such economies. We believe that our allocation and service rules adopted herein comply with all legal requirements and, considering the totality of the circumstances, serve the public interest.

34. We do not believe that the public interest will be served by prohibiting use of this spectrum for CMRS. It has been our consistent policy to actively seek to increase competition in telecommunications markets, and our decision here is consistent with that policy. Indeed, in the Omnibus Budget Reconciliation Act of 1993, Congress ordered the transfer of a large amount of government spectrum to our jurisdiction for nongovernmental use.⁷³ CMRS licensees have no reasonable basis to expect that we would limit the possibility of further entry by withholding spectrum or by unnecessarily restricting the permissible uses of newly allocated spectrum. However, we note that, given the out-of-band emission limits we adopt for WCS, technology will likely severely limit, if not preclude, most mobile services on this spectrum, at least in the near term.

35. Some commenters express concern with difficulties in controlling interference. We are responding to this concern by setting specific limits on field strength at the geographic boundaries between licensees and on emissions outside the assigned spectrum blocks. While we recognize that different system designs have different sensitivities to interference and cause different types and degrees of interference, we believe that these limits provide a reasonable degree of predictability as to the magnitude of interfering signals one can expect from adjacent areas and spectrum blocks. However, we recognize that these out-of-band and out-of-area power limits do not by themselves ensure interference-free operation. They control primary factors that determine the amount of interference a licensee can expect from neighboring areas and blocks, but there are many other factors that affect interference that they do not control and that are not under the receiver owner's direct control. For example, the level of interference caused to a licensee's receivers from transmitters in an adjacent spectrum block may also depend on the number of such transmitters, their location relative to the receivers, their antenna directivity and polarization, their duty cycle, and other factors. Since these factors are not regulated by the Commission, they create uncertainty about the amount of interference a licensee may receive. Licensees can reduce this uncertainty by coordinating with their neighbors, and we encourage them to do so. They also can reduce the risk of interference by properly designing and engineering their receiving systems and by using technologies that reduce their receivers' susceptibility to unwanted signals. Also, bidders can reduce their exposure to interfering signals from neighboring spectrum blocks or areas by aggregating adjoining licenses in the auction or through post-auction transactions. But again

⁷³ Omnibus Budget Reconciliation Act of 1993, Pub. L. No. 103-66, 107 Stat. 312 (1993).

we emphasize that interference-free operation is not assured by our limits. Each WCS licensee must ultimately assume responsibility for protecting its own receiving system from interference from transmitters in adjoining blocks and areas that meet our limits, and applicants should understand this before they bid for these licenses.

36. Finally, in the *NPRM*, we proposed to permit amateurs to continue to use the 2305-2310 MHz band on a secondary basis. We also proposed to permit continued flight test and vehicle launch use of the 2310-2320 and 2345-2360 MHz bands on a secondary basis. We are adopting these proposals. The effect of this action is that amateurs and aeronautical telemetry operations will be able to continue to use these bands so long as these operations do not interfere with WCS service.⁷⁴ In addition, we update and clarify the frequency sharing requirements for amateur use of the 2300-2310 MHz and adjacent bands.⁷⁵ We also clarify that footnotes US276 and US339 permit the use of various frequencies for telemetering and associated telecommand operations of launch vehicles "on a co-equal basis by Government and non-Government stations."⁷⁶ With respect to Primosphere's request that all flight test operations be precluded from the WCS bands, we find no basis for precluding such operations on a secondary basis. We make clear that if secondary flight test operations cause harmful interference to WCS operations, they must immediately either correct the problem or cease operations. If such operations prove to be a problem, however, we may re-evaluate this issue in the future.

⁷⁴ We refer parties to 47 C.F.R. § 2.104(d)(4), which requires that stations of a secondary service shall not cause harmful interference to stations of primary services to which frequencies are already assigned or to which frequencies may be assigned at a later date. Also, stations of a secondary service cannot claim protection from harmful interference from stations of a primary service to which frequencies are already assigned or may be assigned at a later date.

⁷⁵ Specifically, we update 47 C.F.R. § 97.303(j)(1) in order to inform the amateur community that amateur stations may not cause harmful interference to, nor are they protected from interference due to the operation of, mobile stations authorized in Region 1 (this is in addition to fixed operations). We also revise 47 C.F.R. § 97.303(j)(2) in order to better alert amateurs of their spectrum sharing responsibilities.

⁷⁶ The phrase "by Government and non-Government stations" was inadvertently dropped in the original publication of footnote US276 in the Code of Federal Regulations. See *NTIA Manual of Regulations & Procedures for Federal Radio Frequency Management*, September 1995 Edition (with Revisions for January and May 1996), page 4-110. In addition, we will list all requirements for the 2310-2320 and 2345-2360 MHz bands in footnote US339 and therefore have moved the requirement that satellite DARS operations during implementation should take cognizance of launch frequencies 2312.5 and 2352.5 MHz from footnote US328.

2. Spectrum for Each License

37. *Background.* In the *NPRM*, we requested comment on the appropriate amount of spectrum to be provided for each WCS license at 2.3 GHz. We specifically requested comment on whether 5, 10, 15 or 30 MHz is the most suitable amount. We noted that 5 MHz bandwidths would be sufficient for paging, radiolocation, dispatch, or point-to-point backbone operations. We also observed that larger bandwidths, such as 10 to 15 MHz, would allow more direct competition with existing fixed and mobile service providers and may also better support some multi-channel satellite DARS. We also asked for comment on whether a single 30 MHz license would offer the most effective approach for providing new two-way fixed or point-to-multipoint uses, such as interconnection with the Internet and other digital network services. Finally, we requested comment on what size spectrum block could best support, in part or fully, the provision of fixed local loop services.

38. We also sought comment on whether the WCS spectrum should be assigned on a paired or unpaired basis. Alternatively, we requested comment on an approach where spectrum bandwidths or pairing of the spectrum are determined through the competitive bidding process. We noted that the 30 MHz of spectrum could be divided into 5 MHz blocks and the amount of spectrum and the location of the spectrum (*i.e.*, contiguous or paired) for each WCS licensee could be determined through the auction process. We further invited commenting parties to suggest additional alternatives for both the amount of spectrum and the size of service areas for WCS licensees. We noted that the Appropriations Act requires that we conclude initial licensing of this spectrum and the collection of all bidding proceeds no later than September 30, 1997. We stated our belief that licensing the WCS spectrum for service to large areas, with relatively few licenses to be awarded, would speed the WCS licensing process and the collection of bidding proceeds, consistent with the requirements of the Appropriations Act. Whatever initial licensing approach is chosen for WCS, we proposed to permit spectrum and service area aggregation through the auction process, *e.g.*, we would permit parties to bid for more than one license in each geographic area and for multiple areas.

39. *Comments.* We received extensive comments addressing how this spectrum should be licensed for WCS services. The commenting parties suggest a broad range of options for licensing WCS, from a single 30 MHz license to licenses as small as 1 MHz. Of these options, the proposal to divide the spectrum into three 10 MHz (two 5 MHz paired) channels received a significant amount of support from the commenting parties. These commenters support a 10 MHz channeling plan because: (1) it would allow for the widest range of spectrum use,⁷⁷ and (2) 10 MHz is the minimum amount of spectrum needed to compete effectively and provide certain

⁷⁷ See Bellcore Comments at 3; GTE Comments at 5.

types of services, such as portable Internet access.⁷⁸ Pocket supports a 10 MHz channeling plan on the basis that small blocks of spectrum of no more than 10 MHz would be the most flexible channeling approach, permitting operators to bid for no more than the amount of spectrum they need.⁷⁹ Some of these commenters also explicitly support use of paired channels. They contend that pairing would accommodate both the provision of two-way data services and of wireless local loop and other voice applications over WCS spectrum.⁸⁰ In addition, PPF argues that the use of paired frequency bands generally will increase the range, reduce the cost and improve the outdoor service quality of terrestrial WCS systems.⁸¹

40. A number of other commenters support licensing WCS spectrum as six 5 MHz unpaired channels.⁸² ALLTEL, for example, states that a band plan based on 5 MHz unpaired channels would facilitate the ability of entities to acquire the amount of spectrum most appropriate for their service offerings.⁸³ Under a flexible use approach, DSBC contends that the best course for ensuring efficient use of WCS spectrum is to distribute the spectrum in small blocks, thereby allowing licensees maximum flexibility to determine the best use of the spectrum.⁸⁴ Similarly, Sprint PCS/Sprint states that, to ensure that the market can effectively determine efficient usage for WCS spectrum, WCS should be licensed in 5 MHz blocks.⁸⁵ Sprint PCS/Sprint argues that initial licensing of larger spectrum blocks would discourage service innovation and efficient utilization, and would undercut the significant strides the Commission has made in encouraging a robust, competitive CMRS industry. NABOB states that it is much easier to "cure" an underassignment of spectrum than an overassignment in the auction. Further, NABOB argues that 5 MHz channels can be aggregated to create larger frequency blocks if desired, but that the allocation of channels larger than 5 MHz will preclude many minority-owned small businesses from participating in the competitive bidding process and possibly from the provision

⁷⁸ DigiVox Comments at 3; Bellcore Comments at 3; PCIA Comments at 9 and Reply Comments at 8; PPF Comments at 3-4.

⁷⁹ Pocket Comments at 2.

⁸⁰ PCIA Comments at 9 and Reply Comments at 8; Bellcore Comments at 3; PRTC Comments at 4.

⁸¹ PPF Comments at 3-4.

⁸² *See, e.g.*, AirTouch Comments at 9; Multipoint Comments at 2.

⁸³ ALLTEL Comments at 4.

⁸⁴ DSBC Comments at 8 and n. 16.

⁸⁵ Sprint PCS/Sprint Comments at 5.

of WCS.⁸⁶ PrimeCo asserts that 5 MHz channels would allow a greater number of potential licensees to participate in WCS than any of the other amounts proposed in the *NPRM*.⁸⁷ In this regard, PrimeCo states that, in the PCS docket, it was noted that a 5 MHz block and the use of digital technology could provide twice the capacity of current analog cellular systems. It further states that 5 MHz is more than twice the total amount of spectrum available for the entire narrowband PCS service and is equal to the amount of spectrum currently available for the entire 900 MHz SMR service.

41. Several commenters support the initial licensing of the WCS spectrum in a single 30 MHz block.⁸⁸ APT and Markle support earmarking the WCS spectrum for a nationwide wireless data service and state that WCS licenses should either be for the entire 30 MHz of spectrum or that there should be two 15 MHz unpaired licenses, with the market determining whether they are paired or unpaired.⁸⁹ MCI and SOSCO state that a single 30 MHz license is the minimum bandwidth capable of delivering a wide range of digital services, from "wireline" quality voice to high-speed Internet access services.⁹⁰ MCI notes that 30 MHz would provide rough parity with the Block A, B, and C broadband PCS licensees and with cellular licensees. MCI and DSC contend that, in order to maximize the potential value of WCS for wireless services, as well as to stimulate direct competition to existing fixed and mobile services, the Commission should avoid dividing the spectrum into smaller frequency blocks.⁹¹ In addition, Markle argues that dividing the spectrum into small slivers would violate Section 706 of the Telecommunications Act of 1996, which requires the Commission to encourage the deployment of advanced telecommunications capabilities to all Americans, and that small spectrum blocks would improperly pose a large barrier to investment and competition.⁹² SOSCO also states that in the Gulf of Mexico, where the target population is almost entirely industrial, potential WCS licensees may decide not to make the enormous investment necessary to provide service unless there is sufficient bandwidth to

⁸⁶ NABOB Reply Comments at 3.

⁸⁷ PrimeCo Comments at 11-12.

⁸⁸ *See, e.g.*, GTA Comments at 2.

⁸⁹ APT Reply Comments at 2, 4; Markle Comments at 1. Markle states that this nationwide data service would be able to serve mobile users at pedestrian speeds, not vehicular speeds. The nationwide data service would advance education interests and promote health care efficiencies (goals of the Telecom Act of 1996), and facilitate a nationwide electronic mail ("e-mail") system. Markle believes that e-mail is the critical first entry point to participation in electronic communities for the majority of individuals.

⁹⁰ *See* MCI *Ex Parte* Presentation, December 19, 1996, at 8; SOSCO Comments at 8-9.

⁹¹ *Id.*; DSC Comments at 3-4.

⁹² Markle Comments at 9.

provide the full array of advanced services required by the large, sophisticated businesses present in the Gulf.⁹³

42. In addition, there is limited support for various other bandplans.⁹⁴ For example, Comcast and Vanguard recommend that the WCS spectrum be assigned in two 15 MHz blocks in order to maximize the potential services that can be offered by licensees.⁹⁵ Four parties propose their own bandplans: (1) BellSouth -- one 3 + 3 MHz block and two 6 + 6 MHz blocks;⁹⁶ (2) ADC -- three 5 MHz and one 15 MHz unpaired blocks;⁹⁷ (3) Omnipoint -- two 5 MHz, two 4 MHz, two 3 MHz, two 2 MHz, and two 1 MHz unpaired blocks;⁹⁸ and (4) Sun Microsystems -- five 1 + 1 MHz blocks and two 5 + 5 MHz blocks.⁹⁹

43. Finally, Motorola and ROC raise additional issues concerning channelization of the WCS spectrum. Specifically, Motorola recommends that we allocate 8 + 8 MHz of the WCS band for public safety fixed point-to-point operations, which would provide ten 800 + 800 kHz channels for use in a frequency coordinated manner.¹⁰⁰ ROC requests that two 500 kHz nationwide licenses in the 2345-2360 MHz band be allocated for DARS interactive response links.¹⁰¹

44. After the comment period in this proceeding closed, several commenters submitted proposed band plans that they argue would mitigate the effects of the out-of-band emission limits discussed in Section III.D.7, *infra*, required to protect satellite DARS reception in the 2320-2345

⁹³ SOSCO Comments at 9.

⁹⁴ BANM merely states that blocks smaller than 30 MHz are clearly better for licensing since their use would assist in the dissemination of licenses among a wide variety of applicants, but does not specifically state what size blocks it prefers. BANM Comments at 8.

⁹⁵ Comcast Reply Comments at 3; Vanguard Comments at 5. *See also* APT Reply Comments at 2, 4.

⁹⁶ BellSouth Comments at 8-9.

⁹⁷ ADC Comments at 5, 17-18.

⁹⁸ Omnipoint Comments at 7 and attached Diagram.

⁹⁹ Sun Microsystems Comments at 2.

¹⁰⁰ Motorola Comments at 11. Motorola states that existing equipment at 2.2 GHz uses 800 kHz channels.

¹⁰¹ ROC Comments at 1-3. These links would enable listeners to respond to DARS program material, for example, to order or request information concerning products or services marketed over DARS and also to respond to surveys. ROC states that 500 kHz per service provider is the minimum bandwidth needed to permit interactive DARS operators to compete effectively.

MHz band. Specifically, in its January 10, 1997 filing, Primosphere points out the unique circumstances of a satellite receive band "sandwiched" between two bands proposed for terrestrial services, including possible mobile service. Primosphere suggests that among the various technical and operational feasible means by which WCS licensees could achieve the necessary protection for satellite DARS reception is spectrum planning (such as prohibiting mobile transmissions in the 5 MHz adjacent to the satellite DARS band). Primosphere suggests that a possible frequency plan is three 10 MHz paired channels with a uniform transmit and receive separation.¹⁰² Lucent agrees with Primosphere that the WCS spectrum with satellite DARS in the middle of the band is unique to spectrum management and represents some extraordinary technical challenges. Lucent recommends that the WCS spectrum be initially offered as two 10 MHz paired channels (2305-2310 MHz paired with 2350-2355 MHz and 2310-2315 MHz paired with 2355-2360 MHz) and two 5 MHz unpaired channels (2315-2320 MHz and 2345-2350 MHz).¹⁰³

45. *Decision.* We observe that the commenting parties generally support either 5 MHz unpaired channel blocks or 10 MHz paired channel blocks, with the vast majority finding that at least 10 MHz is needed to provide certain WCS services in an efficient and competitive manner.¹⁰⁴ We note, however, that the potential uses of the WCS spectrum will be greatly affected by the out-of-band emission limits, discussed in Section III.D.7 *infra*, needed to protect satellite DARS reception in the 2320-2345 MHz band. In particular, these limits will have the greatest impact on the portion of the WCS spectrum immediately adjacent to the satellite DARS band, namely, the WCS spectrum at 2315-2320 MHz and 2345-2350 MHz. In order to account for this effect in light of the overall record of this proceeding, and to minimize its impact on WCS operations generally, we find that WCS should be licensed initially as two 10 MHz channel blocks (with 5 MHz of this spectrum from the lower band paired with 5 MHz from the upper band) plus two 5 MHz blocks (those immediately adjacent to the satellite DARS spectrum). We believe that this channelization will permit WCS licensees to offer a wide variety of services. For example, the record suggests that the 10 MHz channel blocks represent the minimum amount of spectrum needed to support certain data and wireless local loop services, including wireless Internet access.¹⁰⁵ In addition, we believe that providing for 10 MHz of spectrum on a paired basis would

¹⁰² See Primosphere *Ex Parte* Filing, January 10, 1997, at page 9; Primosphere *Ex Parte* Filing, January 13, 1997, at figure 2.

¹⁰³ See Lucent *Ex Parte* Filing, January 13, 1997, at 1. This is the same bandplan that Hughes Network Systems proposed to DigiVox and which Siemens Stomberg-Carlson also supports. See DigiVox *Ex Parte* Filing, February 5, 1997, at Attachments 2 and 5, respectively.

¹⁰⁴ We note that many of those parties who suggested smaller channelizations also suggested that some channel blocks should encompass at least 10 MHz of spectrum.

¹⁰⁵ See, e.g., DigiVox Comments at 3.

allow for the introduction of both one-way and two-way services and would facilitate the implementation of a variety of technologies. In the spectrum adjacent to the satellite DARS band, however, we believe that WCS mobile operations may be prohibitively expensive and technologically infeasible for a substantial period of time. Also, the narrow (*i.e.*, 30 MHz) transmit and receive separation between the 2315-2320 MHz and 2345-2350 MHz bands would substantially increase the cost of equipment employing traditional frequency division duplex technology if pairing of these blocks were required. By making this spectrum available initially to WCS licensees as two 5 MHz unpaired channel blocks, the spectrum may have increased utility for satellite DARS and a variety of WCS fixed operations, especially those employing time division duplex technology. Also, we will not preclude WCS licensees from pairing this spectrum on their own initiative, whether through submission of winning bids for each block at auction or through spectrum aggregation in the aftermarket. Another advantage of this overall initial licensing approach is that the offering of only four licenses in each service area will allow the WCS auction to be completed within the timetable contemplated by the Appropriations Act. In this respect, we believe that this licensing plan is superior to other options suggested by the commenters that would involve greater licensing complexity and probably greater delay. The initial channel blocks we have selected are shown in the Table below.

Channel Block	Frequency Range
A	2305-2310 and 2350-2355 MHz
B	2310-2315 and 2355-2360 MHz
C	2315-2320 MHz
D	2345-2350 MHz

46. As discussed in Section III.D.3., *infra*, we also are allowing for spectrum aggregation and disaggregation, without restriction, so that parties, for example, desiring to employ technology that requires unpaired spectrum or asymmetrically paired spectrum can either disaggregate the channels initially offered or purchase additional needed amounts of spectrum in the after-market. In addition, applicants may bid on all four channel blocks in a service area and, if successful, render the type of services addressed by those commenters supporting the licensing of WCS spectrum in a single 30 MHz block. Thus, the initial offering of WCS spectrum in 5 MHz or 10 MHz blocks does not preclude the offering of services which might require a greater amount of spectrum. Further, the disaggregation flexibility afforded licensees potentially allows provision of WCS services which require less spectrum than contained in the initial blocks. In sum, initially licensing the WCS spectrum according to the channel block plan identified above and allowing for spectrum aggregation and disaggregation will permit a wide variety of applicants to provide services and satisfy the requirements of the Appropriations Act. We also believe that providing for four blocks, along with our spectrum disaggregation rules, will promote the

objectives of Section 309(j)(4)(C) of the Communications Act by providing for distribution of licenses and services among geographic areas and providing greater opportunity for a wide variety of applicants, including small businesses and other designated entities, than would be possible under a single 30 MHz block plan.

3. Licensed Service Areas

47. *Background.* In the *NPRM*, we stated our belief that licensing WCS spectrum on the basis of large geographic service areas would facilitate operation of the broadest possible range of new communications services in the spectrum and would promote their introduction in the most rapid and efficient manner. We noted that nationwide licensing would facilitate nationwide roaming and interoperability and allow for maximum economies of scale, and requested comment on the appropriate size for WCS licenses. Specifically, we asked whether WCS should be licensed on the basis of the 51 Major Trading Areas ("MTAs") defined for the narrowband and broadband Personal Communications Services ("PCS"),¹⁰⁶ regional service areas similar to the 5 regions adopted for narrowband PCS,¹⁰⁷ or on a nationwide basis.

48. *Comments.* The record reflects a wide variety of suggested service area definitions, ranging from nationwide licensing to licensing on the basis of the Metropolitan Statistical Areas (MSAs) and Rural Service Areas (RSAs) used for cellular licensing. Some commenters base their suggestions for the geographic scope of WCS licenses on what they perceive to be the likely use of WCS spectrum. For example, APT and Markle support licensing WCS on a nationwide basis because doing so would facilitate creation of a nationwide wireless data network.¹⁰⁸ APT suggests that such a network would further the national goal, expressed in Section 254(b)(2)(A) of the Communications Act, as amended, of enhancing access to advanced telecommunications and information services for all public and nonprofit elementary and secondary school classrooms, health care providers, and libraries.¹⁰⁹ Markle argues that parcelling spectrum out in geographic slivers would foreclose the opportunity for a nationwide system because of the high transaction costs, and that although a nationwide license may be out of their reach, smaller entities will be

¹⁰⁶ Rand McNally & Company ("Rand McNally") has divided the 50 States and the District of Columbia into 47 MTAs. See Rand McNally *1992 Commercial Atlas & Marketing Guide* at pages 38-39 (123rd edition). The Commission added four additional MTA-like areas for licensing PCS.

¹⁰⁷ The five regional narrowband PCS service areas were developed by aggregating MTAs into five geographic areas, each with approximately twenty percent of the nation's population. The five regions defined for narrowband PCS licenses are set forth in 47 C.F.R. § 24.102(b). See *Memorandum Opinion and Order* in GN Docket No. 90-314 and ET Docket No. 92-100, 9 FCC Rcd 1309, 1310-1312 (1994).

¹⁰⁸ Markle Comments at 8; APT Reply Comments at 2-3.

¹⁰⁹ APT Reply Comments at 3-4.

able to participate in WCS through the proposed disaggregation and partitioning provisions.¹¹⁰ In addition, MCI believes that nationwide licensing would facilitate construction of an efficient and uniform WCS "infrastructure" that could be used by the licensee and others to provide services and content.¹¹¹ ADC and SIA contend that the Commission should license a portion of WCS spectrum, the 2345-2360 MHz band, on a nationwide basis because otherwise DARS proponents will not have an opportunity to secure, at an auction, the national footprint necessary to develop viable DARS service.¹¹²

49. Commenters opposed to nationwide licensing generally argue that such a plan would restrict the number of entities (especially small businesses) capable of bidding in the WCS auction and providing WCS service.¹¹³ In addition, some contend that nationwide licensing would leave many areas unserved or result in delays in service to rural areas.¹¹⁴ Others are concerned that nationwide licensing of WCS would undermine the reasonable expectations of MTA- and BTA-based PCS licenses and their investors, making it more difficult for those licensees to obtain financing and continue the build-out of their systems.¹¹⁵ Finally, some commenters state that an auction of nationwide licenses would decrease auction competition¹¹⁶ and raise less auction revenue¹¹⁷ than an auction of smaller area licenses.

50. Use of service areas based on the Major Trading Areas (MTAs) and the Basic

¹¹⁰ Markle Comments at 11.

¹¹¹ MCI *Ex Parte* Presentation, December 19, 1996, at 5.

¹¹² ADC Comments at 5-6; SIA Comments at 3. As noted below, however, ADC believes that the 15 MHz of spectrum at 2305-2320 MHz should be licensed on the basis of BTAs. See ADC Comments at 19.

¹¹³ See, e.g., PCIA Comments at 13; PRTC Comments at 4; PrimeCo Comments at 10; TDS Comments at 6; Sprint PCS/Sprint Comments at 5; Omnipoint Comments at 9, 13; Pacific Comments at 2; GTA Comments at 2; DigiVox Comments at 9; AirTouch Comments at 6-7; ALLTEL Comments at 3-4; AT&T Comments at 2; BANM Comments at 6-7; CTIA Comments at 13-14; NextWave Reply Comments at 3; Omnipoint Reply Comments at 4; SOSCO Reply Comments at 5; SNET Mobility Reply Comments at 3; Ameritech Reply Comments at 1-2; Bell Atlantic Reply Comments at 1-2; RTG Reply Comments at 1-2 (asserting preclusion of designated entities, particularly rural telephone companies and small businesses).

¹¹⁴ See, e.g., PCIA Comments at 3, 14; TDS Comments at 2-4; GTE Comments at 4; Pacific Comments at 4; AirTouch Comments at 5-6; CTIA Comments at 13-14; Omnipoint Reply Comments at 6-7; AT&T Reply Comments at 4.

¹¹⁵ See PCIA Comments at 3, 15; Sprint PCS/Sprint Comments at 8-9; SBC Comments at 5; AirTouch Comments at 7; ALLTEL Comments at 3-4.

¹¹⁶ See, e.g., AT&T Reply Comments at 4.

¹¹⁷ See PCIA Comments at 3, 15; RTG Comments at 6; BANM Comments at 6-7.

Trading Areas (BTAs) designated by Rand McNally¹¹⁸ received the most support from commenters. For example, BANM states that MTAs and BTAs have proven to be efficient market sizes for CMRS with respect to roaming and interoperability and that larger license areas would not produce any greater efficiencies for WCS. BANM believes that MTAs and BTAs provide the most flexibility, permitting service area aggregation where economically efficient while not forcing carriers to acquire (and potentially not serve) unwanted areas.¹¹⁹ Supporters of MTA licensing for WCS generally believe that this service area size will: (1) encourage the most diverse group of service providers due to lower costs of participating in the auction and creating a network to provide service;¹²⁰ (2) facilitate interoperability and allow for economies of scale that will encourage the development of low cost equipment;¹²¹ (3) result in the broadest flexibility in terms of service offerings by WCS licensees;¹²² and (4) be fairer to existing service providers and/or result in greater levels of competition between both new and existing providers.¹²³ Commenters favoring BTA service areas for WCS contend that BTAs will: (1) promote efficiency by allowing a bidder to acquire licenses for only as much area as required for its prospective service;¹²⁴ (2) increase the number of entities able to participate in the auction,¹²⁵ particularly small businesses and rural telephone companies ("rural telcos");¹²⁶ (3) improve opportunities for current broadband PCS C and F Block licensees with overlapping BTA networks to lease infrastructure

¹¹⁸ See Rand McNally 1992 Commercial Atlas & Marketing Guide.

¹¹⁹ BANM Comments at 3-6.

¹²⁰ See AT&T Comments at 3-4; Pacific Comments at 2; GTA Comments at 2; DigiVox Comments at 13; PCIA Comments at 13; ALLTEL Comments at 3; BANM Comments at 3-6; NextWave Reply Comments at 3; Bell Atlantic Reply Comments at 1-2; Mtel Reply Comments at 3-4.

¹²¹ See DSC Comments at 4.

¹²² See Pacific Comments at 2; PCIA Comments at 17; AT&T Comments at 3; BANM Comments at 4.

¹²³ See PRTC Comments at 3-4; PCIA Comments at 17; PrimeCo Comments at 9-10; SNET Mobility Reply Comments at 3 (advocating BTAs or MTAs).

¹²⁴ See Omnipoint Comments at 8; GTE Comments at 4; Sprint PCS/Sprint Comments at 6; BellSouth Comments at 6-8; ADC Comments at 3; TDS Comments at 2-4; Pocket Comments at 3, citing "International Survey of Spectrum Assignment for Cellular and PCS," by Martin Spicer, at 19 (September, 1996); TDS Comments at 2-4, citing Statements of Robert J. Weber, Professor of Managerial Economics and Decision Sciences, Kellogg Graduate School of Management, Northwestern University, and of Steven S. Wildman, Associate Professor of Communication Studies and Director of the Telecommunications Science, Management and Policy Program at Northwestern University (both previously filed by TDS in the record in PP Docket No. 93-253 and GN Docket No. 90-314).

¹²⁵ See Omnipoint Comments at 9; Pocket Comments at 3; BellSouth Comments at 6-8; NextWave Reply Comments at 5; USIPA Reply Comments at 4; GTE Reply Comments at 8; Nextel Reply Comments at 7-8.

¹²⁶ Omnipoint Reply Comments at 4; RTG Reply Comments at 5-6.

and other support to independent WCS licensees;¹²⁷ and (4) ensure the rapid build-out of WCS systems.¹²⁸

51. Some commenters suggest that WCS service areas be based on the 172 Economic Areas ("EAs") developed by the Bureau of Economic Analysis of the U.S. Department of Commerce.¹²⁹ These commenters raise arguments similar to those supporting MTAs or BTAs, such as a larger number of entities being able to participate in the service, and use of EAs resulting in increased competition in the industry,¹³⁰ particularly from small businesses and rural telcos.¹³¹ One commenter notes, however, that defining WCS service areas based upon EAs would contravene the interests of customers and carriers by confusing and disrupting an already-complex pattern of CMRS service areas (*i.e.*, MSAs and RSAs for cellular, MTAs and BTAs for broadband PCS, and aggregated MTAs for some narrowband PCS services).¹³² Finally, one commenter recommends the use of MSAs and RSAs to define service areas for the WCS, noting that the use of these areas assured the rapid deployment of cellular services to rural areas, and afforded smaller entities a realistic chance to participate in the cellular industry.¹³³

52. Two commenters propose that we create a WCS service area that will cover the Gulf of Mexico.¹³⁴ SOSCO and PetroCom suggest that the increase in exploration and production activity in the Gulf of Mexico has resulted in a growing demand for voice, data and video telecommunications services which telecommunications providers in that area have been unable to meet because the spectrum used to provide such services has not been made available for licensing

¹²⁷ See Omnipoint Comments at 8. In a similar service specific argument, ADC proposes the licensing of the 2305-2320 MHz band on the basis of BTAs (of 15 MHz) because it believes that the benefits of permitting wireless cable operators to incorporate WCS into their service offerings would clearly be enhanced by establishing WCS service areas that are coterminous with the BTA service areas afforded MDS licensees. Wireless cable operators would otherwise be forced to bid for WCS rights in areas where they cannot use WCS to provide services complimentary to wireless cable. ADC Comments at 19.

¹²⁸ See Sprint PCS/Sprint Comments at 7; USIPA Reply Comments at 4.

¹²⁹ See UTC Comments at 4; Vanguard Comments at 4-5; AirTouch Comments at 7-9; TTS Reply Comments at 2; USIPA Reply Comments at 4.

¹³⁰ UTC Comments at 4; Vanguard Comments at 4-5; USIPA Reply Comments at 4.

¹³¹ RTG Reply Comments at 5-6; TTS Reply Comments at 2.

¹³² BANM Comments at n. 7.

¹³³ RTG Comments at 3-4.

¹³⁴ SOSCO Comments at 3; PetroCom Comments at 5.

in the area.¹³⁵ Specifically, SOSCO contends that we should license WCS on the basis of MTAs, and issue a single WCS license for the Gulf of Mexico.¹³⁶

53. *Decision.* In deciding on the appropriate service areas size for WCS licenses, we must balance several factors. We wish to encourage the rapid deployment of new telecommunications technologies and services on WCS spectrum; thus, we must assess the use or uses to which this spectrum is likely to be put and determine the geographic scope that would best facilitate rapid deployment thereof. In addition, we believe that because this spectrum has not heretofore been used to provide commercial services and no equipment has yet been developed for use in this band, consumers would benefit if the WCS band plan enables equipment manufacturers to realize economies of scale that will translate to lower equipment costs to service providers. We also recognize that the Appropriations Act directed us to "assign the use of [WCS] frequencies by competitive bidding pursuant to section 309(j)."¹³⁷ Section 309(j) of the Communications Act includes as objectives for competitive bidding the avoidance of excessive concentration of licenses and the dissemination of licenses among a wide variety of applicants.¹³⁸ In addition, we are mindful of our statutory obligation to conduct the auction for WCS licenses to ensure that all proceeds are deposited by September 30, 1997, and of our experience in previous auctions, which has shown that simultaneous, multiple round auctions for a larger number of licenses are more complex and take longer to complete than similar auctions involving fewer licenses. Finally, we note that aggregation of both spectrum and service areas through the auction process has proven to be an effective method of allowing bidders to acquire the right amount of spectrum for their business needs.¹³⁹

54. Balancing the various factors noted above, we conclude that WCS will be licensed in two ways. First, with respect to the C and D blocks, WCS will be licensed on the basis of regional areas similar to those used in our narrowband PCS rules. In WCS, however, we will define the regions by aggregating EAs in the continental United States into 6 larger groupings. We will refer to these service areas as Regional Economic Area Groupings (REAGs). In addition, consistent with our approach in other services, we will create separate REAGs covering the five U.S. possessions, as follows: Guam and the Northern Mariana Islands (REAG # 9), Puerto Rico

¹³⁵ SOSCO Comments at 4.

¹³⁶ *Id.*

¹³⁷ *See* Appropriations Act, Section 3001(a)(2).

¹³⁸ *See* 47 U.S.C. § 309(j)(3)(B).

¹³⁹ For example, in our nationwide narrowband PCS auction, bidders successfully aggregated spectrum to fit their business plans. Likewise, in the regional narrowband PCS and in the A/B block broadband PCS auctions, bidders successfully aggregated service areas.

and the U.S. Virgin Islands (REAG # 10) and American Samoa (REAG # 11), as well as separate service areas for Alaska (REAG # 7) and Hawaii (REAG # 8).¹⁴⁰ As discussed more fully *infra*, we also will create a service area in the Gulf of Mexico (REAG # 12). Second, the A and B blocks will be licensed in smaller areas, by aggregating EAs into 46 areas (to be called Major Economic Areas, or MEAs) in the continental United States and an additional 6 areas covering Alaska (MEA # 47); Hawaii (MEA # 48); Guam and the Northern Mariana Islands (MEA # 49); Puerto Rico and the US Virgin Islands (MEA # 50); American Samoa (MEA # 51); and the Gulf of Mexico (MEA # 52).¹⁴¹ We believe that this licensing scheme satisfies the various and often conflicting positions raised by the commenters and will best accommodate our objectives under 309(j) of the Communications Act.

55. Specifically, the larger WCS license areas that we will provide for in the C and D blocks will accommodate those commenters who argue that large areas will (1) encourage the rapid development and deployment of innovative service; (2) facilitate interoperability and the setting of standards; (3) allow for economies of scale that will encourage the development of low cost equipment; and (4) facilitate provision of satellite DARS services. Many commenters in this proceeding point out that WCS spectrum can be used effectively to provide wireless local loop, broadband data services and DARS services. At least with respect to these services, there may be significant economic efficiencies that could be realized -- to the ultimate benefit of consumers -- if these services were to be provided with nationwide scope.¹⁴² Licensing the C and D blocks in WCS on a REAG basis may facilitate aggregation of service areas and speed implementation of these new services.

56. In addition, a number of commenters point out that ensuring technical coordination and minimizing interference across geographic areas is very difficult when the exact nature of the services to be provided is unknown and the spectrum may be used to provide a variety of service offerings.¹⁴³ AirTouch, for example, argues that under a flexible spectrum use plan, adjacent licensees will have difficulties developing efficient spectrum use plans because the adjacent licensee's service offerings are unknown.¹⁴⁴ The larger service areas in the C and D blocks will

¹⁴⁰ See *Implementation of Section 309(j) of the Communications Act -- Competitive Bidding, First Report and Order, Eighth Report and Order, and Second Further Notice of Proposed Rule Making*, PP Docket No. 93-253, 11 FCC Rcd 1463, 1484 (1995).

¹⁴¹ See Appendix C for a map showing REAGs and their constituent EAs, and Appendix D for a map showing REAGs and their constituent MEAs.

¹⁴² For example, because computers are generally marketed on a nationwide basis, a wireless Internet access service using personal computers would likely be most efficiently marketed nationwide.

¹⁴³ See, e.g., Motorola Comments at 6-7; AirTouch Comments at 3.

¹⁴⁴ See AirTouch Comments at 3-4.

speed and simplify the process of interference coordination along geographic boundaries, as well as minimize transaction costs and disputes arising from interference, and facilitate implementation of services that would require roaming capabilities and easy interoperability. In addition, because equipment currently is not available for use in this band, the larger service areas in the C and D blocks also should enable manufacturers to achieve greater economies of scale in production of equipment, thus reducing its per-unit cost and allowing more rapid deployment of services to the ultimate benefit of consumers.

57. While we are mindful of the desire of some parties to have large licenses, we also agree with commenters that contend that smaller businesses will have more difficulty competing in the WCS auction for licenses in the large regions. In this regard, we believe that the creation of smaller MEAs in the A and B blocks (along with the large bidding credits provided for small businesses, *see* Section III.E.5, *infra*), will provide greater opportunities for smaller businesses to compete in an auction and participate in the provision of WCS services. We further note that, consistent with views of some commenters, these smaller service areas will: (1) enable a larger number of entities to participate in the provision of services and result in increased competition; (2) encourage a more diverse group of service providers due to the lower costs of participating in the auction; and (3) result in broader flexibility in service offerings by WCS licensees. We also believe that these smaller service areas will encourage efficiencies by making it easy for a bidder to acquire licenses for only as much area as required for its prospective service.

58. We note that some commenters support even smaller BTAs and MSAs/RSAs to facilitate participation in the WCS service by small businesses. We find that service areas based on such smaller areas might compromise our ability to complete the WCS auction within the statutorily mandated time frame. In any event, we note that in addition to the large bidding credits offered to small businesses, our provisions for partitioning and disaggregation (*see* Section III.D.3, *infra*) should work to provide significant opportunities to smaller businesses to participate in the provision of WCS services.

59. As noted above, two commenters, SOSCO and PetroCom, advocate licensing the Gulf of Mexico as a separate service area to help meet the growing communications needs of petroleum and natural gas providers in the area. In light of those requests, we designate a separate REAG and MEA covering the Gulf of Mexico. We determine that land-based license regions abutting the Gulf of Mexico will extend to the limit of the territorial waters of the United States in the Gulf, which is the maritime zone that extends approximately twelve nautical miles from the U.S. baseline. Beyond that line of demarcation, we will create the Gulf of Mexico REAG and MEA, which will extend from that line outward to the broadest geographic limits consistent with international agreements (*see* maps at Appendices C and D). The limits and coordination of signal strengths at the boundaries of the service areas meeting in the Gulf region will be the same as those that will apply for all service areas.

60. Finally, we note that several commenters argue that their suggested WCS licensed service area sizes will increase auction revenues.¹⁴⁵ We wish to make clear that, consistent with Section 309(j)(7)(A) of the Communications Act,¹⁴⁶ we have considered the communications needs of potential service providers and the American public in developing these service areas. We have not considered anticipated auction revenue.

B. Use of Competitive Bidding

61. *Background.* In the *NPRM*, we sought comment on our general assessment, based upon the requirements of both the Appropriations Act and Section 309(j) of the Communications Act, that WCS licenses should be awarded by means of competitive bidding.

62. *Comments.* We received no comments addressing our tentative conclusion that WCS licenses should be awarded through competitive bidding pursuant to Section 309(j).

¹⁴⁵ See, e.g., PCIA Comments at 3, RTG Comments at 6, BANM Comments at 6-7.

¹⁴⁶ 47 U.S.C. § 309(j)(7)(A).

63. *Decision.* We will adopt rules providing for the assignment of these frequencies through the use of competitive bidding pursuant to Section 309(j). As we noted in the *NPRM*, the Appropriations Act directs the Commission to assign licenses to use the 2305-2320 and 2345-2360 MHz bands through competitive bidding pursuant to Section 309(j) of the Communications Act. Section 309(j) provides that auctions may be used to award licenses among mutually exclusive applicants where the principal use of such spectrum will involve, or is reasonably likely to involve, a subscription-based service.¹⁴⁷ We continue to believe that it is reasonable to conclude that the principal use of WCS spectrum will involve, or is reasonably likely to involve, the transmission or reception of communications signals to subscribers for compensation. While we have decided to permit WCS licensees to provide a range of services, the uses of this spectrum most mentioned by commenters appear to involve services that would be provided on a subscription basis.¹⁴⁸ Fixed (and radiolocation) services that could be provided include services similar to the Multichannel Multipoint Distribution Service ("MMDS"), the Location and Monitoring Service ("LMS"), Digital Termination Systems ("DTS"), Digital Electronic Messaging Service ("DEMS"), wireless local loop, and certain of the services provided by Local Multipoint Distribution Service ("LMDS"). Although it may be technologically infeasible to provide mobile services as a WCS offering in the near future due to the necessity for strict technical standards (*see* Section III.D.7, *infra*), services that may ultimately be provided include those similar to PCS, cellular, Specialized Mobile Radio ("SMR") and paging. All of these services currently are provided to subscribers for compensation and we believe that it is reasonable to expect that WCS offerings will be provided on a similar basis. In this regard, even if a WCS licensee chooses to offer a satellite DARS service on that portion of the spectrum available for such use, we believe it is likely that such service also will be offered on a subscription basis.¹⁴⁹

64. Our decision today also advances the objectives contained in Section 309(j) of the Communications Act. Section 309(j)(3)(A) directs the Commission to seek to promote the development and rapid deployment of new technologies, products, and services for the benefit of the public, including those residing in rural areas, without administrative or judicial delays. In this regard, we believe that our service and licensing rules, in conjunction with our allocation plan, will

¹⁴⁷ 47 U.S.C. § 309(j)(1), (2).

¹⁴⁸ *See* paragraph 27, *supra*.

¹⁴⁹ We note that, during the Commission's ongoing proceeding to establish service rules for satellite DARS, three of the four applicants proposed to offer services through a private contractual relationship with the subscribing audience using a scrambled signal. *See Satellite DARS NPRM, supra*, at ¶¶ 22-26. In contrast, a broadcasting service involves the transmission of programming intended for direct reception by the general public. *See* 47 C.F.R. § 2.1. Thus, we stated that, since three applicants have proposed to provide non-broadcast service within the meaning of Section 2.1 of the Commission's Rules, a requirement that all DARS licensees operate as broadcasters appears to be unwarranted and inappropriate. *See Subscription Video*, 2 FCC Rcd 1001, 1006 (1987) (licensees that limit receipt of program services to paying subscribers are providing non-broadcast services), *aff'd sub nom., National Association for Better Broadcasting v. FCC*, 849 F.2d 665 (D.C. Cir. 1988).

allow for and foster the development of a range of new services and technologies. These policies also will advance the objective, expressed in Section 309(j)(3)(B), of 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 by disseminating licenses among a wide variety of applicants, including small businesses, rural telcos, and businesses owned by members of minority groups and women.¹⁵⁰

65. The Appropriations Act states that in making these frequencies available for competitive bidding, the Commission shall seek to promote the most efficient use of the spectrum.¹⁵¹ As we stated in the *NPRM*, we believe that our competitive bidding rules will ensure that spectrum is made available to those who value it most highly and therefore are most likely to put it to its most economically efficient use. This outcome will be further assured by our use of a simultaneous, multiple round auction that will allow applicants to aggregate spectrum and service areas into parcels of efficient size and to realize economies of scale and scope without the need for costly and time consuming post-auction transactions. In addition, as indicated above, we have decided to permit the WCS licensee to provide fixed, mobile, radiolocation or satellite DARS services. We believe there are significant competitive alternatives for each of these types of services that will ensure that WCS licensees have incentives to operate in an efficient and effective manner. We therefore believe that there will be sufficient market incentives to promote the most efficient use of the 2305-2320 and 2345-2360 MHz bands, as required by the Appropriations Act and Section 309(j)(3)(D) of the Communications Act.

¹⁵⁰ See 47 U.S.C. § 309(j)(3)(B). In revising our rules governing the issues of geographic partitioning and spectrum disaggregation by CMRS licensees, we noted that providing licensees with the flexibility to partition their geographic service areas will create smaller areas that can be licensed to small businesses, including those entities which may not have the resources to participate successfully in spectrum auctions. See *Geographic Partitioning and Spectrum Disaggregation by Commercial Mobile Radio Services Licensees; Implementation of Section 257 of the Communications Act -- Elimination of Market Entry Barriers ("Partitioning and Disaggregation R&O")*, WT Docket No. 96-148, *Report and Order and Further Notice of Proposed Rulemaking*, FCC 96-474, 62 FR 696 (rel. December 20, 1996).

¹⁵¹ See Appropriations Act, Section 3001(b)(1). As indicated above, promoting efficient spectrum use is also an objective of Section 309(j) of the Communications Act.

C. Consideration of Public Safety Needs

66. *Background.* As we discussed in the *NPRM*, the Appropriations Act instructs the Commission to take into account the needs of public safety radio services in making the WCS spectrum available through competitive bidding. Recognizing that the Appropriations Act marks the first time that Congress has specifically directed us to consider the needs of public safety radio services in connection with licensing a particular spectrum band, we sought comment generally on how we can best effectuate Congressional intent with regard to public safety needs as related to this spectrum.¹⁵² In addition, we noted that in a post-enactment letter, the Chairman and Ranking Member of the House Committee on Commerce suggest that the Commission, consistent with its obligation to promote the public interest, "pay particular attention to how the needs of public safety as well as commercial applicants may best be met in determining how to design this auction."¹⁵³ We referred to the recommendations made by the Public Safety Wireless Advisory Committee in its final report,¹⁵⁴ and asked interested parties how our WCS rules should be fashioned so as to benefit the public safety community consistent with those recommendations. Finally, we invited commenters to address a broad array of options, including making an allocation of some portion of the WCS spectrum for public safety entities, assigning the WCS spectrum with an obligation to contribute toward needs identified by the public safety community, and taking steps to encourage the use of WCS spectrum for services useful to public safety entities.

67. *Comments.* We received wide-ranging comment from diverse sources addressing the issue of public safety. Several commenters assert that public safety entities are unlikely to obtain spectrum through an auction because they lack sufficient resources to compete effectively with interested commercial service providers.¹⁵⁵ APCO contends that state and local governments should never be required to pay the federal government for the right to use radio spectrum for basic governmental activities such as the protection of life and property.¹⁵⁶

¹⁵² *NPRM* at ¶ 19; 61 Fed. Reg. at 59052.

¹⁵³ *Id.*; Letter to Reed E. Hundt from the Honorable Thomas J. Bliley, Jr., Chairman, and the Honorable John D. Dingell, Ranking Member, U.S. House of Representatives Committee on Commerce (dated October 25, 1996).

¹⁵⁴ *Final Report of the Public Safety Wireless Advisory Committee to the Federal Communications Commission and the National Telecommunications and Information Administration*, September 11, 1996 ("*PSWAC Final Report*").

¹⁵⁵ See, e.g., APCO Comments at 3; Motorola Comments at 8; AAR Reply Comments at 3.

¹⁵⁶ APCO Comments at 3.

68. Outside of the auction context, several commenters suggest that we consider allocating a portion of the WCS spectrum for use by public safety radio services,¹⁵⁷ or at least afford them higher priority,¹⁵⁸ and some argue that such an allocation would be within our authority under Section 3001(b)(2) of the Appropriations Act.¹⁵⁹ For example, Sprint PCS/Sprint suggests that the Commission set aside at least 10 MHz of spectrum in each licensing area for public safety use. Also, Sprint PCS/Sprint contends that it is not clear from the Appropriations Act that Congress intended that all of the spectrum reallocated for WCS be auctioned.¹⁶⁰ Along similar lines, Pocket suggests allocation of a significant (if not primary) portion of the WCS spectrum for public safety users who have been displaced from other spectrum.¹⁶¹ APCO contends that any set-aside must include enough spectrum to permit sufficient channel capacity and to stimulate equipment development.¹⁶² APCO contends that any allocation less than 3 MHz would be of not value.¹⁶³ In contrast, Vanguard believes that the Appropriations Act does not permit the Commission to allocate a portion of the spectrum for assignment to public safety uses without competitive bidding.¹⁶⁴ While Motorola and APCO believe that WCS spectrum could help provide some important public safety applications (including fixed point-to-point capacity, video and data), they also believe that Congressional clarification that auctions would not be required for some portion of the band would be needed before we could allocate it for public safety needs.¹⁶⁵ Moreover, APCO suggests that because the Appropriations Act requires that the Commission both auction the WCS spectrum and take into account the needs of public safety, the Commission should consult with Congress to determine the best means of achieving these "conflicting statutory objectives."¹⁶⁶ ITA believes that the "revenue-generation objective" of the

¹⁵⁷ PCIA Comments at 8, n. 11; PrimeCo Comments at 13-14; AAR Comments at 2; AWWA Comments at 3; Omnipoint Reply Comments at 3-4; AT&T Reply Comments at 6; TIA Reply Comments at 11 (advocating a set-aside with respect to fixed or temporary fixed public safety applications).

¹⁵⁸ Harris Comments at 4.

¹⁵⁹ PCIA Comments at 8, n. 11; PrimeCo Comments at 13-14.

¹⁶⁰ Sprint PCS/Sprint Comments at 3, 10-11. *See also* AAR Reply Comments at 3.

¹⁶¹ Pocket Comments at 5.

¹⁶² APCO Reply Comments at 2.

¹⁶³ *See Ex Parte Letter of January 30, 1997 from Robert M. Gurss, Counsel for APCO, to David Wye of the Wireless Telecommunications Bureau*, at 1 ("APCO Ex Parte Letter of January 30, 1997").

¹⁶⁴ Vanguard Comments at 6.

¹⁶⁵ Motorola Comments at 11; APCO Comments at 3-5.

¹⁶⁶ APCO Reply Comments at 2.

Appropriations Act requires that any allocation made in this proceeding to accommodate public safety needs would be inconsequential.¹⁶⁷

69. Other commenters also suggest allocation for both public safety and broader safety-related operational needs. For example, API suggests that the Commission give consideration to the spectrum needs of the petroleum and natural gas industries, classified as "public service providers" in the *PSWAC Final Report* in conjunction with the needs of other public safety providers, because the communications infrastructures of those industrial users are similar to those of traditional public safety entities in that they serve public safety needs pursuant to government mandates (*e.g.*, maintenance of redundant communications systems) and provide traditional emergency response functions (*e.g.*, environmental damage control).¹⁶⁸ API believes that public service providers have insufficient spectrum for their needs, and that none of the spectrum accommodations currently under consideration for public service providers offer the favorable propagation characteristics available in the 2 GHz range.¹⁶⁹ AAR asserts that, since the purpose of the fixed and mobile wireless networks operated by the railroad industry is to support the safe and reliable operation of the Nation's freight and passenger rail systems, the needs of those entities also should be included.¹⁷⁰ AAR stresses that, because private users are unable to financially compete against commercial providers at auction, and commercial service providers cannot or will not effectively meet railroads' nationwide operational needs, the railroad industry's increasing spectrum needs can best be met by reserving a portion of the WCS bands for allocation "in the traditional manner," similar to that employed in Parts 101 and 90 of the Commission's Rules, for use on a coordinated, shared basis by and among entities which have safety-related operational missions.¹⁷¹ AWWA suggests an allocation for operators of public water supplies, identifying several functions of such entities upon which public safety is directly dependent (*e.g.*, fire-fighting, operations of health care facilities, and provision of healthy drinking water).¹⁷²

70. On the other hand, the record also reflects some doubt as to whether the 2.3 GHz band is appropriate for most public safety communications operations. In this connection, Motorola and DigiVox express doubt as to whether the 2.3 GHz band holds significant promise to solve public safety mobile communications needs because of the higher infrastructure costs and

¹⁶⁷ ITA Comments at 7.

¹⁶⁸ API Comments at 5-7.

¹⁶⁹ *Id.* at 6-7.

¹⁷⁰ AAR Comments at 3.

¹⁷¹ *Id.* at 4-7.

¹⁷² AWWA Comments at 3.

greater interoperability problems as compared to the lower frequency bands that are adjacent to those in which public safety entities now operate.¹⁷³ DigiVox notes in particular that the *PSWAC Final Report* did not identify the WCS bands as useful in meeting the public safety community's spectrum requirements.¹⁷⁴ ITA contends that, even if the Commission were to make a specific public safety allocation at 2.3 GHz, it would not significantly assist public safety entities. ITA reasons that because public safety entities do not currently operate in spectrum in or near the 2.3 GHz band, manufacturers would be unable either to produce equipment for a larger customer base or to maximize economies of scale as they are in a more typical spectrum allocation proceeding in which the spectrum for public safety systems is intermingled with, or allocated adjacent to, the bands for private radio services.¹⁷⁵ APCO asserts that the 2.3 GHz band is inappropriate for most public safety communications needs because of the high costs involved in constructing the very small cell sites needed to provide adequate coverage (including critical in-building penetration), and APCO concludes that the 2.3 GHz band is an unlikely home for public safety mobile systems.¹⁷⁶ While expressing some interest in the 2.3 GHz spectrum for video, data and fixed microwave, APCO states that "facilitating possible public safety use of a small portion of the 2.3 GHz band for non-mission critical operations will have little or no impact on the spectrum needs identified by PSWAC."¹⁷⁷ Accordingly, APCO requests that the Commission move forward to allocate at least 24 MHz of spectrum from UHF channels 60-69 to public safety¹⁷⁸ and suggests that the Commission recommend to Congress that it take action to permit a portion of the proceeds from the 2.3 GHz auction to be targeted for funding public safety communications systems in other bands.¹⁷⁹

¹⁷³ Motorola Comments at 9; DigiVox Reply Comments at 9-10. *See also* APCO Reply Comments at 4.

¹⁷⁴ DigiVox Reply Comments at 9-10.

¹⁷⁵ ITA Comments at 8.

¹⁷⁶ APCO Comments at 3.

¹⁷⁷ *See APCO Ex Parte Letter of January 30, 1997* at 1.

¹⁷⁸ *Id.*

¹⁷⁹ *See* APCO Comments at 5.

71. On the question of whether certain public safety needs might be met by commercial services provided on WCS spectrum, commenters generally expressed the view that, to some degree, commercial services can meet the needs of the public safety community and that the Commission should fashion service rules that will encourage WCS licensees to offer services that are consistent with the needs of public safety. Some commenters support the use of bidding credits for entities that propose a specific plan for satisfying public safety needs, or that make their facilities available to the public safety community on a wholesale basis.¹⁸⁰ One commenter suggests licensing WCS on the basis of service areas (such as EAs) that approximate the areas and jurisdictions in which public safety entities operate, and licensing of the spectrum in blocks that closely approximate the bandwidth requirements of public safety entities, so that bidders looking to provide solely public safety services would not be required to purchase more spectrum than needed for such purposes.¹⁸¹ AT&T suggests that one 10 MHz block in each service area be designated as a public safety block, for which any bidder may bid but which could be used only for public safety services such as 911, E911 and communications between emergency service personnel.¹⁸² If the Commission declines to reserve a 10 MHz block for public safety uses, AT&T suggests alternatively that the Commission condition the grant of each WCS authorization on the licensee's pledge to meet the needs of the public safety community by dedicating access if the licensee offers CMRS services using the WCS spectrum. Specifically, AT&T's suggests that if the licensee offers CMRS services in this spectrum, it would meet the needs of the public safety community by providing a specified percentage of their capacity for public safety uses on a primary basis.¹⁸³

72. Some commenters believe that it is difficult to determine at this time whether commercial WCS licensees will offer services that will be beneficial to public safety.¹⁸⁴ APCO asserts that, even if the specific commercial uses of the spectrum were known, commercial offerings in the band would satisfy, at most, only a small portion of the public safety community's needs because most of these needs require ubiquitous coverage, reliability, instantaneous access and security that can be provided only by systems owned and operated by public safety

¹⁸⁰ See, e.g., GTA Comments at 3; DigiVox Reply Comments at 10.

¹⁸¹ UTC Comments at 6.

¹⁸² AT&T believes that this spectrum would be valuable because many carriers would be willing to lease capacity or resell emergency services in order to meet their 911 obligations imposed by the Commission's rules, and that additional spectrum for these services would be used by carriers, either by leasing it to fulfill their public safety obligations, or by obtaining the spectrum through the WCS auction and reselling excess capacity to carriers that do not wish to fulfill their public safety obligations using the spectrum they obtained through other auctions. AT&T Comments at 9-10 and n. 31.

¹⁸³ AT&T Comments at 9-11 and n. 34.

¹⁸⁴ See, e.g., APCO Comments at 5-6; Motorola Comments at 8; AAR Reply Comments at 6.

agencies.¹⁸⁵ Another commenter contends that permitting public safety users to lease spectrum from commercial users cannot offer the same critical stability to public safety systems as a permanent allocation, and that threat of regulatory sanctions, even financial penalties, would be insufficient to ensure that commercial providers continue to make their services available for public safety uses.¹⁸⁶

73. In addition, Primosphere and BANM contend that to give full effect to the Congressional mandate to take into account the needs of public safety, we must take action in other pending proceedings. Primosphere argues that award of its pending satellite DARS licenses before licensing the WCS spectrum would address public safety needs because it has proposed a national, unscrambled, free broadcast service that will provide the public with timely public safety information during emergencies.¹⁸⁷ BANM argues that fully accommodating public safety spectrum needs in connection with WCS will allow the Commission to terminate a separate on-going proceeding proposing the adoption of a "Cellular Priority Access System" (WT Docket No. 96-86, Public Notice, April 18, 1996) by obviating the need for priority cellular access.¹⁸⁸

74. *Decision.* The Appropriations Act requires that we "take into account the needs of public safety radio services." Therefore, we must consider the communications needs of the public safety community in assigning WCS frequencies. The record compiled in this proceeding and in our public safety proceeding demonstrates that spectrum currently allocated to public safety spectrum is inadequate to meet the public safety community's voice and data needs.¹⁸⁹ In addition, this record suggests that currently allocated spectrum will not permit deployment by public safety agencies of needed advanced data and video systems.¹⁹⁰ The Appropriations Act requires, however, that the use of 30 MHz of spectrum in the 2.3 GHz band be "assign[ed] . . . by competitive bidding pursuant to Section 309(j) of the Communications Act" ¹⁹¹ We therefore

¹⁸⁵ APCO Comments at 5-6. *See also* Motorola Comments at 8.

¹⁸⁶ Pocket Comments at 5-6.

¹⁸⁷ Primosphere Comments at 4-5.

¹⁸⁸ BANM Comments at 10.

¹⁸⁹ *See PSWAC Final Report* at 19; *see also* ITA Comments at 7, and UTC Comments at 6. Though we cite the findings made in the *PSWAC Final Report* to the extent relevant to the instant proceeding, we are not in this proceeding endorsing the conclusions made in the *PSWAC Final Report*. As we discuss below, in our Public Safety proceeding (WT Docket No. 96-86), the Commission is considering the overall operational, technical and spectrum needs of the public safety community. The *PSWAC Final Report* has been made a part of the record in that proceeding.

¹⁹⁰ *Id.*

¹⁹¹ Appropriations Act, Section 3001(a)(2).

conclude that allocating a portion of the 2.3 GHz spectrum for public safety appears to be inconsistent with the Appropriations Act because, pursuant to our auction authority, we are not permitted to assign spectrum to public safety applicants by competitive bidding.¹⁹²

75. In any case, even if spectrum were to be allocated for assignment only to public safety entities, we do not believe that such an allocation would be the best way to meet those needs. We note that the WCS spectrum was not identified in the *PSWAC Final Report* as useful in meeting the public safety community's spectrum requirements. In this regard, we believe that it is significant that APCO, the only public safety entity to comment in this proceeding, noted in its recent *ex parte* filing that "facilitating possible public safety use of a small portion of the 2.3 GHz band for non-mission critical operations will have little or no impact on the spectrum needs identified by PSWAC."¹⁹³ In addition, we believe that it is significant that public safety entities do not currently have operations in any spectrum in or near the 2.3 GHz band. Thus, it may be more difficult for public safety entities to avail themselves of equipment economies of scale or to integrate this spectrum into their current communications systems. In addition, even if WCS spectrum were of some use to the public safety community, costly networks would still need to be constructed in order for useful services to be provided. In this regard, we find it significant that, as noted above, several commenters (both public safety entities and others) questioned whether a specific public safety allocation at 2.3 GHz would significantly assist public safety entities given the technical configuration and the financial resources that a 2.3 GHz system would require.

76. The record in this proceeding also demonstrates that public safety agencies require additional funding to enable them to migrate to new spectrum and to upgrade and purchase new equipment. In addition, we note that the *PSWAC Final Report* found, "the radio systems used by the Public Safety community are laboring under increasing burdens. Equipment is old and funding for new equipment is often scarce."¹⁹⁴ The *PSWAC Final Report* also found that "[f]unding for acquisition of new spectrum-efficient technologies and/or relocation to different frequency bands is likely to be a major impediment to improving Public Safety wireless systems."¹⁹⁵ The *PSWAC Final Report* includes recommendations regarding the future operational requirements of public safety agencies, methods for achieving greater interoperability among agencies, the technologies that are and will be available to meet public safety requirements, and the amount of radio spectrum that will be necessary to meet these requirements. Many of these requirements can be

¹⁹² Section 309(j) of the Communications Act permits use of competitive bidding only when the principal use of spectrum is, or is reasonably likely to be, for subscription-based services. 47 U.S.C. § 309(j)(2)(A).

¹⁹³ See *APCO Ex Parte Letter of January 30, 1997* at 1.

¹⁹⁴ *PSWAC Final Report* at 6.

¹⁹⁵ *Id.* at 21.

met by our allocation of additional spectrum to public safety agencies, and the report examined alternative approaches for obtaining funding to assist public agencies in an orderly migration to new spectrum allocations and advanced technologies. With respect to the funding issue, the Transition Subcommittee of PSWAC suggested that

[the Commission] take action to assist federal, state, and local government public safety agencies acquire systems that will provide mechanisms for interoperability among both multi-jurisdictional boundaries and multi-echelons of government. Taking into consideration that the Commission has raised considerable revenue from spectrum auctioning, an initiative should be launched to use some of that money to assist transition into new spectrum. This may require Congressional action to allow the use of auction revenues for distribution to public safety agencies in the form of grants.¹⁹⁶

77. We believe that, in order for the future needs of public safety wireless communications to be satisfied, new sources of funding will have to be devised. This is true regardless of the amount of spectrum made available for public safety. In this proceeding, we have considered whether funds from the WCS auction could provide a source of funding for public safety agencies. We note, however, that Section 309(j)(8)(A) requires that "all proceeds from the use of a competitive bidding system under this subsection shall be deposited in the Treasury"¹⁹⁷ The only exceptions to this general rule are contained in Sections 309(j)(8)(B) (providing for retention of revenues as an offsetting collection for developing and implementing the auction program) and 309(j)(8)(C) (providing for deposit of upfront payments in an interest-bearing account, with interest transferred to the Telecommunications Development Fund). Therefore, it appears that legislative action is required before auction revenues can be used to provide a source of funding for public safety agencies to acquire new communications technologies. It is our belief that public safety agencies would benefit greatly from such action. We note that legislation recently introduced by Senator John McCain would provide for a portion of the revenues raised from an auction of spectrum currently used by television broadcast stations operating on channels 60-69 to be earmarked for "funding State and local law enforcement and public safety agencies' mission-related radio communications capabilities."¹⁹⁸ We believe that legislative approaches such as that taken in the McCain bill would substantially aid public safety agencies in their communications needs and thereby improve the safety of all Americans.

¹⁹⁶ PSWAC *Final Report*, Appendix E -TRSC Final Report, at 44.

¹⁹⁷ See 47 U.S.C. § 309(j)(8)(A).

¹⁹⁸ See S. 255, The Law Enforcement and Public Safety Telecommunications Empowerment Act, as introduced in the United States Senate on February 4, 1997, Section 5(b)(1).

78. Though we have concluded that designating 2.3 GHz spectrum for use exclusively by public safety entities is not advisable, we emphasize our continuing commitment to address public safety needs. Specifically, the Commission is considering the operational, technical and spectrum requirements of the public safety community in our Public Safety proceeding.¹⁹⁹ That proceeding examines what spectrum bands could be useful for meeting existing and future communications requirements, including voice, data (such as transmission of fingerprints, building floor plans and medical data), and video for surveillance monitoring. We expect that additional spectrum will be made available for public safety use as a result of that proceeding, and that our decision in that proceeding will address the specific communications requirements and bands identified by PSWAC. In addition, we note that several commenters, including APCO and Motorola, reiterated the public safety community's need for 24 MHz of spectrum at UHF channels 60-69.²⁰⁰ We believe that their proposal has merit and plan to give it serious consideration in our Digital Television proceeding.²⁰¹ We note that legislation recently introduced by Senator McCain would direct the Commission to allocate 24 MHz of the channel 60-69 spectrum to public safety use,²⁰² and that the Administration's 1998 budget also supports such a reallocation.²⁰³

79. We decline to adopt special provisions to benefit petroleum and natural gas providers, railway operators and operators of water supply systems. Though we recognize that these entities perform valuable public service functions, we do not believe that Congress intended that they be included in the class of "public safety radio services" that the Appropriations Act directs us to take into account in this proceeding. The Commission's Rules define that term to include "Local Government, Police, Fire, Highway Maintenance and Forestry-Conservation Radio Services."²⁰⁴

¹⁹⁹ See *The Development of Operational, Technical, and Spectrum Requirements for Meeting Federal, State and Local Public Safety Agency Communication Requirements Through the Year 2010*, WT Docket No. 96-86, *Notice of Proposed Rule Making*, 11 FCC Rcd 12460 (rel. April 10, 1996).

²⁰⁰ See *APCO Ex Parte Letter of January 30, 1997* and Motorola Comments at 9.

²⁰¹ We recently stated in our Digital Television proceeding that the channel 60-69 spectrum "could be used to meet public safety needs." *Advanced Television Systems and Their Impact Upon the Existing Television Broadcast Service*, MM Docket No. 87-268, *Sixth Further Notice of Proposed Rule Making*, 11 FCC Rcd 10968 (rel. August 14, 1996) at ¶ 26.

²⁰² See S. 255, The Law Enforcement and Public Safety Telecommunications Empowerment Act, as introduced in the United States Senate on February 4, 1997, Section 4(a).

²⁰³ See *Testimony of Larry Irving, Assistant Secretary for Communications and Information, U.S. Department of Commerce, before the Subcommittee on Telecommunications, Trade and Consumer Protection of the U.S. House of Representatives Committee on Commerce, February 12, 1997*, at 24; see also *Statement by Attorney General Janet Reno on Proposal to Set Aside Communications Frequencies for Public Safety Use*, released February 6, 1997.

²⁰⁴ 47 C.F.R. § 90.15. Furthermore, we note that the *PSWAC Final Report* defines "Public Safety Service Categories" as including "Police Radio Service;" "Fire Radio Service;" "Highway Maintenance Radio Service;" "Forestry-Conservation Radio Service;" "Local Government Radio Service;" "Emergency Medical Radio Service;" and "Special Emergency Radio Service." *PSWAC Final Report* at 12-13.

We decline to deviate from this established definition.

D. Service and Technical Rules

1. Eligibility

80. *Background.* In the *NPRM*, we proposed that there be no restrictions on eligibility for WCS licensees, other than the foreign ownership restrictions set forth in Section 310 of the Communications Act.²⁰⁵

81. *Comments.* Only four commenters specifically addressed the issue of eligibility for WCS. Of these, three support open eligibility, subject to foreign ownership restrictions.²⁰⁶ CTIA specifically states that it is imperative that existing cellular, PCS and SMR service providers be permitted to bid on WCS licenses to encourage immediate and efficient spectrum use, to provide known, viable competition, and, within the existing service areas, to avoid imposing competitive disadvantages on those entities.²⁰⁷ In this regard, CTIA notes that excessive concentration of licenses, which is the traditional rationale for excluding existing wireless carriers from auctions, is not a problem in the wireless industry because it is fully competitive.²⁰⁸

²⁰⁵ See 47 U.S.C. § 310.

²⁰⁶ ALLTEL Comments at 4; CTIA Comments at 8; SNET Mobility Reply Comments at 2.

²⁰⁷ CTIA Comments at 8.

²⁰⁸ *Id.* at 9.

82. CPI expresses a general concern that the lack of ownership limits (*e.g.*, the CMRS spectrum cap) could undermine the pro-competitive goals established by Congress and the Commission.²⁰⁹ CPI also is concerned that the only limits on eligibility proposed by the Commission, foreign ownership limitations, appear to be unevenly distributed among the services for which the WCS spectrum may be used. Specifically, CPI questions the Commission's proposal to maintain the restrictions set forth in Sections 310(a) and 310(b)(1) and (2) of the Communications Act, but not 310(b)(3) and (4), "which limit the FCC's authority to grant a license to any corporation with 20% or 25% foreign ownership."²¹⁰ CPI asserts that, although the proposed rule Section 27.302 appears to resolve this issue by limiting foreign ownership consistent with all subparts of Section 310(b), proposed Section 27.302 raises another issue by appearing to prohibit foreign ownership of a WCS authorization only with respect to CMRS, and not with respect to broadcast or other common carrier services.²¹¹

83. *Decision.* We conclude that, with the exception of the foreign ownership restrictions set forth in Section 310 of the Communications Act,²¹² there will be no eligibility restrictions on participation in WCS. As we stated in the *NPRM*, opening the WCS market to a wide range of applicants will permit and encourage entrepreneurial efforts to develop new technologies and services. We also believe that, given the relatively large amount of spectrum that is available to provide services similar to those that can be operated on the WCS spectrum, providing open eligibility in this instance will not lead to excessive concentration of market power.²¹³ We agree with CPI that Section 27.302 should ensure that WCS licensees are subject to all of the foreign ownership restrictions set forth in Section 310 of the Communications Act to the extent the restrictions are applicable to the particular service in question. Thus, for example, common carrier services would be subject to the restrictions in Section 310(b).²¹⁴

²⁰⁹ CPI Comments at 7-8.

²¹⁰ *Id.*

²¹¹ *Id.* at 6 and n. 4.

²¹² *See* 47 U.S.C. § 310.

²¹³ We also will not preclude the pending satellite DARS applicants from participating in the competitive bidding process for the 2305-2320 and 2345-2360 MHz bands.

²¹⁴ *See* 47 U.S.C. § 310.

2. CMRS Spectrum Cap

84. *Background.* In the *NPRM*, we sought comment on whether WCS spectrum used to provide commercial mobile radio service ("CMRS") should count against the 45 MHz spectrum cap that applies to certain CMRS licensees. We recognized that applying the spectrum cap could exclude firms with the most experience and innovative technologies from participating in the auction and having the opportunity to use this spectrum to serve the public. At the same time, we noted that if a CMRS provider with the maximum amount of spectrum permitted under our current CMRS spectrum cap were to acquire WCS spectrum, that provider possibly could gain a dominant position in the CMRS marketplace. We therefore requested that commenters address whether the WCS spectrum is likely to be used to provide CMRS services and, if so, whether the current CMRS market is sufficiently competitive that the considerations that gave rise to adoption of the CMRS spectrum cap are inapplicable to the WCS spectrum. In addition, we asked that commenters address the potential costs of applying the cap to the WCS spectrum in terms of lost economies of scale and scope that might exist if CMRS licensees were allowed to acquire this spectrum. Finally, to the extent they believe that the WCS spectrum will be used for CMRS services, we asked commenters to discuss any alternative mechanisms that would be appropriate to protect against the concentration of control of licenses for CMRS spectrum, to ensure vigorous competition in wireless services and to implement the Communications Act.

85. *Comments.* Commenters addressing the issue of the CMRS spectrum cap fall generally into three categories: (1) those who believe the spectrum cap should apply to WCS;²¹⁵ (2) those who believe the spectrum cap should not apply to WCS;²¹⁶ and (3) those who believe that this issue requires further analysis by the Commission.²¹⁷ Of those who support application of the spectrum cap, the primary argument made is that if WCS is used to provide CMRS, WCS

²¹⁵ PCIA Comments at 3; Pocket Comments at 4; UTC Comments at 8; Florida Cellular Comments at 3; BellSouth Comments at 11-12; Omnipoint Comments at 10; GTE Comments at 7; CIRI Comments at 15; BANM Comments at 12-13; DigiVox Comments at 9 and Exhibit 5 - "Report of Ronald M. Harstad, Ph.D. on WCS Auctions"; SNET Mobility Reply Comments at 4-5; Sprint PCS/Sprint Reply Comments at 3; AMTA Reply Comments at 5-6; Mtel Reply Comments at 4-5; NABOB Informal Comments at 4. CTIA believes that the spectrum cap should apply, regardless of what type of service is offered, but suggests that the cap be relaxed to 55 MHz. CTIA Comments at 16-17. Similarly, CIRI favors a limited safe harbor for licensees whose spectrum holdings in excess of 45 MHz do not cover more than 10 percent of the POPs nationwide because current and prospective licensees did not anticipate the availability of additional CMRS spectrum when forming business plans for wireless services. CIRI Comments at 15. Alternatively, Comcast supports a limited, market-by-market application of the CMRS spectrum cap for those markets in which an incumbent CMRS provider seeks to provide mobile telephony services. Comcast Reply Comments at 4.

²¹⁶ RTG Comments at 9; Vanguard Comments at 6-7; PRTC Comments at 5; GTA Comments at 3; ALLTEL Comments at 4; AT&T Comments at 6-7.

²¹⁷ CPI Comments at 7.

licensees must be placed on comparable footing with current CMRS providers.²¹⁸ For example, PCIA states that all competitors in CMRS should be subject to the same service rules in order to permit the marketplace to function equitably and effectively.²¹⁹ SNET Mobility states that the spectrum cap is necessary to prevent excessive concentration of licenses.²²⁰ Similarly, Omnipoint contends that if WCS licensees are permitted to offer mobile services without being subject to the spectrum cap, the utility of the cap will be undermined. Omnipoint argues further that not applying the spectrum cap would be unfair to PCS licensees and small businesses since the wealthiest PCS licensees would be able to aggregate 2.3 GHz of spectrum to the detriment of others who relied on the assumption that no new spectrum in the 2 GHz band would be released.²²¹ Florida Cellular states that allowing WCS licensees to compete with existing cellular and PCS providers without being subject to the same restrictions that now apply to CMRS providers may cause spectrum users and financial backers to lose confidence in our spectrum management process, making them less willing to invest in entities interested in obtaining spectrum and developing services through auctions.²²² Finally, DigiVox contends that, despite arguments to the contrary, the spectrum cap remains necessary at its current 45 MHz limit to enable small businesses and other designated entities to effectively compete for spectrum and to participate in the provision of service.²²³

86. Commenters opposing application of the CMRS spectrum cap to WCS believe that the goals of the spectrum cap -- promoting a vigorous and competitive market for the provision of commercial mobile radio services and ensuring that no single provider is able to aggregate enough spectrum to preclude or significantly reduce the provision of service by effective competitors -- have already been met.²²⁴ Vanguard points to the existence of two cellular and up to six PCS

²¹⁸ See, e.g., PCIA Comments at 3; Pocket Comments at 4; UTC Comments at 8; Florida Cellular Comments at 3; Omnipoint Reply Comments at 4; SNET Mobility Reply Comments at 5; Sprint PCS/Sprint Reply Comments at 3.

²¹⁹ PCIA Comments at 11.

²²⁰ SNET Mobility Reply Comments at 5.

²²¹ Omnipoint Comments at 10. Omnipoint further believes that all licenses should be limited to no more than 10 MHz of the 2.3 GHz spectrum. *Id.*

²²² Florida Cellular Comments at 3.

²²³ DigiVox Reply Comments at 1-2, and attached "Report for Reply Comments on WCS Auctions," by Ronald M. Harstad, Ph.D. DigiVox argues in addition that the majority of those commenters opposing application of the CMRS spectrum cap to WCS are those who have already reached the limit. *Id.* at 4.

²²⁴ See, e.g., AT&T Comments at 6-7; RTG Comments at 9; Vanguard Comments at 6-7; GTA Comments at 3; PRTC Reply Comments at 4-5. GTA argues further that disaggregation and partitioning will allow smaller service providers to serve specialized areas, and that imposing the cap is inconsistent with the objectives of the competitive bidding process. GTA states that because the cap limits the opportunity of large groups of entities holding CMRS licenses to bid, non-market incentives operate to assign the spectrum for less efficient uses. GTA Comments at 3.

licensees per market, and the presence or anticipated presence of an enhanced SMR provider, and expresses the view that an existing CMRS provider who acquires a WCS license would be in no position to dominate the marketplace.²²⁵ Commenters also state that, in the interest of ensuring that the largest number of entities participate in the auction and in the provision of WCS, current CMRS providers should not be excluded.²²⁶ For example, AT&T states that application of the spectrum cap to WCS may preclude efficient spectrum use by denying CMRS providers, who can speed innovative service to the public, the opportunity to realize economies of scale and scope in the development and deployment of services.²²⁷ AT&T further asserts that application of the cap will discourage participation by many CMRS providers, which would reduce auction revenues through both lack of front-end participation and reduction of post-auction marketability.²²⁸

87. *Decision.* The decisional factor in whether to apply the CMRS spectrum cap to any particular service is a balancing of the potential benefits and costs. We believe that, in these unique circumstances where we are allocating spectrum and licensing a wholly new service pursuant to congressional directive, the potential benefits do not outweigh the potential costs. Thus we will not count holdings of WCS spectrum at 2.3 GHz against the CMRS spectrum cap.

88. As we noted in the *NPRM*, the CMRS spectrum cap was imposed out of concern that "excessive aggregation [of spectrum] by any one of several CMRS licensees could reduce competition by precluding entry by other service providers and might thus confer excessive market power on incumbents."²²⁹ The spectrum cap is intended to promote a vigorous competitive market for the provision of commercial mobile radio services, and to ensure that each mobile service provider (*i.e.*, cellular, PCS or SMR licensee) has the opportunity to obtain sufficient spectrum to compete effectively and that no single provider is able to preclude the provision of service by effective competitors or significantly reduce the number of competitors by aggregating spectrum.²³⁰

89. As discussed more fully in Section III.D.7, *infra*, because the spectrum allocated for

²²⁵ Vanguard Comments at 6-7.

²²⁶ See, e.g., ALLTEL Comments at 4; PRTC Reply Comments at 4-5.

²²⁷ AT&T Comments at 7-8.

²²⁸ AT&T Comments at 7-8. AT&T also suggests that the Commission initiate a proceeding to examine whether the CMRS spectrum cap should be retained at all. See *id.* at n. 26.

²²⁹ *Implementation of Sections 3(n) and 332 of the Communications Act*, GN Docket No. 93-252, *Third Report and Order*, 9 FCC Rcd 7988, 8101 (1994) ("*CMRS Third Report and Order*").

²³⁰ See *CMRS Third Report and Order* at 8108 (¶¶ 258-260).

satellite DARS is situated between the two WCS bands, limitations on out-of-band emissions by equipment operating on WCS spectrum are needed to protect against interference with sensitive satellite DARS reception. We believe that the out-of-band emission limits we are adopting likely will, at least in the near term, make mobile operations in the WCS spectrum technologically infeasible. Hence, there is little likelihood that allowing an incumbent CMRS licensee to acquire enough WCS spectrum that its total CMRS and WCS spectrum holdings exceed the 45 MHz cap would have anticompetitive consequences for mobile services. Application of the CMRS spectrum cap to WCS spectrum is not necessary to guard against excessive concentration in the CMRS market or the accumulation of undue market power.

90. Conversely, even if it is technically feasible to use this spectrum for CMRS-type service, applying the cap and excluding many existing CMRS providers from acquiring WCS licenses would, we believe, carry significant potential costs for consumers. With their existing base station infrastructures, CMRS licensees may be the most efficient users of WCS spectrum because economies of scope may be large in the provision of new services combined with the provision of conventional mobile voice CMRS. For example, it may be that a current CMRS licensee would be able to use its existing infrastructure to provide fixed services in the most cost efficient manner.²³¹ Site acquisition and zoning approval for new facilities is both a major cost component and a major delay factor in deploying wireless systems. Facilities at existing cellular or PCS sites might accommodate additional equipment for new services or be modified to do so at a significantly lower cost than deploying a whole new cell infrastructure for the new service in a crowded environment. There may be other economies of scope in the provision of different services as well. Applying the CMRS spectrum cap to the WCS spectrum would interfere with the realization of these savings by preventing the direct participation by those entities who own the existing CMRS

²³¹ The record suggests that a desired use of WCS spectrum is for broadband data applications such as wireless Internet access. *See, e.g.*, ADC Comments at 3-13; ISA Comments at 1-2; Omnipoint Comments at 1-7 and Reply Comments at 2; SBC Comments at 4; TIA Comments at 14 and Reply Comments at 1; Sprint PCS/Sprint Reply Comments at 4; USIPA Reply Comments at 2. It may be that these services can be most efficiently provided using an existing CMRS infrastructure.

infrastructure, and consequently, prevent consumers from benefiting from these savings, with little off-setting benefit in competition.

91. We recognize that not applying the cap to WCS spectrum may result in some CMRS licensees acquiring spectrum and, provided that the technical obstacles noted *infra* can be overcome, that at some point these licensees may use WCS spectrum to compete against other CMRS licensees that have not acquired WCS spectrum. We do not believe, however, that such a circumstance substantially risks impairing competition in the CMRS marketplace. When 30 MHz PCS systems are fully deployed with the minimum number of cells needed for competitive coverage, they will provide a large increase in capacity over what is currently available. According to a recent article, a 30 MHz PCS licensee is likely to use only a twentieth of its startup capacity by the year 2000 and only a tenth by 2005.²³² As for the argument that regulatory parity compels application of the CMRS spectrum cap to WCS spectrum, we disagree. Whether or not the cap is applied, all CMRS providers stand on equal footing with respect to the acquisition of WCS licenses, and any entity using WCS spectrum to provide CMRS services will be regulated in the same manner as all other CMRS providers.²³³

3. Disaggregation and Partitioning

92. *Background.* In the *NPRM*, we proposed disaggregation and partitioning rules for WCS licenses to promote the most efficient use of the WCS spectrum and to overcome entry barriers by allowing for the creation of smaller licenses that would require less capital, thereby facilitating greater participation by smaller entities such as small businesses, rural telcos, and businesses owned by minorities and women. We requested comment on what limits, if any, should be placed on a WCS licensee's ability to partition its service area and disaggregate its spectrum. We also noted the then-pending rule making proceeding in WT Docket No. 96-148, which addressed geographic partitioning and spectrum disaggregation by CMRS licensees,²³⁴ and asked for comment on whether the approach proposed in that proceeding should apply to the WCS spectrum. We have since adopted the partitioning and disaggregation approach proposed in WT Docket No. 96-148 for broadband PCS.²³⁵

²³² See "System Costs, Not Capacity, Should Drive PCS Buildout Choices," Radio Communications Reports, September 16, 1996, p. 66.

²³³ We note that some commenters argue that the CMRS spectrum cap should be lifted entirely, or at least raised. See, e.g., AT&T Comments at 8, n. 26; CTIA Comments at 16-17.

²³⁴ See *Geographic Partitioning and Spectrum Disaggregation by Commercial Mobile Radio Service Licensees*, WT Docket No. 96-148, *Notice of Proposed Rule Making*, 11 FCC Rcd 10187 (1996).

²³⁵ See *Partitioning and Disaggregation R&O*, *supra*.

93. *Comments.* The majority of commenters addressing the issue support our proposal to permit partitioning and disaggregation by WCS licensees and propose specific rules.²³⁶ For example, GTE agrees that partitioning and disaggregation should be permitted as long as the technical rules preventing harmful interference are met.²³⁷ Similarly, GTA and ALLTEL believe that disaggregation should be permitted, but only in 5 MHz increments.²³⁸ Finally, BellSouth agrees with the Commission's proposals to the extent that the spectrum is exclusively allocated for the "specialized services" that it recommends, such as wireless cable and wireless data, including Internet access and e-mail (both for commercial use and for schools, libraries and hospitals).²³⁹

94. Some commenters believe that liberal partitioning and disaggregation rules are not effective substitutes for direct participation in an auction by small businesses, rural telcos, and other designated entities.²⁴⁰ NextWave argues that if large service areas are employed, disaggregation will not be a reliable means of promoting economic opportunity and competition or avoiding excessive concentration of licenses.²⁴¹ Similarly, BellSouth and NextWave note that the need for disaggregation and partitioning may be avoided altogether through the use of BTAs as WCS service areas, the aggregation of which they believe to be more efficient than disaggregation and partitioning of larger service areas.²⁴² Further, RTG believes that, in order for our partitioning and disaggregation policies to ensure the participation of rural telcos, these entities should be afforded a right of first refusal to partition and aggregate spectrum in areas reasonably related to their wireline service areas.²⁴³

95. Those commenters that addressed our proposal to permit WCS licensees to lease or franchise portions of their spectrum are largely supportive. For example, two commenters suggest that there should be no minimum amount of spectrum or any particular geographic area

²³⁶ See, e.g., PCIA Comments at 19; Vanguard Comments at 8; SBC Comments at 7; UTC Comments at 7; ADC Comments at 18; AT&T Comments at 4; CTIA Comments at 10-11; AirTouch Comments at 9 and n. 22; AWWA Comments at 4; AMTA Reply Comments at 4.

²³⁷ GTE Comments at 8.

²³⁸ GTA Comments at 2; ALLTEL Comments at 3-4.

²³⁹ BellSouth Comments at 13-14.

²⁴⁰ RTG Comments at 12-14; CIRI Comments at 8; TTS Reply Comments at 3.

²⁴¹ NextWave Reply Comments at 4.

²⁴² BellSouth Comments at 7-8; NextWave Reply Comments at 6.

²⁴³ RTG Comments at 13.

limitations for leasing or franchising.²⁴⁴ BellSouth and SNET Mobility believe, however, that the Commission's proposals for the leasing or franchising of spectrum should be subject to license control requirements and, if CMRS is provided, that the attribution to lessees and franchisees of such interests should be applied for purposes of the CMRS spectrum cap.²⁴⁵ TDS advocates the articulation of guidelines defining the "ultimate responsibility" of the licensee in the context of proposed rule Section 27.16. TDS regards such guidelines as essential in providing a workable level of certainty for participants in leasing arrangements. Finally, TDS requests the application of such a franchising policy to other CMRS services.²⁴⁶

96. *Decision.* Consistent with the weight of the comments and with the Commission's recent decision to adopt the approach proposed in WT Docket No. 96-148 for broadband PCS,²⁴⁷ we adopt our proposals for geographic partitioning and spectrum disaggregation. We will permit WCS licensees to partition their service areas into smaller geographic service areas and to disaggregate their spectrum into smaller blocks. We also conclude that the specific rules pertaining to partitioning and disaggregation in WT Docket No. 96-148 shall apply to WCS licensees. In addition, for the purposes of partitioning and disaggregation, we will require that WCS systems be designed so as not to exceed a signal level of 47 dBuV/m at the licensee's service area boundary, unless the affected adjacent service area licensees have agreed to a different signal level.

97. In WT Docket No. 96-148, we decided to permit geographic partitioning by broadband PCS licensees along any service area defined by the partitioner and partitionee.²⁴⁸ In addition, we decided to permit spectrum disaggregation by broadband PCS licensees without restriction on the amount of spectrum to be disaggregated.²⁴⁹ We concluded that allowing parties to decide without restriction the amount of spectrum to be disaggregated will encourage more efficient use of the spectrum and permit the deployment of a broader mix of service offerings, both of which will lead to a more competitive wireless marketplace.²⁵⁰ We believe that this reasoning applies with equal force to WCS. Therefore, subject to the provisions discussed below

²⁴⁴ Bellcore Comments at 3-4; BellSouth Comments at 13-14.

²⁴⁵ BellSouth Comments at 13-14; SNET Mobility Reply Comments at 4.

²⁴⁶ TDS Reply Comments at 3-5 (also setting forth a set of guidelines for this purpose).

²⁴⁷ See *Partitioning and Disaggregation R&O, supra*.

²⁴⁸ *Id.* at ¶¶ 23-24.

²⁴⁹ *Id.* at ¶¶ 49-50.

²⁵⁰ *Id.* at ¶ 49.

with respect to licensees who take advantage of bidding credits, once an initial WCS license is granted, licensees will be free to partition their service areas and disaggregate their spectrum. Finally, consistent with PCS and other CMRS services, WCS licensees will be allowed to use management and operational arrangements to permit others to use portions of their spectrum and geographic service areas. We wish to emphasize that the WCS licensee must retain ultimate control over and responsibility for all operations under such arrangements.

98. We conclude that any licensee will be permitted to partition its service area as long as it submits sufficient information to the Commission to maintain our licensing records. Partitioning applicants will be required to submit, as separate attachments to the partial assignment application, a description of the partitioned service area and a calculation of the population of the partitioned service area and licensed market. The partitioned service area must be defined by coordinate points at every 3 degrees along the partitioned service area agreed to by both parties, unless either (1) an FCC-recognized service area is utilized (*i.e.*, Major Trading Area, Basic Trading Area, Metropolitan Service Area, Rural Service or Economic Area) or (2) county lines are followed. These geographical coordinates must be specified in degrees, minutes and seconds to the nearest second of latitude and longitude, and must be based upon the 1927 North American Datum (NAD27). Applicants also may supply geographical coordinates based on 1983 North American Datum (NAD83) in addition to those required based on NAD27. This coordinate data should be supplied as an attachment to the partial assignment application, and maps need not be supplied. In cases where an FCC-recognized service area or county lines are being utilized, applicants need only list the specific area(s) (through use of FCC designations) or counties that make up the newly partitioned area.²⁵¹

99. Similarly, where WCS licensees seek to disaggregate their WCS spectrum, we will not require the disaggregating party to retain a minimum amount of spectrum. We will allow disaggregating parties to negotiate channelization plans among themselves as part of their disaggregation agreements, and we will continue to require that such plans provide the necessary out-of-band emission protections to third party licensees as required by our rules. We are not adopting a limit on the maximum amount of spectrum that licensees may disaggregate. We find no evidence at this time that a maximum limitation for disaggregation is necessary. WCS licensees shall be permitted to disaggregate spectrum without limitation on the overall size of the disaggregation as long as such disaggregation is otherwise consistent with our rules.

100. We decline to adopt RTG's proposal to provide rural telcos with a right of first

²⁵¹ For example, if a licensee desires to partition its license only for the service area needed by a rural telco, it will simply provide coordinate data points at each 3 second data point extending from the center of the service area (*i.e.*, at the 3 degree, 6 degree, 9 degree, 12 degree, etc. azimuth points with respect to true north).

refusal. Section 254 of the Telecommunications Act of 1996²⁵² states that, in seeking to promote its goal of universal service, the Commission should ensure that consumers from all parts of the Nation, including rural areas, have access to telecommunications and information services that is comparable to service in other, more urban areas and at rates that are comparable to the rates available in urban areas. Granting rural telcos a right of first refusal would be at odds with our goals of ensuring that the largest number of entities participate in the WCS marketplace and eliminating barriers to entry for small businesses. As we concluded in WT Docket No. 96-148, we also believe that a right of first refusal would be difficult to administer and could discourage partitioning.²⁵³ For example, an area proposed for partitioning to a non-rural telco may intersect with an area for which a rural telco has a right of first refusal. A further problem would be uncertainty as to whether the rural telco's right of first refusal would continue after the auction winner partitioned the license area to another party. Additionally, a partitioning agreement may be part of a larger assignment transaction. If a rural telco were able to exercise a right of first refusal with respect to a partitioned area, it may not be possible to separate out the partitioning agreement to stand on its own and the entire assignment transaction could not be consummated.²⁵⁴

101. If a WCS licensee that received a bidding credit partitions a portion of its license to an entity that would not meet the eligibility standards for a similar bidding credit, we will require that the licensee reimburse the government for the amount of the bidding credit calculated on a proportional basis based upon the ratio of population of the partitioned area to the overall population of the licensed area.²⁵⁵ If a licensee that received a bidding credit partitions to an entity that would qualify for a lesser bidding credit, we will require that the licensee reimburse the government for the difference between the amount of the bidding credit obtained by the licensee and the bidding credit for which the partitionee is eligible, calculated on a proportional basis based upon the ratio of population of the partitioned area.²⁵⁶ Similar provisions shall apply where a

²⁵² Pub. L. No. 104-104, § 101, 110 Stat. 56 (1996).

²⁵³ *Partitioning and Disaggregation R&O*, *supra*, at ¶¶ 17-18.

²⁵⁴ *Id.* at ¶ 18.

²⁵⁵ See 47 C.F.R. §§ 1.2110(f) and 24.717(c)(1). For example, if a WCS licensee bid \$1,000,000 at auction and received a 25 percent bidding credit (\$250,000), it would have been required to pay \$750,000 in principal to the U.S. Treasury. If that licensee seeks to partition a portion of its license area which represents 25 percent of the population of its entire license area (calculated at the time of partitioning) to an entity that would not qualify for a bidding credit, then 25 percent of the amount of the bidding credit ($\$250,000 \times .25$ or \$62,500) must be paid by the licensee to the U.S. Treasury.

²⁵⁶ See 47 C.F.R. §§ 1.2110(f) and 24.717(c)(2). For example, if a WCS licensee bid \$1,000,000 at auction and received a 35 percent bidding credit (\$350,000), it would have been required to pay \$650,000 in principal to the U.S. Treasury. If that licensee seeks to partition a portion of its license area which represents 25 percent of the population of its entire license area (calculated at the time of partitioning) to an entity that would have qualified for only 25 percent bidding credit (\$100,000), then 25 percent of the difference between the bidding credits ($\$350,000 - \$250,000 \times .25$ or \$25,000) must be paid by the licensee to the U.S. Treasury.

WCS licensee that receives a bidding credit seeks to disaggregate a portion of its spectrum to an entity that would not have qualified for such a bidding credit. All such unjust enrichment payments will be calculated based upon the ratio of the amount of spectrum disaggregated to the amount of spectrum retained by the original licensee. With respect to disaggregation from one licensee that qualified for a bidding credit to another licensee that would also qualify for a bidding credit, we will adopt an approach similar to that adopted for partitioning.

102. Finally, to allow WCS licensees flexibility to design the types of agreements they desire, we will follow our decision in WT Docket No. 96-148 to permit combined partitioning and disaggregation. For example, a party may obtain a license for a single county with only 5 MHz of WCS block A spectrum. By allowing such combined partitioning and disaggregation, we believe that the goals of providing competitive service offerings, encouraging new market entrants, and ensuring quality service to the public will be advanced. We further conclude that in the event that there is a conflict in the application of the partitioning and disaggregation rules, the partitioning rules should prevail. For the purpose of applying our unjust enrichment provisions relating to bidding credits, when a combined partitioning and disaggregation is proposed, we will use a combination of both population of the partitioned area and amount of spectrum disaggregated to make these *pro rata* calculations. For example, if a WCS licensee that availed itself of a bidding credit and a non-qualifying partitionee/disaggragatee were to agree on a 20 percent disaggregation of spectrum over 30 percent of the population of the licensed service area, an unjust enrichment payment of 6 percent ($.20 \times .30$) of the bidding credit would be required.

103. We also note that these geographic partitioning and spectrum disaggregation rules, while not a substitute for licensing directly from the Commission, nevertheless will help to eliminate market entry barriers, consistent with Section 257 of the Communications Act, by providing smaller, less capital-intensive areas and spectrum blocks which are more accessible by small business entities.²⁵⁷

²⁵⁷ See 47 U.S.C. § 257.

4. License Term

104. *Background.* In the *NPRM*, we proposed to establish a license term of 10 years for services in the 2305-2320 and 2345-2360 MHz bands, with a renewal expectancy similar to that of PCS and cellular licensees. We also proposed that in the event that a WCS license is partitioned or disaggregated, any partitionee/disaggragatee would be authorized to hold its license for the remainder of the partitioner's/disaggregator's original ten-year license term.

105. *Comments.* Few commenters addressed our proposals regarding the appropriate license term for WCS. SBC and GTE support our proposal that the WCS license term be the same as for current CMRS licensees, and GTE further recommends that if a WCS licensee disaggregates or partitions part of its original license, the party receiving the disaggregated or partitioned portion should have a reasonable expectation of retaining the use of the spectrum for the full term of the WCS licensee's original term.²⁵⁸

106. *Decision.* We will adopt our proposals regarding the term of WCS licenses and the renewal expectancy for both original WCS licensees and potential WCS partitionees/disaggragatees. The WCS license term will be 10 years, with a renewal expectancy similar to that afforded PCS and cellular licensees. We believe that this relatively long license term, combined with a renewal expectancy, will help to provide a stable regulatory environment that will be attractive to investors and, thereby, encourage development of this new frequency band. In the event that a WCS license is partitioned or disaggregated, any partitionee/disaggragatee will be authorized to hold its license for the remainder of the partitioner's/disaggregator's original ten-year license term, and the partitionee/disaggragatee will be required to submit the showings required at the five-year mark and with its renewal application. We believe that this approach, which is similar to the partitioning provisions we recently adopted for the MDS²⁵⁹ and for current broadband PCS licensees,²⁶⁰ is appropriate because a licensee, through partitioning, should not be able to confer greater rights than it was awarded under the terms of its license grant.

107. We will require that a WCS licensee's renewal application include at a minimum the following showing to claim a renewal expectancy: (1) a description of current service in terms of geographic coverage and population served or links installed; (2) an explanation of the licensee's

²⁵⁸ SBC Comments at 7; GTE Comments at 9.

²⁵⁹ See *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*, MM Docket No. 94-131, *Report and Order*, 10 FCC Rcd 9589, 9614 (1995).

²⁶⁰ See *Partitioning and Disaggregation R&O* at ¶¶ 76-77.

record of expansion, including a timetable for the construction of new base sites or links to meet changes in demand for service; (3) a description of the licensee's investments in its system; and (4) copies of any FCC orders finding the licensee to have violated the Communications Act or any FCC rule or policy, and a list of any pending proceedings that relate to any matter described by the requirements for the renewal expectancy.²⁶¹

5. Performance Requirements

108. *Background.* In the *NPRM*, we questioned whether, and if so, what type of construction (or "build-out") requirements should be made applicable to WCS licensees. We recognized that in implementing auction procedures, the Commission is required under Section 309(j) of the Communications Act to include "safeguards to protect the public interest in the use of the spectrum" and performance requirements "to ensure prompt delivery of service to rural areas, to prevent stockpiling or warehousing of spectrum by licensees or permittees, and to promote investment in and rapid deployment of new technologies and services."²⁶² We stated generally that although build-out requirements may help to achieve these goals, we were somewhat uncertain as to whether applying such requirements to the licenses of the WCS spectrum would be the best way to address Congress's concerns.

109. *Comments.* We received mixed comments on whether build-out requirements should be imposed on WCS licensees. Some commenters feel that this determination should depend upon whether WCS spectrum is used to provide services that also are provided by licensees in other bands who are subject to build-out requirements. If so, they believe that the same regulatory treatment should apply. Several commenters note this regulatory parity issue and advocate applying build-out requirements for WCS to whatever extent they apply for competing services (*e.g.*, PCS or wireless cable) in other bands.²⁶³ Other commenters advocate applying them for reasons of regulatory parity with respect particularly to CMRS,²⁶⁴ or, more particularly, to PCS.²⁶⁵ Some commenters argue that build-out requirements should be established simply to advance the traditional goals of performance requirements -- to ensure rapid deployment of

²⁶¹ Cf. 47 C.F.R. § 22.940(a)(2)(i)-(iv). We note that, because of the difference in the nature of the respective services, we are not requiring WCS licensees to demonstrate an ability to serve roamers, as we do cellular radio licensees.

²⁶² 47 U.S.C. § 309(j)(4)(B).

²⁶³ AirTouch Comments at 10-11; BANM Comments at 4, 11, and 13; CTIA Comments at 11-12; Omnipoint Reply Comments at 4; Ameritech Reply Comments at 2-3.

²⁶⁴ PCIA Comments at 3 and 10; Omnipoint Comments at 10.

²⁶⁵ Sprint PCS/Sprint Comments at 3 and 9; PrimeCo Comments at 11; Vanguard Comments at 8.

services and to prevent spectrum warehousing,²⁶⁶ to ensure that carriers provide progressively greater and improved service,²⁶⁷ to assure provision of service to rural areas,²⁶⁸ and to prevent large service providers and incumbent LECs from impeding competition by buying out all competitors.²⁶⁹ Two cellular companies believe that reasonable build-out requirements, such as those used for PCS, would not be a significant burden on WCS licensees.²⁷⁰ Omnipoint proposed that, in lieu of specific build-out requirements, licensees be required to make a showing of substantial service at a five-year benchmark.²⁷¹

110. In contrast, several commenters believe that performance requirements might not be necessary for WCS or that they may even be potentially harmful.²⁷² PPF asserts that the use of competitive bidding and the broad range of services that may be offered on WCS spectrum ensure that the WCS spectrum will end up in the hands of parties that value it most highly and have the most incentive to develop it.²⁷³ DigiVox contends that build-out requirements would discourage use of the spectrum by low-tier services whose physical infrastructure deployment to cover a geographic area will require relatively long periods of time to build out.²⁷⁴ PCIA urges the Commission not to adopt performance requirements if the WCS spectrum is used to provide a high-speed data service.²⁷⁵ In this regard, AT&T contends that, if the Commission finds that build-out requirements are unnecessary for WCS licensees, it should eliminate build-out requirements for all CMRS licensees in the interests of regulatory parity.²⁷⁶ BellSouth, though generally supportive of build-out requirements,

²⁶⁶ Sprint PCS/Sprint Comments at 3 and 9; PrimeCo Comments at 11; Vanguard Comments at 8.

²⁶⁷ BANM Comments at 4, 11, and 13.

²⁶⁸ RTG Comments at 15; AirTouch Comments at 10-11.

²⁶⁹ Omnipoint Comments at 10.

²⁷⁰ Vanguard Comments at 8; Florida Cellular Comments at 2.

²⁷¹ Omnipoint Comments at 10.

²⁷² *See, e.g.*, PPF Comments at 5; AT&T Comments at 9; DigiVox Reply Comments at 7-8.

²⁷³ PPF Comments at 5.

²⁷⁴ DigiVox Comments at 7.

²⁷⁵ PCIA Comments at 3 and 10.

²⁷⁶ AT&T Comments at 9.

similarly believes that if they are not applied to WCS licensees they also should be eliminated in all competing services.²⁷⁷

111. *Decision.* We have concluded that, considering the unique circumstances in which WCS licenses are being awarded and the strict technical requirements necessary to prevent interference, we will adopt very flexible build-out requirements for WCS. Specifically, we will require licensees to provide "substantial service" to their service area within 10 years. Although WCS licensees will have incentives to construct facilities to meet the service demands in their licensed service area, we believe that minimum construction requirements can promote efficient use of the spectrum, encourage the provision of service to rural, remote and insular areas and prevent the warehousing of spectrum.

112. The build-out requirement that we adopt today is the most liberal construction requirement adopted by the Commission to date. We believe that this liberal build-out requirement is appropriate in the case of WCS for a number of reasons. First, we are providing WCS licensees with the flexibility to offer a range of services using the WCS spectrum. Given the broad range of new and innovative services that the comments lead us to believe might be provided over WCS spectrum, imposing strict construction requirements that would apply over the license term would be neither practical nor desirable as a means of meeting Section 309(j)'s objectives regarding warehousing and rapid deployment. Without knowing the specific type of service or services to be provided, it would be difficult to devise specific construction benchmarks. Further, given the undeveloped nature of equipment for use in this band and the technical requirements we are adopting to prevent interference, we are concerned that strict construction requirements might have the effect of discouraging participation in the provision of services over the WCS spectrum. It may be that a potential licensee could efficiently conduct certain operations on WCS spectrum, but must await further technological developments to do so affordably. Adopting strict construction requirements here could effectively preclude efficient uses of the spectrum. Particularly in light of the technological uncertainties associated with use of WCS spectrum to provide certain services consistent with the interference levels we adopt today, we believe that stringent build-out requirements are not warranted.

113. At the ten year period, we will require all licensees to submit an acceptable showing to the Commission demonstrating that they are providing substantial service. Licensees failing to demonstrate that they are providing substantial service will be subject to forfeiture of their licenses. We note that in the past we have defined substantial service as "service which is sound, favorable, and substantially above a level of mediocre service which just might minimally warrant

²⁷⁷ BellSouth Comments at 12-13.

renewal.²⁷⁸ For WCS, however, we believe that further elaboration on this standard in the form of examples of what might constitute substantial service is useful. Thus, for a WCS licensee that chooses to offer fixed, point-to-point services, the construction of four permanent links per one million people in its licensed service area at the ten-year renewal mark would constitute substantial service. In the alternative, for a WCS licensee that chooses to offer mobile services, a demonstration of coverage to 20 percent of the population of its licensed service area at the ten-year mark would constitute substantial service. In addition, the Commission may consider such factors as whether the licensee is offering a specialized or technologically sophisticated service that does not require a high level of coverage to be of benefit to customers;²⁷⁹ and whether the licensee's operations serve niche markets or focus on serving populations outside of areas served by other licensees.²⁸⁰ These safe-harbor examples are intended to provide WCS licensees a degree of certainty as to how to comply with the substantial service requirement by the end of the initial license term. This requirement can be met in other ways, and we will review licensees' showing on a case-by-case basis.

114. We believe that these build-out provisions fulfill our obligations under Section 309(j)(4)(B). We also believe that the auction and service rules which we are adopting for WCS, together with our overall competition and universal service policies, constitute effective safeguards and performance requirements for WCS licensing. Because a license will be assigned in the first instance through competitive bidding, it will be assigned efficiently to a firm that has shown by its willingness to pay market value its willingness to put the license to its best use. We also believe that service to rural areas will be promoted by our proposal to allow partitioning and disaggregation of WCS spectrum.²⁸¹

²⁷⁸ See, e.g., 47 C.F.R. § 22.940(a)(1)(i).

²⁷⁹ We have taken this approach in the past with respect to other services. See *Amendment of Parts 2 and 90 of the Commission's Rules to Provide for the Use of 200 Channels Outside the Designated Filing Areas in the 896-901 MHz and the 935-940 MHz Bands Allotted to the Specialized Mobile Radio Pool -- Implementation of Section 309(j) of the Communications Act -- Competitive Bidding and Implementation of Sections 3(n) and 322 of the Communications Act*, GN Docket No. 93-252, *Second Report and Order and Second Further Notice of Proposed Rule Making*, FCC 95-159, 10 FCC Rcd 6884 (1995) at ¶ 4.

²⁸⁰ See *Amendment of Parts 2 and 90 of the Commission's Rules to Provide for the Use of 200 Channels Outside the Designated Filing Areas in the 896-901 MHz and the 935-940 MHz Bands Allotted to the Specialized Mobile Radio Pool -- Implementation of Sections 3(n) and 322 of the Communications Act*, GN Docket No. 93-252, *Third Order on Reconsideration*, FCC 95-429, 11 FCC Rcd 1170 (rel. October 20, 1995) at ¶ 2.

²⁸¹ In addition, the broad universal service policies of the Telecommunications Act of 1996 will contribute substantially to addressing this objective as well.

115. Finally, we note that we reserve the right to review our liberal construction requirements in the future if we receive complaints related to Section 309(j)(4)(B), or if our own monitoring initiatives or investigations indicate that a reassessment is warranted. We also reserve the right to impose additional, more stringent construction requirements on WCS licenses in the future in the event of actual anticompetitive or rural service problems and if more stringent construction requirements can effectively ameliorate those problems.

6. Regulatory Status

116. *Background.* As we noted in the *NPRM*, the Communications Act applies differing requirements based on the type of service and the regulatory status of licensees. Given our proposal that a WCS operator be allowed to provide a variety or combination of fixed, mobile, satellite DARS, and radiolocation services, we proposed to rely on the applicant to identify the type of WCS service or services it will provide, with sufficient detail to enable the Commission to determine the applicant's regulatory status.

117. *Comments.* A number of commenters addressed the issue of regulatory parity between current CMRS licensees and WCS licensees in discussing whether the CMRS spectrum cap should apply to WCS. This issue has been addressed above.²⁸² With regard to the regulatory status of WCS licensees in general, however, only GTE submitted comments concerning our proposals. GTE does not oppose the Commission's proposal to establish a presumption that WCS providers will likely offer CMRS service.²⁸³ GTE does urge the Commission, however, to establish procedures to enable interested parties to rebut this presumption and show that the service being provided is deserving of a different regulatory treatment.²⁸⁴

118. *Decision.* We received a significant number of comments challenging our presumption in the *NPRM* that CMRS would be the most likely use of the WCS spectrum and suggesting that the spectrum would more likely be used to offer various other types of services.²⁸⁵ We therefore conclude that we will rely on each WCS applicant to identify in its long-form application the type of WCS service or services it will provide, with no presumption favoring status as a CMRS provider. Although we will not presume at the outset that a WCS applicant will provide CMRS service, we continue to believe, as we stated in the *NPRM*, that this approach will allow us to carry out our responsibilities while imposing the least regulatory burden on the

²⁸² See Section III.D.2, *supra*.

²⁸³ GTE Comments at 9.

²⁸⁴ *Id.*

²⁸⁵ See Section III.A.2, *supra*.

licensee. We also delegate to the Wireless Telecommunications Bureau and to the International Bureau authority to develop forms appropriate to collect this data, and to monitor changes in licensee status. The predominant uses of WCS spectrum mentioned by commenters involved personal communications such as broadband voice and data transmission, including wireless local loop and wireless Internet access. If WCS spectrum is used for satellite DARS services, those services will be governed by the satellite DARS regulations currently under development in IB Docket No. 95-91.

119. Our decision to permit WCS licensees to provide a variety or combination of services requires that we adopt a licensing framework that authorizes WCS licensees to provide non-common carrier services as well as common carrier services. We have recently increased the flexibility of licensees in other wireless services to provide both common carrier and non-common carrier services. In adopting a new application form for MDS, for example, we provided applicants with the option on the new form to indicate their choice for common carrier or non-common carrier regulatory status.²⁸⁶ For satellite services, we have decided to provide all U.S.-licensed fixed satellite service systems with a choice between offering common carrier and non-common carrier services and also the opportunity to elect their regulatory classification in their applications.²⁸⁷ In another proceeding, we have adopted streamlined rules in Part 25 for satellite services to use a simplified procedure to change licenses from non-common carrier status to common carrier status.²⁸⁸ Finally, when we implemented DBS systems under interim rules we adopted a policy to permit the dual provision of common and non-common carrier services,²⁸⁹ which continues under the permanent rules.²⁹⁰ The flexible licensing framework we adopt for WCS is consistent with the treatment accorded these services.

²⁸⁶ *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*, MM Docket No. 94-131, and *Implementation of Section 309(j) of the Communications Act -- Competitive Bidding*, PP Docket No. 93-253, *Report and Order*, 10 FCC Rcd 9589, 9619 (¶ 59), Appendix D (1995) ("*MDS and ITFS Competitive Bidding Report and Order*").

²⁸⁷ *Amendment to the Commission's Regulatory Policies Governing Domestic Fixed Satellites and Separate International Systems*, IB Docket No. 95-41, *Notice of Proposed Rulemaking*, 10 FCC Rcd 7789, 7795-7796 (¶¶ 30-33) (1995); *Report and Order*, 11 FCC Rcd 2429, 2436 (¶¶ 45-50) (1996) ("*DISCO I Report and Order*").

²⁸⁸ *Streamlining the Commission's Rules and Regulations for Satellite Application and Licensing Procedures*, IB Docket No. 95-117, *Notice of Proposed Rulemaking*, 10 FCC Rcd 10624 (1995); *Report and Order*, FCC 96-425, 62 FR 5924 (rel. December 16, 1996) ("*Satellite Rules Report and Order*").

²⁸⁹ *Inquiry into the Development of Regulatory Policy in Regard to Direct Broadcast Satellites for the Period Following the 1983 Regional Administrative Radio Conference*, GN Docket No. 80-603, *Notice of Proposed Policy Statement and Rulemaking*, 86 FCC 2d 719, 750 (1981); *Report and Order*, 90 FCC 2d 676, 706 (1982) ("*Interim DBS Report and Order*").

²⁹⁰ *Revision of Rules and Policies for the Direct Broadcast Satellite Service*, IB Docket No. 95-168, PP Docket No. 93-253, *Notice of Proposed Rulemaking*, 11 FCC Rcd 1297 (1995); *Report and Order*, 11 FCC Rcd 9712 (1995).

120. We therefore will allow the service offering selected by a WCS licensee to determine its regulatory status. If a service offering falls within the statutory definition of common carrier,²⁹¹ the licensee will be subject to Title II and the licensing requirements of Title III of the Communications Act and our Rules. Otherwise, services provided on a non-common carriage basis will be subject to Title III and certain other statutory and regulatory requirements, depending on the specific characteristics of the service. The Telecommunications Act of 1996 provides that a telecommunications carrier will "be treated as a common carrier under this Act only to the extent that it is engaged in providing telecommunications services."²⁹² A telecommunications service is the "offering of telecommunications for a fee directly to the public, or to such classes of users as to be effectively available directly to the public, regardless of the facilities used."²⁹³ Telecommunications means "the transmission, between or among points specified by the user, of information of the user's choosing, without change in the form or content of the information as sent and received."²⁹⁴ We adopted these definitions in new Part 51, which provides the rules governing interconnection of such carriers.²⁹⁵ Thus, to the extent a WCS licensee is providing a service that fits within these definitions, that licensee will be subject to Title II and governed by the common carrier requirements pertinent to its services. Those requirements are set out in Part 1 and other parts of our Rules. In addition, the regulatory treatment of WCS licensees who choose to offer fixed or mobile telecommunications services will be addressed by the Commission in WT Docket No. 96-6.²⁹⁶

121. Apart from this designation of regulatory status, we will not require WCS applicants to describe the services they seek to provide. It is sufficient that an applicant indicate its choice for regulatory status in a streamlined application process. In providing guidance on this issue to MDS applicants, for example, we pointed out that an election to provide service on a common carrier basis requires that the elements of common carriage be present; otherwise, the applicant

²⁹¹ See 47 U.S.C. § 153.

²⁹² 47 U.S.C. § 153(44).

²⁹³ 47 U.S.C. § 153(46).

²⁹⁴ 47 U.S.C. § 153(43).

²⁹⁵ *Implementation of the Local Competition Provisions in the Telecommunications Act of 1996 -- CC Docket No. 96-98, Interconnection between Local Exchange Carriers and Commercial Mobile Radio Service Providers*, CC Docket No. 95-185, *First Report and Order*, 11 FCC Rcd 15499 (rel. August 8, 1996) at ¶ 992 and Appendix B, adopting new Rule 51.5. The U.S. Court of Appeals for the Eighth Circuit has stayed the pricing rules in the Order, pending review on the merits. See *Iowa Utilities Board v. FCC*, No. 96-3321 (8th Cir., Oct. 15, 1996).

²⁹⁶ See *Amendment of the Commission's Rules to Permit Flexible Service Offerings in the Commercial Mobile Radio Services*, WT Docket No. 96-6, *First Report and Order*, 11 FCC Rcd 8965 (rel. August 1, 1996).

must choose non-common carrier status.²⁹⁷ Of course, if an applicant is unsure of the nature of its services and their classification as common carrier services, it may submit a petition with its application or at any time request clarification and include service descriptions for that purpose.²⁹⁸

122. We also decline to require an applicant to choose between either common carrier or non-common carrier status in providing services in instances where it proposes to provide services that include elements of both common carrier and non-common carrier services. Instead, we will permit both common carrier and non-common carrier services in a single license. An applicant may request both common carrier and non-common carrier status in the same application, which will result in the issuance of both authorizations in a single license. The licensee will be able to provide all WCS services anywhere within its licensed area at any time. This approach achieves efficiencies in the licensing and administrative process. We note that we have allowed certain mobile services in Part 24 and Part 90 to be authorized in a single license on both a common carrier and private carrier basis in order to provide services in both categories of service.²⁹⁹

7. Out-of-Band Emission Limits

123. *Background.* In the *NPRM*, we stated that, because WCS will operate in the 2305-2320 and 2345-2360 MHz bands, interference protection is required for the following adjacent operations: (1) satellite DARS at 2320-2345 MHz, (2) Government Deep Space Network receivers at 2290-2300 MHz,³⁰⁰ and (3) Government and commercial telemetry above 2360 MHz.

124. In order to provide protection to these adjacent operations, we proposed that all emissions outside of the WCS bands of operation be attenuated below the maximum spectral power density (p) within the band of operation, as follows:

- 1) *For fixed operations, including radiolocation* By a factor not less than $43 + 10 \log (p)$ decibels ("dB") on all

²⁹⁷ *MDS Report and Order*, 2 FCC Rcd at 4252 (¶¶ 11-12).

²⁹⁸ *Cf.* In authorizing the dual provision of common and non-common carrier service under a DBS license, we recognized that there may be classification questions to address in order to correctly impose the applicable common carrier or other statutory requirements on the applicant. We decided to resolve such questions in the context of each individual application and to rely on applicants' showing of the particular features of their proposals on a case by case basis. *Interim DBS Report and Order*, 90 FCC 2d at 709 (¶¶ 85-86, n. 79) (1982).

²⁹⁹ *Implementation of Sections 3(n) and 332 of the Communications Act: Regulatory Treatment of Mobile Services*, GN Docket No. 93-252, *Second Report and Order*, 9 FCC Rcd 1411, 1459 (¶¶ 115, 119) (1994); 47 C.F.R. § 20.9(b).

³⁰⁰ The National Aeronautics and Space Administration ("NASA") operates a complex at Goldstone, California (on the Ft. Irwin Military Reservation) for its Deep Space Network in order to provide continuous communications with planetary spacecraft. The Deep Space Network uses very large high gain antennas and state of the art receiver systems in order to receive very low-level signals in the 2290-2300 MHz band.

frequencies between 2300 and 2305 MHz and above 2360 MHz; and not less than $70 + 10 \log(p)$ dB on all frequencies below 2300 MHz and between 2320-2345 MHz band.

- 2) *For mobile operations, including radiolocation* By a factor not less than $43 + 10 \log(p)$ dB on all frequencies between 2300 and 2305 MHz, between 2320 and 2345 MHz, and above 2360 MHz; and not less than $70 + 10 \log(p)$ dB on all frequencies below 2300 MHz.
- 3) *For WCS satellite DARS operations* The limits set forth in Section 25.202(f) of the Commission's Rules.³⁰¹

For fixed and mobile operations, including radiolocation, we stated that the above requirements are based on peak power measurements (watts) using a resolution bandwidth of at least 1 MHz. In addition, to further protect operations in adjacent bands, we proposed to require that the frequency stability of transmission within the 2305-2320 and 2345-2360 MHz bands be sufficient to ensure that the fundamental emissions remain within the authorized frequency bands.

125. Finally, in order to protect Government Deep Space Network receivers at 2290-2300 MHz, we proposed to prohibit use of the 2305-2310 MHz band for airborne or space-to-Earth links. Further, we proposed that WCS operations within 50 kilometers (31 miles) of 35° 20' North Latitude and 116° 53' West Longitude (coordinates of the Deep Space Network receive site) be subject to coordination. Alternatively, we requested comment on whether it would be more appropriate to require less out-of-band attenuation in the case of mobile transmitters (*i.e.*, such transmitters would be subject to only the $43 + 10 \log(p)$ dB requirement) but require that the coordination zone be extended to 120 kilometers (75 miles). We specifically requested that parties address the trade-offs with regard to lower mobile equipment costs and the additional coordination constraints imposed by this alternative.

126. *Comments.* A number of parties request that we substantially tighten the out-of-band emission limits proposed in the *NPRM*. Most notably, the four pending applicants for satellite DARS licenses -- AMRC, CD Radio, DSBC, and Primosphere -- state that the out-of-band emission limits proposed in the *NPRM* are insufficient to protect satellite DARS operations in the 2320-2345 MHz band from WCS operations.³⁰² The satellite DARS applicants urge us to

³⁰¹ See 47 C.F.R. § 25.202(f).

³⁰² See AMRC Comments at 1; DSBC Comments at 3-4; Primosphere Comments at 5-6; CD Radio Reply Comments at 3.

adopt stricter out-of-band emission limits that they contend are needed to protect the sensitive satellite DARS receivers in the 2320-2345 MHz band from harmful interference.

127. Specifically, AMRC states that, assuming a 1 MHz measurement bandwidth, WCS mobile transmitter out-of-band emissions need to be attenuated by 115 dB and that WCS fixed transmitter out-of-band emissions need to be attenuated by 87 dB in order to protect satellite DARS receivers.³⁰³ In addition, AMRC proposes that a 10 kHz measurement bandwidth, instead of 1 MHz bandwidth, be employed. Using its proposed 10 kHz measurement bandwidth, AMRC states that WCS mobile transmitter out-of-band emissions need to be attenuated by 135 dB and that WCS fixed transmitter out-of-band emissions need to be attenuated by 107 dB.

128. CD Radio acknowledges our efforts to balance the goals of protecting adjacent services and enabling low WCS equipment costs.³⁰⁴ However, CD Radio argues that, if the proposed limits are adopted, hand-held WCS transmitters could "drown out" satellite DARS receivers whenever they are operated within a few feet of each other. CD Radio states that adequate protection can be achieved without imposing large additional expense on WCS equipment, particularly since the major practical interference problems will occur near the edges of the frequency bands. DSBC's initial calculations suggest that mobile PCS-like transmitters operating in the WCS bands would need to be separated by at least several miles from mobile DARS receivers in order to avoid causing them harmful interference.³⁰⁵ DSBC believes that the degree of interference that mobile, PCS-like operations can cause to satellite DARS receivers requires more than merely changing the out-of-band emission limits.³⁰⁶ Specifically, DSBC argues that because satellite DARS receivers will be susceptible to absolute interference levels, and not to variable levels based on the power of an unrelated transmitter, the WCS out-of-band limits cannot depend on the power level of the WCS transmitter. DSBC has not developed any specific recommendations at this time due to the short comment period and suggests that the Commission's staff and the pending satellite DARS applicants work together to establish appropriate interference measures without delaying the WCS auction. Furthermore, DSBC argues that since 12.5 MHz of spectrum is the minimum amount of spectrum needed by each satellite DARS licensee for an economically viable satellite DARS system, alternative solutions, such as the use of guardbands and/or filters in the WCS segments that are adjacent to the 2320-2345 MHz band, should be considered.

³⁰³ These values are based on a satellite DARS receiver being 2 meters away from a mobile WCS transmitter and 50 meters away from a fixed WCS transmitter. In addition, AMRC assumes that the free space loss for a WCS mobile transmitter is 45.8 dB and for a WCS fixed transmitter is 73.7 dB. AMRC Comments, Technical Statement at 1-2.

³⁰⁴ CD Radio Reply Comments at 3.

³⁰⁵ DSBC Comments at 3.

³⁰⁶ DSBC Reply Comments at 3.

129. Primosphere states that we should ensure that the WCS spectrum is allocated to a service or services that are compatible with satellite DARS in the 2320-2345 MHz band and that we should adopt WCS technical rules that will protect satellite DARS reception.³⁰⁷ Specifically, Primosphere requests that, using the proposed 1 MHz resolution bandwidth, the out-of-band emission limits for WCS operations into the 2320-2345 MHz band be set at $92 + 10 \log(p)$ dB per 1 MHz for fixed services and at $123 + 10 \log(p)$ dB per 1 MHz for mobile operations.³⁰⁸ In addition, Primosphere requests that out-of-band emissions not be permitted to exceed the above limits by more than 24 dB in any 4 kHz portion of the 2320-2345 MHz band. Primosphere argues that these tightened out-of-band emission standards are feasible and can be met through the use of affordable and available filters in the WCS transmitters and the establishment of guardbands, on the order of 100 to 150 kHz, on the WCS spectrum immediately adjacent to the edges of the 2320-2345 MHz band.³⁰⁹ In addition, Primosphere requests that WCS transmissions be required to be circularly polarized in the opposite sense to satellite DARS transmissions, that WCS mobile units be limited to 0.5 watts, and that fixed transmitters be limited to 100 watts.³¹⁰

130. In addition, AFTRCC -- the non-Government advisory committee for coordination of the flight test frequencies in the 2310-2390 MHz band -- states that the out-of-band emission limits proposed in the *NPRM* are insufficient to protect flight test operations in the 2320-2345 and 2360-2390 MHz bands from WCS operations.³¹¹ AFTRCC is concerned that the rules do not provide for antenna gain or path loss and states that telemetry receivers require interference protection down to a level of $-177 \text{ dBW/m}^2/4 \text{ kHz}$. AFTRCC states that the issue of WCS out-of-band emission attenuation needs further study so that flight testing in the 2320-2345 and 2360-2390 MHz bands is protected. AFTRCC argues that Lucent's suggestion that the PCS out-of-band emission limit be applied provisionally for WCS operations (discussed *infra*) is inadequate. Specifically, AFTRCC notes that the PCS out-of-band emission limit is identical to that proposed

³⁰⁷ Primosphere Reply Comments at 1.

³⁰⁸ Primosphere Comments, Technical Statement at 2.

³⁰⁹ Primosphere assumed that mobile units will have a 100 kHz bandwidth and transmit at approximately one watt. Primosphere notes that satellite DARS signals would reach the Earth at a very low level and thus would not cause interference to adjacent band WCS services. In contrast, Primosphere states that since satellite DARS receivers are designed to receive these very low level signals and have inherent wideband characteristics, without the use of costly filters, they may experience interference from WCS transmitters operating in WCS bands.

³¹⁰ Primosphere Reply Comments at 5-7. Primosphere also requests that satellite DARS licensees be given up to six months to notify the Commission of their choice of polarization. Primosphere Reply Comments, Attachment A at iii.

³¹¹ AFTRCC Comments at 4-6.

for WCS mobile operations.³¹²

131. Cornell states that the proposed WCS out-of-band emission limits would be insufficient to prevent harmful interference to planetary radar studies being conducted at the Arecibo Observatory in the 2370-2390 MHz band.³¹³ Specifically, the planetary radar system is used in a distinct transmit-receive mode of coded pulse train signals, and Cornell states that sideband emissions from satellite DARS operations in the 2345-2360 MHz band could interfere with the detection and decoding of the returning signal from the planetary object. Cornell recommends that the emission limits set forth in Section 25.202(f) apply, except that, above 2370 MHz, the attenuation must be $54 + 10 \log(p)$ dB. Alternatively, Cornell suggests that satellite DARS operations be limited to a maximum spectral power flux density of $-197 \text{ dBW/m}^2/4 \text{ kHz}$ above 2370 MHz. For fixed and mobile WCS operations, Cornell recommends that out-of-band emissions be limited by a factor not less than $43 + 10 \log(p)$ in the 2360-2370 MHz band and by not less than $70 + 10 \log(p)$ on all frequencies above 2370 MHz. In addition, Cornell requests that coordination of WCS equipment be required within Puerto Rico and surrounding islands and that such coordination be added to the requirements the Commission currently is considering for the Puerto Rico Coordination Zone in ET Docket 96-2.³¹⁴

132. DigiVox states that the out-of-band emission limits proposed in the *NPRM* should be adopted.³¹⁵ DigiVox argues that increasing the limit above $70 + 10 \log(p)$ dB as proposed by DSBC, or more particularly to 115 dB as proposed by AMRC, or even to 92 dB for the base and 123 dB for the mobile as proposed by Primosphere, would dramatically alter the equipment design and increase the manufacturing cost of equipment, in some cases rendering the provision of such competitive services cost-prohibitive.

³¹² AFTRCC states that the aviation community agreed to reallocation of the 2310-2360 MHz band for satellite DARS at the time of the 1992 WARC in return for preservation of the flight testing allocation in the L-band (1435-1525 MHz) and the remainder of the S-band from 2360-2390 MHz. AFTRCC argues that integral to that agreement was the notion that flight testing could continue to use the 2310-2360 MHz band until satellite DARS was brought into use in such a manner as to be affected by mobile and radiolocation services. AFTRCC also argues that the adoption of revised footnote US238 is necessary to avoid needless disruption to the flight test ranges operating in the 2320-2345 MHz band. AFTRCC Reply Comments at 2-5.

³¹³ Cornell Reply Comments at 1. Cornell operates the Arecibo Radio Astronomy Observatory in Arecibo, Puerto Rico, under the terms of a cooperative agreement with the National Science Foundation. Cornell states that the planetary radar capabilities at the Arecibo Observatory are currently being upgraded at the cost of approximately \$25 million. Cornell states that the planetary radar system operates at 2380 MHz using an instantaneous bandwidth of 20 MHz. Radar echoes of planetary surfaces contain unique information about the surface properties, the orbit, and the size of planetary objects. This radar technique has been successfully applied to all nearby planets as well as to comets and asteroids.

³¹⁴ See *Amendment of the Commission's Rules to Establish a Radio Astronomy Coordination Zone in Puerto Rico*, ET Docket No. 96-2, *Notice of Proposed Rule Making*, 11 FCC Rcd 1716 (1996).

³¹⁵ DigiVox Reply Comments at 5.

133. Lucent requests that the proposed out-of-band emission limits be relaxed. Lucent believes that the out-of-band emission guidelines applied to the PCS band should be used initially in the WCS band, subject to revision once ANSI 2.3 GHz band-specific technical standards are developed.³¹⁶ This suggestion means that the power of any emission would be attenuated below the transmitter power (P) by at least $43 + 10 \log (P)$ dB for both fixed and mobile.

134. A number of parties, such as AirTouch, Motorola and TIA, express concern over the potential for in-band interference between the various WCS services. AirTouch, for example, argues that the lack of standards in GWCS has delayed the development of equipment for use in that band. Motorola contends that, given the wide range of technical parameters under which the various services would operate, transmitters appropriate for a given application could nevertheless cause harmful interference to the receivers of another application.³¹⁷ TIA states that, as conceived, WCS will be plagued with interference problems caused by the operation of mutually incompatible services.³¹⁸ TIA states that it is widely acknowledged that mobile operations are incompatible with fixed and radiolocation systems; and, certainly, broadcast (and particularly broadcast satellite) operations are incompatible with all of the other primary services unless very carefully coordinated. TIA states that it is the Commission's responsibility, not the responsibility of third parties, to sort out the compatible from the incompatible uses so that the spectrum can be used effectively in the public interest.

135. AirTouch, Lucent and Vanguard also argue that WCS "in-band" emission limits are needed to protect WCS operations on different channels from interfering with one another. AirTouch urges the adoption of standards to facilitate the development of WCS equipment and minimize interference problems.³¹⁹ Lucent believes that minimal but necessary technical rules should be adopted to prevent interference, particularly if multiple types of technologies and systems are allowed to share the WCS bands.³²⁰ Lucent states that the Commission should look to recognized industry standards organizations to recommend appropriate guidelines that would foster sound technical coexistence within the WCS bands. Vanguard argues that if the Commission is committed to a shared approach, then the Commission must take all technical steps necessary to minimize potential problems from co-use and must ensure that spectrum sharing is

³¹⁶ Lucent Comments at 8. The out-of-band emission limit adopted for broadband PCS services is $43 + 10 \log (p)$. See 47 C.F.R. § 24.238.

³¹⁷ Motorola Comments at 7.

³¹⁸ TIA Comments at 9.

³¹⁹ AirTouch Comments at 9, note 21.

³²⁰ Lucent Comments at 8.

feasible.³²¹

136. *Decision.* Based on the record before us, we find that the WCS out-of-band limits proposed in the *NPRM* would be insufficient to protect certain sensitive operations on adjacent frequencies. While it is our desire to provide WCS licensees with the maximum flexibility to provide a wide range of services, we also must ensure that WCS operations do not cause harmful interference or disruption to adjacent satellite DARS reception or the operations of the Arecibo Observatory. With regard to satellite DARS reception in the 2320-2345 MHz band, we concur with those commenting parties that suggest that additional attenuation of WCS out-of-band emissions is needed to protect such operations. We are therefore modifying our original proposal and will require that all emissions from WCS fixed transmitters be attenuated below the transmitter power (p) by at least $80 + 10 \log (p)$ dB and that all emissions from WCS mobile transmitters be attenuated at least $110 + 10 \log (p)$ dB within the 2320-2345 MHz band. In complying with these requirements, WCS equipment that uses circular polarization will be permitted to assume an allowance of 10 dB where such

³²¹ Vanguard Comments at 2.

WCS equipment operates with opposite sense circular polarization from that used by DARS operators in the 2320-2345 MHz band.

137. In addition, we clarify that (p) is the output power of the transmitter, in watts. We further clarify that out-of-band emissions in any 1 MHz bandwidth must be attenuated by $X + 10 \log(p)$ dB below the output power of the transmitter, where X is the attenuation required for a one watt transmitter.³²² In addition, we believe that requiring the out-of-band emissions measurement to be made by setting the measurement instrument resolution bandwidth to 1 MHz would unfairly penalize WCS equipment due to the difficulty of eliminating energy outside of the 1 MHz resolution bandwidth. Therefore, for out-of-band emissions measurements we believe it is appropriate to permit use of a measurement instrument resolution bandwidth of less than the reference bandwidth of 1 MHz, provided that the energy is integrated over a 1 MHz bandwidth.

138. We believe that these changes will provide significantly improved interference protection to DARS from WCS operations. We are aware that these out-of-band emission limits may have significant cost or service implications for WCS, especially for operations on the channels immediately adjacent to the 2320-2345 MHz band. In particular, we understand that there is a substantial risk that the out-of-band emission limits we are adopting will, at least in the foreseeable future, make mobile operations in the WCS spectrum technologically infeasible. Nonetheless, we find that this level of attenuation is required in order to adequately protect satellite DARS reception from WCS transmissions. We believe that WCS transmitters can meet these limits through a variety of measures, including the use of linear amplifiers, filters distributed throughout the transmitter, and spectrum shaping signal processing. In this regard, we encourage potential WCS bidders and WCS equipment manufacturers to consult with one another prior to the commencement of the auction to determine what services and equipment can be economically provided on these frequencies. We believe that the limits we are adopting will allow both WCS and DARS to successfully operate. We also encourage and will allow WCS and DARS licensees to coordinate their operations to provide for greater or lesser protection on a mutually agreed basis. We expect WCS and DARS licensees to cooperate fully to minimize the possibility of harmful interference from one service to the other.

139. With regard to satellite DARS operations in WCS spectrum and the Arecibo Observatory, we find Cornell's comments persuasive. Accordingly, satellite DARS operations will be limited to a maximum power flux density of $-197 \text{ dBW/m}^2/4 \text{ kHz}$ in the 2370-2390 MHz band at Arecibo, Puerto Rico.³²³ The adoption of a power flux density limit has the advantages of being readily measurable and of not needing to be adjusted if spectrum outside the 2320-2345

³²² For example, if the measured transmitter output power or (p) is 100 W (20 dBW), then using the formula $70 + 10 \log(p)$, the out-of-band emissions in any 1 MHz band must be attenuated by 90 dB below p, which corresponds to -70 dBW.

³²³ The Arecibo Observatory is located at 18° 20' 46" North Latitude and 66° 45' 12" West Longitude.

MHz band is employed for satellite DARS operations.³²⁴ Thus, we do not believe that Cornell's alternative out-of-band emission limit is necessary. Instead, since the location of the satellite will be known, it is a relatively simple matter for a satellite DARS licensee to meet this requirement.

140. With regard to fixed and mobile operations, we are adopting Cornell's proposed out-of-band emission limit of $70 + 10 \log(p)$ dB for all frequencies above 2370 MHz. We also believe that this out-of-band emission limit will help to protect aeronautical telemetry and associated telecommand operations in the 2360-2390 MHz band and the launch vehicle frequencies at 2370.5 and 2382.5 MHz.

141. In order to protect the Deep Space receiver site located on Fort Irwin at Goldstone, California, we are prohibiting use of the 2305-2310 MHz band for airborne or space-to-Earth links. Additionally, in the 2305-2320 MHz band, we are requiring that all WCS equipment meet an out-of-band emission limit of $70 + 10 \log(p)$ on all frequencies below 2300 MHz. Finally, all WCS operations within 50 kilometers of 35° 20' North Latitude and 116° 53' West Longitude must be coordinated with the National Telecommunications and Information Administration ("NTIA").³²⁵

142. In summary, the revised WCS out-of-band emission limits require that all emissions outside of WCS Blocks A, B, C and D ("the licensed bands of operation") be attenuated below the output power (p) of each transmitter, measured in watts, as follows:

- 1) *For fixed operations, including radiolocation:* By a factor not less than $80 + 10 \log(p)$ dB on all frequencies between 2320 and 2345 MHz.

For mobile operations, including radiolocation: By a factor not less than $110 + 10 \log(p)$ dB on all frequencies between 2320 and 2345 MHz.

For fixed and mobile operations, including radiolocation: By a factor not less than $70 + 10 \log(p)$ dB on all frequencies below 2300 MHz and on all frequencies above 2370 MHz; and not less than $43 + 10 \log(p)$ dB on all frequencies between 2300 and 2320 MHz and on all frequencies between 2345 and 2370 MHz that are outside the licensed bands of operation. In addition, WCS operations within 50 kilometers of Goldstone, California must be coordinated with NTIA.

³²⁴ We note that a typical DARS system in the 2320-2345 MHz band operating in compliance with Section 25.202(f) of the Commission's Rules will meet this power flux density limit at Arecibo, Puerto Rico.

³²⁵ The coordination will be performed by the Frequency Assignment Subcommittee ("FAS") of the Interdepartment Radio Advisory Committee within NTIA. The FCC and NASA are two of twenty-one member departments and agencies represented on the FAS.

- 2) *For WCS satellite DARS operations* The limits set forth in Section 25.202(f) of the Commission's Rules apply, except that satellite DARS operations are limited to a maximum power flux density of -197 dB(W/m²/4 kHz) in the 2370-2390 MHz band at Arecibo, Puerto Rico.

143. In addition, we believe it desirable to permit WCS and satellite DARS licensees to voluntarily negotiate different limits if they so choose. For example, a WCS licensee could negotiate an agreement with a satellite DARS licensee that would permit the former greater out-of-band emissions in exchange for monetary compensation, or *vice-versa*. If WCS and satellite DARS licensees negotiate different limits, then we will require that the parties to the agreement maintain this information as part of their station files and disclose it to prospective assignees or transferees.

144. We also agree with the commenting parties that some in-band technical limits are needed between adjacent WCS channel block operations in order to facilitate spectrum sharing. Accordingly, we are adopting an in-band emission limit that will require WCS licensees to attenuate their signals by at least $43 + 10 \log(p)$ at the edge of their block, except between commonly held channel blocks (which require no attenuation). We note that an attenuation of 43 dB is commonly employed in other services and that it has been found there to adequately prevent adjacent channel interference.³²⁶ Furthermore, we believe that the adoption of a minimum adjacent block attenuation value of 43 dB -- coupled with the median field strength of 47 dBuV/m at any location on the border of a WCS service area -- is the least intrusive regulation possible that will minimize harmful interference.

8. International Coordination

145. *Background.* In the *NPRM* we stated that until international agreements are completed WCS operations will be required to protect existing non-U.S. operations in the 2305-2320 and 2345-2360 MHz bands and WCS operations in the border areas would be subject to coordination with those countries, as appropriate. In addition, we noted that satellite DARS operations on WCS spectrum would be subject to international satellite coordination procedures. We stated that parties should be aware that international coordination could be a complex and lengthy process and could vary significantly depending upon the types of WCS services that are to be provided. We stressed therefore that international coordination requirements should be taken into account in developing business plans for the provision of WCS and that international coordination would be particularly important for parties contemplating the provision of WCS in border areas or the provision of satellite DARS operations.

³²⁶ See 47 C.F.R. §§ 22.359(iii), 22.917(e), and 24.238.

146. *Comments.* TIA, SIA, ADC, NAB, and DSBC are the only commenters to directly discuss international coordination issues. Specifically, TIA notes that the 2290-2360 and 2520-2590 MHz bands recently have been made available in Canada for low capacity point-to-point and point-to-multipoint microwave systems.³²⁷

147. SIA states that competing for satellite DARS authorizations in the WCS auction will be difficult because the bidders will not know at the time they are bidding the extent to which the Commission will be able to successfully coordinate the use of this spectrum with foreign administrations that may be affected.³²⁸ ADC states that we can assure spectrum for DARS, while avoiding the concerns regarding potential interference to Canadian terrestrial facilities, by allocating the entire 2345-2360 MHz band for DARS, but precluding DARS from the 2305-2320 MHz band.³²⁹ DSBC states that for satellite DARS licensees supplementing their 2320-2345 MHz systems with WCS spectrum (for terrestrial repeaters, for example), coordination with Canadian systems in WCS spectrum likely would be less costly and time consuming for 5 MHz and MTA licenses than for larger bandwidth blocks and service areas.³³⁰

148. In contrast, NAB requests that satellite DARS licensees be prohibited from operating terrestrial repeater networks in the 2310-2330 MHz band for the purpose of mitigating harmful interference to Canadian services.³³¹ NAB claims that terrestrial repeaters used along the Canadian border would significantly differ from "gap fillers" used in urban canyons. Specifically, NAB argues that programming for gap fillers would be fed by satellites, whereas repeaters used along the Canadian border would be terrestrially fed. NAB argues that such use is not part of a broadcast satellite system, but rather is a broadcast terrestrial radio service. NAB objects to DSBC's suggested use of terrestrial repeaters in order to facilitate frequency coordination of satellite DARS service along the Canadian border, arguing that such use would not fall within the domestic and international allocations for the WCS bands.³³² In addition, NAB states that the fact that terrestrial "repeaters" would be operating at a different frequency than their associated satellite DARS broadcasts suggests that these in fact would be translators, not repeaters. NAB states that this distinction is important because the rules that govern the use of each frequency

³²⁷ TIA Comments at 11. These Canadian microwave systems operate in one to ten megahertz of bandwidth. *See* New Standard Radio System Plan 302.29 of Industry Canada.

³²⁸ SIA Comments at 3.

³²⁹ ADC Comments at 4.

³³⁰ DSBC Comments at 9.

³³¹ NAB Comments at 4.

³³² NAB Reply Comments at 1-2.

may differ, as in the case, for example, of the FM broadcast service.³³³ DigiVox agrees with NAB that the use of WCS spectrum by satellite DARS licensees for a complementary broadcast terrestrial service is not an application for which the spectrum is proposed to be allocated and, therefore, such use should be prohibited in the 2310-2320 MHz band.³³⁴

149. In its reply comments, Primosphere states that the service allocation as well as technical standards should consider trans-border coordination.³³⁵ Primosphere notes that satellite DARS systems using the 2320-2345 MHz band will face coordination with Canadian terrestrial and aeronautical telemetry systems regardless of what services are provided in the 2305-2320 and 2345-2360 MHz bands and that the WCS systems also must coordinate with Canada and Mexico. Primosphere states that Canada not only has terrestrial and aeronautical telemetry systems in the WCS bands, but also has recently made the WCS bands available for low-capacity point-to-point and point-to-multipoint microwave systems operating in 1 to 10 MHz of bandwidth. Primosphere concludes that the mobile and radiolocation services, as components of WCS, likely would be very difficult to coordinate with the Canadian systems. Primosphere argues that because of the impact coordination may have on system design and operating parameters, the Commission must ensure that satellite DARS licensees are permitted to coordinate as soon as they are licensed and, in any event, prior to or contemporaneously with systems that may be licensed in the WCS bands. Primosphere argues that satellite DARS licensees must not be disadvantaged *vis a vis* U.S. terrestrial systems in any cross-border coordinations.

150. *Decision.* We reiterate that international coordination will be required for WCS operations near the United States' borders and, depending on the service and its interference potential, may also be required for non-border areas. This coordination requirement particularly may affect the implementation of satellite DARS operations in the 25 MHz of WCS spectrum being allocated to DARS on a co-primary basis with other services.³³⁶ Potential satellite DARS applicants should consult the February 16, 1996 letter from the FCC Satellite Engineering Branch to representatives of the current four satellite DARS applicants and responses thereto that address coordination in these bands for satellite DARS.³³⁷ Use of the WCS spectrum for DARS services will be governed by the rules and regulations that will apply to the exclusive DARS spectrum between 2320-2345 MHz. These rules are expected to be adopted shortly in a Report and Order

³³³ See 47 C.F.R. § 74.1231. In particular, NAB notes that the rules for insertion of locally originated signals (local to the translator/repeater site) for FM broadcast translators and boosters (*i.e.*, repeaters) are different.

³³⁴ DigiVox Reply Comments at 7.

³³⁵ Primosphere Reply Comments at 7.

³³⁶ See n. 11, *supra*.

³³⁷ These documents are filed in IB Docket No. 95-91, GN Docket 90-357, RM No. 8610, PP-24, PP-86, and PP-87.

to be issued in IB Docket No. 95-91.³³⁸

9. RF Safety

151. *Background.* With regard to RF safety requirements, we proposed in the *NPRM* to treat WCS services and devices, operating within the 2305-2320 MHz and 2345-2360 MHz bands, in a comparable manner to other services and devices that have similar operating characteristics. We noted that Sections 1.1307(b), 2.1091 and 2.1093 of our Rules list the services and devices for which an environmental evaluation must routinely be performed.³³⁹ Accordingly, we proposed that an environmental evaluation for RF exposure would be required for the following WCS operations: (1) transmitting terrestrial stations in the satellite DARS service, *e.g.*, "gap fillers"; (2) fixed operations, including base stations and radiolocation, that have an effective radiated power ("ERP") greater than 2000 watts; and (3) mobile and portable devices.³⁴⁰ We invited comment on this proposal and requested suggestions for alternatives that would ensure public health with respect to exposure to RF radiation.

152. *Comments.* Omnipoint believes that operations at the "proposed" maximum effective radiated power limit of 2000 watts at 2.3 GHz would be a threat to human health.³⁴¹ Omnipoint contends that because 2.3 GHz also is roughly the same frequency band used in conventional microwave ovens to heat food, the proposed 2,000 watt limit could pose risk of injury. Omnipoint recommends that the power limit for 2.3 GHz transmitters used for terrestrially delivered services be limited to no more than a few watts ERP. No reply commenters discussed RF safety issues.

153. *Decision.* In the *NPRM*, we proposed not to limit the output power of any WCS transmitter, but would require that WCS transmitters comply with our RF exposure limits. We recognize Omnipoint's concerns; however, we note that the Commission recently adopted new, more stringent exposure limits in ET Docket No. 93-62 which apply to all frequencies between

³³⁸ See *Establishment of Rules and Policies for the Digital Audio Radio Satellite Service in the 2310-2360 MHz Frequency Band*, IB Docket No. 95-91, GEN Docket No. 90-357, *Notice of Proposed Rule Making*, 11 FCC Rcd 1 (1995).

³³⁹ See 47 C.F.R. §§ 1.1301, 1.1307(b), 2.1091, and 2.1093. The RF radiation exposure limits are set forth in 47 C.F.R. §§ 1.1310, 2.1091, and 2.1093, as applicable.

³⁴⁰ For the purposes of our RF safety rules, mobile devices are defined as transmitters designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 centimeters is normally maintained between radiating antennas and the body of the user or nearby persons. Portable devices defined as transmitters designed to be used within 20 centimeters of the body of the user. See 47 C.F.R. §§ 2.1091(b) and 2.1093(b).

³⁴¹ Omnipoint Comments at 11.

300 kHz and 100 GHz.³⁴² When adopting these new exposure limits, the Commission considered recommendations from, *inter alia*, the Environmental Protection Agency, the Food and Drug Administration, and other federal health and safety agencies. Although Omnipoint has raised questions about the power threshold below which WCS facilities would be excluded from routinely determining compliance with the new exposure limits, we have not received information in this proceeding indicating that the new exposure limits would not adequately protect public health at WCS operating frequencies.³⁴³ Because all fixed, mobile, and portable transmitters are required to comply with our RF safety rules, as more specifically discussed below, we believe that this decision will satisfactorily protect public health and should allay Omnipoint's concerns.

154. Specific to this proceeding, we are requiring applicants desiring to use the following types of transmitters to perform routine environmental evaluations: (1) transmitting terrestrial stations in the satellite DARS service and fixed operations, including base stations and radiolocation transmitters, when the ERP is greater than 1000 watts;³⁴⁴ (2) all portable devices; and (3) mobile devices, if the EIRP of the station, in its normal configuration, will be 1.5 watts or greater.³⁴⁵ We have chosen the 1000 W ERP threshold, instead of the proposed 2000 watts, because of the flexibility in this service with respect to use, power, location, and other factors, and we believe that this power limit is appropriate for most exposure situations. This approach is consistent with our existing rules for transmitters and devices of comparable use and similar operating frequencies. We will be providing guidance on acceptable methods of evaluating compliance with the Commission's exposure limits in OET Bulletin 65.³⁴⁶

10. WCS Interference to MDS/ITFS

155. Background. The Multipoint Distribution Service ("MDS") and the Instructional

³⁴² See *Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation*, ET Docket No. 93-62, *Report and Order*, 11 FCC Rcd 15123 (1996). See also *First Memorandum Opinion and Order*, ET Docket No. 93-62, 11 FCC Rcd 17512 (1997).

³⁴³ We note that several petitions for reconsideration have been filed in response to the *Report and Order* in ET Docket 93-62. Those petitions, including petitions questioning the RF exposure limits, will be addressed in that proceeding.

³⁴⁴ We note that 1000 watts ERP equates to 1640 watts EIRP.

³⁴⁵ We note that the Commission is currently considering petitions for reconsideration in ET Docket 93-62 that propose revising the power exclusion for routine evaluation of mobile devices above 1.5 GHz from 1.5 watts to 3 watts. We expect to act on these petitions in the near future.

³⁴⁶ This document is expected to be released shortly after release of the ET Docket 93-62 *Second Memorandum Opinion and Order*. Note that OET Bulletin 65 will replace OST Bulletin No. 65 and will reflect our new exposure limits.

Television Fixed Service ("ITFS") operate in the 2150-2162 and 2500-2690 MHz bands.³⁴⁷ After the comment period for this proceeding had closed, several parties filed *ex parte* statements expressing their concern that WCS transmissions would interfere with MDS/ITFS receiving installations. Specifically, BellSouth states that the receiver/downconverter ("downconverter") located at each MDS/ITFS customer's home is an inexpensive broadband device that receives all frequencies between 2.1 GHz and 2.7 GHz.³⁴⁸ Thus, BellSouth states that a MDS/ITFS downconverter located sufficiently close to a WCS transmitter would directly receive WCS signals that would prevent clear reception of MDS/ITFS signals. Specifically, BellSouth calculates that a WCS transmitter that radiates more than 80 watts EIRP and that is located within 300 feet (91.44 meters) of a MDS/ITFS downconverter would overload the downconverter and thus prevent the reception of MDS/ITFS programming and information services. In order to counteract this problem, BellSouth requests that we limit WCS radiated power to 20 watts EIRP, unless the WCS licensee obtains an interference consent agreement from the existing MDS and ITFS licensees. BellSouth states that its proposed limit on WCS power would limit the maximum input to MDS/ITFS receivers to 12 decibels below one milliwatt (or -12 dBm), thus providing protection against receiver overload.

156. The Wireless Cable Association asserts that there currently are one million analog MDS/ITFS installations and that interference from WCS operations could cost \$125,000,000 or more to cure.³⁴⁹ The National ITFS Association notes that the Commission has a long standing policy of protecting existing operations from interference caused by newly authorized services and requests that we address this issue in a manner that would allow existing ITFS licensees to use the frequencies licensed to them as intended by the Commission.³⁵⁰

157. *Decision.* At this time we will not impose any technical restrictions on WCS licensees aimed at protecting the MDS/ITFS services. We understand the concerns expressed by the MDS/ITFS licensees, and we appreciate the value of the educational, entertainment and other programming provided by these services, including competition in the MVPD market. As we have repeatedly stated, it is our desire that these services continue to flourish. However, based on

³⁴⁷ See 47 C.F.R. Part 21, Subpart K and Part 74, Subpart I. MDS in the 2596-2644 MHz band is sometimes referred to as the Multichannel Multipoint Distribution Service ("MMDS").

³⁴⁸ See BellSouth *Ex Parte* Statement, filed January 30, 1997. An MDS/ITFS downconverter (or block frequency converter) is a device which transfers the information content of incoming signals on microwave frequencies to frequencies that can be received by a television receiver. It is generally located near the rooftop receiving antenna or is physically integrated into the receiving antenna. See Request for Declaratory Ruling on the Use of Digital Modulation by Multipoint Distribution Service and Instructional Television Fixed Service Stations, *Declaratory Ruling and Order*, FCC 96-304 (released July 10, 1996) (petitions for clarification and partial reconsideration pending).

³⁴⁹ See Wireless Cable Association *Ex Parte* Statement, filed January 31, 1997.

³⁵⁰ See National ITFS Association *Ex Parte* Presentation, filed February 6, 1997.

the record before us, we are not persuaded that the operation of WCS facilities would irreparably harm the MDS and ITFS services. Without a clear sense of what particular services WCS licensees will provide, and how soon these will be operational, the interference impact of WCS operations on MDS/ITFS is unclear. Therefore we believe it would be premature at this time to consider specific interference protection for MDS/ITFS. We also observe that the record on this issue is incomplete in that concerns of the MDS/ITFS community were first raised in late filed *ex parte* comments and thus no potential WCS applicants have had an opportunity to respond to those comments. We also note that traditional, analog MDS/ITFS downconverters have employed an inexpensive design that has minimal frequency selectivity. Thus, even though MDS/ITFS is licensed in the 2150-2162 MHz and 2500-2690 MHz bands only, their downconverters receive all signals throughout the entire 2.1-2.7 GHz band. We are aware that the MDS/ITFS industry is converting to newer, more robustly designed downconverters that have vastly improved frequency selectivity and would not receive WCS signals. Also, the digital downconverters to which the MDS/ITFS industry is expected to convert over the next several years are expected to be better designed and not subject to overloading from WCS signals.³⁵¹ We applaud these developments and do not wish to impede them. The public is served through the efficient use of available spectrum which, in turn, is facilitated by the use of receiving technology designed to provide protection from other spectrum users in the market. Thus, to the extent that we may in the future, based on actual WCS operations, find it necessary to adopt an interference rule for WCS, we would protect only those MDS/ITFS downconverters installed within a year from the adoption date of this Report and Order. After that time, we would expect that only more spectrally efficient downconverters would be installed by MDS/ITFS licensees. In sum, we conclude that it would be improvident to adopt a requirement for WCS licensees to protect MDS/ITFS operations unless and until we have a more precise understanding about the nature and extent of problems that may actually arise.

11. Field Strength Between Service Areas

158. *Background.* In the *NPRM*, we proposed to permit WCS licensees to partition their service areas. Further, if partitioning is employed, we proposed to require that WCS systems be designed not to exceed a signal level (*i.e.*, a predicted or measured median field strength) of 47 dB μ V/m at the licensee's service area boundary, unless the affected adjacent service area licensees agree to different signal level.³⁵² No comments were filed on this issue.

159. *Decision.* In order for licensees to share spectrum along a common border, each licensee must decrease its signal level at the border so that, while it can provide acceptable communications within its licensed service area, its signal level across the border is sufficiently

³⁵¹ See generally BellSouth News Release, "BellSouth Acquires Wireless Cable of Atlanta," released February 12, 1997 (BellSouth expects to "begin providing digital cable TV service to households in the Atlanta area in late 1997").

³⁵² See *NPRM*, Appendix at § 27.55, 61 FR at 9064.

reduced to avoid causing interference to the neighboring system. In broadband PCS, we adopted a predicted or measured median field strength of 47 dB μ V/m at any location on the border of the PCS service area unless the parties agree to a higher field strength. In drafting the proposed rules in the *NPRM*, we had to assume one of the service area options that were proposed in text. We assumed a nationwide license and thus did not specifically address the issue of median field strength between initial service areas. Nevertheless, we did specifically propose requiring a maximum median field strength of 47 dB μ V/m between those service areas which would be formed through geographic partitioning. We shall adopt this same 47 dB μ V/m maximum median field strength requirement between all service areas, unless the parties agree to a different field strength.

12. Additional Technical Issues

160. In addition, Sun Microsystems requests that a minimum data rate of 5 bits per hertz be required for the WCS bands.³⁵³ Sun Microsystems argues that setting the minimum data rate at this high level would stimulate new technologies. Sun Microsystems proposes that analog transmission on the WCS spectrum be prohibited. Sun Microsystems states that each service offering should be tiered in order to allow the largest possible number of people to afford its benefits.³⁵⁴ Sun Microsystems requests that high gain directional antenna systems (with beamwidths no greater than 2° to 3°) be required for high power use and that any omnidirectional antenna be required to use low power and 18 to 25 dB gain antennas. Finally, Sun Microsystems suggests that orthogonal coding and modulation schemes be permitted in order to allow more than one licensee to use the same spectrum simultaneously. No party commented on Sun Microsystems' proposals.

161. *Decision.* We believe that the licensees will have a strong incentive to put the spectrum to its best use. There is nothing in the record of this proceeding that suggests that prohibiting certain technologies or requiring specific technologies is appropriate for the WCS. Accordingly, we decline to adopt the technical regulations proposed by Sun Microsystems.

E. Auction Procedures

162. In the *NPRM*, we proposed an auction design and pre-auction procedures for the WCS service in accordance with the Appropriations Act and the expedited schedule which it imposes. Specifically, we proposed to award the WCS licenses through competitive bidding and by means of a simultaneous multiple round electronic auction. We based this proposal on the need to auction the WCS licenses quickly and to promote the efficient use of the spectrum. As we noted, the Appropriations Act requires the Commission to commence the WCS auction no later than April 15, 1997 and to conduct the auction in a manner that ensures that all proceeds are deposited into the United States Treasury no later than September 30, 1997.

³⁵³ Sun Microsystems Comments at 1.

³⁵⁴ For example, Sun Microsystems states that a data service provider must be required to offer T1 (1.544 Mbps), 256 kbps, 128 kbps and 56 kbps services, with the lower speed services to be offered at a proportionally lower cost.

1. Competitive Bidding Design

163. *Background.* In the *NPRM*, we proposed to auction licenses to offer WCS service in conformity with the general competitive bidding rules in Part 1, Subpart Q of the Commission's Rules and substantially consistent with the auctions that have been employed in other wireless services.³⁵⁵ In addition, we proposed certain modifications, addressed *infra*, to help speed the auction process given the deadlines imposed by the Appropriations Act.

164. *Comments.* Few commenters addressed our proposed competitive bidding design. Similarly, commenters expressed little opposition to our proposal to use a single, simultaneous multiple round auction to award the WCS licenses. One commenter simply expresses support for a simultaneous multiple round auction.³⁵⁶ Another endorses our proposal to use the competitive bidding design used in the PCS auctions, because it is in place, tested, validated, known, and understood.³⁵⁷

165. *Decision.* We adopt our proposal to employ a single simultaneous multiple round auction design for the WCS auction similar to that used in the PCS auctions. As we explained in the *NPRM*, we believe that multiple round bidding will provide more information to bidders about the values of the licenses during the auction than single round bidding. With better information, bidders will have less incentive to shade their bids downward in order to avoid the "winner's curse", that is the tendency for the winner to be the bidder who most overestimates the value of the item being auctioned.³⁵⁸ We also believe that multiple round bidding is likely to be fairer than single round bidding as every bidder will have the opportunity to win a license if it is willing to pay the most for it. Finally, as we stated in the *NPRM*, a single simultaneous auction will facilitate any aggregation strategies that bidders may have and will provide the most information to bidders about license values at a time that they can best put that information to use.

166. In addition, we adopt our proposal to require bidding for WCS licenses by electronic means only. As we indicated in the *NPRM*, we base this decision on our belief that while oral outcry auctions can be simple and rapid, it is not possible to auction multiple licenses simultaneously in an oral auction. We also note that because of the potentially large value of the WCS licenses, an electronic multiple round auction will be preferable because it will permit

³⁵⁵ 47 C.F.R. Part 1, Subpart Q.

³⁵⁶ ADC Comments at 3.

³⁵⁷ Pacific Comments at 4.

³⁵⁸ See *Implementation of Section 309(j) of the Communications Act -- Competitive Bidding*, PP Docket No. 93-253, FCC 94-61, *Second Report and Order*, 9 FCC Rcd at 2348, 2362 (1994) ("*Second Report and Order*").

bidders time between rounds to confer with principals and reassess their valuation models and bidding strategies. We also adopt our proposal to require that bidders submit their bids electronically, rather than by telephone. Given the time constraints imposed by the Appropriations Act, as well as the recent improvements in our electronic bidding software, we believe that telephonic bidding should be permitted only under exceptional circumstances, to be determined by the Wireless Telecommunications Bureau. Finally, we delegate to the Wireless Telecommunications Bureau the discretion to determine whether bidding for the WCS auction will be remote or on-site.

2. Bidding Procedures

167. *Background.* In the *NPRM*, we tentatively concluded that the WCS auction should follow the general competitive bidding procedures of Part 1, Subpart Q of the Commission's Rules. In addition, we proposed to adopt specific provisions regarding certain bidding-related issues. Finally, we asked interested parties to suggest the appropriate level of a minimum opening bid for the WCS license or licenses.

168. *Comments.* Commenters that support spectrum block and service area sizes that would result in large numbers of licenses generally recognize the difficulties involved in completing the WCS auction within the statutorily-prescribed time period, but suggest auction procedures alternative to a minimum opening bid to speed the auction. For example, DigiVox proposes that the Commission speed the auction process by prescribing minimum bids and higher bidding increments in the early stages of the auction and by conducting multiple rounds of bidding early in the auction.³⁵⁹ BellSouth, a proponent of BTA service areas, believes that the Commission should employ "a combination of activity rules, stopping rules, and multiple bidding rounds per day, similar to what was done for the D, E, and F Block PCS auctions."³⁶⁰ Another proponent of BTA service areas believes that the Commission can complete the WCS auction within the time constraints imposed by the Appropriations Act by adopting three rule revisions that it believes would encourage bidders to bid early in the auction on the licenses in which they are interested: (1) a non-simultaneous "stopping" rule under which the Commission would stop taking bids on a particular license if no bids have been submitted for that market after a specified number of rounds; (2) submission of market- and frequency-specific upfront payments rather than a blanket upfront payment that allows a bidder to remain eligible in each round for any combination of markets covered by the entire payment; and (3) increasing the number of bidding rounds per day, taking advantage of the experience that many participants will have acquired in

³⁵⁹ DigiVox Comments at 5 and exhibit 5.

³⁶⁰ BellSouth Comments at 10-11.

earlier auctions.³⁶¹ Another commenter also suggests that the Commission can conduct multiple rounds per day.³⁶²

169. ALLTEL supports the exclusive use of electronic bidding and filing procedures if MTA service areas are used, which it believes will facilitate the administration of an auction for 306 licenses (six 5 MHz blocks over 51 MTAs).³⁶³ AT&T, a proponent of 10 MHz blocks on an MTA basis, believes that an efficient auction can be conducted by: (1) conducting multiple auction rounds per day; (2) setting minimum opening bids high enough to deter speculative bidders; (3) raising the "activity rule" and reducing the number of waivers to the rule granted to each bidder; and (4) imposing short deadlines for petitions to deny, responses thereto, and payment of the balance of winning bids.³⁶⁴ We received no comments suggesting the amount of the minimum opening bid for the WCS auction.

170. *Decision.* We adopt the bidding procedures that we proposed in the *NPRM*. The WCS auction will be conducted using the general bidding procedures set forth in Part 1, Subpart Q of our Rules, with some minor modifications designed to speed the auction in order to comply with the time constraints imposed by the Appropriations Act. Specifically, we delegate to the Wireless Telecommunications Bureau the discretion to establish a minimum opening bid for the WCS licenses and to announce the minimum opening bid by public notice. As we stated in the *NPRM*, a minimum opening bid will cause bidders to start bidding at a substantial fraction of the final price of the license or licenses, thus ensuring that the auction proceeds quickly and increasing the likelihood that the public receives fair market value for the license or licenses. In keeping with our obligation under the Appropriations Act to ensure that the auction proceed rapidly, we also delegate to the Wireless Telecommunications Bureau the discretion to establish, raise and lower minimum bid increments in the course of the auction.³⁶⁵ Finally, we conclude that where a tie bid occurs, the high bidder will be determined by the order in which the bids were received by the Commission.

³⁶¹ ADC Comments at 21-22.

³⁶² BANM Comments at 8.

³⁶³ ALLTEL Comments at 4.

³⁶⁴ AT&T Comments at 5-6.

³⁶⁵ See 47 C.F.R. § 1.2104(d).

3. Procedural and Payment Issues

171. In the *NPRM*, we tentatively concluded that, with certain proposed modifications, Subpart Q of Part 1 of the Commission's Rules establishing procedural and payment rules for FCC auctions generally should apply to the WCS auction. Only one commenter addressed these issues. DigiVox contends that to effectively compete in the auctions, many parties (especially small businesses) will need 90 days from the release of the final rules before FCC Forms 175 are due in order to finalize their business plans. DigiVox proposes a schedule that includes commencing the auction on May 2, 1997.³⁶⁶ As we recognized in the *NPRM*, the Appropriations Act requires that the Commission "shall commence the competitive bidding" for WCS licenses no later than April 15, 1997. Although DigiVox urges an interpretation of this requirement that would allow applicants to submit their short-form applications on that date, we conclude that the statute clearly requires that "bidding" commence on April 15, 1997. We therefore will commence the WCS auction on April 15, 1997, and the auction will be conducted in substantial conformity with Subpart Q of Part 1 of the Commission's Rules. We also adopt general rules regarding application and licensing procedures.³⁶⁷

172. Pre-Auction Application Procedures. In the *NPRM*, we proposed that WCS applicants be required to file a short-form application (FCC Form 175) prior to the auction.³⁶⁸ In addition, we tentatively concluded that we should require electronic filing of all applications for this auction. We received no comments addressing this issue. We therefore will implement this proposal. Each bidder in the WCS auction must submit a short-form application (FCC Form 175) by means of electronic filing. As we stated in the *NPRM*, we believe that electronic filing of applications will serve the best interests of auction participants as well as ensure that the WCS auction will be completed within the time frame mandated under the Appropriations Act. We have developed user-friendly electronic filing software and Internet World Wide Web forms to give applicants the ability to easily and inexpensively file and review applications. In addition, we believe that in light of the legislative deadline of April 15, 1997 for commencement of this auction, requiring electronic filing will be helpful to applicants as well as the Commission. By shortening the time required for the Commission to process applications before the auction, electronic filing will increase the lead time available to applicants to finalize their business plans and arrange necessary financing before the short-form filing deadline.

³⁶⁶ DigiVox Comments at 6.

³⁶⁷ See Subpart E of new Part 27.

³⁶⁸ See 47 C.F.R. § 1.2105(a).

173. We also proposed in the *NPRM* that an applicant's electronic submission of FCC Form 175 include a certification that the applicant is not in default on any Commission licenses and that it is not delinquent on any extension of credit from any federal agency. No commenters addressed this issue. We therefore adopt this certification requirement for the WCS auction. As we stated in the *NPRM*, a certification regarding defaulted licenses and delinquent payments to federal agencies will enable us to better evaluate the financial qualifications of potential bidders, because it will allow us to determine whether any bidder may later be subject to a monetary judgment or collection procedures that may impair its financial ability to provide service. In the *Second Report and Order*, we decided that we should require sufficient information on the short-form application to make a determination that "the application is not in violation of Commission Rules and that applications not meeting those requirements may be dismissed prior to the competitive bidding."³⁶⁹ Part of this documentation necessarily includes certification that the bidder has the legal, technical, financial, and other qualifications to bid in the auction.

174. Upfront Payment Amount. The Part 1 Rules require the submission of an upfront payment as a prerequisite to participation in spectrum auctions.³⁷⁰ In the *NPRM*, we proposed to set the amount of the WCS upfront payment based on the general formula we adopted in the *Second Report and Order* of \$.02 per megahertz per population. In addition to seeking comment on this proposal, we asked commenters to suggest alternative methods of establishing an upfront payment, and in particular, how the Commission may estimate the value of the spectrum to be auctioned. We received no comments or alternative suggestions on this issue, so we will adopt our proposed upfront payment for the WCS auction. Given that a range of services may be provided on WCS spectrum, it is difficult to estimate the value of this spectrum. We believe, however, that a \$.02 per megahertz per population upfront payment will serve the twin purposes of upfront payments -- to deter insincere bidding and to provide the Commission with a source of funds to satisfy any bid withdrawal or default payments -- without being so high as to discourage participation in the WCS auction.

175. Procedure For Upfront Payment. We also proposed to require bidders to deposit their upfront payments in our lock-box bank by wire transfer only by a date to be announced by public notice. No commenters addressed this issue. We therefore adopt the requirement that bidders in the WCS auction deposit their upfront payment by wire transfer only. Although in the past we have permitted payment by cashier's check, we believe that requiring payment by wire transfer will benefit bidders by streamlining and expediting the administration of the auction. As we noted in the *NPRM*, our experience has shown that verification of payments remitted to us by cashier's check is time-consuming and cumbersome, and requires the allotment of extra processing

³⁶⁹ *Second Report and Order*, 9 FCC Rcd at 2375.

³⁷⁰ See 47 C.F.R. § 1.2106.

time prior to the start of the auction. Permitting payment by cashier's check would require that upfront payments be made at an earlier point, which would decrease applicants' lead time to pursue business plans and arrange necessary financing before the start of the auction. In addition, given the large number of financial institutions offering wire transfer services, a requirement that bidders remit their upfront payments by wire transfer will result in minimal, if any, extra cost to auction applicants. Such a cost is far outweighed by the benefit of speeding the auction process through quicker verification of payments.

176. Down Payment and Full Payment. In the *NPRM*, we tentatively concluded that to help ensure that auction winners are able to pay the full amount of their bids, every winning bidder in the WCS auction would be required to tender a down payment sufficient to bring its total amount on deposit with the Commission up to 20 percent of its winning bid.³⁷¹ No commenters addressed this issue. We therefore conclude that a down payment equal to 20 percent of each high bidder's total winning bids will be due within 10 business days after the issuance of a public notice announcing the winning bidder for each WCS license.

177. We also proposed that a winning bidder that makes its down payment in a timely manner be required to file an FCC Form 600 long-form application and follow the long-form application procedures in Section 1.2107.³⁷² We proposed that after reviewing the winning bidder's long-form application, and after verifying receipt of the winning bidder's 20 percent down payment, the Commission would announce the application's acceptance for filing, thus triggering the filing window for petitions to deny. We also noted that given the abbreviated auction schedule contemplated by the Appropriations Act, a condensed schedule for the filing of petitions to deny would apply for the WCS auction. No commenters addressed this issue. We therefore adopt our proposals governing long-form application procedures. Winning bidders that have made the necessary down payment will be required to file a modified FCC Form 600 that has been updated to provide for our decision to permit flexibility in terms of permissible uses. Finally, the Appropriations Act provides that no application for a WCS authorization may be granted earlier than seven (7) days following public notice of the acceptance for filing of such an application, and that parties will have no less than five (5) days following such public notice to file a petition to deny.³⁷³ We will therefore afford parties five (5) days to file a response to any petition to deny. If, pursuant to Section 309(d) of the Communications Act, the Commission dismisses or denies any and all petitions to deny, the Commission will announce by public notice that it is prepared to award a license and the winning bidder will then have ten (10) business days to submit the balance of its winning bid. If the bidder does so, the license will be granted. If the bidder fails to submit

³⁷¹ See 47 C.F.R. § 1.2107(b).

³⁷² See 47 C.F.R. § 1.2107.

³⁷³ See Appropriations Act, § 3001(c).

the required down payment or the balance of the winning bid or the license is otherwise denied, we will assess a default payment as discussed *infra*.

178. Amendments and Modifications of Applications. In the *NPRM*, we stated that to encourage maximum bidder participation, applicants should be permitted to amend or modify their short-form applications as provided in Section 1.2105.³⁷⁴ We also noted that in the broadband PCS context, we modified our rules to permit ownership changes that result when consortium investors drop out of bidding consortia, even if control of the consortium changes due to this restructuring.³⁷⁵ No commenters addressed this issue. We therefore adopt the same exception to our rules prohibiting major amendments in the WCS auction.

179. Bid Withdrawal, Default and Disqualification. In the *NPRM*, we tentatively concluded that the withdrawal, default, and disqualification rules for the WCS auction would be based upon the procedures established in our general competitive bidding rules. With regard to bids which are submitted in error, we proposed to apply the guidelines which we recently fashioned to provide for relief from the bid withdrawal payment requirements under certain circumstances.³⁷⁶ No commenters addressed this issue. We therefore adopt these provisions governing bid withdrawal, default and disqualification for the WCS auction.

4. Anti-Collusion Rules

180. In the *NPRM*, we tentatively concluded that the anti-collusion rules which we adopted in the *Second Report and Order*, and which are codified at 47 C.F.R. § 1.2105, should apply to the WCS auction. We received no comments addressing the issue of collusion. We have therefore determined that our rules prohibiting collusive conduct will apply to the WCS auction.

³⁷⁴ 47 C.F.R. § 1.2105.

³⁷⁵ See *Implementation of Section 309(j) of the Communications Act -- Competitive Bidding*, PP Docket No. 93-253, *Fourth Memorandum Opinion and Order*, 9 FCC Rcd 6858, 6868 (1994).

³⁷⁶ See *Atlanta Trunking Associates, Inc. and MAP Wireless L.L.C. Requests to Waive Bid Withdrawal Payment Provisions, Order*, 11 FCC Rcd 17189 (1996), *recon. pending*. See also *Georgia Independent PCS Corporation Request to Waive Bid Withdrawal Payment Provision, Order*, 11 FCC Rcd 13728 (1996), *app. rev. pending*.

5. Treatment of Designated Entities

181. *Background.* Section 309(j) of the Communications Act requires that in promulgating competitive bidding regulations, the Commission "ensure that small businesses, rural telephone companies, and businesses owned by members of minority groups and women [commonly referred to as 'designated entities'] are given the opportunity to participate in the provision of spectrum-based services."³⁷⁷ We stated in the *NPRM* that the allocation which we adopt contemplates that a WCS licensee will have broad flexibility in determining the range of services it will offer, and that licenses will be issued for broad geographic areas. In addition, we noted that our proposed partitioning and disaggregation rules for WCS licensing may provide designated entities with additional opportunities to participate in the provision of WCS service. We therefore asked commenters to address the extent to which potentially high capital costs for constructing WCS systems affect the advisability of adopting specific provisions for designated entities in the WCS auction.

182. We also recognized in the *NPRM* that the Appropriations Act requires that the Commission conduct the WCS auction in a manner that ensures that all proceeds of the bidding are deposited in the Treasury no later than September 30, 1997.³⁷⁸ Because of the expedited procedures imposed by the Appropriations Act, we noted that an entity acquiring a WCS authorization must be prepared to make payment on its full bid amount quickly. Thus, we tentatively concluded that installment payment plans would be an inappropriate mechanism for encouraging designated entity participation in the WCS auction. We sought comment on this tentative conclusion and, in particular, on how Congressional intent concerning designated entities can be effectuated in connection with competitive bidding for WCS licenses. With regard to specific types of designated entities, we sought comment on: (1) specific provisions to ensure the participation of minority and women-owned businesses, including discussion of how such provisions should be crafted to meet the relevant standards of judicial review (strict scrutiny for minorities and intermediate scrutiny for women);³⁷⁹ (2) the appropriate definition for small business to the extent commenters suggest special provisions for small businesses; and (3) whether any special provisions should be afforded to rural telcos.

³⁷⁷ 47 U.S.C. § 309(j)(4)(D). *See also* 47 U.S.C. §§ 309(j)(3)(B) and (j)(4)(A).

³⁷⁸ Appropriations Act, Section 3001(d).

³⁷⁹ *See*, for relevant standards of review, *Adarand Constructors v. Peña*, 115 S.Ct. 2097 (1995) ("*Adarand*") ("[Racial] classifications are constitutional only if they are narrowly tailored measures that further compelling governmental interests"), and *United States v. Virginia*, 116 S.Ct. 2264 (June 26, 1996) ("*VMF*") ("Parties who seek to defend gender-based governmental action must demonstrate an 'exceedingly persuasive justification' for that action").

183. *Comments.* Although we sought comment in the *NPRM* on how provisions to ensure the participation of minority- and women-owned businesses should be crafted to meet those relevant standards of judicial review, the comments that we received did not suggest the institution of provisions specifically benefiting businesses owned by minorities and women, and did not provide specific anecdotal or statistical evidence to develop a record supporting race-based or gender-based WCS auction rules. We did receive several comments suggesting that small business preferences frequently aid minority- and women-owned businesses, without raising substantial constitutional implications.³⁸⁰

184. Most commenters that discussed designated entities advocate bidding credits as a means of ensuring their effective participation.³⁸¹ As for the size of bidding credits to be offered, most commenters agree on a base of the levels offered for broadband PCS (15 percent for small businesses and 25 percent for very small businesses), supplemented by an adjustment in lieu of an installment payment program. Along those lines, for small businesses and very small businesses, CIRI suggests 20 percent and 35 percent, respectively;³⁸² RTG suggests 15 percent and 25 percent;³⁸³ and DigiVox suggests 25 percent and 40 percent.³⁸⁴ Omnipoint suggests a 25 percent bid discount plus an additional 20 percent off the net bid price "as a factor roughly equivalent to the time value of money under the broadband PCS F block installment plan."³⁸⁵ TTS suggests 15 percent for small businesses and rural telcos.³⁸⁶ DigiVox also suggests that, to foster competition and diversity of licensees as required by Section 309(j), an additional 5 percent bidding credit should be awarded to any small business bidder that does not hold a CMRS license in the MTA for which it is bidding.³⁸⁷

185. With respect to eligibility for bidding credits, most commenters suggest that we employ the definitions for small businesses and very small businesses applicable to broadband

³⁸⁰ CIRI Comments at 3; DigiVox Comments at 5, n. 4 ("Over 99 percent of women and minority owned businesses are small businesses").

³⁸¹ CIRI Comments at 10-11; DigiVox Comments at 8-9; TTS Comments at 4; RTG Comments at 10-11; Vanguard Comments at 9; AMTA Reply Comments at 5; NABOB Informal Comments at 6.

³⁸² CIRI Comments at 11.

³⁸³ RTG Comments at 11.

³⁸⁴ DigiVox Comments at 8.

³⁸⁵ Omnipoint Comments at 11-12.

³⁸⁶ TTS Comments at 4.

³⁸⁷ DigiVox Comments at 9.

PCS.³⁸⁸ Vanguard, however, regards those definitions as overly restrictive because they exclude many businesses that, though not "small," are dwarfed by the large entities that won most broadband PCS block A and B licenses or that funded or had substantial equity interests in Block C winners. Vanguard suggests that the Commission expand its definition of small businesses to include entities with up to \$500 million in revenues and \$1.5 billion in assets.³⁸⁹

186. A number of other proposals are also advanced. AT&T and CTIA suggest that designated entities can best be accommodated through band plan determinations, and advocate a band plan that uses 10 MHz blocks (5 MHz pairs) divided geographically into MTAs, believing that this would encourage broad participation by designated entities, who might wish particularly to develop niche or technically innovative services.³⁹⁰ DSBC and SOSCO agree that the use of MTAs will allow small businesses that have identified niche markets to focus their bidding resources on those markets only and to introduce services in those markets relatively quickly.³⁹¹ Other commenters also argue in favor of MTAs, BTAs, and EAs, asserting that designated entities would be priced out of the bidding if nationwide or large regional licensing are used.³⁹² DSBC generally supports smaller bandwidth and service area allocations, believing them likely to improve the opportunities for designated entities to provide services in the proposed WCS band.³⁹³

187. To ensure that designated entities are able to participate in the provision of wireless services in the WCS band, however, DSBC also proposes that the Commission set aside a 5 MHz license in each MTA for designated entities or, alternatively, allow designated entities a 25 percent bidding credit. Some commenters propose that bidding credits be awarded to applicants accommodating and/or offering discounts to public safety users and schools.³⁹⁴ CIRI believes that set-asides of spectrum blocks and installment payments may no longer be effective small business provisions and, instead, recommends that the Commission employ bidding credits along with control group equity requirements (as set forth in 47 C.F.R. § 24.709) and unjust

³⁸⁸ DigiVox Comments at 8; TTS Comments at 4; RTG Comments at 11; CIRI Comments at 9-10 (advocating the adoption of enumerated broadband PCS small business rules as a means of quickly developing a small business regime within the mandated time frame).

³⁸⁹ Vanguard Comments at 9.

³⁹⁰ See AT&T Comments at 2; CTIA Comments at 14.

³⁹¹ DSBC Comments at 8; SOSCO Reply Comments at 5.

³⁹² See, respectively, BANM Comments at 7; CTIA Comments at 14; TTS Comments at 2.

³⁹³ DSBC Comments at 10.

³⁹⁴ RTG Comments at 11; AWWA Comments at 5.

enrichment restrictions (as set forth in 47 C.F.R. § 24.839(d)),³⁹⁵ and afford an exception from affiliation for concerns owned by Alaska Native Corporations and Indian Tribes (as set forth in 47 C.F.R. § 24.720(l)(11)(i)).³⁹⁶ DigiVox contends that the Commission should limit to 98 the total number of WCS licenses for which any party may take advantage of small business bidding credits and other designated entity benefits, believing this limit would prevent any one entity from accumulating too many licenses and would promote the diversity of licensees.³⁹⁷ Finally, three commenters believe that small businesses would benefit from liberal partitioning, disaggregation and franchising rules,³⁹⁸ and one of those suggests that the Commission grant to rural telcos of favorable partitioning and disaggregation rights as compared to other licensees.³⁹⁹

188. *Decision.*

A. Meeting the Constitutional Standards

189. Race- and gender-based classifications must meet exacting standards of judicial review. In *Adarand*, the Supreme Court held that all racial classifications, whether imposed at the federal, state or local government level, must be analyzed by a reviewing court under a strict scrutiny standard of review. This standard requires such classifications to be narrowly tailored to further a compelling governmental interest.⁴⁰⁰ In *VMI*, the Supreme Court reviewed a state program containing gender classification and held it was unconstitutional under an intermediate scrutiny standard of review. This standard requires that "[p]arties who seek to defend gender-based government action must demonstrate an 'exceedingly persuasive justification' for that action."⁴⁰¹ Under this test, the government must show "at least that the [challenged] classification serves 'important governmental objectives and that the discriminatory means employed' are 'substantially related to the achievement of those objectives.'"⁴⁰² While the Supreme Court has

³⁹⁵ CIRI Comments at 10.

³⁹⁶ *Id.* at 12-14 (noting the Commission's previous recognition that such an exception is unaffected by *Adarand*).

³⁹⁷ DigiVox Comments at 10.

³⁹⁸ Vanguard Comments at 4; AMTA Reply Comments at 4; RTG Comments at 11.

³⁹⁹ RTG Comments at 11 (this proposal is addressed more fully in Section III.D.3., *supra*).

⁴⁰⁰ *Adarand*, 115 S. Ct. at 2113.

⁴⁰¹ *VMI*, 116 S. Ct. at 2274 (citing *J.E.B. v. Alabama ex rel. T. B.*, 511 U.S. 127, 136-37 and n. 6 (1994) and *Mississippi Univ. for Women v. Hogan*, 458 U.S. 718, 724 (1982)).

⁴⁰² *Id.* at 2275 (quoting *Mississippi Univ. for Women v. Hogan*, 458 U.S. at 724 (quoting *Wengler v. Druggists Mutual Ins. Co.*, 446 U.S. 142, 150 (1980))).

not directly addressed constitutional challenges to federal gender-based programs since *Adarand* and *VMI*,⁴⁰³ our review of the relevant broad language in *VMI* indicates that the Court does not differentiate between federal and state official actions in its equal protection analysis.⁴⁰⁴ Similarly, the *Adarand* decision definitively eliminated any distinction between federal and state race-based programs in setting its strict scrutiny standard of judicial review.⁴⁰⁵ Therefore, we conclude that any gender-based preference maintained in the WCS auction rules would need to meet the *VMI* intermediate scrutiny standard of review.

190. We believe that the record in this proceeding is insufficient to support race- and gender-based provisions that would survive judicial scrutiny. Moreover, adopting race- and gender-based provisions unsupported by a substantial record would disserve the public interest because it might result in litigation that could further delay the conduct of the auction and the award of WCS licenses, and postpone the introduction of new competition to the marketplace.⁴⁰⁶ We therefore conclude that we should not adopt special auction provisions that are race- and gender-based.

191. While we decline to establish race- and gender-based provisions for the WCS auction rules, we will adopt provisions for small businesses, as suggested by several commenters. We note that nothing in the *Adarand* or *VMI* decisions calls our small business provisions into question. Moreover, by retaining small business preferences, we believe we will fulfill our mandate under Section 309(j) to provide increased opportunities for minority- and women-owned businesses,⁴⁰⁷ because many minority- and women-owned entities are small businesses who therefore will qualify for the same special provisions that would have applied to them under the

⁴⁰³ *But see Lamprecht v. FCC*, 958 F.2d 382, 391, 393 n. 3 (D.C. Cir. 1992), a pre-*Adarand/VMI* decision in which Justice Thomas (a member of the D.C. Circuit panel to which the case was presented) invokes the "exceedingly persuasive justification" standard in striking down a federal gender-preference policy. As the dissent in *Lamprecht* confirmed, Justice Thomas applied "the more exacting scrutiny of Justice O'Connor's dissent [in *Metro*, 497 U.S. at 602-31]," *id.* at 404 (Mikva, C.J., dissenting), which formed the core of Justice O'Connor's majority opinion in *Adarand*.

⁴⁰⁴ "Since [*Reed v. Reed*, 404 U.S. 71 (1971)], the Court has repeatedly recognized that *neither federal nor state government* acts compatibly with the equal protection principle when a law or official policy denies . . . equal opportunity . . ." *VMI*, 116 S. Ct. at 2275 (emphasis added); "To summarize the Court's current directions for cases of *official* classification based on gender: . . . the reviewing court must determine whether the proffered justification is 'exceedingly persuasive.'" *Id.* (emphasis added). See also *Heckler v. Mathews*, 465 U.S. 728, 744-45 (1984) (reviewing a federal statute containing gender classification under the same standard the Court used to review the state statute in *Mississippi Univ. for Women v. Hogan*); *Califano v. Westcott*, 443 U.S. 76, 85 (1979) (same).

⁴⁰⁵ *Adarand*, 115 S. Ct. at 2113.

⁴⁰⁶ We observe that the D.C. Circuit Court of Appeals stayed the broadband PCS C block auction under an intermediate scrutiny standard. *Telephone Electronics Corp. v. FCC*, No. 95-1015 (D.C. Cir. Mar. 15, 1995) (order granting stay).

⁴⁰⁷ 47 U.S.C. § 309(j)(3).

previous rules.⁴⁰⁸

192. We also have initiated a comprehensive rule making proceeding to gather evidence regarding market barriers to entry faced by small businesses as well as minority- and women-owned firms.⁴⁰⁹ If a sufficient record is adduced that will support race- and gender-based provisions that will satisfy judicial scrutiny, we will consider race- and gender-based provisions for future auctions. Toward this end, we will continue to request bidder information on the WCS short-form filings as to minority- or women-owned status. In our analysis of the applicant pool and the auction results, we will monitor whether we have accomplished substantial participation by minorities and women through the broad provisions available to small businesses. This will also assist us in preparing our report to Congress on the success of designated entities in auctions.⁴¹⁰

B. Special Provisions for Designated Entities

i. Bidding Credits

193. We will adopt bidding credits for small businesses and will adopt a tiered bidding credit approach, as supported by several commenters. We agree with commenters that the availability of bidding credits is consistent with our obligations under Section 309(j) to "promote economic opportunity for a wide variety of applicants, including small businesses and businesses owned by minorities and women." We believe that a tiered approach, which enhances the discounting effect of bidding credits because not all entities receive the same benefit, will encourage smaller businesses to participate in the provision of WCS services. As for the level of the credits, we believe that bidding credits of 25 percent for small businesses and 35 percent for very small businesses are appropriate. These levels reflect the thresholds used in the broadband PCS auctions with a reasonable adjustment for the unavailability of installment payment plans for WCS licensees. It is difficult to accurately calculate the net present value of an installment program (which value would depend on several variables including future commercial interest rates), and we therefore are adjusting the broadband PCS bidding credit levels upward by ten percentage points. We believe that this tiered bidding credit approach and 10 percent adjustment are reasonable and consistent with the comments. These credits are narrowly tailored to the varying abilities of businesses to access capital and also take into account that different small

⁴⁰⁸ See generally *1992 Survey of Minority-Owned Business Enterprises*, Agriculture and Financial Statistics Division, Bureau of the Census, U.S. Department of Commerce (December 11, 1995); *1992 Survey of Women-Owned Businesses*, Agriculture and Financial Statistics Division, Bureau of the Census, U.S. Department of Commerce (January 29, 1996).

⁴⁰⁹ See *Section 257 Proceeding to Identify and Eliminate Market Entry Barriers for Small Businesses*, GN Docket No. 96-113, *Notice of Inquiry*, 11 FCC Rcd 6280 (1996). See also 47 U.S.C. § 257.

⁴¹⁰ See 47 U.S.C. § 309(j)(12)(D).

businesses will pursue different strategies.

ii. Definition of Small Business

194. Consistent with the suggestions of many of the commenters, we will generally employ the small business definitions and standards used in broadband PCS, which we believe have the advantages of ready availability and familiarity to many small businesses that might be interested in this spectrum. We will therefore define a "small business" as an entity with average gross revenues not exceeding \$40 million for each of the preceding three years, and a "very small business" as an entity with average gross revenues not exceeding \$15 million in each of the preceding three years. We decline to adopt the higher revenue standard suggested by Vanguard because we do not believe that Congress, in enacting Section 309(j), intended for firms with \$500 million in revenue to be regarded as "small". Furthermore, adopting Vanguard's suggested standard would create severe disparities between "small businesses" in terms of capitalization and access to financing.

195. In determining whether an entity qualifies as a small business at either threshold, we will consider the gross revenues of the applicant, its affiliates, and certain investors in the applicant. Specifically, we will attribute the gross revenues of all controlling principals in the applicant as well as the gross revenues of affiliates of the applicant.⁴¹¹ Consistent with broadband PCS rules, we apply two notable exceptions to these attribution rules. First, we determine that personal net worth is not included in the determination of eligibility for bidding as a small business.⁴¹² Second, we agree with CIRI that entities owned by Alaska Native Corporations and Indian Tribes are exempt from affiliation for purposes of determining eligibility of applicants for bidding credits, because of the general lack of availability of revenues from such entities for purposes of participation in WCS. This exception is consistent with treatment afforded such entities by the Small Business Administration's 8(a) program,⁴¹³ and as we have previously determined, we do not believe such a provision to be affected by *Adarand*.⁴¹⁴

⁴¹¹ We note that with respect to spousal attribution, we will follow the policies adopted in the broadcasting context in *In re Clarification of Commission Policies Regarding Spousal Attribution*, 7 FCC Rcd 1920 (1992).

⁴¹² See, e.g., *Implementation of Section 309(j) of the Communications Act -- Competitive Bidding*, PP Docket No. 93-253, *Fifth Memorandum Opinion and Order*, 10 FCC Rcd 403, 421 (¶ 30) (1994) ("*Competitive Bidding Fifth Memorandum Opinion and Order*").

⁴¹³ See 13 C.F.R. § 124.112(c)(2)(iii).

⁴¹⁴ See *Implementation of Section 309(j) of the Communications Act -- Competitive Bidding*, PP Docket No. 93-253, *Sixth Report and Order*, 11 FCC Rcd 136, 155-56 (1995) ("Although Indian tribes are minorities under our C block auction rules, we conclude that their affiliation rule exception is different from the exception applicable only to minority investors in that it is premised on the unique legal status of Indian tribes as recognized in the 'Indian Commerce Clause' of the United States Constitution").

196. We decline, however, to employ the specific control group equity requirements that we adopted for broadband PCS,⁴¹⁵ because the time frame for the conduct of the WCS auction is likely to be too short to allow for the creation of the type of complex financial relationships as arose in the broadband PCS context. Instead, we will simply define the term "control" to include both *de jure* and *de facto* control of the applicant.⁴¹⁶ However, we will still require that, in order for an applicant to qualify as a small business, qualifying small business principals must maintain "control" of the applicant. We also note that while we are not imposing specific equity requirements on the small business principals, the absence of significant equity could raise questions about whether the applicant qualifies as a *bona fide* small business.

iii. Unjust Enrichment

197. We agree with CIRC on the employment of an unjust enrichment restriction on the transfer of licenses acquired by small businesses, similar to that set forth in 47 C.F.R. § 24.839(d), which we believe necessary to ensure that meaningful small business participation is not thwarted by transfers of licenses to non-designated entities. To permit otherwise would severely impede the meaningful participation of designated entities because bidders could participate as small businesses with the intention not of providing service but only of profiting from the difference in the discounted auction price and the worth of the license on the resale market. To prevent unjust enrichment by small businesses transferring licenses acquired through the use of bidding credits, we impose a payment requirement on transfers of such licenses to entities that are not owned by small businesses. We believe it is appropriate to conform our unjust enrichment rules for WCS to the broadband PCS unjust enrichment rules as they relate to bidding credits. These rules provide that, during the initial license term, licensees utilizing bidding credits and seeking to assign or transfer control of a license to an entity that does not meet the eligibility criteria for bidding credits will be required to reimburse the government for the amount of the bidding credit before the transfer will be permitted.⁴¹⁷ Additionally, the rules which we now adopt provide that if, within the original term, a licensee applies to assign or transfer control of a license to an entity that is eligible for a lower bidding credit, the difference between the bidding credit obtained by the assigning party and the bidding credit for which the acquiring party would qualify must be paid to

⁴¹⁵ See 47 C.F.R. § 24.709.

⁴¹⁶ Typically, *de jure* control is evidenced by ownership of 50.1 percent of an entity's voting stock. *De facto* control is determined on a case-by-case basis. An entity must demonstrate at least the following indicia of control to establish that it retains *de facto* control of the applicant: (1) the entity constitutes or appoints more than 50 percent of the board of directors or partnership management committee; (2) the entity has authority to appoint, promote, demote and fire senior executives that control the day-to-day activities of the licensees; and (3) the entity plays an integral role in all major management decisions. See *Competitive Bidding Fifth Memorandum Opinion and Order, supra*, at ¶ 80.

⁴¹⁷ 47 C.F.R. § 24.716(d)(1).

the United States Treasury as a condition of approval of the assignment or transfer.⁴¹⁸ These provisions also will apply to WCS licensees who partition or disaggregate their licenses.

198. If a licensee that utilizes bidding credits seeks to make any change in ownership structure that would render the licensee ineligible for bidding credits, or eligible only for a lower bidding credit, the licensee must first seek Commission approval and reimburse the government for the amount of the bidding credit, or the difference between its original bidding credit and the bidding credit for which it is eligible after the ownership change, plus interest based on the rate for ten year U.S. Treasury obligations applicable on the date the license is granted. Additionally, if an investor subsequently purchases an interest in the business and, as a result, the gross revenues of the business exceed the applicable financial caps, this unjust enrichment provision will apply.

199. The amount of this payment will be reduced over time as follows: (1) a transfer in the first five years of the license term will result in a forfeiture of 100 percent of the value of the bidding credit (or, in the case of very small businesses transferring to small businesses, 100 percent of the difference between the bidding credit received by the former and the bidding credit for which the latter is eligible); (2) in year six of the license term the payment will be 80 percent; (3) in year seven the payment will be 60 percent; in year eight the payment will be 40 percent; and in year nine the payment will be 20 percent, after which there will be no required payment. These assessments will have to be paid to the U.S. Treasury as a condition of approval of the assignment, transfer, or ownership change.

⁴¹⁸ 47 C.F.R. § 24.716(d)(2). *See also* 47 C.F.R § 1.2111.

iv. Other Matters

200. Based upon the record in this proceeding, we have determined that special provisions for rural telcos are not warranted. However, rural telcos can take advantage of the geographic partitioning and spectrum disaggregation provisions which we adopt, and those rural telcos that qualify as small or very small businesses may take advantage of our tiered bidding credits. In addition, we decline to afford an additional bidding credit, as suggested by DigiVox, to small businesses bidding in areas in which they hold no CMRS licenses. We believe that such preferences might discourage small businesses from acquiring WCS spectrum as supplemental for CMRS services already offered in that geographic license area, which would run counter to our goal of flexible use. We also decline to adopt any limit on the total number of WCS licenses for which an entity may take advantage of small business bidding credits. We do not regard such limitation as necessary and generally believe that, absent a strong justification to do otherwise, the auction process should be permitted to work without constraint to allow all bidders to express their valuations of the licenses up for bid. Finally, we also decline to set aside a block of licenses for auction only to designated entities because we do not believe such set-asides to be necessary to ensure opportunities for participation by designated entities in light of the substantial bidding credits, as well as the partitioning and disaggregation rules we are adopting.

201. We also note that our decision both to license WCS in two 10 MHz blocks and two 5 MHz blocks, and to designate MEA and REAG service areas⁴¹⁹ should increase the opportunities for participation in WCS by small businesses and other designated entities. These decisions will help to ensure that the cost of obtaining WCS spectrum remains within reach of a larger number of prospective applicants than would be the case were we to offer only one or two licenses in each area. In addition, by offering licenses for smaller blocks of spectrum, we will enable WCS applicants to acquire only the amount of spectrum necessary to implement their particular service plans. Such efficiencies directly benefit small businesses who may not be able to afford to acquire larger blocks of spectrum. For example, permitting bidders to acquire smaller blocks of spectrum will enable small businesses that have identified niche markets to focus their bidding and avoid paying for more spectrum than they actually need.

IV. PROCEDURAL MATTERS

202. Authority. This action is taken pursuant to Sections 4(i), 7(a), 303(c), 303(f), 303(g), and 303(r) of the Communications Act of 1934, as amended, 47 U.S.C. Sections 154(i), 157(a), 303(c), 303(f), 303(g), and 303(r) and the Omnibus Consolidated Appropriations Act, 1997, P.L. 104-208, 110 Stat. 3009 (1996).

⁴¹⁹ See Sections III.A.2 and 3, *supra*.

203. Accordingly, IT IS ORDERED that the Commission's Rules are amended to establish Part 27, the Wireless Communications Service (WCS), as set forth in Appendix B, and that, in accordance with the Omnibus Consolidated Appropriations Act, 1997, P.L. 104-208, 110 Stat. 3009 (1996), these Rules shall be effective immediately upon publication in the Federal Register.

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

FEDERAL COMMUNICATIONS COMMISSION

William F. Caton
Acting Secretary

APPENDIX A
LIST OF COMMENTS AND REPLY COMMENTS⁴²⁰

Comments

1. ADC Telecommunications, Inc. (ADC)
2. Aerospace and Flight Test Radio Coordinating Council (AFTRCC)
3. AirTouch Communications, Inc. (AirTouch)
4. Alcatel Network Systems, Inc. (ANS)
5. ALLTEL Mobile Communications, Inc. (ALLTEL)
6. American Mobile Radio Corp. (AMRC)
7. American Petroleum Institute (API)
8. American Radio Relay League, Inc. (ARRL)
9. American Water Works Association (AWWA)
10. Association of American Railroads (AAR)
11. Association of Public-Safety Communications Officials-International, Inc. (APCO)
12. AT&T Wireless Services, Inc. (AT&T)
13. Bell Atlantic NYNEX Mobile, Inc. (BANM)
14. Bell Communications Research, Inc. (Bellcore)
15. BellSouth Corp. (BellSouth)
16. Cellular Telecommunications Industry Association (CTIA)
17. Competition Policy Institute (CPI)
18. Consumer Electronics Manufacturers Association (CEMA)
19. Cook Inlet Region, Inc. (CIRI)
20. Digital Satellite Broadcasting Corp. (DSBC)
21. DigiVox Corp. (DigiVox)
22. DSC Communications Corp. (DSC)
23. Florida Cellular RSA, L.P. (Florida Cellular)
24. GTE Service Corp. (GTE)
25. Guam Telephone Authority (GTA)
26. Harris Corp. - Farinon Division (Harris)
27. Industrial Telecommunications Association, Inc. (ITA)
28. Interactive Services Association (ISA)
29. Lucent Technologies, Inc. (Lucent)
30. Markle Foundation (Markle Foundation)
31. Motorola Inc. (Motorola)
32. Multipoint Networks, Inc. (Multipoint Networks)

⁴²⁰ The names of all parties are abbreviated as they refer to themselves in their comments.

33. National Association of Broadcasters (NAB)
34. Omnipoint Corp. (Omnipoint)
35. Pacific Telesis Group (Pacific)
36. PACS Providers Forum (PPF)
37. Personal Communications Industry Association (PCIA)
38. Petroleum Communications, Inc. (PetroCom)
39. Pocket Communications, Inc. (Pocket)
40. PrimeCo Personal Communications, L.P. (PrimeCo)
41. Primosphere L.P. (Primosphere)
42. Puerto Rico Telephone Co. (PRTC)
43. Radio Order Corp. (ROC)
44. Rural Telecommunications Group (RTG)
45. Satellite Industry Association (SIA)
46. SBC Communications Inc. (SBC)
47. Shell Offshore Services Co. (SOSCO)
48. Sprint Spectrum L.P., d/b/a Sprint PCS and Sprint Corp. (Sprint PCS/Sprint)
49. Sun Microsystems, Inc. (Sun Microsystems)
50. Telecommunications Industry Association (TIA)
51. Telephone and Data Systems, Inc. (TDS)
52. 21st Century Telesis, Inc. (21st Century)
53. UTC, The Telecommunications Association (UTC)
54. Vanderbilt University (Vanderbilt)
55. Vanguard Cellular Systems, Inc. (Vanguard)

Reply Comments

1. Aerospace and Flight Test Radio Coordinating Council (AFTRCC)
2. Alcatel Network Systems, Inc. (ANS)
3. Alliance for Public Technology (APT)
4. American Mobile Telecommunications Association, Inc. (AMTA)
5. Ameritech (Ameritech)
6. Association of American Railroads (AAR)
7. Association of Public-Safety Communications Officials-International, Inc. (APCO)
8. AT&T Wireless Services, Inc. (AT&T)
9. Bell Atlantic Corp. (Bell Atlantic)
10. Cellular Telecommunications Industry Association (CTIA)
11. Comcast Corp. (Comcast)
12. Cornell University (Cornell)
13. Digital Satellite Broadcasting Corp. (DSBC)
14. DigiVox Corp. (DigiVox)

15. GTE Service Corp. (GTE)
16. Mobile Communications Technologies, Inc. (Mtel)
17. National Association of Black Owned Broadcasters (NABOB)
18. National Association of Broadcasters (NAB)
19. Nextel Communications, Inc. (Nextel)
20. NextWave Telecom Inc. (NextWave)
21. Northern Telecom Inc. (Nortel)
22. Omnipoint Corp. (Omnipoint)
23. Personal Communications Industry Association (PCIA)
24. Petroleum Communications, Inc. (PetroCom)
25. PrimeCo Personal Communications, L.P. (PrimeCo)
26. Primosphere L.P. (Primosphere)
27. Puerto Rico Telephone Co. (PRTC)
28. Rural Telecommunications Group (RTG)
29. Satellite CD Radio, Inc. (CD Radio)
30. SBC Communications Inc. (SBC)
31. Shell Offshore Services Co. (SOSCO)
32. Springwich Cellular L.P., SNET Cellular, Inc. and SNET Mobility, Inc. (SNET Mobility)
33. Sprint Spectrum L.P., d/b/a Sprint PCS and Sprint Corp. (Sprint PCS/Sprint)
34. Telecommunications Industry Association (TIA)
35. Telephone and Data Systems, Inc. (TDS)
36. Total Telecommunications Services, Inc. (TTS)
37. United States Internet Providers Association (USIPA)
38. UTC, The Telecommunications Association (UTC)

Appendix B Final Rules

Parts 1, 2, 27, and 97 of title 47 of the Code of Federal Regulations are amended as follows:

PART 1 -- PRACTICE AND PROCEDURE

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

AUTHORITY: 47 U.S.C. sections 151, 154, 303, and 309(j) unless otherwise noted.

2. Paragraph (b)(1) and the first sentence of paragraph (b)(2) of section 1.1307 and the entries for the Wireless Communications Service in the Table are revised to read as follows:

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

* * * * *

(b) * * *

(1) The exposure limits in section 1.1310 are generally applicable to all facilities, operations and transmitters regulated by the Commission. However, a determination of compliance with the exposure limits in section 1.1310 (routine environmental evaluation), and preparation of an EA if the limits are exceeded, is necessary only for facilities, operations and transmitters that fall into the categories listed in Table 1, or those specified in paragraph (b)(2) of this section. All other facilities, operations and transmitters are categorically excluded from making such studies or preparing an EA, except as indicated in paragraphs (c) and (d) of this section. For purposes of Table 1, "rooftop" means the roof or otherwise outside, topmost level or levels of a building structure that is occupied as a workplace or residence and where either workers or the general public may have access. The term "power" in column 2 of Table 1 refers to total operating power of the transmitting operation in question in terms of effective radiated power (ERP), equivalent isotropically radiated power (EIRP), or peak envelope power (PEP), as defined in section 2.1 of this chapter. For the case of the Cellular Radiotelephone Service, subpart H of part 22 of this chapter; the Personal Communications Service, part 24 of this chapter; the Wireless Communications Service, part 27 of this chapter; and covered Specialized Mobile Radio Service operations, part 90 of this chapter; the phrase "total power of all channels" in column 2 of Table 1 means the sum of the ERP or EIRP of all co-located simultaneously operating transmitters of the facility. When applying the criteria of Table 1, radiation in all directions should be considered. For the case of transmitting facilities using sectorized transmitting antennas, applicants and licensees should apply the criteria to all transmitting channels in a given sector, noting

that for a highly directional antenna there is relatively little contribution to ERP or EIRP summation for other directions.

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)	total power of all channels > 1000 W ERP (1640 W EIRP)
*	*

* Note: * * *

(2) Mobile and portable transmitting devices that operate in the Cellular Radiotelephone Service, the Personal Communications Services, the Satellite Communications Services, the Wireless Communications Service, the Maritime Services (ship earth stations only), and covered Specialized Mobile Radio Service providers authorized under subpart H of part 22, part 24, part 25, part 27, part 80, and part 90 of this chapter are subject to routine environmental evaluation for RF exposure prior to equipment authorization or use, as specified in sections 2.1091 and 2.1093 of this chapter. * * *

* * * * *

3. Section 2.1091 is amended by revising the first sentence in paragraph (c) to read as follows:

§ 2.1091 Radiofrequency radiation exposure evaluation: mobile and unlicensed devices.

* * * * *

(c) Mobile devices that operate in the Cellular Radiotelephone Service, the Personal Communications Services, the Satellite Communications Services, the Wireless Communications Service, the Maritime Services and the Specialized Mobile Radio Service authorized under subpart H of part 22 of this chapter, part 24 of this chapter, part 25 of this chapter, part 27 of this chapter, part 80 of this chapter (ship earth station devices only) and part 90 of this chapter ("covered" SMR devices only, as defined in the note to Table 1 of section 1.1307(b)(1) of this chapter), are subject to routine environmental evaluation for RF exposure prior to equipment authorization or use if their effective radiated power (ERP) is 1.5 watts or more. * * *

* * * * *

4. Section 2.1093 is amended by revising the first sentence of paragraph (c) to read as follows:

§ 2.1093 Radiofrequency radiation exposure evaluation: portable devices.

* * * * *

(c) Portable devices that operate in the Cellular Radiotelephone Service, the Personal Communications Services, the Satellite Communications services, the Wireless Communications Service, the Maritime Services and the Specialized Mobile Radio Service authorized under subpart H of part 22 of this chapter, part 24 of this chapter, part 25 of this chapter, part 27 of this chapter, part 80 of this chapter (ship earth station devices only), part 90 of this chapter ("covered" SMR devices only, as defined in the note to Table 1 of section 1.1307(b)(1) of this chapter), and portable unlicensed personal communication service and millimeter wave devices authorized under section 15.253, section 15.255 or subpart D of part 15 of this chapter are subject to routine environmental evaluation for RF exposure prior to equipment authorization or use. * * *

* * * * *

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

1. The authority citation for part 2 continues to read as follows:

AUTHORITY: Sections 4, 302, 303, and 307 of the Communications Act of 1934, as amended, 47 U.S.C. sections 154, 302, 303 and 307, unless otherwise noted.

2. Section 2.106, the Table of Frequency Allocations, is amended as follows:

- a. Remove the existing entries for 2300-2450 MHz.
- b. Add entries in numerical order for 2300-2450 MHz.
- c. In the International Footnotes under heading I., add footnotes S5.150, S5.282, S5.393, S5.394, S5.395, and S5.396 in numerical order.
- d. In the International Footnotes under heading II., remove footnotes 750B, 751, 751A, and 751B.
- e. Remove United States footnote US253.
- f. Add United States footnotes US338 and US339 in numerical order.

- g. Revise United States footnotes US276 and US328.
- h. Revise Government footnote G2.
- i. Add Government footnotes G120, G123 and G124 in numerical order.

The revisions and additions read as follows:

§ 2.106 Table of Frequency Allocations.

* * * * *

International table			United States table		FCC use designators	
Region 1 -- allocation MHz	Region 2 -- allocation MHz	Region 3 -- allocation MHz	Government	Non-Government	Rule part(s)	Special-use frequencies
(1)	(2)	(3)	Allocation MHz (4)	Allocation MHz (5)	(6)	(7)
*	*	*	*	*	*	*
2300 – 2305 FIXED MOBILE Amateur Radiolocation	2300 – 2305 FIXED MOBILE RADIOLOCATION Amateur S5.394	2300 – 2305 FIXED MOBILE RADIOLOCATION Amateur	2300 – 2305 G123	2300 – 2305 Amateur	Amateur (97)	
2305 – 2310 FIXED MOBILE Amateur Radiolocation	2305 – 2310 FIXED MOBILE RADIOLOCATION Amateur S5.394	2305 – 2310 FIXED MOBILE RADIOLOCATION Amateur	2305 – 2310 US338 G123	2305 – 2310 FIXED MOBILE except aeronautical mobile RADIOLOCATION Amateur US338	WIRELESS COMMUNICATIONS (27) Amateur (97)	
2310 – 2320 FIXED MOBILE Amateur Radiolocation S5.395	2310 – 2320 FIXED MOBILE RADIOLOCATION Amateur S5.393 S5.394 S5.396	2310 – 2320 FIXED MOBILE RADIOLOCATION Amateur S5.393 S5.396	2310 – 2320 Fixed Mobile US339 Radiolocation G2 S5.396 US327 US338 G120	2310 – 2320 BROADCASTING- SATELLITE US327 FIXED MOBILE US339 RADIOLOCATION S5.396 US338	WIRELESS COMMUNICATIONS (27)	Digital Audio Radio Services
2320 – 2345 FIXED MOBILE Amateur Radiolocation S5.395	2320 – 2345 FIXED MOBILE RADIOLOCATION Amateur S5.393 S5.394 S5.396	2320 – 2345 FIXED MOBILE RADIOLOCATION Amateur S5.393 S5.396	2320 – 2345 Fixed Mobile US276 Radiolocation G2 S5.396 US327 US328 G120	2320 – 2345 BROADCASTING- SATELLITE US327 Mobile US276 US328 S5.396		Digital Audio Radio Services

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2345- 2360 FIXED MOBILE Amateur Radiolocation S5.395	2345 - 2360 FIXED MOBILE RADIOLOCATION Amateur S5.393 S5.394 S5.396	2345 - 2360 FIXED MOBILE RADIOLOCATION Amateur S5.393 S5.396	2345 - 2360 Fixed Mobile US339 Radiolocation G2 S5.396 US327 G120	2345 - 2360 BROADCASTING- SATELLITE US327 FIXED MOBILE US339 RADIOLOCATION S5.396	WIRELESS COMMUNICATIONS (27)	Digital Audio Radio Services
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International table			United States table		FCC use designators	
Region 1 -- allocation MHz	Region 2 -- allocation MHz	Region 3 -- allocation MHz	Government	Non-Government	Rule part(s)	Special-use frequencies
(1)	(2)	(3)	Allocation MHz (4)	Allocation MHz (5)	(6)	(7)
2360 – 2390 FIXED MOBILE Amateur Radiolocation	2360 – 2390 FIXED MOBILE RADIOLOCATION Amateur S5.394	2360 – 2390 FIXED MOBILE RADIOLOCATION Amateur	2360 – 2390 MOBILE US276 RADIOLOCATION G2 Fixed G120	2360 – 2390 MOBILE US276		
2390 – 2400 FIXED MOBILE Amateur Radiolocation	2390 – 2400 FIXED MOBILE RADIOLOCATION Amateur S5.394	2390 – 2400 FIXED MOBILE RADIOLOCATION Amateur	2390 – 2400 G122	2390 – 2400 AMATEUR	AMATEUR (97) Radio Frequency Devices (15)	
2400 – 2402 FIXED MOBILE Amateur Radiolocation S5.150 S5.282	2400 – 2402 FIXED MOBILE RADIOLOCATION Amateur S5.150 S5.282 S5.394	2400 – 2402 FIXED MOBILE RADIOLOCATION Amateur S5.150 S5.282	2400 – 2402 S5.150 G123	2400 – 2402 Amateur S5.150 S5.282	Amateur (97)	
2402 – 2417 FIXED MOBILE Amateur Radiolocation S5.150 S5.282	2402 – 2417 FIXED MOBILE RADIOLOCATION Amateur S5.150 S5.282 S5.394	2402 – 2417 FIXED MOBILE RADIOLOCATION Amateur S5.150 S5.282	2402 – 2417 S5.150 G122	2402 – 2417 AMATEUR S5.150 S5.282	AMATEUR (97) Radio Frequency Devices (15)	

2417 – 2450 FIXED MOBILE Amateur Radiolocation S5.150 S5.282	2417 – 2450 FIXED MOBILE RADIOLOCATION Amateur S5.150 S5.282 S5.394	2417 – 2450 FIXED MOBILE RADIOLOCATION Amateur S5.150 S5.282	2417 – 2450 Radiolocation G2 S5.150 S5.282 G124	2417 – 2450 Amateur S5.150 S5.282	Amateur (97)	
*	*	*	*	*	*	*

INTERNATIONAL FOOTNOTES

* * * * *

I. New "S" Numbering Scheme.

* * * * *

S5.150 The following bands:

13533-13567 kHz (centre frequency 13560 kHz),
26957-27283 kHz (centre frequency 27120 kHz),
40.66-40.70 MHz (centre frequency 40.68 MHz),
902-928 MHz in Region 2 (centre frequency 915 MHz),
2400-2500 MHz (centre frequency 2450 MHz),
5725-5875 MHz (centre frequency 5800 MHz), and
24-24.25 GHz (centre frequency 24.125 GHz)

are also designated for industrial, scientific and medical (ISM) applications. Radiocommunication services operating within these bands must accept harmful interference which may be caused by these applications. ISM equipment operating in these bands is subject to the provisions of No. 1815/S15.13.

S5.282 In the bands 435-438 MHz, 1260-1270 MHz, 2400-2450 MHz, 3400-3410 MHz (in Regions 2 and 3 only) and 5650-5670 MHz, the amateur-satellite service may operate subject to not causing harmful interference to other services operating in accordance with the Table (see No. S5.43). Administrations authorizing such use shall ensure that any harmful interference caused by emissions from a station in the amateur-satellite service is immediately eliminated in accordance with the provisions of No. 2741/S25.11. The use of the bands 1260-1270 MHz and 5650-5670 MHz by the amateur-satellite service is limited to the Earth-to-space direction.

* * * * *

S5.393 Additional allocation: in the United States and India, the band 2310-2360 MHz is also allocated to the broadcasting-satellite service (sound) and complementary terrestrial sound broadcasting service on a primary basis. Such use is limited to digital audio broadcasting and is subject to the provisions of Resolution 528 (WARC-92).

S5.394 In the United States, the use of the band 2300-2390 MHz by the aeronautical mobile service for telemetry has priority over other uses by the mobile services. In Canada, the use of the band 2300-2483.5 MHz by the aeronautical mobile service for telemetry has priority over other uses by the mobile services.

S5.395 In France, the use of the band 2310-2360 MHz by the aeronautical mobile service for telemetry has priority over other uses by the mobile service.

S5.396 Space stations of the broadcasting-satellite service in the band 2310-2360 MHz operating in accordance with No. S5.393 that may affect the services to which this band is allocated in other countries shall be coordinated and notified in accordance with Resolution 33. Complementary terrestrial broadcasting stations shall be subject to bilateral coordination with neighboring countries prior to their bringing into use.

* * * * *

UNITED STATES (US) FOOTNOTES

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US276 Except as otherwise provided for herein, use of the bands 2320-2345 and 2360-2390 MHz by the mobile service is limited to aeronautical telemetering and associated telecommand operations for flight testing of manned or unmanned aircraft, missiles or major components thereof. The following four frequencies are shared on a co-equal basis by Government and non-Government stations for telemetering and associated telecommand operations of expendable and reusable launch vehicles whether or not such operations involve flight testing: 2332.5, 2364.5, 2370.5, and 2382.5 MHz. All other mobile telemetering uses shall be secondary to the above uses.

* * * * *

US328 In the band 2320-2345 MHz, the mobile and radiolocation services are allocated on a primary basis until a broadcasting-satellite (sound) service has been brought into use in such a manner as to affect or be affected by the mobile and radiolocation services in those service areas. The broadcasting-satellite (sound) service during implementation should also take cognizance of the expendable and reusable launch vehicle frequency 2332.5 MHz, to minimize the impact on this mobile service use to the extent possible.

* * * * *

US338 In the 2305-2310 MHz band, space-to-Earth operations are prohibited. Additionally, in the 2305-2320 MHz band, all Wireless Communications Service (WCS) operations within 50 kilometers of 35°20' North Latitude and 116° 53' West Longitude shall be coordinated through the Frequency Assignment Subcommittee of the Interdepartment Radio Advisory Committee in order to minimize harmful interference to NASA's Goldstone Deep Space facility.

US339 The bands 2310-2320 and 2345-2360 MHz are also available for aeronautical telemetering and associated telecommand operations for flight testing of manned or unmanned aircraft, missiles or major components thereof on a secondary basis to the Wireless Communications Service. The following two frequencies are shared on a co-equal basis by Government and non-Government stations for telemetering and associated telecommand operations of expendable and re-usable launch vehicles whether or not such operations involve flight testing: 2312.5 and 2352.5 MHz. Other

mobile telemetering uses may be provided on a non-interference basis to the above uses. The broadcasting-satellite (sound) service during implementation should also take cognizance of the expendable and reusable launch vehicle frequencies 2312.5 and 2352.5 MHz, to minimize the impact on this mobile service use to the extent possible.

* * * * *

GOVERNMENT FOOTNOTES

* * * * *

G2 In the bands 216-225, 420-450 (except as provided by US217), 890-902, 928-942, 1300-1400, 2310-2390, 2417-2450, 2700-2900, 5650-5925, and 9000-9200 MHz, the Government radiolocation is limited to the military services.

* * * * *

G120 Development of airborne primary radars in the band 2310-2390 MHz with peak transmitter power in excess of 250 watts for use in the United States is not permitted.

* * * * *

G123 The bands 2300-2310 and 2400-2402 MHz were identified for reallocation, effective August 10, 1995, for exclusive non-Government use under Title VI of the Omnibus Budget Reconciliation Act of 1993. Effective August 10, 1995, any Government operations in these bands are on a non-interference basis to authorized non-Government operations and shall not hinder the implementation of any non-Government operations.

G124 The band 2417-2450 MHz was identified for reallocation, effective August 10, 1995, for mixed Government and non-Government use under Title VI of the Omnibus Budget Reconciliation Act of 1993.

3. Section 2.1091 is amended by revising the first sentence in paragraph (c) to read as follows

§ 2.1091 Radiofrequency radiation exposure evaluation: mobile and unlicensed devices.

* * * * *

(c) Mobile devices that operate in the Cellular Radiotelephone Service, the Personal Communications Services, the Satellite Communications Services, the Wireless Communications Service, the Maritime Services and the Specialized Mobile Radio Service authorized under subpart H of part 22 of this chapter, part 24 of this chapter, part 25 of this chapter, part 27 of this

chapter, part 80 of this chapter (ship earth station devices only) and part 90 of this chapter ("covered" SMR devices only, as defined in the note to Table 1 of section 1.1307(b)(1) of this chapter), are subject to routine environmental evaluation for RF exposure prior to equipment authorization or use if their effective radiated power (ERP) is 1.5 watts or more. * * *

* * * * *

4. Section 2.1093 is amended by revising the first sentence of paragraph (c) to read as follows:

§ 2.1093 Radiofrequency radiation exposure evaluation: portable devices.

* * * * *

(c) Portable devices that operate in the Cellular Radiotelephone Service, the Personal Communications Services, the Satellite Communications services, the Wireless Communications Service, the Maritime Services and the Specialized Mobile Radio Service authorized under subpart H of part 22 of this chapter, part 24 of this chapter, part 25 of this chapter, part 27 of this chapter, part 80 of this chapter (ship earth station devices only), part 90 of this chapter ("covered" SMR devices only, as defined in the note to Table 1 of section 1.1307(b)(1) of this chapter), and portable unlicensed personal communication service and millimeter wave devices authorized under section 15.253, section 15.255 or subpart D of part 15 of this chapter are subject to routine environmental evaluation for RF exposure prior to equipment authorization or use. * * *

* * * * *

5. A new part 27 is added to read as follows:

PART 27 -- WIRELESS COMMUNICATIONS SERVICE

Subpart A -- General Information

Sec.

- 27.1 Basis and purpose.
- 27.2 Permissible communications.
- 27.3 Other applicable rule parts.
- 27.4 Terms and definitions.
- 27.5 Frequencies.
- 27.6 Service areas.

Subpart B -- Applications and Licenses

- 27.11 Initial authorization.
- 27.12 Eligibility.
- 27.13 License period.
- 27.14 Construction requirements; Criteria for comparative renewal proceedings.
- 27.15 Geographic partitioning and spectrum disaggregation.

Subpart C -- Technical Standards

- 27.51 Equipment authorization.
- 27.52 RF safety.
- 27.53 Emission limits.
- 27.54 Frequency stability.
- 27.55 Field strength limits.
- 27.56 Antenna structures; air navigation safety.
- 27.57 International coordination.
- 27.59 Environmental requirements.
- 27.61 Quiet zones.
- 27.63 Disturbance of AM broadcast station antenna patterns.
- 27.64 Protection from interference.

Subpart D -- Competitive Bidding Procedures for WCS

- 27.201 WCS subject to competitive bidding.
- 27.202 Competitive bidding mechanisms.
- 27.203 Withdrawal, default and disqualification payments.
- 27.204 Bidding application and certification procedures; prohibition of collusion.
- 27.205 Submission of upfront payments.
- 27.206 Submission of down payment and filing of long-form applications.
- 27.207 Procedures for filing petitions to deny against long-form WCS applications.
- 27.208 License grant, denial, default, and disqualification.
- 27.209 Designated entities; bidding credits; unjust enrichment.
- 27.210 Definitions.

Subpart E -- Application, Licensing, and Processing Rules for WCS

- 27.301 Authorization required.
- 27.302 Eligibility.
- 27.303 Formal and informal applications.
- 27.304 Filing of WCS applications, fees, and numbers of copies.
- 27.305 Reserved.
- 27.306 Miscellaneous forms.

- 27.307 General application requirements.
- 27.308 Technical content of applications.
- 27.310 Waiver of rules.
- 27.311 Defective applications.
- 27.312 Inconsistent or conflicting applications.
- 27.313 Amendment of applications for Wireless Communications Service (other than applications filed on FCC Form 175).
- 27.314 Application for temporary authorizations.
- 27.315 Receipt of application; applications in the Wireless Communications Service filed on FCC Form 175 and other applications in the WCS Service.
- 27.316 Public notice period.
- 27.317 Dismissal and return of applications.
- 27.319 Ownership changes and agreements to amend or dismiss applications or pleadings.
- 27.320 Opposition to applications.
- 27.321 Mutually exclusive applications.
- 27.322 Consideration of applications.
- 27.323 Reserved.
- 27.324 Transfer of control or assignment of station authorization.
- 27.325 Termination of authorization.

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

Subpart A -- General Information

§ 27.1 Basis and purpose.

This section contains the statutory basis for this part of the rules and provides the purpose for which this part is issued.

(a) Basis. The rules for the Wireless Communications Service (WCS) in this part are promulgated under the provisions of the Communications Act of 1934, as amended, that vest authority in the Federal Communications Commission to regulate radio transmission and to issue licenses for radio stations.

(b) Purpose. This part states the conditions under which the 2305-2320 MHz and 2345-2360 MHz bands are made available and licensed for the provision of WCS.

(c) Scope. The rules in this part apply only to stations authorized under this part.

§ 27.2 Permissible communications.

Subject to the rules contained herein, fixed, mobile and radiolocation services may be provided using the 2305-2320 and 2345-2360 MHz bands. In addition, satellite digital audio radio service (DARS) may be provided using the 2310-2320 and 2345-2360 MHz bands. Satellite DARS service shall be provided in manner consistent with part 25 of this chapter.

§ 27.3 Other applicable rule parts.

Other FCC rule parts applicable to the Wireless Communications Service include the following:

(a) Part 0. This part describes the Commission's organization and delegations of authority. Part 0 of this chapter also lists available Commission publications, standards and procedures for access to Commission records, and location of Commission Field Offices.

(b) Part 1. This part includes rules of practice and procedure for license applications, adjudicatory proceedings, procedures for reconsideration and review of the Commission's actions; provisions concerning violation notices and forfeiture proceedings; competitive bidding procedures; and the environmental requirements that, if applicable, must be complied with prior to the initiation of construction.

(c) Part 2. This part contains the Table of Frequency Allocations and special requirements in international regulations, recommendations, agreements, and treaties. This part also contains standards and procedures concerning the marketing and importation of radio frequency devices, and for obtaining equipment authorization.

(d) Part 5. This part contains rules prescribing the manner in which parts of the radio frequency spectrum may be made available for experimentation.

(e) Part 17. This part contains requirements for construction, marking and lighting of antenna towers.

(f) Part 25. This part contains the requirements for satellite communications, including satellite DARS.

(g) Part 51. This part contains general duties of telecommunications carriers to provide for interconnection with other telecommunications carriers.

(h) Part 68. This part contains technical standards for connection of terminal equipment to the telephone network.

§ 27.4 Terms and definitions.

Assigned Frequency. The center of the frequency band assigned to a station.

Authorized Bandwidth. The maximum width of the band of frequencies permitted to be used by a station. This is normally considered to be the necessary or occupied bandwidth, whichever is greater.

Average Terrain. The average elevation of terrain between 3 and 16 kilometers from the antenna site.

Effective Radiated Power (ERP) (in a given direction). The product of the power supplied to the antenna and its gain relative to a half-wave dipole in a given direction.

Equivalent Isotropically Radiated Power (EIRP). The product of the power supplied to the antenna and the antenna gain in a given direction relative to an isotropic antenna.

Fixed Service. A radio communication service between specified fixed points.

Fixed Station. A station in the fixed service.

Land Mobile Service. A mobile service between base stations and land mobile stations, or between land mobile stations.

Land Mobile Station. A mobile station in the land mobile service capable of surface movement within the geographic limits of a country or continent.

Land Station. A station in the mobile service not intended to be used while in motion.

Mobile Service. A radio communication service between mobile and land stations, or between mobile stations.

Mobile Station. A station in the mobile service intended to be used while in motion or during halts at unspecified points.

National Geodetic Reference System (NGRS). The name given to all geodetic control data contained in the National Geodetic Survey (NGS) data base. (Source: National Geodetic Survey, U.S. Department of Commerce)

Radiodetermination. The determination of the position, velocity and/or other characteristics of an object, or the obtaining of information relating to these parameters, by means of the propagation properties of radio waves.

Radiolocation. Radiodetermination used for purposes other than those of radionavigation.

Radionavigation. Radiodetermination used for the purpose of navigation, including obstruction warning.

Satellite Digital Audio Radio Service (satellite DARS). A radiocommunication service in which compact disc quality programming is digitally transmitted by one or more space stations.

Wireless Communications Service. A radiocommunication service that encompasses fixed, mobile, satellite DARS, and radiolocation services.

§ 27.5 Frequencies.

The following frequencies are available for WCS.

(a) Two paired channel blocks are available for assignment on a Major Economic Area basis as follows:

Block A: 2305-2310 and 2350-2355 MHz; and

Block B: 2310-2315 and 2355-2360 MHz.

(b) Two unpaired channel blocks are available for assignment on a Regional Economic Area Grouping basis as follows:

Block C: 2315-2320 MHz; and

Block D: 2345-2350 MHz.

§ 27.6 Service areas.

WCS service areas are Major Economic Areas (MEAs) and Regional Economic Area Groupings (REAGs) as defined below. Both MEAs and REAGs are based on the U.S. Department of Commerce's 172 Economic Areas (EAs). *See* 60 Federal Register 13114 (March 10, 1995). In addition, the Commission shall separately license Guam and the Northern Mariana Islands, Puerto Rico and the United States Virgin Islands, American Samoa, and the Gulf of Mexico, which have been assigned Commission-created EA numbers 173-176, respectively. Maps of the EAs, MEAs, and REAGs and the Federal Register Notice that established the 172 EAs are available for public inspection and copying at the Commercial Wireless Division Public Reference Room, Room 5608, 2025 M Street, N.W., Washington, D.C.

(a) The 52 MEAs are composed of one or more EAs and the 12 REAGs are composed of one or more MEAs, as defined in the table below:

REAGs	MEAs	EAs
1 (Northeast)	1 (Boston)	1-3
	2 (New York City)	4-7, 10
	3 (Buffalo)	8
	4 (Philadelphia)	11-12
2 (Southeast)	5 (Washington)	13-14
	6 (Richmond)	15-17, 20
	7 (Charlotte-Greensboro-Greenville-Raleigh)	18-19, 21-26, 41-42, 46
	8 (Atlanta)	27-28, 37-40, 43
	9 (Jacksonville)	29, 35
	10 (Tampa-St. Petersburg-Orlando)	30, 33-34
	11 (Miami)	31-32
3 (Great Lakes)	12 (Pittsburgh)	9, 52-53
	13 (Cincinnati-Dayton)	48-50
	14 (Columbus)	51
	15 (Cleveland)	54-55
	16 (Detroit)	56-58, 61-62
	17 (Milwaukee)	59-60, 63, 104-105, 108
	18 (Chicago)	64-66, 68, 97, 101
	19 (Indianapolis)	67
	20 (Minneapolis-St. Paul)	106-107, 109-114, 116
	21 (Des Moines-Quad Cities)	100, 102-103, 117
4 (Mississippi Valley)	22 (Knoxville)	44-45

	23 (Louisville-Lexington-Evansville)	47, 69-70, 72
	24 (Birmingham)	36, 74, 78-79
	25 (Nashville)	71
	26 (Memphis-Jackson)	73, 75-77
	27 (New Orleans-Baton Rouge)	80-85
	28 (Little Rock)	90-92, 95
	29 (Kansas City)	93, 99, 123
	30 (St. Louis)	94, 96, 98
5 (Central)	31 (Houston)	86-87, 131
	32 (Dallas-Fort Worth)	88-89, 127-130, 135, 137-138
	33 (Denver)	115, 140-143
	34 (Omaha)	118-121
	35 (Wichita)	122
	36 (Tulsa)	124
	37 (Oklahoma City)	125-126
	38 (San Antonio)	132-134
	39 (El Paso-Albuquerque)	136, 139, 155-157
	40 (Phoenix)	154, 158-159
6 (West)	41 (Spokane-Billings)	144-147, 168
	42 (Salt Lake City)	148-150, 152
	43 (San Francisco-Oakland-San Jose)	151, 162-165
	44 (Los Angeles-San Diego)	153, 160-161
	45 (Portland)	166-167
	46 (Seattle)	169-170
7 (Alaska)	47 (Alaska)	171

8 (Hawaii)	48 (Hawaii)	172
9 (Guam and the Northern Mariana Islands)	49 (Guam and the Northern Mariana Islands)	173
10 (Puerto Rico and U.S. Virgin Islands)	50 (Puerto Rico and U.S. Virgin Islands)	174
11 (American Samoa)	51 (American Samoa)	175
12 (Gulf of Mexico)	52 (Gulf of Mexico)	176

(b) The Gulf of Mexico EA extends from 12 nautical miles off the U.S. Gulf coast outward into the Gulf.

Subpart B -- Applications and Licenses

§ 27.11 Initial authorization.

(a) An applicant must file an application for an initial WCS authorization in each market and channel block desired. Applicants are permitted to list all markets and channel blocks in a single application where all requisite exhibits and justifications are identical.

(b) The initial WCS authorizations shall be granted for 10 megahertz of spectrum in accordance with section 27.5. Authorizations for Blocks A and B will be based on Major Economic Areas (MEAs), as shown in section 27.6. Authorizations for Block C will be based on Regional Economic Area Groupings (REAGs), as shown in section 27.6. Applications for individual sites are not required and will not be accepted, except where required for environmental assessments, in accordance with section 27.63.

§ 27.12 Eligibility.

Any entity, other than those precluded by section 310 of the Communications Act of 1934, as amended, 47 U.S.C. section 310, is eligible to hold a license under this part.

§ 27.13 License period.

Initial WCS authorizations will have a term not to exceed ten years from the date of original issuance or renewal.

§ 27.14 Construction requirements; Criteria for comparative renewal proceedings.

(a) WCS licensees must make a showing of "substantial service" in their license area within

ten years of being licensed. "Substantial" service is defined as service which is sound, favorable, and substantially above a level of mediocre service which just might minimally warrant renewal. Failure by any licensee to meet this requirement will result in forfeiture of the license and the licensee will be ineligible to regain it.

(b) A renewal applicant involved in a comparative renewal proceeding shall receive a preference, commonly referred to as a renewal expectancy, which is the most important comparative factor to be considered in the proceeding, if its past record for the relevant license period demonstrates that:

(1) The renewal applicant has provided "substantial" service during its past license term; and

(2) The renewal applicant has substantially complied with applicable FCC rules, policies and the Communications Act of 1934, as amended.

(c) In order to establish its right to a renewal expectancy, a WCS renewal applicant involved in a comparative renewal proceeding must submit a showing explaining why it should receive a renewal expectancy. At a minimum, this showing must include:

(1) A description of its current service in terms of geographic coverage and population served;

(2) An explanation of its record of expansion, including a timetable of new construction to meet changes in demand for service;

(3) A description of its investments in its WCS system; and

(4) Copies of all FCC orders finding the licensee to have violated the Communications Act or any FCC rule or policy; and a list of any pending proceedings that relate to any matter described in this paragraph.

(d) In making its showing of entitlement to a renewal expectancy, a renewal applicant may claim credit for any system modification applications that were pending on the date it filed its renewal application. Such credit will not be allowed if the modification application is dismissed or denied.

§ 27.15 Geographic partitioning and spectrum disaggregation.

(a) Eligibility.

(1) Parties seeking approval for partitioning and disaggregation shall request from the Commission an authorization for partial assignment of a license pursuant to section 27.324.

(2) WCS licensees may apply to partition their licensed geographic service area or disaggregate their licensed spectrum at any time following the grant of their licenses.

(b) Technical Standards.

(1) Partitioning. In the case of partitioning, requests for authorization for partial assignment of a license must include, as attachments, a description of the partitioned service area and a calculation of the population of the partitioned service area and the licensed geographic service area. The partitioned service area shall be defined by coordinate points at every 3 degrees along the partitioned service area unless an FCC recognized service area is utilized (*i.e.*, Major Trading Area, Basic Trading Area, Metropolitan Service Area, Rural Service Area, Economic Area, or Major Economic Area) or county lines are followed. The geographic coordinates must be specified in degrees, minutes, and seconds to the nearest second of latitude and longitude and must be based upon the 1927 North American Datum (NAD27). Applicants may supply geographical coordinates based on 1983 North American Datum (NAD83) in addition to those required (NAD27). In the case where an FCC recognized service area or county lines are utilized, applicants need only list the specific area(s) (through use of FCC designations or county names) that constitute the partitioned area.

(2) Disaggregation. Spectrum may be disaggregated in any amount.

(3) Combined Partitioning and Disaggregation. The Commission will consider requests for partial assignment of licenses that propose combinations of partitioning and disaggregation.

(4) Signal Levels. For purposes of partitioning and disaggregation, WCS systems must be designed so as not to exceed a signal level of 47 dB μ V/m at the licensee's service area boundary, unless the affected adjacent service area licensees have agreed to a different signal level. See section 27.55.

(c) Unjust Enrichment.

(1) Bidding Credits. Licensees that received a bidding credit and partition their licenses or disaggregate their spectrum to entities not meeting the eligibility standards for such a bidding credit, will be subject to the provisions concerning unjust enrichment as set forth in section 27.209(c).

(2) Apportioning Unjust Enrichment Payments. Unjust enrichment payments for partitioned license areas shall be calculated based upon the ratio of the population of the partitioned license area to the overall population of the license area and by utilizing the most recent census data. Unjust enrichment payments for disaggregated spectrum shall be calculated based upon the ratio of the amount of spectrum disaggregated to the amount of spectrum held by the licensee.

(d) License Term. The license term for a partitioned license area and for disaggregated spectrum shall be the remainder of the original licensee's license term as provided for in section 27.13.

Subpart C -- Technical Standards

§ 27.51 Equipment authorization.

(a) Each transmitter utilized for operation under this part and each transmitter marketed, as set forth in section 2.803 of this chapter, must be of a type that has been authorized by the Commission under its type acceptance procedure.

(b) The Commission periodically publishes a list of type accepted equipment, entitled "Radio Equipment List, Equipment Accepted for Licensing." Copies of this list are available for public reference at the Commission's offices in Washington, D.C., at each of its field offices, and may be ordered from its copy contractor.

(c) Any manufacturer of radio transmitting equipment to be used in these services may request equipment authorization following the procedures set forth in subpart J of part 2 of this chapter. Equipment authorization for an individual transmitter may be requested by an applicant for a station authorization by following the procedures set forth in part 2 of this chapter. Such equipment if approved or accepted will not normally be included in the Commission's Radio Equipment List but will be individually enumerated on the station authorization.

§ 27.52 RF safety.

Licensees and manufacturers are subject to the radio frequency radiation exposure requirements specified in sections 1.1307(b), 2.1091, and 2.1093 of this chapter, as appropriate. Applications for equipment authorization of mobile or portable devices operating under this section must contain a statement confirming compliance with these requirements for both fundamental emissions and unwanted emissions. Technical information showing the basis for this statement must be submitted to the Commission upon request.

§ 27.53 Emission limits.

(a) The power of any emission outside the licensee's bands of operation shall be attenuated below the transmitter power (p) within the licensed bands of operation by the following amounts:

(1) For fixed operations, including radiolocation: By a factor not less than $80 + 10 \log (p)$ dB on all frequencies between 2320 and 2345 MHz.

(2) For mobile operations, including radiolocation: By a factor not less than $110 + 10 \log (p)$ dB on all frequencies between 2320 and 2345 MHz.

(3) For fixed and mobile operations, including radiolocation: By a factor not less than $70 + 10 \log (p)$ dB on all frequencies below 2300 MHz and on all frequencies above 2370 MHz; and not less than $43 + 10 \log (p)$ dB on all frequencies between 2300 and 2320 MHz and on all frequencies between 2345 and 2370 MHz that are outside the licensed bands of operation.

(4) For the purposes of this section, radiolocation shall be classified as either a fixed or mobile

service, depending upon the application.

(5) Compliance with these provisions is 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.

(6) In complying with the requirements in sections 27.53(a)(1) and 27.53(a)(2), WCS equipment that uses opposite sense circular polarization from that used by satellite DARS systems in the 2320-2345 MHz band shall be permitted an allowance of 10 dB.

(7) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the edges, both upper and lower, of the licensee's bands of operation as the design permits.

(8) The measurements of emission power can be expressed in peak or average values, provided they are expressed in the same parameters as the transmitter power.

(9) The above out-of-band emissions limits may be modified by the private contractual agreement of the affected licensees, who shall maintain a copy of the agreement in their station files and disclose it to prospective assignees or transferees or, upon request, to the Commission.

(b) For WCS satellite DARS operations: The limits set forth in section 25.202(f) of this chapter apply, except that satellite DARS operations are limited to a maximum power flux density of -197 dBW/m²/4 kHz in the 2370-2390 MHz band at Arecibo, Puerto Rico.

(c) 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.

§ 27.54 Frequency stability.

The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

§ 27.55 Field strength limits.

The predicted or measured median field strength at any location on the border of a WCS service area shall not exceed 47 dB μ V/m unless the parties agree to a different field strength. This value applies to both the initially offered REAG service areas and to partitioned service areas.

§ 27.56 Antenna structures; air navigation safety.

A licensee that owns its antenna structure(s) must not allow such antenna structure(s) to become a hazard to air navigation. In general, antenna structure owners are responsible for registering antenna structures with the FCC if required by part 17 of this chapter, and for installing and maintaining any required marking and lighting. However, in the event of default of this responsibility by an antenna structure owner, the FCC permittee or licensee authorized to use an affected antenna structure will be held responsible by the FCC for ensuring that the antenna structure continues to meet the requirements of part 17 of this chapter. See section 17.6 of this chapter.

(a) Marking and lighting. Antenna structures must be marked, lighted and maintained in accordance with part 17 of this chapter and all applicable rules and requirements of the Federal Aviation Administration. For any construction or alteration that would exceed the requirements of section 17.7 of this chapter, licensees must notify the appropriate Regional Office of the Federal Aviation Administration (FAA Form 7460-1) and file a request for antenna height clearance and obstruction marking and lighting specifications (FCC Form 854) with the FCC, WTB, 1270 Fairfield Road, Gettysburg, PA 17325.

(b) Maintenance contracts. Antenna structure owners (or licensees and permittees, in the event of default by an antenna structure owner) may enter into contracts with other entities to monitor and carry out necessary maintenance of antenna structures. Antenna structure owners (or licensees and permittees, in the event of default by an antenna structure owner) that make such contractual arrangements continue to be responsible for the maintenance of antenna structures in regard to air navigation safety.

§ 27.57 International coordination.

WCS operations in the border areas shall be subject to coordination with those countries and provide protection to non-U.S. operations in the 2305-2320 and 2345-2360 MHz bands as appropriate. In addition, satellite DARS operations in WCS spectrum shall be subject to international satellite coordination procedures.

§ 27.59 Environmental requirements.

WCS operations that may have a significant environmental impact as defined by sections 1.1301 through 1.1319 of this chapter, must file an FCC Form 600 and supply specific technical information about their proposed site prior to construction of such site as well as an environmental assessment

(EA) in accordance with sections 1.1301 through 1.1319 of this chapter. Such application will be placed on public notice in accordance with section 27.316 and may not be constructed or operated prior to a finding of no significant impact (FONSI) being issued and placed on public notice by the FCC.

§ 27.61 Quiet zones.

Quiet zones are those areas where it is necessary to restrict radiation so as to minimize possible impact on the operations of radio astronomy or other facilities that are highly sensitive to interference. The areas involved and procedures required are as follows:

(a) NRAO, NRRO. The requirements of this paragraph are intended to minimize possible interference at the National Radio Astronomy Observatory site located at Green Bank, Pocahontas County, West Virginia, and at the Naval Radio Research Observatory site at Sugar Grove, Pendleton County, West Virginia. WCS licensees planning to construct and operate a new or modified WCS station at a permanent fixed location within the area bounded by N.39° 15' on the north, W.78° 30' on the east, N.37° 30' on the south, and W.80° 30' on the west must notify the Director, National Radio Astronomy Observatory, Post Office Box No. 2, Green Bank, WV 24944, in writing, of the technical details of the proposed operation. The notification must include the geographical coordinates of the antenna location, the antenna height, antenna directivity (if any), the channel, the emission type and power.

(b) Table Mountain. The requirements of this paragraph are intended to minimize possible interference at the Table Mountain Radio Receiving Zone of the Research Laboratories of the U.S. Department of Commerce located in Boulder County, Colorado.

(1) WCS licensees planning to construct and operate a new or modified WCS station at a permanent fixed location in the vicinity of Boulder County, Colorado are advised to give consideration, prior to filing applications, to the need to protect the Table Mountain Radio Receiving Zone from interference. To prevent degradation of the present ambient radio signal level at the site, the U.S. Department of Commerce seeks to ensure that the field strengths of any radiated signals (excluding reflected signals) received on this 1800 acre site (in the vicinity of coordinates 40° 07' 50" North Latitude, 105° 14' 40" West Longitude) resulting from new assignments (other than mobile stations) or from the modification or relocation of existing facilities do not exceed the values given in Table C-3.

Table C-3 - Field Strength Limits for Table Mountain

Frequency range	Field strength	Power flux density
890 to 3000 MHz	1 mV/m	-85.8 dBW/m ²

Note: Equivalent values of power flux density are calculated assuming free space characteristic impedance of 376.7Ω ($120\pi \Omega$).

(2) Advance consultation is recommended, particularly for WCS licensees that have no reliable data to indicate whether the field strength or power flux density figures in the above table would be exceeded by their proposed radio facilities. In general, coordination is recommended for:

(i) Stations located within 2.4 kilometers (1.5 miles);

(ii) Stations located within 4.8 kilometers (3 miles) transmitting with 50 watts or more effective radiated power (ERP) in the primary plane of polarization in the azimuthal direction of the Table Mountain Radio Receiving Zone;

(iii) Stations located within 16 kilometers (10 miles) transmitting with 1 kW or more ERP in the primary plane of polarization in the azimuthal direction of Table Mountain Radio Receiving Zone;

(iv) Stations located within 80 kilometers (50 miles) transmitting with 25 kW or more ERP in the primary plane of polarization in the azimuthal direction of Table Mountain Receiving Zone.

(3) WCS licensees are urged to communicate with the Radio Frequency Management Coordinator, U.S. Department of Commerce, Research Support Services NOAAR/E5X2, Boulder Laboratories, Boulder, CO 80303; telephone (303) 497-6548, in advance of construction and operation of such facilities.

(c) Federal Communications Commission protected field offices. The requirements of this paragraph are intended to minimize possible interference to FCC monitoring activities.

(1) WCS licensees planning to construct and operate a new or modified WCS station at a permanent fixed location in the vicinity of an FCC protected field office are advised to give consideration to the need to avoid interfering with the monitoring activities of that office. FCC protected field offices are listed in section 0.121 of this chapter.

(2) Applications for stations (except mobile stations) that could produce on any channel a direct wave fundamental field strength of greater than 10 mV/m (-65.8 dBW/m^2 power flux density assuming a free space characteristic impedance of $120\pi \Omega$) in the authorized bandwidth at the protected field office must be examined by WCS licensees to determine the potential for interference with monitoring activities.

(3) In the event that the calculated field strength exceeds 10 mV/m at the protected field office

site, or if there is any question whether field strength levels might exceed that level, advance consultation with the FCC to discuss possible measures to avoid interference to monitoring activities should be considered. WCS licensees may communicate with: Chief, Compliance and Information Bureau, Federal Communications Commission, Washington, DC 20554.

(4) Advance consultation is recommended for WCS licensees that have no reliable data to indicate whether the field strength or power flux density figure indicated would be exceeded by their proposed radio facilities. In general, coordination is recommended for:

(i) Stations located within 2.4 kilometers (1.5 miles);

(ii) Stations located within 4.8 kilometers (3 miles) with 50 watts or more average effective radiated power (ERP) in the primary plane of polarization in the azimuthal direction of the protected field offices.

(iii) Stations located within 16 kilometers (10 miles) with 1 kW or more average ERP in the primary plane of polarization in the azimuthal direction of the protected field office;

(iv) Stations located within 80 kilometers (50 miles) with 25 kW or more average ERP in the primary plane of polarization in the azimuthal direction of the protected field office;

(5) Advance coordination for stations transmitting on channels above 1000 MHz is recommended only if the proposed station is in the vicinity of a protected field office designated as a satellite monitoring facility in section 0.121 of this chapter.

(6) The FCC will not screen applications to determine whether advance consultation has taken place. However, such consultation may serve to avoid the need for later modification of the authorizations of stations that interfere with monitoring activities at protected field offices.

§ 27.63 Disturbance of AM broadcast station antenna patterns.

WCS licensees that construct or modify towers in the immediate vicinity of AM broadcast stations are responsible for measures necessary to correct disturbance of the AM station antenna pattern which causes operation outside of the radiation parameters specified by the FCC for the AM station, if the disturbance occurred as a result of such construction or modification.

(a) Non-directional AM stations. If tower construction or modification is planned within 1 kilometer (0.6 mile) of a non-directional AM broadcast station tower, the WCS licensee must notify the licensee of the AM broadcast station in advance of the planned construction or modification. Measurements must be made to determine whether the construction or modification would affect the AM station antenna pattern. The WCS licensee is responsible for the installation and continued maintenance of any detuning apparatus necessary to restore proper non-directional performance of the AM station tower.

(b) Directional AM stations. If tower construction or modification is planned within 3 kilometers (1.9 miles) of a directional AM broadcast station array, the WCS licensee must notify the licensee of the AM broadcast station in advance of the planned construction or modification. Measurements must be made to determine whether the construction or modification would affect the AM station antenna pattern. The WCS licensee is responsible for the installation and continued maintenance of any detuning apparatus necessary to restore proper performance of the AM station array.

§ 27.64 Protection from interference.

Wireless Communications Service (WCS) stations operating in full accordance with applicable FCC rules and the terms and conditions of their authorizations are normally considered to be non-interfering. If the FCC determines, however, that interference which significantly interrupts or degrades a radio service is being caused, it may, after notice and an opportunity for a hearing, require modifications to any WCS station as necessary to eliminate such interference.

(a) Failure to operate as authorized. Any licensee causing interference to the service of other stations by failing to operate its station in full accordance with its authorization and applicable FCC rules shall discontinue all transmissions, except those necessary for the immediate safety of life or property, until it can bring its station into full compliance with the authorization and rules.

(b) Intermodulation interference. Licensees should attempt to resolve such interference by technical means.

(c) Situations in which no protection is afforded. Except as provided elsewhere in this part, no protection from interference is afforded in the following situations:

(1) Interference to base receivers from base or fixed transmitters. Licensees should attempt to resolve such interference by technical means or operating arrangements.

(2) Interference to mobile receivers from mobile transmitters. No protection is provided against mobile-to-mobile interference.

(3) Interference to base receivers from mobile transmitters. No protection is provided against mobile-to-base interference.

(4) Interference to fixed stations. Licensees should attempt to resolve such interference by technical means or operating arrangements.

(5) Anomalous or infrequent propagation modes. No protection is provided against interference caused by tropospheric and ionospheric propagation of signals.

Subpart D -- Competitive Bidding Procedures for WCS**§ 27.201 WCS subject to competitive bidding.**

Mutually exclusive initial applications to provide WCS service are subject to competitive bidding procedures. The procedures set forth in part 1, subpart Q of this chapter will apply unless otherwise specified in this part.

§ 27.202 Competitive bidding mechanisms.

In addition to the provisions of section 1.2104(a) through (f), (h) and (i), the following provision will apply to WCS: where a tie bid occurs, the high bidder will be determined by the order in which the bids were received by the Commission.

§ 27.203 Withdrawal, default and disqualification payments.

When the Commission conducts a simultaneous multiple round auction pursuant to section 27.202, the Commission will impose payments on bidders who withdraw high bids during the course of an auction, or who default on payments due after an auction closes or who are disqualified. When the amount of such a payment cannot be determined, a deposit of up to 20 percent of the amount bid on the license will be required.

(a) Bid withdrawal prior to close of auction. A bidder who withdraws a high bid during the course of an auction will be subject to a payment equal to the difference between the amount bid and the amount of the winning bid the next time the license is offered by the Commission. No withdrawal payment would be assessed if the subsequent winning bid exceeds the withdrawn bid. This payment amount will be deducted from any upfront payments or down payments that the withdrawing bidder has deposited with the Commission.

(b) Default or disqualification after close of auction. If a high bidder defaults or is disqualified after the close of such an auction, the defaulting bidder will be subject to the payment in paragraph (a) of this section plus an additional payment equal to 3 percent of the subsequent winning bid. If the subsequent winning bid exceeds the defaulting bidder's bid amount, the 3 percent payment will be calculated based on the defaulting bidder's bid amount. These amounts will be deducted from any upfront payments or down payments that the defaulting or disqualified bidder has deposited with the Commission.

§ 27.204 Bidding application and certification procedures; prohibition of collusion.

(a) Submission of Short-Form Application (FCC Form 175). In order to be eligible to bid, an applicant must timely submit, by means of electronic filing, a short-form application (FCC Form 175). Unless otherwise provided by public notice, the Form 175 need not be accompanied by an upfront payment (see section 27.205).

- (1) All Form 175s will be due on the date specified by public notice.
- (2) The Form 175 must contain the following information:
 - (i) Identification of each license on which the applicant wishes to bid;
 - (ii) The applicant's name, if the applicant is an individual. If the applicant is a corporation, then the short-form application will require the name and address of the corporate office and the name and title of an officer or director. If the applicant is a partnership, then the application will require the names, citizenship and addresses of all partners, and, if a partner is not a natural person, then the name and title of a responsible person should be included as well. If the applicant is a trust, then the name and address of the trustee will be required. If the applicant is none of the above, then it must identify and describe itself and its principals or other responsible persons;
 - (iii) The identity of the person(s) authorized to make or withdraw a bid;
 - (iv) If the applicant applies as a designated entity pursuant to section 27.210(b), a statement to that effect and a declaration, under penalty of perjury, that the applicant is qualified as a designated entity under section 27.210(b).
 - (v) Certification that the applicant is legally, technically, financially and otherwise qualified pursuant to section 308(b) of the Communications Act of 1934, as amended. The Commission will accept applications certifying that a request for waiver or other relief from the requirements of section 310 is pending;
 - (vi) Certification that the applicant is in compliance with the foreign ownership provisions of section 310 of the Communications Act of 1934, as amended;
 - (vii) Certification that the applicant is and will, during the pendency of its application(s), remain in compliance with any service-specific qualifications applicable to the licenses on which the applicant intends to bid including, but not limited to, financial qualifications. The Commission may require certification in certain services that the applicant will, following grant of a license, come into compliance with certain service-specific rules, including, but not limited to, ownership eligibility limitations;
 - (viii) An exhibit, certified as truthful under penalty of perjury, identifying all parties with whom the applicant has entered into partnerships, joint ventures, consortia or other agreements, arrangements or understandings of any kind relating to the licenses being auctioned, including any such agreements relating to the post-auction market structure;
 - (ix) Certification under penalty of perjury that it has not entered and will not enter into any explicit or implicit agreements, arrangements or understandings of any kind with any parties other than those identified pursuant to paragraph (a)(2)(viii) of this section regarding the amount of their bids, bidding

strategies or the particular licenses on which they will or will not bid; and

(x) Certification under penalty of perjury that it is not in default on any Commission licenses and that it is not delinquent on any extension of credit from any federal agency.

Note to paragraph (a): The Commission may also request applicants to submit additional information for informational purposes to aid in its preparation of required reports to Congress.

(b) **Modification and Amendment of Application.** Applicants will be permitted to amend their Form 175 applications to make minor amendments to correct minor errors or defects such as typographical errors. Applicants will also be permitted to amend FCC Form 175 to make changes to the information required by section 27.204(a) (such as ownership changes or changes in the identification of parties to bidding consortia), provided such changes do not result in a change in control of the applicant and do not involve another applicant (or parties in interest to an applicant) who has applied for licenses in any of the same geographic license areas as the applicant. Amendments which change control of the applicant will be considered major amendments. An FCC Form 175 which is amended by a major amendment will be considered to be newly filed and cannot be resubmitted after applicable filing deadlines. See also section 1.2105 of this chapter.

(c) **Prohibition of collusion.** (1) Except as provided in paragraphs (c)(2), (c)(3) and (c)(4) of this section, after the filing of short-form applications, all applicants are prohibited from cooperating, collaborating, discussing or disclosing in any manner the substance of their bids or bidding strategies, or discussing or negotiating settlement agreements, with other applicants until after the high bidder makes the required down payment, unless such applicants are members of a bidding consortium or other joint bidding arrangement identified on the bidder's short-form application pursuant to section 27.204(a)(2)(viii).

(2) Applicants may modify their short-form applications to reflect formation of consortia or changes in ownership at any time before or during an auction, provided such changes do not result in a change in control of the applicant, and provided that the parties forming consortia or entering into ownership agreements have not applied for licenses in any of the same geographic license areas. Such changes will not be considered major modifications of the application.

(3) After the filing of short-form applications, applicants may make agreements to bid jointly for licenses, provided the parties to the agreement have not applied for licenses in any of the same geographic license areas.

(4) After the filing of short-form applications, a holder of a non-controlling attributable interest in an entity submitting a short-form application may acquire an ownership interest in, form a consortium with, or enter into a joint bidding arrangement with, other applicants for licenses in the same geographic license area, provided that:

(i) The attributable interest holder certifies to the Commission that it has not communicated and

will not communicate with any party concerning the bids or bidding strategies of more than one of the applicants in which it holds an attributable interest, or with which it has a consortium or joint bidding arrangement, and which have applied for licenses in the same geographic license area(s); and

(ii) The arrangements do not result in any change in control of an applicant.

(5) Applicants must modify their short-form applications to reflect any changes in ownership or in the membership of consortia or joint bidding arrangements.

(6) For purposes of this paragraph:

(i) The term "applicant" shall include the entity submitting a short-form application to participate in an auction (FCC Form 175), as well as all holders of partnership and other ownership interests and any stock interest amounting to 5 percent or more of the entity, or outstanding stock, or outstanding voting stock of the entity submitting a short-form application, and all officers and directors of that entity; and

(ii) The term "bids or bidding strategies" shall include capital calls or requests for additional funds in support of bids or bidding strategies.

§ 27.205 Submission of upfront payments.

(a) Each eligible bidder for WCS licenses subject to auction shall pay an upfront payment pursuant to this chapter and procedures specified by public notice. No interest will be paid on upfront payments.

(b) Upfront payments must be made by wire transfer.

(c) If the applicant does not submit at least the minimum upfront payment, it will be ineligible to bid, its application will be dismissed and any upfront payment it has made will be returned.

(d) The upfront payment(s) of a bidder will be credited toward any down payment required for licenses on which the bidder is the high bidder. Where the upfront payment amount exceeds the required deposit of a winning bidder, the Commission will refund the excess amount after determining that no bid withdrawal payments are owed by that bidder.

(e) In accordance with the provisions of paragraph (d) of this section, in the event a payment is assessed pursuant to section 27.203 for bid withdrawal or default, upfront payments or down payments on deposit with the Commission will be used to satisfy the bid withdrawal or default payment before being applied toward any additional payment obligations that the high bidder may have.

§ 27.206 Submission of down payment and filing of long-form applications.

(a) After bidding has ended, the Commission will identify and notify the high bidder and declare the bidding closed.

(b) Within ten (10) business days after being notified that it is a high bidder on a particular license(s), a high bidder must submit to the Commission's lockbox bank such additional funds (the "down payment") as are necessary to bring its total deposits (not including upfront payments applied to satisfy bid withdrawal or default payments) up to twenty (20) percent of its high bid(s). This down payment must be made by wire transfer or cashier's check drawn in U.S. dollars from a financial institution whose deposits are insured by the Federal Deposit Insurance Corporation and must be made payable to the Federal Communications Commission. Down payments will be held by the Commission until the high bidder has been awarded the license and has paid the remaining balance due on the license, in which case it will not be returned, or until the winning bidder is found unqualified to be a licensee or has defaulted, in which case it will be returned, less applicable payments. No interest will be paid on any down payment.

(c) A high bidder that meets its down payment obligations in a timely manner must, within ten (10) business days after being notified that it is a high bidder, submit an additional application (the "long-form application") pursuant to the rules governing the service in which the applicant is the high bidder. Notwithstanding any other provision in title 47 of the Code of Federal Regulations to the contrary, high bidders need not submit an additional application filing fee with their long-form applications. Notwithstanding any other provision in Title 47 of the Code of Federal Regulations to the contrary, the high bidder's long-form application must be mailed or otherwise delivered to: Office of the Secretary, Federal Communications Commission, Attention: Auction Application Processing Section, 1919 M Street, N.W., Room 222, Washington, DC 20554. An applicant that fails to submit the required long-form application as required under this subsection, and fails to establish good cause for any late-filed submission, shall be deemed to have defaulted and will be subject to the payments set forth in section 27.203.

(d) As an exhibit to its long-form application, the applicant must provide a detailed explanation of the terms and conditions and parties involved in any bidding consortia, joint venture, partnership or other agreement or arrangement it had entered into relating to the competitive bidding process prior to the time bidding was completed. Such agreements must have been entered into prior to the filing of short-form applications pursuant to section 27.204.

§ 27.207 Procedures for filing petitions to deny against WCS long-form applications.

(a) Within five (5) days after the Commission gives public notice that a long-form application has been accepted for filing, petitions to deny that application may be filed. Any such petitions must contain allegations of fact supported by affidavit of a person or persons with personal knowledge thereof, and be served by hand upon the applicant or its representative.

(b) An applicant may file an opposition to any petition to deny within five (5) days after the

deadline for filing petitions to deny. Allegations of fact or denials thereof must be supported by affidavit of a person or persons with personal knowledge thereof, and such opposition must be served by hand upon the petitioner.

(c) If the Commission determines that:

(1) An applicant is qualified and there is no substantial and material issue of fact concerning that determination, it will grant the application;

(2) An applicant is not qualified and that there is no substantial issue of fact concerning that determination, the Commission need not hold a evidentiary hearing and will deny the application; and

(3) Substantial and material issues of fact require a hearing, it will conduct a hearing. The Commission may permit all or part of the evidence to be submitted in written form and may permit employees other than administrative law judges to preside at the taking of written evidence. Such hearing will be conducted on an expedited basis.

§ 27.208 License grant, denial, default, and disqualification.

(a) Unless otherwise specified in these rules, auction winners are required to pay the balance of their winning bids in a lump sum within ten (10) business days following award of the license. Grant of the license will be conditioned on full and timely payment of the winning bid.

(b) If a winning bidder withdraws its bid after the Commission has declared competitive bidding closed or fails to remit the required down payment within ten (10) business days after the Commission has declared competitive bidding closed, the bidder will be deemed to have defaulted, its application will be dismissed, and it will be liable for the default penalty specified in section 27.203. In such event, the Commission may either re-auction the license to existing or new applicants or offer it to the other highest bidders (in descending order) at their final bids. The down payment obligations set forth in section 27.206(b) will apply.

(c) A winning bidder who is found unqualified to be a licensee, fails to remit the balance of its winning bid in a timely manner, or defaults or is disqualified for any reason after having made the required down payment, will be deemed to have defaulted and will be liable for the payment set forth in section 27.203. In such event, the Commission will conduct another auction for the license, affording new parties an opportunity to file applications for the license.

(d) Bidders who are found to have violated the antitrust laws or the Commission's rules in connection with their participation in the competitive bidding process may be subject, in addition to any other applicable sanctions, to forfeiture of their upfront payment, down payment or full bid amount, and may be prohibited from participating in future auctions.

§ 27.209 Designated entities; bidding credits; unjust enrichment.

(a) Designated entities entitled to preferences in the WCS auction are small businesses and very small businesses as defined in section 27.110(b). Designated entities will be eligible for bidding credits, as defined in parts (b) and (c) of this section.

(b) A winning bidder that qualifies as a *small business* may use a bidding credit of 25 percent to lower the cost of its winning bid.

(c) A winning bidder that qualifies as a *very small business* may use a bidding credit of 35 percent to lower the cost of its winning bid.

(d) Unjust Enrichment:

(1) If a small business or very small business (as defined in section 27.210(b)) that utilizes a bidding credit under this section seeks to transfer control or assign an authorization to an entity that is not a small business or a very small business, or seeks to make any other change in ownership that would result in the licensee losing eligibility as a small business or very small business, the small business or very small business must seek Commission approval and reimburse the U.S. Government for the amount of the bidding credit, plus interest based on the rate for ten year U.S. Treasury obligations applicable on the date the license is granted, as a condition of approval of the assignment or transfer of control.

(2) If a very small business (as defined in section 27.210(b)) that utilizes a bidding credit under this section seeks to transfer control or assign an authorization to a small business meeting the eligibility standards for a lower bidding credit, or seeks to make any other change in ownership that would result in the licensee qualifying for a lower bidding credit under this section, the licensee must seek Commission approval and reimburse the U.S. Government for the difference between the amount of the bidding credit obtained by the licensee and the bidding credit for which the assignee, transferee, or licensee is eligible under this section, plus interest based on the rate for ten year U.S. Treasury obligations applicable on the date the license is granted, as a condition of the approval of such assignment, transfer, or other ownership change.

(3) The amount of payments made pursuant to paragraphs (c)(1) and (c)(2) of this section will be reduced over time as follows: A transfer in the first five years of the license term will result in a forfeiture of 100 percent of the value of the bidding credit (or the difference between the bidding credit obtained by the original licensee and the bidding credit for which the post-transfer licensee is eligible); in year 6 of the license term the payment will be 80 percent; in year 7 the payment will be 60 percent; in year 8 the payment will be 40 percent; and in year 9 the payment will be 20 percent. For a transfer occurring in year 10 and thereafter, there will be no assessment.

§ 27.210 Definitions.

(a) Scope. The definitions in this section apply to section 27.209, unless otherwise specified in those sections.

(b) Small Business; Very Small Business; Consortia.

(1) A *small business* is an entity that, together with its affiliates and controlling principals, has average annual gross revenues that are not more than \$40 million for the preceding three years.

(2) A *very small business* is an entity that, together with its affiliates and controlling principals, has average annual gross revenues that are not more than \$15 million for the preceding three years.

(3) For purposes of determining whether an entity meets the \$40 million average annual gross revenues size standard set forth in paragraph (b)(1) of this section or the \$15 million average annual gross revenues size standard set forth in paragraph (b)(2) of this section, the gross revenues of the applicant and its affiliates shall be considered on a cumulative basis and aggregated subject to the following exceptions:

(i) For purposes of paragraphs (b)(1) and (b)(2) of this section, the personal net worth of an applicant and its affiliates is not included in the applicant's gross revenues.

(ii) For purposes of paragraphs (b)(1) and (b)(2) of this section, Indian tribes or Alaska Regional or Village Corporations organized pursuant to the Alaska Native Claims Settlement Act (43 U.S.C. 1601 et seq.), or entities owned and controlled by such tribes or corporations, are not considered affiliates of an applicant (or licensee) that is owned and controlled by such tribes, corporations or entities, and that otherwise complies with the requirements of paragraphs (b)(1) and (b)(2), except that gross revenues derived from gaming activities conducted by affiliated entities pursuant to the Indian Gaming Regulatory Act (25 U.S.C. 2701 et seq.) will be counted in determining such applicant's (or licensee's) compliance with the financial requirements of paragraphs (b)(1) and (b)(2) of this section, unless such applicant establishes that it will not receive a substantial unfair competitive advantage because significant legal constraints restrict the applicant's ability to access such gross revenues.

(4) A consortium of small businesses (or 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 (b)(1) of this section or each of which satisfies the definition in paragraph (b)(2) of this section. Where an applicant (or licensee) is a consortium of small businesses, the gross revenues of each small business shall not be aggregated.

(c) *Gross Revenues* Gross revenues shall mean all income received by an entity, whether earned or passive, before any deductions are made for costs of doing business (e.g., cost of goods sold), as evidenced by audited financial statements for the relevant number of most recently completed calendar years, or, if audited financial statements were not prepared on a calendar-year basis, for the most recently completed fiscal years preceding the filing of the applicant's short-form application (Form 175). If an entity was not in existence for all or part of the relevant period, gross revenues shall be evidenced by the audited financial statements of the entity's predecessor-in-interest or, if there

is no identifiable predecessor-in-interest, unaudited financial statements certified by the applicant as accurate. When an applicant does not otherwise use audited financial statements, its gross revenues may be certified by its chief financial officer or its equivalent.

(d) *Affiliate.*

(1) Basis for Affiliation. An individual or entity is an affiliate of an applicant if such individual or entity:

- (i) Directly or indirectly controls or has the power to control the applicant, or
- (ii) Is directly or indirectly controlled by the applicant, or
- (iii) Is directly or indirectly controlled by a third party or parties who also control or have the power to control the applicant, or
- (iv) Has an "identity of interest" with the applicant.

(2) Nature of control in determining affiliation.

(i) Every business concern is considered to have one or more parties who directly or indirectly control or have the power to control it. Control may be affirmative or negative and it is immaterial whether it is exercised so long as the power to control exists.

Example for paragraph (d)(2)(i) An applicant owning 50 percent of the voting stock of another concern would have negative power to control such concern since such party can block any action of the other stockholders. Also, the bylaws of a corporation may permit a stockholder with less than 50 percent of the voting stock to block any actions taken by the other stockholders in the other entity. Affiliation exists when the applicant has the power to control a concern while at the same time another person, or persons, are in control of the concern at the will of the party or parties with the power of control.

(ii) Control can arise through stock ownership; occupancy of director, officer, or key employee positions; contractual or other business relations; or combinations of these and other factors. A key employee is an employee who, because of his/her position in the concern, has a critical influence in or substantive control over the operations or management of the concern.

(iii) Control can arise through management positions if the voting stock is so widely distributed that no effective control can be established.

Example for paragraph (d)(2)(iii) In a corporation where the officers and directors own various size blocks of stock totaling 40 percent of the corporation's

voting stock, but no officer or director has a block sufficient to give him/her control or the power to control and the remaining 60 percent is widely distributed with no individual stockholder having a stock interest greater than 10 percent, management has the power to control. If persons with such management control of the other entity are controlling principals of the applicant, the other entity will be deemed an affiliate of the applicant.

(3) Identity of interest between and among persons.

Affiliation can arise between or among two or more persons with an identity of interest, such as members of the same family or persons with common investments. In determining if the applicant controls or is controlled by a concern, persons with an identity of interest will be treated as though they were one person.

(i) Spousal Affiliation. Both spouses are deemed to own or control or have the power to control interests owned or controlled by either of them, unless they are subject to a legal separation recognized by a court of competent jurisdiction in the United States.

(ii) Kinship Affiliation. Immediate family members will be presumed to own or control or have the power to control interests owned or controlled by other immediate family members. In this context "immediate family member" means father, mother, husband, wife, son, daughter, brother, sister, father- or mother-in-law, son- or daughter-in-law, brother- or sister-in-law, step-father or -mother, step-brother or -sister, step-son or -daughter, half-brother or -sister. This presumption may be rebutted by showing that:

- (A) The family members are estranged,
- (B) The family ties are remote, or
- (C) The family members are not closely involved with each other in business matters.

Example for paragraph (d)(3)(ii) A owns a controlling interest in Corporation X. A's sister-in-law, B, has a controlling interest in a WCS geographic area license application. Because A and B have a presumptive kinship affiliation, A's interest in Corporation X is attributable to B, and thus to the applicant, unless B rebuts the presumption with the necessary showing.

(4) Affiliation through stock ownership.

(i) An applicant is presumed to control or have the power to control a concern if he/she owns or controls or has the power to control 50 percent or more of its voting stock.

(ii) An applicant is presumed to control or have the power to control a concern even though

he/she owns, controls, or has the power to control less than 50 percent of the concern's voting stock, if the block of stock he/she owns, controls, or has the power to control is large as compared with any other outstanding block of stock.

(iii) If two or more persons each owns, controls or has the power to control less than 50 percent of the voting stock of a concern, such minority holdings are equal or approximately equal in size, and the aggregate of these minority holdings is large as compared with any other stock holding, the presumption arises that each one of these persons individually controls or has the power to control the concern; however, such presumption may be rebutted by a showing that such control or power to control, in fact, does not exist.

(5) Affiliation arising under stock options, convertible debentures, and agreements to merge Stock options, convertible debentures, and agreements to merge (including agreements in principle) are generally considered to have a present effect on the power to control the concern. Therefore, in making a size determination, such options, debentures, and agreements will generally be treated as though the rights held thereunder had been exercised. However, neither an affiliate nor an applicant can use such options and debentures to appear to terminate its control over another concern before it actually does so.

Example 1 for paragraph (d)(5) If company B holds an option to purchase a controlling interest in company A, who holds a controlling interest in a WCS geographic area license application, the situation is treated as though company B had exercised its rights and had become owner of a controlling interest in company A. The gross revenues of company B must be taken into account in determining the size of the applicant.

Example 2 for paragraph (d)(5) If a large company, BigCo, holds 70% (70 of 100 outstanding shares) of the voting stock of company A, who holds a controlling interest in a WCS geographic area license application, and gives a third party, SmallCo, an option to purchase 50 of the 70 shares owned by BigCo, BigCo will be deemed to be an affiliate of company A, and thus the applicant, until SmallCo actually exercises its options to purchase such shares. In order to prevent BigCo from circumventing the intent of the rule, which requires such options to be considered on a fully diluted basis, the option is not considered to have present effect in this case.

Example 3 for paragraph (d)(5) If company A has entered into an agreement to merge with company B in the future, the situation is treated as though the merger has taken place.

(6) Affiliation under voting trusts.

(i) Stock interests held in trust shall be deemed controlled by any person who holds or shares the

power to vote such stock, to any person who has the sole power to sell such stock, and to any person who has the right to revoke the trust at will or to replace the trustee at will.

(ii) If a trustee has a familial, personal or extra-trust business relationship to the grantor or the beneficiary, the stock interests held in trust will be deemed controlled by the grantor or beneficiary, as appropriate.

(iii) If the primary purpose of a voting trust, or similar agreement, is to separate voting power from beneficial ownership of voting stock for the purpose of shifting control of or the power to control a concern in order that such concern or another concern may meet the Commission's size standards, such voting trust shall not be considered valid for this purpose regardless of whether it is or is not recognized within the appropriate jurisdiction.

(7) Affiliation through common management.

Affiliation generally arises where officers, directors, or key employees serve as the majority or otherwise as the controlling element of the board of directors and/or the management of another entity.

(8) Affiliation through common facilities.

Affiliation generally arises where one concern shares office space and/or employees and/or other facilities with another concern, particularly where such concerns are in the same or related industry or field of operations, or where such concerns were formerly affiliated, and through these sharing arrangements one concern has control, or potential control, of the other concern.

(9) Affiliation through contractual relationships.

Affiliation generally arises where one concern is dependent upon another concern for contracts and business to such a degree that one concern has control, or potential control, of the other concern.

(10) Affiliation under joint venture arrangements.

(i) A joint venture for size determination purposes is an association of concerns and/or individuals, with interests in any degree or proportion, formed by contract, express or implied, to engage in and carry out a single, specific business venture for joint profit for which purpose they combine their efforts, property, money, skill and knowledge, but not on a continuing or permanent basis for conducting business generally. The determination whether an entity is a joint venture is based upon the facts of the business operation, regardless of how the business operation may be designated by the parties involved. An agreement to share profits/losses proportionate to each party's contribution to the business operation is a significant factor in determining whether the business operation is a joint venture.

(ii) The parties to a joint venture are considered to be affiliated with each other.

Subpart E -- Application, Licensing, and Processing Rules for WCS

§ 27.301 Authorization required.

No person shall use or operate any device for the transmission of energy or communications by radio in the services authorized by this part except as provided in this part.

§ 27.302 Eligibility.

(a) General. Authorizations will be granted upon proper application if:

(1) The applicant is qualified under the applicable laws and the regulations, policies and decisions issued under those laws, including section 27.12;

(2) There are frequencies available to provide satisfactory service; and

(3) The public interest, convenience or necessity would be served by a grant.

(b) Alien Ownership. A WCS authorization may not be granted to or held by an entity not meeting the requirements of Section 310 of the Communications Act of 1934, as amended, 47 U.S.C. section 310 insofar as applicable to the particular service in question.

§ 27.303 Formal and informal applications.

(a) Except for an authorization under any of the conditions stated in section 308(a) of the Communications Act of 1934 (47 U.S.C. 308(a)), the Commission may grant only upon written application received by it, the following authorization: station licenses; modifications of licenses; renewals of licenses; transfers and assignments of station licenses, or any right thereunder.

(b) Except as may be otherwise permitted by this part, a separate written application shall be filed for each instrument of authorization requested. Applications may be:

- (1) "Formal applications" where the Commission has prescribed in this part a standard form; or
- (2) "Informal applications" (normally in letter form) where the Commission has not prescribed a standard form.

(c) An informal application will be accepted for filing only if:

- (1) A standard form is not prescribed or clearly applicable to the authorization requested;
- (2) It is a document submitted, in duplicate, with a caption which indicates clearly the nature of the request, radio service involved, location of the station, and the application file number (if known); and
- (3) It contains all the technical details and informational showings required by the rules and states clearly and completely the facts involved and authorization desired.

§ 27.304 Filing of WCS applications, fees, and numbers of copies.

(a) As prescribed by section 27.307, standard formal application forms applicable to the WCS may be obtained from either:

- (1) Federal Communications Commission, Washington, DC 20554; or
- (2) By calling the Commission's Forms Distribution Center, (202) 418-3676.

(b) Applications for the initial provision of WCS service must be filed on FCC Form 175 in accordance with the rules in sections 27.204 and part 1, subpart Q of this chapter. In the event of mutual exclusivity between applicants filing FCC Form 175, only auction winners will be eligible to file subsequent long form applications on FCC Form 600 for initial WCS licenses. Mutually exclusive applications filed on Form 175 are subject to competitive bidding under those rules.

(c) All applications for WCS radio station authorizations (other than applications for initial provision of WCS service filed on FCC Form 175) shall be submitted for filing to: Federal Communications Commission, Wireless Telecommunications Bureau, 1270 Fairfield Road, Gettysburg, PA 17325, Attention: WCS Processing Section.

(d) All correspondence or amendments concerning a submitted application shall clearly identify the name of the applicant, FCC Account Number or Commission file number (if known) or station call sign of the application involved, and may be sent directly to the Wireless Telecommunications Bureau, 1270 Fairfield Road, Gettysburg, PA 17325, Attention: WCS Processing Section.

(e) Except as otherwise specified, all applications, amendments, correspondence, pleadings and forms (with the exception of FCC Form 175, which is to be filed electronically pursuant to section 27.204) shall be submitted on one original paper copy and with a 3.5-inch floppy disk containing all attachments, and any other supporting documentation in separate ASCII text (.TXT) file formats. Those filing any amendments, correspondence, pleadings, and forms must simultaneously submit the original hard copy which must be stamped "original". In addition to the original hard copy, those filing pleadings, including pleadings under section 1.2108 of this chapter shall also submit 2 paper copies as provided in section 1.51 of this chapter. Applicants who file electronically will not be required to follow these procedures, but instead are required to follow all instructions for electronic filing detailed by the FCC in any subsequent public notices.

(f) Subsequent application by auction winners or non-mutually exclusive applicants for WCS radio station(s) under part 27. FCC Form 600 shall be submitted by each auction winner for each WCS license applied for on FCC Form 175. In the event that mutual exclusivity does not exist between applicants filing FCC Form 175, the Commission will so inform the applicant and the applicant will also file FCC Form 600. Blanket licenses are granted for each market frequency block. Applications for individual sites are not needed and will not be accepted. See section 27.11.

§ 27.305 Reserved.

§ 27.306 Miscellaneous forms.

(a) Renewal of station licenses. Except for renewal of special temporary authorizations, FCC Form 405 ("Application for Renewal of Station License") must be filed in duplicate by the licensee between thirty (30) and sixty (60) days prior to the expiration date of the license sought to be renewed.

(b) Assignment of authorization or transfer of control. Assignments of authorization or transfers of control applications are to be filed on the FCC Form 490, "Application for Assignment of Authorization or Consent to Transfer of Control of License".

§ 27.307 General application requirements.

(a) Each application (including applications filed on Forms 175 and 600) for a radio station authorization or for consent to assignment or transfer of control in the WCS shall disclose fully the real party or parties in interest and must include the following information:

(1) A list of its subsidiaries, if any. Subsidiary means any business five per cent or more whose stock, warrants, options or debt securities are owned by the applicant or an officer, director, stockholder or key management personnel of the applicant. This list must include a description of each subsidiary's principal business and a description of each subsidiary's relationship to the applicant.

(2) A list of its affiliates, if any. Affiliate is defined in section 27.210(d).

(3) A list of the names, addresses, citizenship and principal business of any person holding five percent or more of each class of stock, warrants, options or debt securities together with the amount and percentage held, and the name, address, citizenship and principal place of business of any person on whose account, if other than the holder, such interest is held. If any of these persons are related by blood or marriage, include such relationship in the statement.

(4) In the case of partnerships, the name and address of each partner, each partner's citizenship and the share or interest participation in the partnership. This information must be provided for all partners, regardless of their respective ownership interests in the partnership. This information must be included as an exhibit to the application.

(b) Each application for a radio station authorization in the WCS must:

(1) Submit the information required by the Commission's rules, requests, and application forms;

(2) Be maintained by the applicant substantially accurate and complete in all significant respects in accordance with the provisions of section 1.65 of this chapter; and

(3) Show compliance with and make all special showings that may be applicable.

(c) Where documents, exhibits, or other lengthy showings already on file with the Commission contain information which is required by an application form, the application may specifically refer to such information, if:

(1) The information previously filed is over one A4 (21 cm x 29.7 cm) or 8.5 x 11 inch (21.6 cm x 27.9 cm) page in length, and all information referenced therein is current and accurate in all significant respects under section 1.65 of this chapter; and

(2) The reference states specifically where the previously filed information can actually be found, including mention of:

(i) The station call sign or application file number whenever the reference is to station files or previously filed applications; and

(ii) The title of the proceeding, the docket number, and any legal citations, whenever the reference is to a docketed proceeding. However, questions on an application form which call for specific technical data, or which can be answered by a "yes" or "no" or other short answer shall be answered as appropriate and shall not be cross-referenced to a previous filing.

(d) In addition to the general application requirements of subpart F of this part and section 27.204 of this chapter, applicants shall submit any additional documents, exhibits, or signed written statements of fact:

(1) As may be required by these rules; and

(2) As the Commission, at any time after the filing of an application and during the term of any authorization, may require from any applicant, permittee, or licensee to enable it to determine whether a radio authorization should be granted, denied, or revoked.

(e) Except when the Commission has declared explicitly to the contrary, an informational requirement does not in itself imply the processing treatment of decisional weight to be accorded the response.

§ 27.308 Technical content of applications.

All applications required by this part shall contain all technical information required by the application forms or associated public notice(s). Applications other than initial applications for a WCS license must also comply with all technical requirements of the rules governing the WCS (see subparts C and D as appropriate).

§27.310 Waiver of rules.

(a) Request for waivers.

(1) Waivers of these rules may be granted upon application or by the Commission on its own motion. Requests for waivers shall contain a statement of reasons sufficient to justify a waiver. Waivers will not be granted except upon an affirmative showing:

(i) That the underlying purpose of the rule will not be served, or would be frustrated, by its application in a particular case, and that grant of the waiver is otherwise in the public interest; or

(ii) That the unique facts and circumstances of a particular case render application of the rule inequitable, unduly burdensome or otherwise contrary to the public interest. Applicants must also show the lack of a reasonable alternative.

(2) If the information necessary to support a waiver request is already on file, the applicant may cross-reference to the specific filing where it may be found.

(b) Denial of waiver, alternate showing required. If a waiver is not granted, the application will be dismissed as defective unless the applicant has also provided an alternative proposal which complies with the Commission's rules (including any required showings).

§ 27.311 Defective applications.

(a) Unless the Commission shall otherwise permit, an application will be unacceptable for filing and will be returned to the applicant with a brief statement as to the omissions or discrepancies if:

(1) The application is defective with respect to completeness of answers to questions informational showings, execution, or other matters of a formal character; or

(2) The application does not comply with the Commission's rules, regulations, specific requirements for additional information or other requirements. See also section 27.204 of this chapter.

(b) Some examples of common deficiencies which result in defective applications under paragraph (a) of this section are:

(1) The application is not filled out completely and signed; or

(2) The application (other than an application filed on FCC Form 175) does not include an environmental assessment as required for an action that may have a significant impact upon the environment, as defined in section 1.1307 of this chapter.

(3) The application is filed prior to the public notice issued under section 27.316 announcing the application filing date for the relevant auction or after the cutoff date prescribed in that public notice;

(c) If an applicant is requested by the Commission to file any documents or any supplementary or explanatory information not specifically required in the prescribed application form, a failure to comply with such request within a specified time period will be deemed to render the application defective and will subject it to dismissal.

§ 27.312 Inconsistent or conflicting applications.

While an application is pending and undecided under part 27, no subsequent inconsistent or conflicting application may be filed by the same applicant, his successor or assignee, or on behalf or for the benefit of the same applicant, his successor or assignee.

§ 27.313 Amendment of applications for Wireless Communications Service (other than applications filed on FCC Form 175).

This section applies to all applications for Wireless Communications Service other than applications filed on FCC Form 175.

(a) Amendments as of right. A pending application may be amended as a matter of right if the application has not been designated for hearing.

(1) Amendments shall comply with section 27.319, as applicable; and

(2) Amendments which resolve interference conflicts or amendments under section 27.319 may be filed at any time.

(b) The Commission or the presiding officer may grant requests to amend an application designated for hearing only if a written petition demonstrating good cause is submitted and properly served upon the parties of record.

(c) Major amendments, minor amendments. The Commission will classify all amendments as minor, unless there is a substantial change in ownership or control. Such an amendment shall be deemed to be a major amendment subject to section 27.316.

(d) If a petition to deny (or other formal objection) has been filed, any amendment, requests for waiver, (or other written communications) shall be served on the petitioner by hand, unless waiver of this requirement is granted pursuant to paragraph (e) of this section. See also section 1.2108 of this chapter.

(e) The Commission may waive the service requirements of paragraph (d) of this section and prescribe such alternative procedures as may be appropriate under the circumstances to protect petitioners' interests and to avoid undue delay in a proceeding, if an applicant submits a request for waiver which demonstrates that the service requirement is unreasonably burdensome.

(f) Any amendment to an application shall be signed and shall be submitted in the same manner, and with the same number of copies, as was the original application. Amendments may be made in letter form if they comply in all other respects with the requirements of this chapter.

(g) An application will be considered to be a newly filed application if it is amended by a major amendment (as defined in this section), except in the following circumstances:

(1) The amendment reflects only a change in ownership or control found by the Commission to be in the public interest;

(2) The amendment corrects typographical transcription, or similar clerical errors which are

clearly demonstrated to be mistakes by reference to other parts of the application, and whose discovery does not create new or increased frequency conflicts.

§ 27.314 Application for temporary authorizations.

In circumstances requiring immediate or temporary use of facilities, request may be made for special temporary authority (STA) to operate new or modified equipment. Such requests may be submitted as informal applications (see section 22.105) and must contain complete details about the proposed operation and the circumstances that fully justify and necessitate the grant of STA. Such requests should be filed in time to be received by the FCC at least 10 days prior to the date of proposed operation or, where an extension is sought, 10 days prior to the expiration date of the existing STA. Requests received less than 10 days prior to the desired date of operation may be given expedited consideration only if compelling reasons are given, in writing, for the delay in submitting the request. Otherwise, such late-filed requests are considered in turn, but action might not be taken prior to the desired date of operation. Requests for STAs must be accompanied by the proper filing fee.

(a) Grant without Public Notice. STAs may be granted without being listed in a Public Notice, or prior to 30 days after such listing, if:

(1) The STA is to be valid for 30 days or less and the applicant does not plan to file an application for regular authorization of the subject operation;

(2) The STA is to be valid for 60 days or less, pending the filing of an application for regular authorization of the subject operation;

(3) The STA is to allow interim operation to facilitate completion of authorized construction or to provide substantially the same service as previously authorized; or

(4) The STA is made upon a finding that there are extraordinary circumstances requiring operation in the public interest and that delay in the institution of such service would seriously prejudice the public interest.

(b) Limit on STA term. The FCC may grant STAs valid for a period not to exceed 180 days under the provisions of Section 309(f) of the Communications Act of 1934, as amended (47 U.S.C. section 309(f)) if extraordinary circumstances so require, and pending the filing of an application for regular operation. The FCC may grant extensions of STAs for a period of 180 days, but the applicant must show that extraordinary circumstances warrant such an extension.

§ 27.315 Receipt of application; applications in the Wireless Communications Service filed on FCC Form 175 and other applications in the WCS Service.

(a) All applications for WCS filed pursuant to section 27.304 are given a file number. The assignment of a file number to an application is merely for administrative convenience and does not indicate the acceptance of the application for filing and processing. Such assignment of a file number will not preclude the subsequent return or dismissal of the application if it is found to be defective or not in accordance with the Commission's rules.

(b) Acceptance of an application for filing merely means that it has been the subject of a preliminary review as to completeness. Such acceptance will not preclude the subsequent return or dismissal of the application if it is found to be defective or not in accordance with the Commission's rules.

§ 27.316 Public notice period.

(a) At regular intervals, the Commission may issue a public notice listing:

- (1) The acceptance for filing of all applications and major amendments thereto;
- (2) Significant Commission actions concerning applications listed as acceptable for filing;

(3) Information which the Commission in its discretion believes of public significance. Such notices are solely for the purpose of informing the public and do not create any rights in an applicant or any other person; or

(4) Special environmental considerations as required by part 1 of this chapter.

(b) The Commission will not grant any application until expiration of a period of seven (7) days following the issuance date of a public notice listing the application, or any major amendments thereto, as acceptable for filing. Provided, that the Commission will not grant an application filed on Form 600 filed either by a winning bidder or by an applicant whose Form 175 application is not mutually exclusive with other applicants, until the expiration of a period of forty (40) days following the issuance of a public notice listing the application, or any major amendments thereto, as acceptable for filing. See also section 27.207.

(c) As an exception to paragraphs (a)(1), (a)(2) and (b) of this section, the public notice provisions are not applicable to applications:

(1) For authorization of a minor technical change in the facilities of an authorized station where such a change would not be classified as a major amendment (as defined by Section 27.313) were such a change to be submitted as an amendment to a pending application.

(2) For issuance of a license subsequent to a radio station authorization or, pending application for a grant of such license, any special or temporary authorization to permit interim operation to facilitate completion of authorized construction or to provide substantially the same service as would be authorized by such license;

(3) For temporary authorization pursuant to section 27.314;

(4) For an authorization under any of the proviso clauses of section 308(a) of the Communications Act of 1934 (47 U.S.C. section 308(a));

(5) For consent to an involuntary assignment or transfer of control of a radio authorization; or

(6) For consent to a voluntary assignment or transfer of control of a radio authorization, where the assignment or transfer does not involve a substantial change in ownership or control.

§ 27.317 Dismissal and return of applications.

(a) Any application may be dismissed without prejudice as a matter of right if the applicant requests its dismissal prior to designation for hearing or, in the case of applications filed on Forms 175 and 175-S, prior to auction. An applicant's request for the return of his application after it has been accepted for filing will be considered to be a request for dismissal without prejudice. Applicants requesting dismissal of their applications are also subject to section 27.203 of this chapter.

(b) A request to dismiss an application without prejudice will be considered after designation for hearing only if:

(1) A written petition is submitted to the Commission and is properly served upon all parties of record; and

(2) The petition complies with the provisions of this section and demonstrates good cause.

(c) The Commission will dismiss an application for failure to prosecute or for failure to respond substantially within a specified time period to official correspondence or requests for additional information. Dismissal shall be without prejudice if made prior to designation for hearing or prior to auction, but dismissal may be made with prejudice for unsatisfactory compliance or after designation for hearing or after the applicant is notified that it is the winning bidder under the auction process.

§ 27.319 Ownership changes and agreements to amend or to dismiss applications or pleadings.

(a) Applicability. Subject to the provisions of section 27.204 of this chapter (Bidding Application and Certification Procedures; Prohibition of Collusion), this section applies to applicants and all other parties interested in pending applications who wish to resolve contested matters among themselves with a formal or an informal agreement or understanding. This section applies only when the agreement or understanding will result in:

(1) A major change in the ownership of an applicant to which sections 27.313(c) and 27.313(g) apply or which would cause the applicant to lose its status as a designated entity under section 27.210(b), or

(2) The individual or mutual withdrawal, amendment or dismissal of any pending application, amendment, petition or other pleading.

(b) The provisions of section 27.207 of the Commission's Rules will apply in the event of the filing of petitions to deny or other pleadings or informal objections filed against WCS applications. The provisions of section 27.317 of the Commission's Rules will apply in the event of dismissal of WCS applications.

§ 27.320 Opposition to applications.

(a) Petitions to deny (including petitions for other forms of relief) and responsive pleadings for Commission consideration must comply with section 27.207 and must:

(1) Identify the application or applications (including applicant's name, station location, Commission file numbers and radio service involved) with which it is concerned;

(2) Be filed in accordance with the pleading limitations, filing periods, and other applicable provisions of sections 1.41 through 1.52 of this chapter except where otherwise provided in section 27.207;

(3) Contain specific allegations of fact which, except for facts of which official notice may be taken, shall be supported by affidavit of a person or persons with personal knowledge thereof, and which shall be sufficient to demonstrate that the petitioner (or respondent) is a party in interest and that a grant of, or other Commission action regarding, the application would be prima facie inconsistent with the public interest;

(4) Be filed within five (5) days after the date of public notice announcing the acceptance for filing of any such application or major amendment thereto (unless the Commission otherwise extends the filing deadline); and

(5) Contain a certificate of service showing that it has been hand delivered to the applicant no later than the date of filing thereof with the Commission.

(b) A petition to deny a major amendment to a previously filed application may only raise matters directly related to the amendment which could not have been raised in connection with the underlying, previously filed application. This does not apply to petitioners who gainstanding because of the major amendment.

(c) Parties who file frivolous petitions to deny may be subject to sanctions including monetary forfeitures, license revocation, if they are FCC licensees, and may be prohibited from participating in future auctions.

§ 27.321 Mutually exclusive applications.

(a) Two or more pending applications are mutually exclusive if the grant of one application would effectively preclude the grant of one or more of the others under the Commission's rules governing the Wireless Communications Services involved. The Commission uses the general procedures in this section for processing mutually exclusive applications in the Wireless Communications Services.

(b) An application will be entitled to comparative consideration with one or more conflicting applications only if the Commission determines that such comparative consideration will serve the public interest.

§ 27.322 Consideration of applications.

(a) Applications for an instrument of authorization will be granted if, upon examination of the application and upon consideration of such other matters as it may officially notice, the Commission finds that the grant will serve the public interest, convenience, and necessity. See also section 1.2108 of this chapter.

(b) The grant shall be without a formal hearing if, upon consideration of the application, any pleadings or objections filed, or other matters which may be officially noticed, the Commission finds that:

(1) The application is acceptable for filing, and is in accordance with the Commission's rules, regulations, and other requirements;

(2) The application is not subject to a post-auction hearing or to comparative consideration pursuant to section 27.322 with another application(s);

(3) The applicant certifies that the operation of the proposed facility would not cause harmful electromagnetic interference to another authorized station;

(4) There are no substantial and material questions of fact presented; and

(5) The applicant is qualified under current FCC regulations and policies.

(c) If the Commission should grant without a formal hearing an application for an instrument of authorization which is subject to a petition to deny filed in accordance with section 27.319, the Commission will deny the petition by the issuance of a concise statement for the reason(s) for the denial and dispose of all substantial issues raised by the petition.

(d) Whenever the Commission, without a formal hearing, grants any application in part, or subject to any terms or conditions other than those normally applied to applications of the same type, it shall inform the applicant of the reasons therefor, and the grant shall be considered final unless the Commission should revise its action (either by granting the application as originally requested, or by designating the application for a formal evidentiary hearing) in response to a petition for reconsideration which:

(1) Is filed by the applicant within thirty (30) days from the date of the letter or order giving the reasons for the partial or conditioned grant;

(2) Rejects the grant as made and explains the reasons why the application should be granted as originally requested; and,

(3) Returns the instrument of authorization.

(e) The Commission will designate an application for a formal hearing, specifying with particularity the matters and things in issue, if, upon consideration of the application, any pleadings or objections filed, or other matters which may be officially noticed, the Commission determines that:

(1) A substantial and material question of fact is presented (see also section 1.2108 of this chapter);

(2) The Commission is unable for any reason to make the findings specified in paragraph (a) of this section and the application is acceptable for filing, complete, and in accordance with the Commission's rules, regulations, and other requirements; or

(3) The application is entitled to concurrent consideration (under section 27.321) with another application (or applications).

(f) The Commission may grant, deny or take other action with respect to an application designated for a formal hearing pursuant to paragraph (e) of this section or part 1 of this chapter.

(g) Reconsideration or review of any final action taken by the Commission will be in accordance with part 1, subpart A of this chapter.

§ 27.323 Reserved.

§ 27.324 Transfer of control or assignment of station authorization.

(a) Authorizations shall be transferred or assigned to another party, voluntarily (for example, by contract) or involuntarily (for example, by death, bankruptcy, or legal disability), directly or indirectly or by transfer of control of any corporation holding such authorization, only upon application and approval by the Commission. A transfer of control or assignment of station authorization in the Wireless Communications Service is also subject to section 27.209 of this chapter.

(1) A change from less than 50% ownership to 50% or more ownership shall always be considered a transfer of control.

(2) In other situations a controlling interest shall be determined on a case- by-case basis considering the distribution of ownership, and the relationships of the owners, including family relationships.

(b) Form required:

(1) Assignment.

(i) FCC Form 490 shall be filed to assign a license or permit.

(ii) In the case of involuntary assignment, FCC Form 490 shall be filed within 30 days of the event causing the assignment.

(2) Transfer of control.

(i) FCC Form 490 shall be submitted in order to transfer control of a corporation holding a license or permit.

(ii) In the case of involuntary transfer of control, FCC Form 490 shall be filed within 30 days of the event causing the transfer.

(3) Notification of completion. The Commission shall be notified by letter of the date of completion of the assignment or transfer of control.

(4) If the transfer of control of a license is approved, the new licensee is held to the original renewal requirement of section 27.14.

(c) In acting upon applications for transfer of control or assignment, the Commission will not consider whether the public interest, convenience, and necessity might be served by the transfer or assignment of the authorization to a person other than the proposed transferee or assignee.

(d) Applicants seeking to transfer their licenses within three years after the initial license grant date are required to file, together with their transfer application, the associated contracts for sale, option agreements, management agreements, and all other documents disclosing the total consideration to be received in return for the transfer of the license.

(e) Partial assignment of authorization. If the authorization for some, but not all, of the facilities of a Wireless Communications Service station is assigned to another party, voluntarily or involuntarily, such action is a partial assignment of authorization.

(1) To request FCC approval of a partial assignment of authorization, the following must be filed in addition to the forms required by paragraph (b) of this section:

(i) The assignee must apply for authority (FCC Form 600) to operate a new station including the facilities for which authorization is assigned, or to modify the assignee's existing station to include the facilities for which authorization was assigned.

§ 27.325 Termination of authorization.

(a) All authorizations shall terminate on the date specified on the authorization, unless a timely application for renewal has been filed.

(b) If no application for renewal has been made before the authorization's expiration date, a late application for renewal will only be considered if it is filed within 30 days of the expiration date and shows that the failure to file a timely application was due to causes beyond the applicant's control. Service to subscribers need not be suspended while a late filed renewal application is pending, but such service shall be without prejudice to Commission action on the renewal application and any related sanctions. See also section 27.14 (Criteria for Comparative Renewal Proceedings).

(c) Special Temporary Authority. A special temporary authorization shall automatically terminate upon failure to comply with the conditions in the authorization.

PART 97 -- AMATEUR RADIO SERVICE

1. The authority citation for part 97 continues to read as follows:

AUTHORITY: 48 Stat. 1066, 1082, as amended; 47 U.S.C. sections 154, 303. Interpret or apply 48 Stat. 1064-1068, 1081-1105, as amended; 47 U.S.C. sections 151-155, 301-609, unless otherwise noted.

2. Section 97.303(j) is revised to read as follows:

§ 97.303 Frequency sharing requirements.

* * * * *

(j) In the 13 cm band:

(1) The amateur service is allocated on a secondary basis in all ITU Regions. In ITU Region 1, no amateur station shall cause harmful interference to, and shall be not protected from interference due to the operation of, stations authorized by other nations in the fixed and mobile services. In ITU Regions 2 and 3, no amateur station shall cause harmful interference to, and shall not be protected from interference due to the operation of, stations authorized by other nations in the fixed, mobile and radiolocation services.

(2) In the United States:

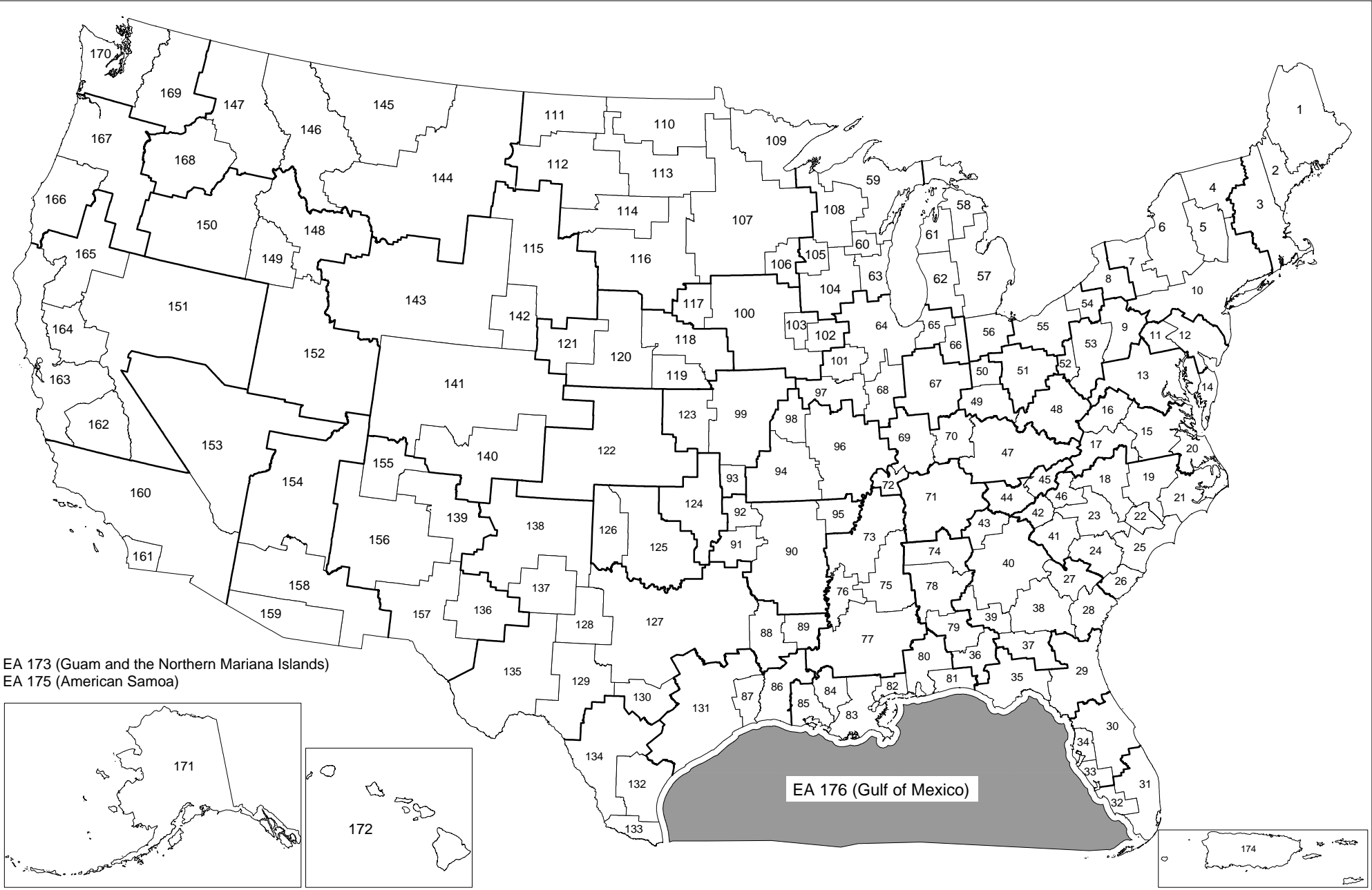
(i) The 2300-2305 MHz segment is allocated to the amateur service on a secondary basis (Currently the 2300-2305 MHz segment is not allocated to any service on a primary basis.)

(ii) The 2305-2310 MHz segment is allocated to the amateur service on a secondary basis to the fixed, mobile, and radiolocation services.

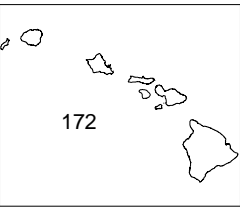
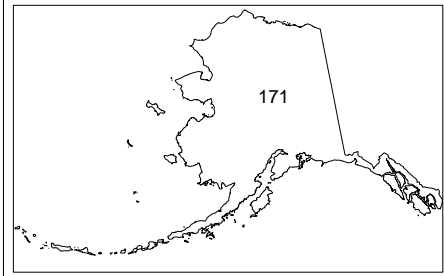
(iii) The 2390-2400 MHz segment is allocated to the amateur service on a primary basis.

(iv) The 2400-2402 MHz segment is allocated to the amateur service on a secondary basis (Currently the 2400-2402 MHz segment is not allocated to any service on a primary basis.) The 2402-2417 MHz segment is allocated to the amateur service on a primary basis. The 2417-2450 MHz segment is allocated to the amateur service on a co-secondary basis with the Government radiolocation service. Amateur stations operating within the 2400-2450 MHz segment must accept harmful interference that may be caused by the proper operation of industrial, scientific, and medical devices operating within the band.

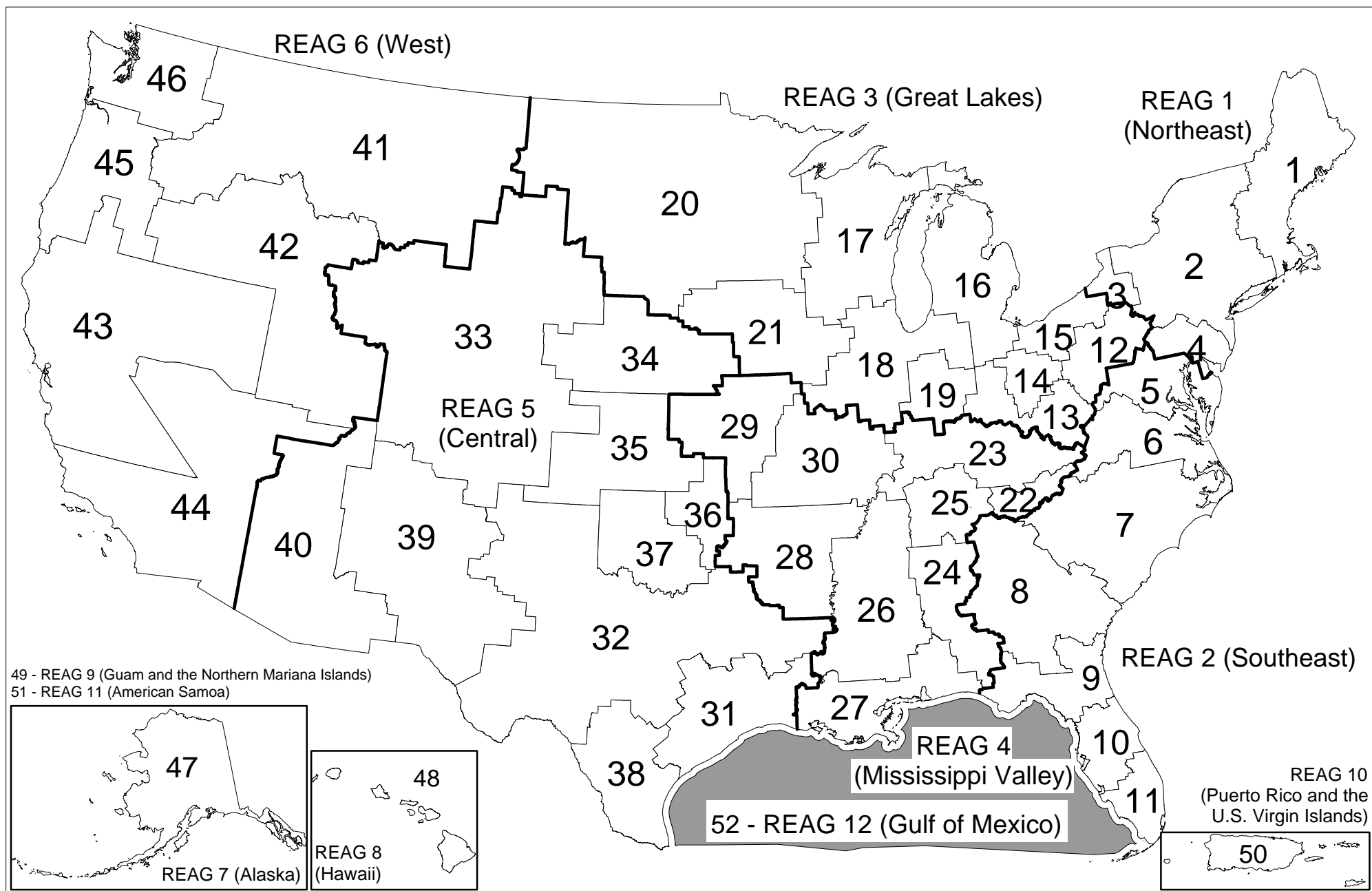
Appendix C: Major Economic Areas (MEAs) and Their Constituent Economic Areas (EAs)



EA 173 (Guam and the Northern Mariana Islands)
EA 175 (American Samoa)



Appendix D: Regional Economic Area Groupings (REAGs) and Their Constituent MEAs



**Separate Statement
of
Commissioner Susan Ness**

Re: Wireless Communications Service (GN Docket No. 96-228)

I write separately to underscore my support for providing the public safety community with adequate and appropriate spectrum to meet its advanced communications needs. Public safety organizations deserve a spectrum plan that will enable different entities -- federal, state and local police, fire and rescue -- to communicate with each other on the same band, and to deploy the most sophisticated communications technologies and services available.

Pursuant to Congressional directive, we took a long and hard look at 2.3 GHz and found it was not suitable for this purpose. However, I am pleased to endorse our recommendation that Congress permit a portion of our spectrum auction proceeds be used to meet public safety communications needs. I also intend to work with my colleagues to craft a comprehensive, long term solution to public safety spectrum needs in our upcoming Report and Order in the Public Safety proceeding (WT Docket No. 96-86).

A Public Safety Wireless Advisory Committee convened by the FCC and NTIA to consider public safety communications needs through the year 2010 issued its Final Report last September. The Report's recommendations and projections document the pressing need for substantial chunks of spectrum for both mobile and fixed wireless communications uses.

Today, public safety uses a hodge-podge of bands across the radio spectrum -- derived by chance rather than through coordinated planning. As a result, police, fire, sheriff, and federal authorities use different radios and frequencies. Tragically, they cannot communicate directly with each other in an emergency unless they maintain multiple radios in their vehicles. This is both inefficient and expensive.

Moreover, new technologies have spawned exciting wireless services to assist our emergency and law enforcement teams. Sufficient broad spectrum is needed to enable these agencies to use these new tools.

Some of the spectrum that will be vacated in the television broadcasting conversion to digital appears to be ideal for public safety mobile needs. Additional microwave spectrum will also be required to connect public safety networks and to link various sites.

As we review our options in the upcoming Public Safety proceeding, we should take care to make the spectrum blocks sufficiently large to foster low cost, spectrum-efficient equipment, and select bands technically appropriate for their intended use.

**SEPARATE STATEMENT OF
COMMISSIONER RACHELLE B. CHONG**

Re: Amendment of the Commission's Rules to Establish Part 27, the Wireless Communications Service ("WCS"), Report and Order, GN Docket 96-228

In this decision, I support our determination not to apply the Commercial Mobile Radio Services (CMRS) spectrum cap to the new Wireless Communications Service (WCS). I write separately to express my belief that the Commission ought to examine whether the CMRS spectrum cap should be retained at all, given the increased competition in the wireless marketplace. I also write separately to reiterate my strong commitment to work with the public safety community to meet its wireless telecommunications needs.

In 1994, the CMRS spectrum cap was originally imposed by the Commission out of concern that "excessive aggregation [of spectrum] by any one of several CMRS licensees could reduce competition by precluding entry by other service providers and might thus confer excessive market power on incumbents."⁴²¹ The spectrum cap was intended to promote a vigorous competitive market for the provision of commercial mobile radio services, and to ensure that each mobile service provider has the opportunity to obtain sufficient spectrum to compete effectively.⁴²² While at the time I believed a CMRS spectrum cap constituted unnecessary government regulation, I was persuaded by my colleagues to go along with the notion until competition increased in the wireless industry.

Three years later, it is my view that the CMRS market is now marked with vigorous and ever increasing competition. Since 1994, we have held auctions for six new PCS licenses in every market and have issued three of those licenses. These PCS entrants compete with the two existing cellular providers in each market. New PCS systems have been placed in operation in twenty-six Major Trading Areas (MTA), and there are now five major cities with two PCS licensees operating. Moreover, the Specialized Mobile Radio (SMR) industry has continued to grow at a healthy rate.⁴²³ SMR industry growth should be spurred on by our issuance of twenty new 900 MHz SMR licensees in fifty-one MTAs in 1996.

⁴²¹ *Implementation of Sections 3(n) and 332 of the Communications Act*, GN Docket No. 93-252, *Third Report and Order*, 9 FCC Rcd 7988, 8101 (1994).

⁴²² *Id.* at ¶¶ 258-260.

⁴²³ At the end of 1995, more than 2 million vehicles and portable units were served by SMR systems, a gain of 13% since the end of 1994. Land Mobile Radio News, *SMR Industry to Serve 4 Million Subscribers by 2000, Study Predicts*, Feb. 16, 1996.

Thus, I believe that the state of competition in the CMRS market not only justifies our decision today not to apply the cap to the WCS service, but may well justify abolishing the spectrum cap entirely. Accordingly, I would have granted the request of one party in this proceeding who suggested that the Commission initiate a proceeding to look at whether the continued application of the CMRS spectrum cap serves the public interest.⁴²⁴

In addition, although I believe that our decision today not to allocate any of the spectrum at 2.3 GHz to public safety was the correct decision for the reasons stated in the Order, I want to reiterate my continuing commitment to address the wireless communications needs of the public safety community. I have made one of my priorities for 1997 to work with the public safety community to find ways to meet its spectrum needs. I believe that the FCC must work diligently to help public safety personnel obtain the extremely reliable, state of the art telecommunications systems that their jobs and -- often human lives -- depend on. I look forward to comprehensively examining the operational, technical and spectrum requirements of the public safety community in our Public Safety proceeding.⁴²⁵

⁴²⁴ Comments of AT&T Wireless at 8, fn. 26.

⁴²⁵ *The Development of Operational, Technical, and Spectrum Requirements for Meeting Federal, State and Local Public Safety Agency Communication Requirements Through the Year 2010*, WT Docket No. 96-86, *Notice of Proposed Rule Making*, 11 FCC Rcd 12460 (rel. April 10, 1996).