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

In the Matter of	)	
	)	
Biennial Regulatory Review – Amendment of	)	WT Docket No. 03-264
Parts 1, 22, 24, 27, and 90 to Streamline and	)	
Harmonize Various Rules Affecting Wireless	)	
Radio Services	)	

REPORT AND ORDER AND FURTHER NOTICE OF PROPOSED RULEMAKING

Adopted: July 22**,** 2005 **Released:** August 9, 2005

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

Comment Date: [60 days after publication in the Federal Register]
Reply Comment Date: [90 days after publication in the Federal Register]

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I. INTRODUCTION

1. On January 7, 2004, the Commission released a Notice of Proposed Rulemaking,[1] which commenced a proceeding to streamline and harmonize licensing provisions in the wireless radio services (WRS)[2] that were identified in part during the Commission's 2000 and 2002 biennial regulatory reviews pursuant to Section 11 of the Communications Act of 1934, as amended ("Communications Act" or "Act").[3] The Commission proposed various amendments to Parts 1, 22, 24, 27, and 90 of the rules to modify or eliminate provisions that treat licensees differently and/or have become outdated as a result of technological change, supervening changes to related Commission rules, and/or increased competition within WRS. We believe streamlining and harmonizing these rules will clarify spectrum rights and obligations and optimize flexibility for WRS licensees, fulfill our mandate under Section 11 of the Communications Act, and support efforts to maximize the public benefits derived from the use of the radio spectrum. Accordingly, in this *Report and Order*, we:

- Modify our rules to classify a deletion of a frequency and/or transmitter site from a multi-site authorization under Part 90 as a minor modification.
- Retain the references to ERP and EIRP in our rules.
- Eliminate the transmitter-specific posting requirement of Part 22 licensees.
- Eliminate Part 24 transmitter output power limits.

[1] *See* In the Matter of Biennial Regulatory Review – Amendment of Parts 1, 22, 24, 27, and 90 to Streamline and Harmonize Various Rules Affecting Wireless Radio Services, WT Docket No. 03-264, *Notice of Proposed Rulemaking*, 19 FCC Rcd 708 (2004) (*Notice*).

[2] 47 C.F.R. § 1.907. WRS is defined in the Commission's rules as "[a]ll radio services authorized in parts 13, 20, 22, 24, 26, 27, 74, 80, 87, 90, 95, 97 and 101 . . . whether commercial or private in nature." *Id*.

[3] 47 U.S.C. § 161.

- Retain the frequency coordination requirement for incumbent licensees operating on 800 MHz General Category frequencies and for site-based 800 MHz General Category applications filed after 800 MHz rebanding.

- Conform the Emission Mask G to a modulation-independent mask that places no limitation on the spectral power density profile within the maximum authorized bandwidth.

- Eliminate Section 90.607(a) of our rules requiring the filing of certain outdated supplemental information.

- Eliminate the loading requirement and references to the "waiting list" in Section 90.631(d) of our rules, and eliminate Section 90.631(i) which is no longer necessary because the 900 MHz specialized mobile radio (SMR) renewal period it references has long passed.

- Modify Section 90.635 of our rules to remove the distinction between urban and suburban sites when setting the maximum power and antenna heights limits for conventional 800 MHz and 900 MHz systems. Eliminate the power limitations on systems with operational radii of less than 32 kilometers.

- Eliminate Section 90.653 of our rules which specifies no limitation on the number of system authorizations to operate within a given geographic area as redundant.

- Eliminate Section 90.658 of our rules which provides that site-based licensees of trunked SMR systems must provide loading data in order to either acquire additional channels or renew their authorizations.

- Modify Section 90.693 of our rules to eliminate the necessity of incumbent 800 MHz SMR licensees filing notifications of minor modifications in certain circumstances.

- Eliminate Section 90.737 of our rules which requires the filing of supplemental progress reports for 220 MHz Phase I licensees.

In the *Further Notice of Proposed Rulemaking,* we seek comment on whether to:

- Implement a spectral density model to our radiated power rules.

- Further increase our radiated power limits.

- Specify radiated power as an average rather than peak.

- Apply the radiated power rule changes to other services.

II. BACKGROUND

2. In the *2000 Biennial Review Report*[4] and *2002 Biennial Review Report,*[5] the Commission

[4] *See* The 2000 Biennial Regulatory Review, CC Docket No. 00-175, *Report*, 16 FCC Rcd 1207 (2001) (*2000 Biennial Review Report*); s*ee also* Biennial Regulatory Review 2000, *Updated Staff Report* (rel. concurrently with *2000 Biennial Review Report*) (*2000 BR Staff Report*); *id*. at Appendix IV: Rule Part Analysis (*2000 BR Staff Report Appendix*).

supported proposals to streamline, harmonize, and update a number of regulations after reviewing various WRS rule parts pursuant to Section 11 of the Act.[6] Section 11 of the Act requires the Commission to review biennially its regulations that are applicable to providers of telecommunications service in order to determine whether any rule is "no longer necessary in the public interest as the result of meaningful economic competition."[7] Following such reviews, the Commission is required to modify or repeal any such regulations that are no longer in the public interest.[8] Since the release of the biennial review reports, the Commission has considered modifying or repealing certain regulations by issuing notices of proposed rulemakings as appropriate. The *Notice* addressed additional proposals, identified in the 2000 and/or 2002 biennial review reports, to streamline and harmonize WRS rules that may no longer be necessary in the public interest pursuant to Section 11 of the Act.

3. To a great extent, technological changes and/or successive changes to various Commission licensing rules have made it appropriate to review whether many of these rules are obsolete and no longer in the public interest. Accordingly, the *Notice* sought comment on streamlining and harmonizing these rules if they no longer serve the public interest in their current form notwithstanding any findings regarding the level of competition among existing services. In its *2002 Biennial Review Report,* the Commission clarified the scope and standard of review for future proceedings conducted pursuant to Section 11.[9] In so doing, the Commission acknowledged that it has broad discretion to review the continued need for any rule even in the absence of a congressional mandate such as Section 11.[10] Accordingly, the *Notice* sought comment pursuant to the Commission's broad authority to consider any proposed modifications to, or elimination of, these existing rules under the Commission's general public interest standard. The Commission also provided notice of, and invited the public to review, various administrative corrections that it intended to make at the conclusion of this proceeding to update and/or clarify certain WRS rules. Although it was not necessary pursuant to the Administrative Procedure Act to seek comment on all of the proposed rule changes in the *Notice*,[11] the Commission did so to facilitate administrative efficiency. Thirteen parties filed comments.[12] Six parties filed reply comments.[13]

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[5] *See* The 2002 Biennial Regulatory Review, GC Docket No. 02-390, *Report*, 18 FCC Rcd 4726 (2003) (*2002 Biennial Review Report*); *see also* 2002 Biennial Regulatory Review, WT Docket No. 02-310, *Staff Report of the Wireless Telecommunications Bureau* (rel. concurrently with *2002 Biennial Review Report*) (*2002 BR Staff Report*); *id*. at Appendix IV: Rule Part Analysis (*2002 BR Staff Report Appendix*).

[6] 47 U.S.C. § 161.

[7] *See 2002 BR Staff Report* at 1, *citing* 47 U.S.C. § 161.

[8] *Id*. at 2.

[9] *See 2002 Biennial Review Report* at ¶ 27.

[10] *Id*.

[11] *See* 5 U.S.C. § 553(b).

[12] *See* Comments of American Automobile Association (AAA), American Mobile Telecommunications Association, Inc. (AMTA); American Petroleum Institute (API); Cellular Telecommunications & Internet Association (CTIA); Cingular Wireless, LLC (Cingular); Ericsson, Inc. (Ericsson); Lucent Technologies, Inc. (Lucent); Motorola, Inc. (Motorola); National Association of Manufacturers and MRFAC, Inc. (NAM/MRFAC); Nextel Communications, Inc. (Nextel); PCIA, the Wireless Infrastructure Association (PCIA); Powerwave Technologies, Inc. (Powerwave); and QUALCOMM Incorporated (Qualcomm).

[13] *See* Reply Comments of American Mobile Telecommunications Association, Inc. (AMTA); Ericsson, Inc. (Ericsson); Industrial Telecommunications Association, Inc. (ITA); Motorola, Inc. (Motorola); Powerwave Technologies, Inc. (Powerwave); and QUALCOMM Incorporated (Qualcomm).

III. DISCUSSION

4. In the sections below, we address the comments on and adopt many of the various proposed amendments to provisions in Parts 1, 22, 24, 27, and 90 of the rules. We sought comment generally whether these provisions should be (1) streamlined as a result of competitive, technological, or subsequent administrative rule changes and/or (2) harmonized because they treat similarly situated services differently. Although many of the proposals we adopt are technical in nature and/or limited in application to a particular WRS, they nonetheless are consistent with our goal to harmonize rules and streamline the licensing obligations for all WRS licensees by eliminating unnecessary rules, as appropriate.

A. Classification of Part 90 Frequency and/or Transmitter Site Deletions as Minor Modifications under Part 1

5. *Background*. Section 1.929(c)(4) of the Commission's rules requires that certain requests for modification to a site-specific Part 90 authorization, including changes to the frequencies or locations of base stations, are considered major modifications to the license which require prior Commission approval.[14] Pursuant to Section 90.135(b) of the rules, a site-specific Part 90 licensee that makes a modification request listed in Section 1.929(c)(4) must submit its request to the applicable frequency coordinator, unless the request falls within one of the specific exemptions listed in Section 90.175 of the rules.[15]

6. The Commission tentatively concluded that a request to delete a frequency or a site from a multi-site authorization under Part 90 should be considered a minor modification that requires neither frequency coordination nor the Commission's prior approval and consequently proposed to amend its rules such that these actions would be treated as minor modifications under Part 1 of the Commission's rules.[16] The Commission invited comment on its tentative conclusion and also sought comment on whether there remains any need for licensees to notify the applicable frequency coordinator of any given deletion, if the rules are modified as proposed.

7. *Discussion*. We adopt our tentative conclusion which was unanimously supported by the commenting parties.[17] We conclude that requiring frequency coordination for a Part 90 frequency or site deletion request is unnecessary given that the Universal Licensing System (ULS) now provides frequency coordinators with immediate access to frequency and site information. We agree with AAA's assessment that it would be inconsistent to require coordination for a deletion of a site or a frequency when it is not required for a request to cancel an entire authorization.[18] API asserts that requiring frequency coordination in this instance serves only to place an unnecessary administrative and financial burden upon

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[14] 47 C.F.R. § 1.929(c)(4). Moreover, any change not specifically listed as major in our rules is considered minor.

[15] *Id*. 47 C.F.R. §§ 90.135(b), 90.175.

[16] *See* 47 C.F.R. §§ 1.929(k), 1.947(b) (requiring licensees to notify the Commission within 30 days of implementing any such minor modifications).

[17] *See*, *e.g.*, AAA Comments, API Comments, CTIA Comments, NAM/MRFAC Comments, Nextel Comments, and PCIA Comments. AMTA had recommended this change in its earlier reply comments in the 2002 biennial review proceeding and still endorses it. *See* AMTA Reply Comments filed in WT Docket No. 02-310 on Nov. 4, 2002 at 7-8. AMTA Reply Comments at 1.

[18] *See* AAA Comments at 2-3.

the licensee, with no corresponding public or private benefit.[19]

8. We also conclude that no further direct notification of frequency coordinators by licensees is necessary. Although most commenters thought that further notification to the applicable frequency coordinator was unnecessary, PCIA disagreed, arguing that it is still desirable for frequency advisory committees ("FACs") to be aware of frequency deletions, and therefore potential spectrum availability.[20] As an alternative, PCIA recommends that the Commission develop an electronic notification process where frequency deletions, filed by licensees directly with the FCC, will generate within ULS an automatic update notification to FACs. PCIA claims this would provide the benefits of FACs being aware of spectrum availabilities, but minimize the costs that might otherwise be incurred.[21] We agree with NAM/MRFAC that licensees need provide no special notification to coordinators of a frequency/site deletion because licensees are generally required to file notifications of minor modifications with the Commission within 30 days of the change pursuant to Sections 1.929 and 1.947, and that coordinators routinely obtain such information via regular downloads from the ULS.[22] We also clarify that a deleted frequency and/or transmitter location becomes available for the filing of applications, where applicable, when the ULS database is updated to reflect the grant of the modification application seeking deletion of a frequency and/or transmitter location.

B. Effective Radiated Power / Equivalent Isotropically Radiated Power

9. *Background*. In its comments in the 2000 biennial review proceeding, the Wireless Communications Division of the Telecommunications Industry Association (TIA) argued that designating FCC power limits[23] in terms of ERP in the Cellular Radiotelephone Service (cellular) rules and EIRP in the broadband Personal Communications Service (PCS) rules is "confusing to [its members'] customers since it appears that a dual mode phone [transmits] at different power levels at different frequencies."[24] TIA argued that having two different types of power limits in the same device could be confusing to those who do not possess a scientific or engineering background.[25] Although it recommended in the *2000 Biennial Review Report* that a rulemaking proposal be initiated to consider using EIRP exclusively in

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[19] API Comments at 4, *citing* Comments of API filed in WT Docket No. 02-310 (Oct. 18, 2002) at ¶ 23.

[20] PCIA Comments at 2.

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

[22] NAM/MRFAC Comments at 3.

[23] Power limits in the Commission's rules are specified in terms of Effective Radiated Power (ERP) for stations transmitting radio waves having frequencies lower than 1000 MHz (*e.g*. Part 22 cellular stations), and in terms of Equivalent Isotropically Radiated Power (EIRP) for stations transmitting radio waves having frequencies higher than 1000 MHz (*e.g*. part 24 broadband PCS stations). Traditionally, radio engineers have used ERP for land mobile transmitting stations and EIRP for microwave fixed transmitting stations. This is because antenna manufacturers have historically measured the gain of antennas used in the mobile service on testing ranges, using a half-wave dipole antenna as a reference, while manufacturers of fixed microwave antennas have specified gain with reference to a theoretical isotropic radiator. Within the last ten years, however, the use of microwave frequency ranges for commercial mobile services has dramatically increased, particularly with broadband PCS. Because the broadband PCS frequency allocations are above 1000 MHz, the Commission expressed power limits in the PCS rules in terms of EIRP rather than ERP, despite the fact that many PCS licensees have chosen to provide mobile service more so than fixed service.

[24] Comments of the Wireless Communications Division of the Telecommunications Industry Association filed in CC Docket No. 00-175 on October 10, 2000 (TIA Comments) at 5.

[25] *Id*.

Commission rules,[26] the Commission tentatively concluded that the costs of implementation and potential for greater confusion that would likely be associated with making a wholesale conversion from ERP limits to EIRP limits outweigh the potential benefits to those licensees who do not possess the scientific or engineering expertise to distinguish between the two standards and sought comment on this tentative conclusion. The Commission urged parties who disagreed with this tentative conclusion to provide specific examples of how the benefits of such a harmonization outweigh the inevitable costs and potentially greater confusion among the public from such a conversion in the rules.

10. *Discussion*. We decide to leave unchanged the references to ERP and EIRP in our rules and adopt our tentative conclusion. We agree with AAA and Nextel that the costs associated with implementing the TIA request, together with the potential for greater uncertainty, outweigh its possible benefits.[27] In addition, AAA contends that restating all ERP limits as EIRP limits could cause some entities to mistakenly conclude that the Commission has increased the permitted power associated with the channels.[28] We disagree with Cingular and TIA that confusion would be removed by converting all of our power limit references to EIRP.[29] On the contrary, we believe that such a change in the rules would require extensive modifications, not only for the Commission (*e.g.*, reprogramming the Universal Licensing System (ULS), amending international agreements negotiated in terms of ERP, *etc*.), but also for licensees, frequency coordinators, manufacturers, and others in the wireless industry. Moreover, because an EIRP limit is always a larger number than the equivalent ERP limit, we believe that restating all ERP limits as EIRP limits could likely cause some entities (*e.g.*, licensees, frequency coordinators, *etc.*) to mistakenly think that the Commission has increased the permitted power.

C. Part 22 Transmitter Identification

11. *Background*. Section 22.303 of the Commission's rules provides, *inter alia*, that "[t]he station call sign must be clearly and legibly marked on or near every transmitting facility, other than mobile transmitters, of the station."[30] In the 2002 biennial review proceeding, CTIA and the Rural Cellular Association (RCA) recommended that the Commission eliminate this requirement in the interest of commercial wireless regulatory parity, since wireless services regulated under other parts of the Commission's rules are not subject to a comparable obligation to post call sign information on each transmitter.[31] The Commission agreed with CTIA and RCA that these rules should be harmonized and tentatively concluded to delete the last sentence of Section 22.303, thereby eliminating the transmitter-specific posting requirement for cellular and other Part 22 licensees. The Commission requested comment on this proposal, including whether the absence of call sign information on transmitting facilities associated with other WRS that are not subject to Part 22 has proved problematic to the public or other carriers in any way.[32]

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[26] *2000 Biennial Review Report*, 16 FCC Rcd at 1231 ¶ 69. We note that the staff actually recommended the change without an explanation, but that the Commission merely recommended consideration of TIA's proposal. *Compare id*. *with 2000 BR Staff Report Appendix* at 69.

[27] AAA Comments at 3. *See also* Nextel Comments at 3.

[28] AAA Comments at 3.

[29] *See* Cingular Comments at 2.

[30] 47 C.F.R. § 22.303.

[31] *See* Petition for Rulemaking of the Cellular Telecommunications & Internet Association, WT Docket No. 02-310, filed July 25, 2002 (CTIA Petition) at 21.

[32] In addition, Section 22.303 references Section 22.163 of the rules. In our ULS proceeding, we consolidated this (continued….)

12. *Discussion*. We eliminate the transmitter-specific posting requirement of Part 22 licensees and thereby adopt our tentative proposal. All commenting parties, including AMTA, CTIA and Cingular, support the proposal.[33] AMTA asserts that the requirement for posting a call sign at each transmitter location is a vestige of a time when systems typically were licensed on a site-specific and frequency-specific basis wherein each location had a unique call sign[34] and claims that now, a significant number of wireless systems, including Part 22 systems, are licensed on a geographic basis with a single call sign covering the entire authorization.[35] AMTA contends that individual transmitters typically may be located anywhere within the geographic area with no requirement for individual operating authority and may transmit on any or all of the authorized channels.[36] Finally, Cingular states that "[n]ot having posted call sign information has not proved problematic for PCS and other services governed by other parts of the rules. The proposed rule change would harmonize the cellular and PCS rules and eliminate an unnecessary obligation on licensees."[37] We agree with the commenters' analysis.

D. Part 24 Power and Antenna Height Limits

13. *Background*. Section 24.232 of the Commission's rules contains, *inter alia*, limits on broadband PCS base station equivalent isotropically radiated power and broadband PCS base station transmitter output power.[38] For the last ten years, the rule limited "base station power" to 1640 watts peak EIRP for antenna heights up to 300 meters height above average terrain (HAAT),[39] and also limited transmitter output power to 100 watts. When the Commission increased the PCS EIRP limit from 100 watts to 1640 watts in 1994, it concurrently adopted the 100 watt peak transmitter power output limit to ensure that broadband PCS licensees utilizing the increased EIRP would do so by employing high-gain, directional antennas, rather than high power transmitters with low-gain, non-directional antennas.[40] Such use of directional antennas, the Commission stated, would help reduce the likelihood of a system imbalance in which PCS licensees would deploy base stations that could transmit a strong signal over distances well beyond a mobile unit's capability to respond.[41] Also, the Commission stated that it would

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rule section into Section 1.929. *See* Biennial Regulatory Review – Amendment of Parts 0, 1, 13, 22, 24, 27, 80, 87, 90, 95, 97 and 101 of the Commission's Rules to Facilitate the Development and Use of the Universal Licensing System in the Wireless Telecommunications Services*, Report and Order*, 13 FCC Rcd 21027 (1998) (*ULS R&O*); *Memorandum Opinion and Order on Reconsideration*, 14 FCC Rcd 11145 (1998). In order to update Section 22.303 to reflect the correct cross-reference, the Commission proposed to replace the reference to Section 22.163 in the first sentence of the section with a reference to Section 1.929.

[33] *See* AMTA Comments at 2, CTIA Comments at 3, and Cingular Comments at 3.

[34] AMTA Comments at 2.

[35] *Id*.

[36] *Id*.

[37] Cingular Comments at 3.

[38] 47 C.F.R. § 24.232.

[39] For antenna HAATs higher than 300 meters, the maximum allowable EIRP is lower in accordance with a table in the Part 24 rules. *See* 47 C.F.R. § 24.232, Tables 1 and 2.

[40] *See* Amendment of the Commission's Rules to Establish New Personal Communications Services, GEN Docket No. 90-314, *Memorandum Opinion and Order*, 9 FCC Rcd 4957, 5025, ¶¶ 172-73 (1994) (*PCS MO&O*).

[41] *Id*. at 5025, ¶ 173. The Commission later clarified that the power limits contained in Section 24.232 "apply to [] individual components and not to the sum of all components at the entire base station." *See* Amendment of the Commission's Rules to Establish New Personal Communications Services, GEN Docket No. 90-314, *Third Memorandum Opinion and Order*, 9 FCC Rcd 6908, 6918, ¶ 62 (1994).

not authorize a higher output power limit at that time because "interference could result to fixed microwave operations and/or to other PCS systems in adjacent service areas."[42] As discussed in more detail below, the Commission recently adopted the *Rural Report and Order*,[43] and amended section 24.232(b), the power rule for broadband PCS, to allow twice as much radiated power (3280 watts EIRP) for use in rural areas, and also increased the base station transmitter output power limit from 100 watts to 200 watts in rural areas.[44] The Commission indicated that increasing power limits in rural areas can benefit consumers in rural areas by reducing the costs of infrastructure and otherwise making the provision of spectrum-based services to rural areas more economic.[45]

14. Powerwave, a manufacturer of Multi-Carrier Power Amplifiers (MCPAs),[46] filed comments in the 2002 biennial review proceeding, prior to the Commission's release of the *Rural Report and Order*, and asserted that the output power limitations contained in rule section 24.232 are overly restrictive.[47] According to Powerwave, as subscriber growth in PCS has increased dramatically since broadband PCS systems were first authorized, the number of carriers (*i.e.*, the individual electrical signals that carry information) used to provide the additional voice channels in a typical cell site has also increased.[48] Powerwave contended that, in order to "provide the same level of service over more carriers at the same distance, it is necessary to increase power."[49] Moreover, Powerwave asserted that the need for higher power levels has also increased because, due to increased local resistance to base station construction, more PCS stations must be collocated with cellular stations and, therefore, are spaced on a cellular design.[50] As a result, PCS licensees, according to Powerwave, are increasingly using MCPAs in their systems. Powerwave contended that the output power limit in section 24.232(a) has the unintended effect of penalizing the use of an MCPA transmitter in the place of multiple individual transmitters because the output power rule limits power on a per transmitter basis rather than on a per carrier basis.[51]

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[42] *PCS MO&O*, 9 FCC Rcd 4957, 5025, ¶ 174.

[43] Facilitating the Provision of Spectrum-Based Services to Rural Areas and Promoting Opportunities for Rural Telephone Companies to Provide Spectrum-Based Services, WT Docket No. 02-381, 2000 Biennial Regulatory Review Spectrum Aggregation Limits for Commercial Mobile Radio Services, WT Docket No. 01-14, Increasing Flexibility to Promote Access to and the Efficient and Intensive Use of Spectrum and the Widespread Deployment of Wireless Services, and to Facilitate Capital Formation, WT Docket No. 03-202, *Report and Order and Further Notice of Proposed Rulemaking*, 19 FCC Rcd 19078 (2004) (*Rural Report and Order*). The Commission retained the current section 24.232(a) power limits for non-rural stations. 47 C.F.R. §24.232(a).

[44] Rural areas are defined as those counties (or equivalent) with a population density of 100 persons per square mile or less, based upon the most recent available Census data. *Rural Report and Order* at ¶11. A broadband PCS licensee seeking to implement the higher power limits in rural areas is required to coordinate with all PCS licensees located within 75 miles of the licensee's base station transmitter. 47 C.F.R. § 24.232 (b).

[45] *Rural Report and Order,* 19 FCC Rcd 19078, 19126 ¶ 86.

[46] An MCPA is a radio frequency final power amplifier with a wide frequency range. The advantage to using it is that an MCPA is a single piece of equipment that can replace many individual transmitter final amplifiers.

[47] Comments of Powerwave, Inc. filed in WT Docket No. 02-310 on October 18, 2002 (Powerwave Comments).

[48] *Id*. at 1, 10.

[49] *Id*. at 1-2. Cellular base stations are generally separated from each other by a greater distance than PCS base stations because they were originally designed to serve vehicular mobile stations, whereas PCS systems were designed to serve handsets only.

[50] *Id*. at 2.

[51] *Id*. at 2-3, 5-6. For example, five carriers going through one transmitter with an MCPA could have a limit of 100 watts per carrier, equaling a limit of 500 watts for the transmitter.

As a result, Powerwave proposed that the Commission eliminate the output power restriction entirely, or at the very least, amend Section 24.232 to provide that the output power of each carrier must not exceed 100 watts, instead of each transmitter.[52]

15. In the *2002 BR Staff Report*, Commission staff generally agreed with Powerwave and concluded that Section 24.232(a) should be modified in order to regulate PCS base station transmissions in a more technologically-neutral manner.[53] Given the case Powerwave presented and subsequent recommendations of staff, the Commission sought comment on whether to relax the output power limitations in Section 24.232(a) by either amending the rule to provide that the output power limit of 100 watts applies on a "per carrier" basis in the case of MCPAs, or to simply eliminate the transmitter output power restriction to allow increased flexibility for PCS licensees in the configuration of their systems.[54]

16. In addition, the Commission asked commenters to address whether or not a radiated power rule can be devised that is technology-neutral, given that the current "per transmitter" rule allows licensees utilizing relatively narrower bandwidth technologies (*e.g.*, GSM) to operate with higher aggregate power across their authorized spectrum than licensees utilizing relative broader bandwidth technologies such as CDMA. The Commission suggested that parties consider other alternatives, including whether or not a power spectral density limit (*i.e.,* power per unit bandwidth) would be more appropriate and thus preferable to a "per-carrier" wording. In response to this latter question, Motorola and Qualcomm argue that the Commission's current rule favors narrowband technologies over wider bandwidth technologies because it is on a "per transmitter" basis, and licensees using narrow bandwidth technologies could operate multiple transmitters resulting in a higher aggregate power per unit bandwidth.[55] According to Motorola and Qualcomm, this places wider bandwidth systems at a competitive disadvantage because they need to deploy additional infrastructure to maintain the same coverage area as narrower bandwidth technologies.[56]

17. Consequently, as a compromise between the narrowband and wideband technologies, Motorola urges the Commission to modify Section 24.232(a) to apply the EIRP limits on a "per MHz" basis for technologies with emission bandwidths exceeding 1 MHz, and on a "per carrier" basis for technologies with emission bandwidths less than 1 MHz.[57] Motorola argues that this adjustment would ensure that wideband systems could be deployed on a competitive basis by being able to radiate similar power per unit bandwidth, regardless of the technology utilized.[58] Motorola contends that this proposal, as opposed to applying a universal power spectral density limit (as Qualcomm suggests) is more fair to narrowband operations, because applying a power spectral density universally would in effect impose limits in excess of those currently applicable and could negatively impact current systems and technologies.[59]

18. Finally, CTIA, in *ex parte* submissions, proposes that EIRP limits for PCS licensees be

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[52] *Id*.

[53] *2002 BR Staff Report* at 9; *see also 2002 BR Staff Report Appendix* at 67.

[54] We note that there is no output power limit for cellular systems licensed under Part 22.

[55] Motorola Comments at 3. *See also* Qualcomm Comments at 1-3.

[56] Motorola Comments at 3.

[57] *Id*.

[58] *Id*.

[59] *Id*.

limited to the larger of either: 1) the current rules; or 2) a power spectral density constraint of 3280 watts/MHz average EIRP for non-rural areas and 6560 watts average EIRP/MHz for rural areas.[60] In addition, CTIA proposes that the Commission allow operators to measure power limits on an "average" as well as "peak" basis, as CTIA claims the term "peak" is subject to interpretation and may lead to confusion.[61] CTIA argues that replacing the term "peak" with the term "average" or by simply removing "peak" (and thereby conform the form of the EIRP/ERP limits in Parts 22 and 24) to permit measurements on either a peak or average basis, without restriction, would remove the uncertainty associated with use of the term peak in the current rules.[62]

19. *Discussion*. After consideration of the record and the general experience with the PCS and other new wireless services, we conclude that the current base station transmitter output power limits should be relaxed to afford more flexibility and achieve harmonization among wireless radio services and competing technologies. The record demonstrates that the transmitter output power limit has had an undesirable effect in hindering the use of MCPAs. MCPAs may be a cost effective way to construct base stations, and we wish to allow licensees flexibility in their use. In view of these conclusions and our policy to eliminate unnecessary, counterproductive or ineffective rules, we are amending Sections 24.232(a)-(b) to eliminate the 100-watt and 200-watt base station transmitter output power limits for urban and rural systems, respectively.[63] As discussed, we believe that the remaining rule that limits maximum EIRP is sufficient to serve our legitimate regulatory purposes for the time being.[64] We note that, in view of our elimination of the broadband PCS base station transmitter output power limit rule, there is no need to address the "per transmitter" vs. "per carrier" aspect with regard to base station transmitter output power.

20. We conclude that the current base station transmitter output power limits have little or no role either in limiting interference or in ensuring that wireless systems are not designed with an excessive imbalance between the forward and reverse links. In light of our action eliminating the output power limit, we need not address Qualcomm's contention that establishing a per carrier limit would invariably cause harmful interference as GSM and TDMA networks could operate base stations at much greater

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[60] *See* CTIA *ex parte* filed October 20, 2004 (CTIA October 20, 2004 *ex parte*) and CTIA *ex parte* filed February 7, 2005 (CTIA February 7, 2005 *ex parte*).

[61] *See* CTIA February 7, 2005 *ex parte* at 5.

[62] *Id*.

[63] We note that Motorola requested that any changes made to section 24.232 of our rules be uniformly applied to our Part 27 rules involving power for AWS systems, specifically section 27.50 (d)(1). Motorola Comments at 2-5. While we are amending sections 24.232 (a) and (b) to eliminate the output power restriction for Part 24 broadband PCS systems, the *Notice* did not specifically address the proposed elimination of the output power restriction for AWS systems under Part 27. Accordingly, we believe that this issue would be better addressed in our review of petitions for reconsideration of the *AWS Report and Order*, where the identical form of relief was sought for AWS systems. *See* In the Matter of Service Rules for Advanced Wireless Services in the 1.7 GHz and 2.1 GHz Bands, WT Docket No. 02-353, *Report and Order,* 18 FCC Rcd 25162 (2003) (*AWS Report and Order)*.

[64] *See* Ericsson Comments at 3 ("Ericsson urges the Commission to eliminate the transmitter output power limit entirely . . . the limit no longer serves its original purpose"); Lucent Comments at 2 ("a requirement on maximum transmitter power is not necessary to control interference as interference levels are constrained by limits on radiated power or, more directly, by maximum out-of-band energy requirements"); Motorola Comments at 2 (…supports the elimination of the 100-watt transmitter output power limitation in Section 24.232(a)); Powerwave Comments at 6 ("Powerwave had advocated the elimination of output power limits due to confusion over how and where such output should be measured"); and Qualcomm Comments at 9 (…no limit would be preferable to a per carrier limit, which would discriminate against CDMA and WCDMA networks).

power than CDMA and W-CDMA networks.[65] We believe that interference problems in PCS are largely avoided by voluntary coordination between the licensees of adjacent systems of facilities located in the area near the geographic boundary between those systems, and by licensee compliance with existing EIRP limits. We further believe that the demand for wireless spectrum and resulting cost of obtaining access to that spectrum provide a strong incentive for licensees to reuse frequencies efficiently within PCS systems. The necessity for efficient re-use ensures that licensees carefully design systems such that the base station transmit range does not exceed the ability of mobile units to communicate back. Excess base transmit range would have a negative impact on frequency re-use and intra-system interference levels. Thus, we believe systems will continue to be properly designed, even without our current output power rule. We also believe that licensees are in the best position to decide what combination of equipment will result in the most efficient provision of service. For example, licensees may wish to utilize higher base station output power with lower gain antennas while operating within our EIRP limits, and we believe it is in the public interest to afford licensees the flexibility to make these types of decisions regarding system design.

21. With respect to the question of spectral power density limits, we decide to maintain for the time being the radiated power limits as recently increased in the *Rural Report and Order.*[66] Given these recent radiated power increases, we conclude that the record developed in response to the *Notice* does not adequately support further EIRP increases. We find that the Commission and industry should be afforded additional time to gain experience with, and assess the effect of, the increased rural radiated power limits and the elimination of Part 24 transmitter output power limits. We also note that the *Notice* was issued in response to comments received in our biennial review process and, with respect to possible EIRP increases, was limited in scope to broadband PCS systems regulated under Part 24 of our rules. Accordingly, the commenting parties largely responded to the *Notice* without knowledge of the Commission's rule changes as ultimately adopted in the *Rural Report and Order.*[67] Moreover, the *Rural Report and Order* addressed rural system EIRP increases across multiple radio services, and was not limited to Part 24 broadband PCS systems.[68] Thus, in keeping with our objective to harmonize our rules across similar services, we believe that the issue of increasing EIRP for broadband PCS licensees must be examined in the larger context of services governed by other rule parts, including cellular licensees under Part 22, and 700 MHz, WCS and Advanced Wireless Services under Part 27.[69] We will explore these

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[65] Qualcomm Comments at 6.

[66] Specifically, an urban base station with an antenna with a height above average terrain (HAAT) of 300 meters or less may operate at a maximum of 1640 watts peak EIRP, while a base station of 300 meters or less in a rural area, will be allowed an increase from 1640 to 3280 watts EIRP. We also note that broadband PCS power limits are tied to antenna heights, so that the authorized power for a given broadband PCS base station would vary, depending upon the accompanying antenna height. In the *Rural Report and Order*, we revised Section 24.232 to provide 100 percent power increases in rural areas as a function of antenna height as follows: an increase from 1640 to 3280 watts for antennas of up to 300 meters, an increase from 1070 to 2140 watts for antennas up to 500 meters, an increase from 490 to 980 watts for antennas up to 1,000 meters, an increase from 270 to 540 watts for antennas up to 1500 meters, an increase from 160 to 320 watts for antennas up to 2,000 meters. *See* 47 C.F.R § 24.232.

[67] We note that only CTIA's *ex partes* were filed subsequent to the release of the *Rural Report and Order*.

[68] Part 22 Cellular and Part 27 AWS system power levels were also increased for rural areas.

[69] The recently adopted rules providing 90 megahertz of spectrum for Advanced Wireless Services, including third generation wireless services, provide for licensing under Part 27 of the Commission's Rules. *See* In the Matter of Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, Including Third Generation Wireless Systems, ET Docket No. 00-258, *Second Report and Order*, 17 FCC Rcd 23193 (2002). In addition, we note that in a more recent NPRM, the Commission is considering whether to license the H block (1915-1920 MHz/1995-2000 MHz; (continued….)

issues below in the *Further Notice*.

22. Additionally, we note that a new dimension has been raised relative to our examination of our rules to achieve better parity among technologies. Specifically, CTIA has suggested a fundamental shift in how base station transmitter power limits are determined. Rather than simply increasing the permitted peak radiated power, CTIA asks that we change from peak to average power while implementing a power spectral density limit. While we appreciate that several major carriers and equipment manufacturers are in agreement on such an approach, we believe such a change raises a number of issues that need closer examination and for which we have little record. For example, it is not clear what impact changing from a peak power limit to an average power limit may have on services operating in other parts of the spectrum, particularly those in adjacent frequency bands. Because of the significant issues that are raised by the CTIA proposal, and although the proposal has promise, we decline to make any changes to the Commission's current radiated power rules at this time. However, we will consider this below among other issues in the *Further Notice*.

E. Proposed Modifications to Part 90

1. Frequency Coordination

23. *Background*. Section 90.175(j) includes exemptions from the general frequency coordination obligation of Part 90 license applications.[70] Previously, the Commission did not require evidence of frequency coordination to accompany applications for 800 MHz Upper 200 and Lower 80 SMR frequencies.[71] In the 2002 biennial review proceeding, CTIA asked the Commission to expand the exceptions to the frequency coordination requirements to include the 800 MHz General Category frequencies.[72] However, the Commission staff found that "the possible conversion of existing site-by-site licensed general category frequencies to a different mode of operation (*e.g.*, from conventional to trunked use), and the potential shared use environment of the frequencies, makes [wholesale] elimination of the coordination requirement a concern,"[73] and that frequency coordination "remains beneficial in a shared use environment to ensure efficient use and prevent interference."[74] Consequently, the Commission sought comment on whether to eliminate the frequency coordination requirement for incumbent licensees operating on 800 MHz General Category frequencies on a non-shared basis, where such licensees propose

(Continued from previous page)

adjacent to broadband PCS) under Part 27 or Part 24. *See* In the Matter of Services Rules for Advanced Wireless Services in the 1915-1920 MHz, 1995-2000 MHz, 2020-2025 MHz and 2175-2180 MHz Bands, WT Docket No. 04-356; In the Matter of Service Rules for Advanced Wireless Services in the 1.7 GHz and 2.1 GHz Bands, WT Docket No. 02-353, *Notice of Proposed Rulemaking*, 19 FCC Rcd 19263 (2004).

[70] 47 C.F.R. § 90.175(j)(listing applications that do not require evidence of frequency coordination).

[71] 47 C.F.R. § 90.175(j)(8). *See* 47 C.F.R. § 90.175(j)(8) (exempts applications for frequencies listed in the SMR tables contained in Sections 90.617 and 90.619).

[72] CTIA Petition at 26-27. At the time CTIA filed its petition, the General Category frequencies consisted of 150 paired channels (Channel Nos. 1-150) at 806-809.75 MHz /851-854.75 MHz. See 47 C.F.R. § 90.615. Prior to the Commission's amendment of the 800 MHz rules in the *800 MHz Order*, the General Category channels could be used by entities providing CMRS, such as SMRs, and by licensees that used the channels for private internal communications. *See* Improving Public Safety Communications in the 800 MHz Band, Consolidating the 900 MHz Industrial/Land Transportation and Business Pool Channels, WT Docket 02-55, ET Docket 00-258 and ET Docket 95-18, *Report and Order, Fifth Report and Order, Fourth Memorandum Opinion and Order, and Order*, 19 FCC Rcd 14969 (2004) (*800 MHz Order*).

[73] *See*, *e.g.*, *2002 BR Staff Report Appendix* at 85-86.

[74] *Id*. at 86.

new and/or modified facilities that do not expand the applicable interference contour.[75]

24. *Discussion*. In light of the Commission's recent decision to reconfigure the 800 MHz band, we believe this issue is moot (*i.e.*, there is no longer any reason to expand the exceptions to the frequency coordination requirements to include the band 806-809.75/851-854.75 MHz). Specifically, in the *800 MHz Order*,[76] the Commission decided to separate incompatible technologies by moving enhanced specialized mobile radio (ESMR) operations to the upper portion of the 800 MHz band and putting non-ESMR operations in the lower portion of the band[77] Under this 800 MHz reconfiguration plan, the 806-809 MHz/851-854 MHz segment of the General Category spectrum was reallocated exclusively for site-based public safety operations.[78] The remaining segment of the General Category spectrum, *i.e.* 806-806.75 MHz/809-809.75 MHz, is still designated as General Category spectrum.

25. Although geographic area licensees operating in this segment can remain under certain conditions[79] pursuant to the *800 MHz Order*, it is likely that ESMR systems in this remaining segment of the General Category will relocate to the ESMR portion of the band and the 806-806.75 MHz/809-809.75 MHz segment will be used predominately for site-based systems.[80] For example, on the channels in this segment of the General Category vacated by Nextel, applications for site-based facilities will be accepted, exclusively from public safety entities for the first three years, by public safety and CII entities for the next two years, and thereafter by any entity eligible for use of 800 MHz channels. These site-based facilities, will require frequency coordination in order to avoid interference. Therefore, we decline to adopt the proposal that Section 90.175(j) be amended to exempt applications in the General Category spectrum from frequency coordination.

2. Emission Masks

26. *Background*. Section 90.210 of the Commission's rules describes several emission masks applicable to Part 90 transmitters.[81] In comments in the 2002 biennial review proceeding, Motorola notes that, while the standards imposed by this rule section generally serve the public interest by limiting unwanted emissions outside the authorized bandwidth and thus minimizing adjacent channel interference, Emission Mask G, set forth in Section 90.210(g), limits design flexibility without any corresponding value in improved interference control.[82] Motorola recommended that the Commission conform the Emission Mask G rule to the steps it has taken in recent years in adopting modulation-

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[75] *See id*. at 85.

[76] *See 800 MHz Order*, 19 FCC Rcd 14969.

[77] *See id*. at 14977, ¶ 11.

[78] *See id*. at 15050, ¶ 151.

[79] *See id*. at 15056, ¶ 162.

[80] *See* 47 C.F.R. § 90.615. *See also* Improving Public Safety Communications in the 800 MHz Band, Consolidating the 900 MHz Industrial/Land Transportation and Business Pool Channels, WT Docket 02-55, ET Docket 00-258 and ET Docket 95-18, *Supplemental Order and Order on Reconsideration,* 19 FCC Rcd 25120, 25146-48 ¶ 60, ¶ 65 (2004) (*800 MHz Supplemental Order*).

[81] 47 C.F.R. § 90.210.

[82] *Id*. § 90.210(g); *see* Comments of Motorola filed in WT Docket No. 02-310 on October 18, 2002 (Motorola Comments) at 1-2. Motorola notes that Emission Mask G was developed with specific applications in mind and is more restrictive than other masks contained in the Part 90 rules by requiring some attenuation of the emission within the authorized bandwidth. Motorola Comments at 1-2.

independent masks (emission masks D, E, and F) that place no limitation on the spectral power density profile within the maximum authorized bandwidth.[83] Commission staff agreed with Motorola in its *2002 BR Staff Report* and recommended that the Commission consider adopting Motorola's request in order to potentially enhance design flexibility without diminishing interference protection.[84] The Commission sought comment on the potential benefits to the public of making this change, and whether this proposed revision would, despite Commission intent, potentially increase interference. Also, the Commission tentatively concluded that it should revise Section 90.210(m) of its rules to conform to ITU Regulation S3.10, because it believed this revision will provide greater protection against interference. The Commission sought comment on this tentative conclusion.

27. *Discussion*. We adopt our tentative conclusion to conform the Emission Mask G to a modulation-independent mask that places no limitation on the spectral power density profile within the maximum authorized bandwidth. We also revise Section 90.210(m) of our rules to conform to ITU Regulation S3.10. All of the commenting parties, including CTIA, Motorola and Nextel, support the Commission's emission mask proposal.[85] We agree with the commenters' assertion that elimination of the rule will afford greater flexibility to manufacturers and will conform this emission mask rule with other emission mask provisions applicable to Part 90 services.

3. 800 MHz and 900 MHz Supplemental Information

28. *Background*. Section 90.607 of the Commission's rules describes the supplemental information that must be furnished by applicants for 800 MHz and 900 MHz SMR systems.[86] Under paragraph (a) of this rule, applicants proposing to provide service on a commercial basis in these bands must supply, among other things, a statement of their "planned mode of operation" and a statement certifying that only eligible persons would be provided service on the licensee's base station facility.[87] In comments filed in the 2002 biennial review proceeding, PCIA advocated eliminating Section 90.607(a).[88] Specifically, PCIA stated that the system diagrams that were used when the 800 MHz band was originally conceived have not been used by the Commission for years and are no longer necessary.[89] Moreover, PCIA asserted that the eligibility statement is no longer needed because the eligibility rules for SMR end-users have been eliminated.[90] The Commission, therefore, tentatively concluded that it should delete Section 90.607(a) to eliminate the above-mentioned reporting requirements.[91] The Commission invited comment on this tentative conclusion.

29. *Discussion*. We eliminate Section 90.607(a) from our rules as it is no longer relevant to our regulatory scheme. The supplemental information required under this rule section was previously

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[83] *Id*.

[84] *2002 BR Staff Report* at 9; see also *2002 BR Staff Report Appendix* at 88. The Commission proposed to revise Section 90.210(g) to eliminate paragraph (g)(1) and renumber the remaining subsections.

[85] *See* CTIA Comments at 3-4, Motorola Comments at 5, and Nextel Comments at 5.

[86] 47 C.F.R. § 90.607.

[87] *Id*. § 90.607(a)(1)-(2).

[88] *See* Reply Comments of PCIA - the Wireless Infrastructure Association filed in WT Docket No. 02-310 on November 4, 2002 (PCIA Reply Comments) at 4.

[89] *Id*.

[90] *Id*.

[91] 47 C.F.R. § 90.607(a)(1)-(2).

used in the Commission's analysis of site-based operations in the SMR service and assisted the Commission in determining to what extent single-site facilities were operating as part of a larger network. Further, prior Commission rules required that SMR end-users meet certain eligibility requirements and the Commission relied upon an applicant's separate certification regarding compliance. The Commission has shifted from site-based licensing of SMR channels to geographic-area licensing through competitive bidding, where SMR systems are routinely part of larger, integrated networks consisting of multiple transmitter sites.[92] We therefore find it unnecessary to require applicants to provide a statement of planned mode of operation. We also agree with PCIA that the separate eligibility certification is no longer necessary as the eligibility rules for SMR users have been eliminated.[93] We also believe meaningful competition among the various wireless services has rendered such requirements no longer necessary in the public interest and market forces should encourage applicants to operate their facilities in the proper manner without Commission involvement. All commenting parties, including AMTA, CTIA, Nextel, and PCIA, support the Commission's tentative conclusion stating that "this information has not been required for more than two decades,"[94] and that it "appears to serve no regulatory purpose and is inconsistent with the Commission's policies regarding the flexible use of spectrum."[95]

4. 800 MHz and 900 MHz Trunked Systems Loading, Construction and Authorization Requirements

30. *Background*. Section 90.631 of the Commission's rules contains various requirements for the authorization, construction, and loading of 800 MHz and 900 MHz trunked systems.[96] PCIA and CTIA request that the Commission modify two of these requirements that they assert are no longer necessary. Section 90.631(d) of the Commission's rules allows a licensee of an 800 MHz and 900 MHz SMR trunked system to request an additional five channels than it has constructed without meeting the loading requirements if the licensee operates in a "rural area."[97] The rule defines a "rural area" as either (1) an area which is beyond the 100-mile radius of the designated center of urbanized areas listed in the rule, or (2) an area that has a "waiting list."[98] In comments in the 2002 biennial review proceeding, PCIA noted that waiting lists for 800 MHz and 900 MHz SMR frequencies[99] were eliminated by the Commission in 1995 when the Commission switched to competitive bidding and geographic area licensing.[100] As a result, PCIA requested that the Commission amend Section 90.631(d) to delete the

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[92] *See* Amendment of Part 90 of the Commission's Rules To Facilitate Future Development of SMR Systems in the 800 MHz Frequency Band, PR Docket No. 93-144, *First Report and Order, Eighth Report and Order, and Second Further Notice of Proposed Rule Making*, 11 FCC Rcd 1463 (1995) (*800 MHz Upper 200 Channel Order).*

[93] We note that a separate certification regarding compliance with Commission rules is unnecessary because applicants are in fact certifying to compliance with Commission rules through execution of the underlying application.

[94] AMTA Comments at 4.

[95] CTIA Comments at 4-5. *See also* Nextel Comments at 4-5 and PCIA Comments at 4.

[96] 47 C.F.R. § 90.631.

[97] *Id*. § 90.631(d).

[98] *Id*.

[99] Waiting lists were created when the Commission could not process applications for 800 MHz and 900 MHz SMR category channels because of a lack of available frequencies in a particular geographic area.

[100] *See 800 MHz Upper 200 Channel Order*, 11 FCC Rcd 1463, 1501 ¶ 59 ("all applications currently on waiting lists for frequencies that may become available in a geographic area are dismissed").

"waiting list" exception to the definition of a rural area.[101] The Commission agreed with PCIA and sought comment on a tentative conclusion to delete this exception to the definition of a rural area. The Commission also sought comment on eliminating other references to waiting lists contained in Section 90.631(d) of the rules.

31. Section 90.631(i) provides that an incumbent (*i.e.*, pre-auction, site-by site authorized) 900 MHz SMR licensee that has not met the loading requirements set forth in Section 90.631(b)[102] at the end of its initial five-year license term will only be granted a renewal period of two years, in which time the licensee must satisfy the loading requirements.[103] CTIA stated that the requirement is obsolete because the "timeframe for site-specific SMR 900 MHz systems to meet the loading requirements has since expired."[104] The Commission agreed that the period of renewing incumbent 900 MHz SMR licenses subject to this requirement has ended. Therefore, the Commission tentatively concluded to eliminate paragraph (i) of Section 90.631 from its rules, as well as references to paragraph (i) in Section 90.631(b) of the rules. The Commission sought comment on this tentative conclusion.

32. *Discussion*. We adopt our tentative conclusions. We agree with all of the commenting parties, including AMTA, CTIA, Nextel, and PCIA, that support the Commission's tentative conclusion on this issue urging the Commission to eliminate both the loading requirement and references to the "waiting list" in Section 90.631(d) of the rules[105] and to eliminate Section 90.631(i), which is no longer necessary since the 900 MHz SMR renewal period it references has long passed.[106] These rules are no longer relevant to our regulatory scheme.

5. 800 MHz and 900 MHz Power and Antenna Height

33. *Background*. Section 90.635 of our rules sets forth the limitations on power and antenna height for 800 MHz and 900 MHz systems.[107] In its comments in the 2002 biennial review proceeding, PCIA asked the Commission to modify or eliminate the restrictions placed on two particular types of 800 MHz and 900 MHz systems – those located in "suburban" areas as defined in the rule and those whose service area requirements are less than 32 kilometers.[108]

34. First, Section 90.635(a)-(c) differentiates between "urban" and "suburban" conventional (*i.e.*, non-trunked) systems, allowing a greater maximum power (1000 watts vs. 500 watts ERP) at a given antenna height above average terrain for urban conventional systems than suburban conventional systems.[109] The 90.635 chart (Table 2) limits maximum radiated power on a sliding scale based upon antenna height above average terrain. For example, urban conventional systems and all trunked systems

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[101] PCIA Reply Comments at 4.

[102] 47 C.F.R. § 90.631(b) (requiring a minimum of 70 mobiles for each authorized channel to be placed into operation within 5 years of initial license grant).

[103] *Id*. § 90.631(i).

[104] CTIA Petition at 28.

[105] CTIA Comments at 5-6. *See also* AMTA Comments at 4, Nextel Comments at 6, and PCIA Comments at 4-5.

[106] AMTA Comments at 4. *See also* CTIA Comments at 5-6, Nextel Comments at 6, and PCIA Comments at 4-5.

[107] 47 C.F.R. § 90.635.

[108] PCIA Reply Comments at 4-5.

[109] 47 C.F.R. § 90.635 (a)-(c). "Urban" conventional systems are defined as systems located within 24 km. of the geographic center of the 50 urbanized areas detailed in Table 1 to 47 C.F.R. § 90.635. *See id*. § 90.635(a).

are permitted to operate with a radiated power of 65 Watts ERP with an antenna height above average terrain of 4500 feet and above to a maximum of 1000 Watts ERP from an antenna height above average terrain of no greater than 1000 feet. In contrast, suburban conventional licensees are limited to a maximum power of 15 Watts ERP with an antenna height above average terrain of 4500 feet and above to a maximum of 500 Watts ERP from an antenna height above average terrain of no greater than 500 feet. PCIA argued that such a distinction "no longer serves a useful purpose and should be eliminated."[110] PCIA justified this conclusion by asserting that suburban systems frequently must cover larger service areas than urban systems, and therefore, a smaller maximum power limit economically restricts the ability of these licensees to serve the suburban areas.[111] Moreover, PCIA asserted that the restrictions on suburban sites also prevent these licensees from counteracting interference from cellular systems to the same extent as urban sites.[112] The Commission sought comment on PCIA's proposal to modify Section 90.635 to remove the distinction between urban and suburban sites when setting the maximum power and antenna height limits for conventional 800 MHz and 900 MHz systems, stating that it believed there is a significant question as to whether the justification for such distinction remains relevant in today's marketplace.

35. Second, PCIA asked the Commission to eliminate the power restrictions on 800 MHz and 900 MHz systems with an operational radius of less than 32 kilometers in radius.[113] PCIA stated that although it "appreciates the Commission's original goal to maximize the number of radio systems that could be accommodated on a single frequency, by limiting the ERP of small footprint systems," the possibility of additional channel use is effectively prohibited by the requirement in Section 90.621(b)(4) that applicants protect all existing stations as if the incumbent system was operating at 1000 watts ERP.[114] PCIA also asserted that the power limitation prevents these smaller systems from limiting interference from cellular systems.[115] Therefore, PCIA requested that the power limitations on 800 MHz and 900 MHz systems with an operational radius below 32 kilometers be eliminated.[116] The Commission sought comment on this proposal and asked that interested parties address the use of such systems in light of the Commission's original goal of increasing the use of single frequencies, and whether lifting of these restrictions will help eliminate interference from cellular systems.

36. *Discussion*. We adopt PCIA's proposal to modify Section 90.635 to remove the distinction between urban and suburban sites when setting the maximum power and antenna height limits for conventional 800 MHz and 900 MHz systems and eliminate power limitations on systems with operational radii of less than 32 kilometers. All of the commenting parties, including AMTA, CTIA, Motorola, NAM/MRFAC, Nextel, and PCIA support the PCIA proposal.[117] We agree with AMTA that several decades of experience have confirmed that there is no bright line distinction between the

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[110] PCIA Reply Comments at 5.

[111] PCIA Reply Comments at 5.

[112] *Id*.

[113] 47 C.F.R. § 90.635(b)-(c) (citing special power/antenna height tables for "service area requirements less than 32 km (20 mi.) in radius").

[114] 47 C.F.R. § 90.621(b)(4).

[115] PCIA Reply Comments at 5.

[116] *Id*.

[117] *See* AMTA Comments, CTIA Comments, Motorola Comments, NAM/MRFAC Comments, Nextel Comments and PCIA Comments.

operational requirements of systems in these two areas.[118] AMTA contends that suburban facilities arguably could require greater power since they might need to cover larger geographic areas than their urban counterparts.[119] AMTA argues that this rule is not needed to protect against inter-system interference in these bands and has not proven reflective of the real world operational requirements of operators.[120] In that regard, CTIA contends that under the current rule, an "urban" system operating 24 km from the geographic center of the top 50 urbanized areas could operate with a higher power and antenna height than a system located 25 km from an urban center, which would instead be classified as a "suburban" system.[121] CTIA argues that such a bright-line distinction makes little, if any, sense from an engineering perspective. Furthermore, CTIA argues, the existence of the "urban" versus "suburban" thresholds increases infrastructure and compliance costs, without providing any countervailing public interest benefit.[122]

37. With regard to the reduced power requirements for this type of system, Motorola notes that the reduced power requirements may affect coverage well within the 32-kilometer service border by providing reduced building penetration.[123] However, PCIA argues that such restrictions in today's operating environment should not lead to any allocations of additional spectrum for other licensees.[124] Specifically, PCIA continues, since section 90.621(b)(4) requires that licensees be protected at 1000 watts ERP, even if the station is licensed for less, the reduced ERP for such systems provides no spectrum benefit.[125] PCIA contends that conversely, the reduced ERP makes some operations more difficult for these types of systems. For example, PCIA continues, airlines do not serve a large operational area, but must be able to communicate into the lower reaches of terminal buildings.[126] PCIA contends that the ERP limits of section 90.635 restrict the ability of airlines to serve these areas.[127] PCIA also argues that one of the most effective means of coping with in-band interference is to increase the signal level of the desired signal.[128] In other words, PCIA argues, a private radio or public safety licensee, experiencing interference from an adjacent channel cellular system, should increase the signal level of their system to override the cellular interference.[129] PCIA states that in the context of these systems, constructing an additional transmitter site is an expensive and needless solution.[130] Further, PCIA states that in the context of an airport facility, constructing an additional transmitter site is often not an option.[131] PCIA claims that no licensees would be harmed by the ability of a licensee to utilize increased ERP, and such licensees should

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[118] AMTA Comments at 4-5.

[119] *Id*.

[120] *Id*.

[121] CTIA Comments at 6-7.

[122] *Id*.

[123] Motorola Comments at 6-7.

[124] PCIA Comments at 5.

[125] *Id*.

[126] *Id*.

[127] *Id*.

[128] *Id*.

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

[130] *Id*. at 6.

[131] *Id*.

have the operational flexibility to utilize an ERP that does not cause interference to co-channel users.[132] We agree.

6. System Authorization Limit in Geographic Areas

38. *Background*. Section 90.653 of the rules states that "[t]here shall be no limit on the number of systems authorized to operate in any one given area except that imposed by allocation limitations."[133] The Commission adopted this rule in 1982 pursuant to its decision to not restrict equipment manufacturers from holding 800 MHz SMR licenses.[134] CTIA asserted that "[t]he rule is redundant and no longer serves any regulatory purpose."[135] Based on the fact that it has licensed and will continue to license 800 and 900 MHz SMR frequencies using competitive bidding for geographic-area authorizations, the Commission agreed with CTIA that this rule is no longer in the public interest. Therefore, the Commission tentatively concluded that Section 90.653 should be removed. The Commission sought comment on this tentative conclusion.

39. *Discussion*. We adopt our tentative conclusion and eliminate Section 90.653 of our rules. We agree with all of the commenting parties, including AMTA, CTIA, and Nextel, that support the Commission's tentative conclusion that rule Section 90.653 is redundant "and no longer serves any regulatory purpose" due to the Commission's general shift to competitive bidding for geographic area licensing in most cases.[136]

7. Reporting Requirement for Trunked SMR Loading Data

40. *Background*. Section 90.658 of the Commission's rules provides that site-based licensees of trunked SMR systems licensed before June 1, 1993 must provide loading data in order to either acquire additional channels or renew their authorizations.[137] Both PCIA and CTIA noted that all SMR licenses issued prior to June 1, 1993 have now been through at least one renewal period and, therefore, advocated eliminating the rule.[138] The Commission staff found that this provision may be an outdated and burdensome requirement on SMR licensees, especially in light of the competition among cellular, PCS, and 800/900 MHz SMR services. Accordingly, the Commission tentatively concluded that it will eliminate Section 90.658 as no longer necessary in the public interest. The Commission sought comment on this proposal.

41. *Discussion*. We adopt our tentative proposal and eliminate Section 90.658. The Commission previously stated in the *CMRS Third Report and Order*[139] that loading requirements are "one

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[132] *Id*.

[133] 47 C.F.R. § 90.653.

[134] Amendment of Part 90 of the Commission's Rules to Release Spectrum in the 806-821/851-866 MHz Bands and to Adopt Rules and Regulations Which Govern Their Use, PR Docket 79-191, *Second Report and Order*, 90 F.C.C.2d 1281 at ¶¶ 30-32, 223-226 (1982).

[135] CTIA Petition at 28.

[136] CTIA Comments at 7-8. *See also* AMTA Comments at 5 and Nextel Comments at 7.

[137] 47 C.F.R. § 90.658.

[138] CTIA Petition at 27-28; PCIA Reply Comments at 6.

[139] Implementation of Sections 3(n) and 332 of the Communications Act, Regulatory Treatment of Mobile Services, GN Docket No. 93-252, *Third Report and Order*, 9 FCC Rcd 7988 (1994) (*CMRS Third Report and Order*).

of the mechanisms we employ under our rules to ensure that mobile service licensees make efficient use of spectrum and offer service to customers within their service area."[140] Previously, SMR licensees were required to meet mobile loading requirements to obtain exclusive use of existing channels, obtain additional channels, serve areas within 40 miles of existing channels, and avoid automatic cancellation of authorization for unloaded channels at renewal.[141] However, the Commission eliminated mobile loading requirements for CMRS licensees in the *CMRS Third Report and Order*[142] and we eliminate Section 90.658 consistent with that action. We also note that all of the commenting parties, including CTIA, Nextel and PCIA, support the Commission's tentative conclusion to eliminate 90.658 because competitive market forces among wireless services have replaced the need to closely monitor traffic loading on SMR systems.[143]

8. Grandfathering Provisions for 800 MHz SMR Incumbent Licensees

42. *Background.* In general, section 90.621(b) requires a fixed mileage separation of 113 km (70 miles) between co-channel 800 and 900 MHz systems.[144] However, section 90.621(b)(4) provides that co-channel stations may be separated by less than 113 km (70 miles) by meeting certain transmitter ERP and antenna height criteria, as listed in the Commission's "Short-Spacing Separation Table."[145] Previously, engineering showings were submitted with applications demonstrating that a certain addition or modification would not cause interference to other licensees, even though the stations would be spaced less than 70 mi (113 km) apart. Currently, stations meeting the parameters set forth in the Short-Spacing Separation Table need not submit an engineering analysis demonstrating interference protection to co-channel licensees.[146] Section 90.693 of the Commission's rules requires that 800 MHz incumbent SMR licensees "notify the Commission within 30 days of any changes in technical parameters or additional stations constructed that fall within the short-spacing criteria."[147] It has been standard practice for incumbents to notify the Commission of all changes and additional stations constructed in cases where such stations are in fact located less than the required 70 mile distance separation, and are therefore technically "short-spaced," but are in fact fully compliant with the parameters of the Commission's Short-Spacing Separation Table.

43. *Discussion.* Although we did not propose in the *Notice* to revise section 90.693, we will delete Section 90.693's notification requirement for incumbents wishing to locate stations closer than the minimum distance separation rules allow, but that fall within the parameters of the Short-Spacing Separation Table under Section 90.621 of our rules.[148] Because incumbents are not allowed under the rules to expand their interference contours, this approach will not lead to interference among licensees.

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[140] *Id*. at 8078 ¶ 185.

[141] *Id*.

[142] *Id*. at 8081-82 ¶¶ 190-93.

[143] *See* CTIA Comments at 8, Nextel Comments at 7-8, and PCIA Comments at 6.

[144] 47 C.F.R. § 90.621(b).

[145] 47 C.F.R. § 90.621(b)(4). *See*, *id*. Short-Spacing Separation Table.

[146] We note that applicants seeking authorization for stations located at distances less than those prescribed in the Short-Spacing Separation Table are required to secure a waiver. *See* 47 C.F.R. § 90.621(b)(4).

[147] 47 C.F.R. § 90.693 (b) and (c).

[148] We note that under the Administrative Procedures Act (APA), the Commission may modify procedural rules such as the notification requirement without notice and comment. See 5 U.S.C. § 553(b).

44. Although we eliminate a substantial number of filings to reduce burdens on licensees, we clarify that notification of minor modifications within 30 days will still be required under Section 90.693 in two areas involving short-spaced systems.[149] First, section 90.621(b)(4) allows stations to be licensed at distances less than those prescribed in the Short-Spacing Separation Table where applicants "secure a waiver."[150] Second, section 90.621(b)(5) permits stations to be located closer than the required separation, so long as the applicant provides letters of concurrence indicating that the applicant and each co-channel licensee within the specified separation agree to accept any interference resulting from the reduced separation between systems.[151]

9. 220 MHz Phase I Supplemental Progress Reports

45. *Background*. Section 90.737 of the Commission's rules sets forth the supplemental progress reports that 220 MHz Phase I licensees must file with the Commission.[152] The Commission staff recommended that the Commission consider whether certain rules applicable to 220 MHz Phase I licensees continue to be necessary in the public interest in light of increased competition among commercial mobile radio services (CMRS) providers.[153] In particular, staff identified section 90.737 as imposing certain reporting requirements and restrictions on assignments of unconstructed, site-based, 220 MHz Phase I licenses that were intended to prevent speculation and trafficking in licenses awarded by lottery.[154] The Commission tentatively concluded that Section 90.737 should be eliminated as no longer necessary in the public interest given recent competitive and other developments. The Commission sought comment on this tentative conclusion.

46. *Discussion*. We adopt our tentative conclusion to eliminate section 90.737. Licensing by lottery has been eliminated in the 220 MHz Service and a continuation of these reporting requirements may "impede the transferability of 220 MHz spectrum" in a competitive CMRS marketplace.[155] Both commenting parties, AMTA and CTIA support the Commission's tentative conclusion to eliminate section 90.737 because "future 220 MHz licenses will be awarded by auction, not lottery" and the rule is no longer needed to prevent trafficking in unconstructed stations.[156]

F. Corrections and Updates to WRS Rules

47. In the *Notice*, we described a series of administrative changes we proposed to make in

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[149] Additionally, we will not eliminate filings required by provisions such as international agreements, our environmental (National Environmental Protection Act (NEPA)) rules, our antenna structure registration rules, or quiet zone notification/filing procedures.

[150] 47 C.F.R. § 90.621(b)(4). Applicants seeking a waiver must submit with their application an interference analysis, based upon any of the generally-accepted terrain-based propagation models, demonstrating that co-channel stations would receive the same or greater interference protection than provided in the Short-Spacing Separation Table.

[151] 47 C.F.R. § 90.621(b)(5). Applicants are required to file such concurrence letters with the Commission.

[152] 47 C.F.R. § 90.737.

[153] *See 2002 BR Staff Report* at 10; *2002 BR Staff Report Appendix* at 108; see also *2000 BR Staff Report Appendix* at 195.

[154] *2002 BR Staff Report Appendix* at 108.

[155] *Id*.

[156] AMTA Comments at 5. *See also* CTIA Comments at 8-9.

this Report and Order.[157] Generally, the changes entail correcting, updating, and eliminating various rules in Parts 1, 22, 24, 27, and 90. We received no comment on any of the proposed administrative changes. Consequently, based on the record before us, we adopt those administrative changes. The specific administrative changes are as follows:

- Part 1, subpart F – Title. Correct the term "Wireless Telecommunications Services" to read "Wireless Radio Services."
- Section 1.927(g). Replace the cross-reference to Section 1.948(h)(2) with Section 1.948(i)(2).[158]
- Section 1.939(b). Eliminate the third sentence which states that manually filed petitions to deny can be filed at the Commission's former office location.[159]
- Section 1.955(a)(2). Replace the cross-reference to Section 1.948(c) with Section 1.946(c).
- Section 22.946(b)(2). Replace the reference to Form 489 with Form 601.[160]
- Section 22.946(c). Replace the cross-reference to Section 22.144(b) with Section 1.955.[161]
- Section 22.947(c). Update the location for filing a cellular system information update (SIU) to "Federal Communications Commission, Wireless Telecommunications Bureau, Mobility Division, 445 12th Street, SW, Washington, DC 20554."
- Section 22.948(d). Delete the cross-reference to Section 22.144(a).[162]
- Section 22.949(d). Replace the cross-reference to Section 22.122 with Section 1.927.[163]
- Section 22.953(b). Replace the cross-reference to Section 1.929(h) with Section 1.929(a)-(b).[164]

48. Finally, we also received a request from Motorola to address the station identification

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[157] *See Notice*, 19 FCC Rcd 708, 722-24 ¶¶ 34-55.

[158] When the Commission proposed 47 C.F.R. § 1.927(g), the rule cross-referenced proposed 47 C.F.R. § 1.948(g)(2), which has identical language to the current 47 C.F.R. § 1.948(i)(2). *See* Amendment of Parts 0, 1, 13, 22, 24 26, 27, 80, 87, 90, 95, 97, and 101 of the Commission's Rules to Facilitate the Development and Use of the Universal Licensing System in the Wireless Telecommunications Service, WT Docket No. 98-20, *Notice of Proposed Rulemaking*, 13 FCC Rcd 9672, 9886 (1998).

[159] 47 C.F.R. § 1.939. The second sentence correctly states that manually filed petitions to deny should be submitted to the Office of the Secretary at the Commission's current address. *Id*.

[160] Form 489 was discontinued and replaced with Form 601.

[161] Section 22.144(b) was consolidated with other similar rules into Section 1.955 in the *ULS R&O*.

[162] Section 22.144 was eliminated in the *ULS R&O*.

[163] Section 22.122 was removed and consolidated into Section 1.927 of our rules in the *ULS R&O*. *ULS R&O*, 13 FCC Rcd app. E at 6, app. G at 78.

[164] Section 1.929(h) involves changes to ship station applications. 47 C.F.R. § 1.929(h). Section 1.929(a)-(b) lists changes applicable to all Wireless Radio Service authorizations and lists specific changes to cellular authorizations, respectively. *Id*. § 1.929(a)-(b).

rules applicable to 700 MHz public safety licensees.[165] Specifically, Motorola contends that unlike the rules for 800 MHz public safety licensees operating digital transmitting equipment on exclusive channels, the rules do not explicitly provide similarly situated 700 MHz licensees with the ability to transmit their station identification in the digital mode.[166] We note that the Commission recently sought comment on this issue in another proceeding.[167]

IV. FURTHER NOTICE OF PROPOSED RULEMAKING

A. Introduction & Background

49. In the Report and Order *supra*, we revise the broadband PCS transmitting power rule by eliminating the transmitter output power limit portion of that rule. We note, however, that various proposals before us concerning the radiated power portion of the rule (EIRP limits), particularly those introduced into the record by CTIA's recent *ex parte* filing, give rise to practical and technical issues that we believe should be further evaluated and addressed before we act on these proposals. Although it appears that some of these radiated power proposals have considerable merit, especially as applied across various bands or services in a harmonized fashion, we find that a more complete record would assist us in properly analyzing the technical details and specifics needed to craft a clear and workable radiated power rule that is not unduly burdensome. We also see no need to delay implementation of the other streamlining actions taken in the Report and Order while we consider this issue. Therefore, we are splitting off the radiated power issues from the Report and Order and consider them in this Further Notice of Proposed Rule Making. This will allow us to seek a more comprehensive record, and will provide an opportunity to comment for any parties that might wish to address any of the proposals in the CTIA filing and the issues discussed below.

50. Accordingly, in this Further Notice, we ask a number of questions on the details of the CTIA proposals, explained further below, for changes to the broadband PCS radiated power limits.[168] In addition, we consider whether these proposals should be applicable to those Part 22 and Part 27 services that operate under a flexible regulatory framework similar to Part 24 broadband PCS. We also seek comment on possible changes to other technical rules that may be appropriate if we adopt changes to the radiated power rules.

B. The CTIA Proposal

51. CTIA's *ex parte* filing proposes that the Commission revise its PCS radiated power rules to limit average EIRP for broadband PCS stations having an antenna height of up to 300 meters above

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[165] Motorola Comments at 7.

[166] *Id*.

[167] *See* In the Matter of Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Communication Requirements Through the Year 2010, *Fifth Memorandum Opinion and Order, Sixth Report and Order, Sixth Report and Order, and Seventh Notice of Proposed Rulemaking*, WT Docket No. 96-86, 20 FCC Rcd 831, 849 ¶ 41 (2005).

[168] We note that the Commission's radiated power rules are among the core technical rules whose fundamental purpose is to limit the interference potential of wireless systems while still providing sufficient technical flexibility to allow for efficient provision of telecommunications services. The transmitting power rules for broadband PCS are contained in Section 24.232 of the Commission's Rules; for Advanced Wireless Systems (AWS) in Section 27.50(d); and for Cellular systems in Section 22.913. The PCS and AWS rule limits the peak radiated power of base stations, while the older cellular rule simply states that the radiated power must not exceed the stated value.

average terrain to the larger of: (1) 1640 Watts per carrier[169] (3280 Watts in rural areas) which is the current rule, and (2) 3280 Watts per MHz of emission bandwidth (6560 Watts per MHz of emission bandwidth in rural areas). For stations using an antenna height greater than 300 meters above average terrain, CTIA proposes that the "per MHz" limit be set to 1640 rather than 3280 Watts.[170] We note that the CTIA plan for revision of the radiated power rule comprises three related but independent proposals that we believe can and should be addressed and evaluated individually.[171] First, CTIA proposes to add a power spectral density feature to the current rule. This would allow more radiated power, the specific amount being proportional to emission bandwidth, for stations transmitting emissions with a bandwidth wider than 500 kHz, relative to stations transmitting emissions with a bandwidth less than 500 kHz.[172] Under CTIA's proposal, the narrow emission bandwidth stations would remain subject to the current set radiated power limits, preventing the unintended result of narrowband systems actually having to decrease power.[173] Second, CTIA generally proposes increasing the maximum radiated power for emissions with a bandwidth wider than 500 kHz, notwithstanding the implementation of a spectral density model.[174] Third, CTIA proposes that the radiated power rule be specified in terms of average power rather than peak power.[175] CTIA states that the issue of peak vs. average power is "logically separate" from the power spectral density issue, but believes that it is appropriate to address it because it arises in the "very same sentence in the rules."[176] Finally, CTIA proposes that the Commission ensure regulatory parity for technically like services by mirroring the requested broadband PCS changes in our Part 27 Advanced Wireless Service (AWS) rules.[177]

52. We welcome comment on all aspects of the CTIA proposal. We recognize the effort CTIA has made to reconcile the differing positions filed earlier in the record and to craft a consensus among the parties. CTIA states that its proposal will facilitate deployment of wideband technologies and

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[169] The current rule expresses the radiated power limit as "per station", but this has been interpreted by the Commission, and is generally understood by the industry, to refer to the radiated power of each individual emission and not to the aggregate radiated power of all of the emissions from a base station. We note that, in common industry jargon, an emission is sometimes referred to as a "carrier" and, in fact, CTIA uses this terminology in its filing. However, the Commission in this context uses the term "carrier" to mean a fundamental radio frequency wave that is to be modulated by a signal containing the information to be transmitted (hence it "carries" the information). In older, simpler technologies, there was generally only one carrier in an emission (perhaps leading to the industry usage). Today's more complex digital emissions often employ numerous carriers and/or subcarriers. In this FNPRM, we will use the term "per emission" in connection with proposed changes to the radiated power rule, noting that this usage is in agreement with our standing interpretation of the "per station" language of the current rule. By "emission", we mean one radiated RF wave, whether modulated or unmodulated. Multiple antenna radiating elements radiating the same radio wave (*e.g.* a power divider feeding multiple polarizations) would be considered as one emission.

[170] We believe that it is unusual for a broadband PCS base station to employ an antenna site higher than 300 meters above average terrain, except perhaps in mountainous terrain.

[171] We could ultimately decide to adopt some combination of one or two of the proposals and not the other(s).

[172] CTIA February 7, 2005 *ex parte* at 2.

[173] *Id*.

[174] *Id*.

[175] *Id.* at 5.

[176] *Id*.

[177] *Id.* at 2.

eliminate disadvantages for certain narrowband technologies, resulting in lower costs for consumers.[178] Because many of the commenting parties support the proposal, we believe that it makes a good starting point for consideration of these issues. Nevertheless, as discussed in detail below, we have some concerns with CTIA's proposal, especially in circumstances where subsequent entrants operating within our rules and their licensed parameters seek to introduce technologies and services that are incompatible with existing systems. For instance, we question whether the proposal would serve the purpose of balancing the interference potential of various known and future technologies, as well as the relative coverage or performance of wideband versus narrowband systems. We also believe that the CTIA proposal, as outlined, may be unnecessarily complex in some respects, leading to practical difficulties in compliance. We question whether the proposed radiated power limits are comparable to power levels actually used by licensees in their current systems.

53. We seek forward-looking comment to inform us on possible unintended consequences that might flow from the technical aspects of the CTIA proposal, such as the "peak vs. average power" issue. Our radiated power rules are intended to limit the interference potential of wireless systems while still providing technical flexibility to licensees. As a result, substantial changes to our radiated power rules may require consideration of how these changes may affect other related technical interference-limiting rules. Based on these considerations, we raise a number of questions in the following paragraphs about the three aspects of the CTIA proposal. We also suggest some simpler alternatives that might accomplish the same objectives as the CTIA proposal, and we seek comment on those as well.

54. We also seek comment on whether we should extend the relief CTIA's requests to other services. As noted, CTIA specifically requests that the proposed changes be mirrored in the Part 27 rules governing AWS systems. If we adopt any or all of the proposed changes, should we implement them in other services, for example, Part 27 (700 MHz and/or Wireless Communications Services (WCS)), or Part 22 (Cellular)? We recognize that there may be concerns with applying the proposed changes to other services that may be less flexible than broadband PCS, or where there may be possible interference concerns to adjacent spectrum users (*i.e.* Public Safety) or existing incumbent systems (*i.e*. Broadcasters), and therefore we seek comment on whether CTIA's proposed changes should be extended beyond Part 24 broadband PCS. In this regard, we note that Crown Castle International Corp. (Crown Castle) recently filed an *ex parte* in this proceeding.[179] Crown Castle is the sole licensee of a nationwide authorization in the 1670-1675 MHz band with plans to deploy, through its subsidiary Crown Castle Mobile Media, a wide-band terrestrial wireless network to "transmit multiple channels of high-quality, digital video and audio programming to mobile phones and other hand-held devices."[180] Crown Castle supports the CTIA proposal in principle, but also seeks application of the proposal, if implemented, on a proportional basis.[181] We seek comment on application of CTIA's proposal in general to the 1670-1675 MHz band. Moreover, Crown Castle points out that CTIA seeks application of its proposal to Part 24 PCS and Part 27 AWS, *i.e.* bands that were previously afforded relief in the *Rural Report and Order*.[182] In supporting

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[178] *Id.* at 1.

[179] *See* Crown Castle *ex parte* filed May 16, 2005 (Crown Castle *ex parte*).

[180] Crown Castle *ex parte* at 2.

[181] For example, as discussed below, the CTIA proposal seeks certain radiated power increases and application of a spectral density model based upon a starting point of 1640 Watts EIRP (the current non-rural limit for both Part 24 Broadband PCS and Part 27 AWS systems), whereas Crown Castle supports a starting point of 2000 Watts EIRP (the current radiated power limit for the 1670-1675 MHz band) for relevant calculations.

[182] Crown Castle *ex parte* at 2. *See also Rural Report and Order*, 19 FCC Rcd 19078 (Commission afforded 100 % radiated power limit increase in rural areas for Part 22 Cellular, Part 24 Broadband PCS, and Part 27 AWS).

CTIA's proposal, Crown Castle requests that the Commission increase power levels in rural areas for certain bands not afforded relief in the *Rural Report and Order*, specifically the 1670-1675 MHz band, as the "reasoning provided by the Commission for increasing the base station power limits applicable to rural PCS and AWS operations also applies to 1670-75 MHz operations" (*i.e.* allowing expanded rural coverage while using fewer base stations).[183] We seek comment on this issue as well.

C. Power Limits for Wide Bandwidth Emissions

55. *Power spectral density limits.* In the Notice of Proposed Rule Making, the Commission requested that commenters consider a power spectral density (*i.e.* power per unit of bandwidth) limit in the context of achieving a more "technology neutral" transmitter power output rule.[184] The Commission was concerned that a "per carrier" (or "per emission") wording, instead of the existing "per transmitter" language, would shift the burden of compliance with the transmitter output power rule from equipment manufacturers to individual licensees, who might find it impracticable to individually monitor each "carrier" (or emission).[185] Because we decided to eliminate the transmitter output power rule, the compliance burden associated with it will no longer exist. Nevertheless, our question opened the door to consideration of power spectral density limits generally.

56. The Commission seeks to promulgate rules that are "technology neutral" because we believe that ideally it is in the public interest for competing telecommunications technologies to succeed or fail in the marketplace on the basis of their merits and other market factors, and not primarily because of government regulation. It should also be understood that "technology neutral" means that our rule should neither penalize *nor give advantage to* any particular technology unnecessarily. Sometimes, however, an FCC rule adopted under earlier unknown or different technological circumstances will inadvertently affect new and evolving technologies unequally and, in fact, this may be unavoidable in some cases, if the purpose of the rule (*e.g.* avoiding harmful interference) is to be accomplished.

57. According to Motorola, adoption of a rule providing a power spectral density limit for broadband PCS can be considered in terms of leveling the competitive playing field between narrow emission and wide emission technologies.[186] Qualcomm and Motorola both argue that the current radiated power rule, by failing to taking emission bandwidth into consideration, authorizes narrow emission systems to transmit more aggregate radiated power than wide emission systems, within a given spectrum block.[187] CTIA claims that the current EIRP limit is interpreted to place a limit on the power of a single carrier but to permit multiple carriers to be transmitted from a single base station.[188] CTIA further claims that systems operating in smaller bandwidths are permitted to operate at higher power spectral density than those operating in larger bandwidths.[189] CTIA argues that technologies, such as CDMA, W-CDMA, or OFDM, that combine many voice signals onto a single combined signal and that use advanced techniques to counter multi-path fading therefore are disadvantaged by the per-carrier

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[183] Crown Castle *ex parte* at 2.

[184] *Notice* at para. 18.

[185] Compare with Cingular Comments at 4, 5 ("monitoring output power on a "per RF carrier" basis is relatively straightforward and usually is not difficult or expensive for the PCS licensee").

[186] Motorola Comments at 3.

[187] *See* Motorola Comments at 2-3. *See* Qualcomm Comments at 1.

[188] CTIA February 7, 2005 *ex parte* at 2.

[189] *Id*.

power constraint in the current rules. CTIA contends that removing an artificial handicap on the use of some technologies – such as W-CDMA – would facilitate the adoption and deployment of these technologies by wireless service providers.[190] Moreover, CTIA contends that researchers and inventors would no longer be constrained to give up power in order to use wider bandwidths.[191]

58. Existing narrow emission PCS technologies (*i.e.* TDMA, GSM) carry 3 to 8 voice conversations per emission, while existing wide emission technologies (*i.e.* CDMA) carry as many as 20 to 40 voice conversations per emission.[192] Because the current rule makes no distinction between wide and narrow emissions, it applies the same maximum radiated power limit to both. Consequently, a wide emission system is allowed to provide only about one fifth of the radiated power for each voice conversation that a narrow emission system is allowed to provide, assuming that each system is fully loaded and operating at the maximum power permitted by rule.[193] Thus the average voice conversation on the wide emission system would have a lower signal to noise ratio, which, despite the partially compensating processing gain provided by signal spreading, would reduce the coverage range.[194] Motorola expressed a view that the Commission's current policy is biased against wider bandwidth technologies as it allows technologies that utilize a narrower bandwidth to radiate a higher power per unit bandwidth, thus placing wider bandwidth systems at a competitive disadvantage because wider bandwidth technologies will need to deploy additional infrastructure to maintain the same coverage area as narrower bandwidth technologies.[195]

59. Several of the comments reflect a concern that, if the Commission were to adopt a rule allowing more radiated power for wide emissions than for narrow emissions, the power allowed by such a rule for narrow emissions (such as GSM and TDMA) would be lower than is permitted by the current rule.[196] These commenters argue that there should be no reduction in the radiated power limit currently applicable to existing PCS systems. We note that we did not propose in the Notice to reduce the transmitting power limits for broadband PCS systems, nor do we do so here. Thus, even if we were to adopt the CTIA proposal, we assume that the current radiated power limits (1640 Watts EIRP non-rural, 3280 Watts EIRP rural) would be unchanged for all narrow emission types. The parties' comments have raised a good question however, and we seek comment on whether a power spectral density radiated power limit should be applied for narrow emissions as well as wide emissions. For example, should the radiated power limit for 30 kHz bandwidth emissions be lower than that for 200 kHz bandwidth emissions? Likewise, should the radiated power limit for 12.5 kHz bandwidth emissions be lower than that for 30 kHz bandwidth emissions?

60. One of our concerns is that a larger aggregate power presents a greater interference

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[190] *Id*.

[191] *Id*.

[192] Table 2, *infra*, sets forth the typical emission bandwidths for TDMA/GSM systems vs. CDMA systems.

[193] We are not saying that it is realistic to assume that PCS systems ordinarily operate fully-loaded and at the maximum power permitted by rule. But one must do so if the claim is to be made that the current rule treats one technology different from another technology having a different emission bandwidth.

[194] We note that in the case of data technologies such as CDMA-2000 1xEV-DO, reduced signal to noise ratio results in a lower data throughput. *See* Qualcomm, Inc. White Paper, "*1xEV: 1x Evolution IS-856 TIA/EIA Standard, Airlink Overview*", dated November 7, 2001 at 10.

[195] Motorola Comments at 3.

[196] *See, e.g.*, Ericsson Comments at 9.

potential to other systems. In other words, the current rule may well allow systems employing narrow emission technologies to pose a greater interference potential than those employing wide emission technologies. We note that CTIA does not propose any upper limit or cap on radiated power under this approach, and consequently the power levels permitted under its proposal could easily reach some very large numbers (*i.e*. 32,800 Watts in a rural area) for wider emission types such as Wideband Code Division Multiple Access (W-CDMA) using 5 MHz bandwidths. Moreover, existing licensees and new entrants may not have adequate information about the types of technology being deployed in adjacent bands or areas, including system architecture, nor the locations of base stations that could cause interference. This additional interference risk with limited information could lead to difficult negotiating positions among adjacent systems using different technologies, which could hinder coordination procedures that have been at the heart of the success of interference avoidance in the broadband PCS service, and which will be applied to other flexible use bands (*e.g*. Part 27 AWS). In considering the issue of whether to adopt a radiated power limit rule that would allow more power for wider bandwidth emissions, we must consider the primary objective of the rule, which is to limit interference potential between licensees. How should the Commission balance the interference potential of various technologies and facilitate information sharing in order to facilitate inter-system coordination negotiations between licensees?

61. If we ultimately decide to adopt a rule that allows a higher radiated power limit for wide emissions than for narrow emissions, we must define which emissions types are wide and which are narrow, and the basis for that classification. We note that typical systems using emissions that have a bandwidth wider than 1 MHz re-use the same channels in every cell, whereas systems using emissions with a bandwidth less than 1 MHz use a cellular frequency re-use pattern where different channel sets are used in adjacent cells.[197] Another way of describing this is that systems using emissions that have a bandwidth wider than 1 MHz use their entire spectrum contiguously in each cell, whereas systems using emissions with a bandwidth less than 1 MHz use at each cell a number of narrower channels separated by several channels not used in that cell. We note that Motorola proposes in its earlier filings to utilize a bandwidth of 1 MHz as the dividing line.[198] The CTIA proposal, however, results in the division between narrow and wide emission bandwidths occurring at 500 kHz rather than 1 MHz. We believe however, that if a technology is developed using a 500 kHz-1MHz bandwidth, the technology is more likely to use different channels at different cells like other narrowband systems, rather than use a spread spectrum approach as is typically used in wideband systems. Accordingly, if we were to adopt a spectral density model similar to what CTIA proposes, we seek comment on whether to use 500 kHz, 1 MHz, or some other emission bandwidth as the dividing point between narrow and wide emissions, noting that we seek to logically divide wireless technologies into two groups that use differing system architectures.[199]

62. Adoption of a radiated power rule that allows more power for wide emissions than for narrow emissions also raises a number of questions in regard to implementation. A "Watts per MHz" power spectral density limit, such as the CTIA proposal includes for wider bandwidth emissions, would define power limits based on a sliding scale with a potentially infinite number of linear scaled limit values.[200] Initially, we question whether this is the best way to structure a radiated power limit rule for

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[197] *See* Qualcomm Reply Comments at 2.

[198] Motorola Comments at 3. We note that Motorola now supports the CTIA proposal.

[199] *See* Table 2, *infra*, for a list of technologies that fall into the two main groups of system architectures (*e.g*. wideband or narrowband).

[200] We note that radiated power (*i.e.* EIRP) is not directly measured. Instead, EIRP is calculated by measuring the RF power at a convenient point in the transmission line between the transmitter and the antenna feed line, subtracting the specified system losses, and adding the specified maximum antenna gain. See full discussion of (continued….)

PCS and other flexible services. An alternative would be to use a "step" approach, with specific power limits for particular bandwidth ranges, which could perhaps be set forth in a table to make clear what limit is applicable in any given instance.[201] For an analogy, if it were desired in the interest of highway safety to require heavier vehicles to travel slower than lighter vehicles, it may make more sense to simply have two posted speed limits, one for automobiles and another for heavier vehicles such as trucks, rather than to adopt a "mph per ton of vehicle" ratio that would likely result in a different individual speed limit being applicable to each model of car or truck in accordance with how much that particular model weighs. While the latter might be more accurate in terms of equalizing the momentum of vehicles, the gained accuracy is greatly outweighed by the resultant complexity and difficulty in determining compliance. CTIA apparently differs with this assessment, stating that a "stepped limit" would be less appropriate than a power spectral density applied to "every contiguous 1 MHz region in the relevant band,"[202] but offers no reasons, however, for that particular position. We therefore seek comment on whether, if we decide to allow higher radiated power for wide emission types, this power should be expressed in terms of a specific limit or series of limits for various emission bandwidths. We note that this could be easily codified in table form, as illustrated below. The simplest proposal would involve having only four power radiated limits: rural and non-rural power limits for wide emissions (for example, emissions with bandwidth exceeding 1 MHz), and rural and non-rural power limits for narrow bandwidth emissions.[203]

Table 1 PCS Maximum EIRP Limits

Emission Bandwidth	Non-rural	Rural
< 1 MHz (narrow)	1640 Watts (no change)	3280 Watts (no change)
≥ 1 MHz (wide)	3280 Watts (for example)	6560 Watts (for example)

63. Another possible variation is the use of a series of radiated power limits corresponding to six common existing emission bandwidths as illustrated in Table 2: 6.25 kHz, 12.5 kHz, 16/20/25/30 kHz, 200 kHz, 1.25 MHz, 4.3/5 MHz. The value of each radiated power limit would be chosen as appropriate to the technologies commonly deployed in that emission bandwidth, and thus the power levels would not necessarily be linearly scaled by bandwidth or otherwise related to each other, as would be the case with a pure power spectral density limit. Would the benefit of having custom tailored power levels for each common bandwidth justify the added complexity of an increased number of limits? What would be appropriate power levels for these emission bandwidths? We seek comment on these methods for providing higher radiated power limits for systems employing emissions with wider bandwidths and any other alternatives, including CTIA's preferred sliding scale approach in terms of "Watts per MHz."

Table 2 PCS Maximum EIRP Limits

Emission Bandwidth	Example Technologies	Non-rural	Rural
1 to 10 kHz (very narrow)	FSK (digital voice)	410 Watts (for example)	820 Watts (for example)

(Continued from previous page)

EIRP and ERP terms and definitions at paragraphs 10 – 11, *supra*.

[201] It is for this reason that we have in many instances over the years adopted tables for antenna height power reduction instead of the graphical curves that we used to have in our rules.

[202] CTIA *ex parte* February 7, 2005 at 5.

[203] Additionally, we would apply an antenna height power reduction table for base stations having antenna heights above average terrain of more than 300 meters. This would require a certain amount of power reduction (expressed in dB) for each of a series of antenna heights.

10 kHz to 15 kHz (narrow)	NBFM, FSK	820 Watts (for example)	1640 Watts (for example)
15 kHz to 150 kHz (medium)	FM, AMPS, iDEN	1640 Watts (no change)	3280 Watts (no change)
150 kHz to 1 MHz (medium wide)	GSM, EDGE	1640 Watts (no change)	3280 Watts (no change)
1 MHz to 3 MHz (wide)	CDMA, 1X-EVDO, OFDM	3280 Watts (for example)	6560 Watts (for example)
> 3 MHz (very wide)	CDMA2000-3X, WCDMA	6560 Watts (for example)	13,120 Watts (for example)

D. Radiated Power Limit Increases

64. Some of the commenters propose not only to allow more radiated power for wide emission systems relative to narrow emission systems, but also to increase the overall radiated power limit substantially over that permitted by the current rule. For example, Ericsson originally proposed to increase the maximum radiated power limit for non-rural broadband PCS from 1640 to 6560 Watts EIRP, and QUALCOMM proposed that the limit be increased similarly for wide emissions. We reiterate that, using an open-ended power spectral density limit such as that in the CTIA proposal, permissible radiated power could reach very high power levels for very wide emission systems (*e.g.* 16,400 Watts for a 5 MHz emission bandwidth in non-rural areas and 32,800 Watts for a 5 MHz emission bandwidth in rural areas).

65. We seek comment on whether these maximum power levels now being proposed by the parties for our rules may be far above power levels that licensees actually use in their systems. Do existing licensees use as much radiated power in their systems as is permitted by the current PCS radiated power rule? In this light, we ask what marginal benefit would be realized by further overall increases in our radiated power limits for broadband PCS or other flexible wireless services? We believe that our radiated power rule should be as flexible as possible, but it should also reflect realistic limits that are comparable to necessary power levels. We seek comment on how such levels should also accommodate implementation of future technologies and current situations that may prove unusual or exceptional, without imposing undue regulatory burdens or unnecessary risks of harmful interference. One reason to avoid unrealistically high limits in our rules would be, as CTIA has suggested, if we also were to specify radiated power limits in terms of average power instead of peak power (see discussion below). To build an adequate record on whether there is any routine or extraordinary need for very high power operation, we request that commenters supporting higher overall limits provide examples of actual situations in which licensees could beneficially use radiated power levels on the order of what is being proposed by the parties. Are there particular coverage or service quality problems that could be solved by such an increase? What effect would increased radiated power have on the potential for harmful interference to adjacent spectrum users?

66. If we were to increase radiated power levels as CTIA proposes, it may be necessary to enhance coordination efforts between licensees, which will assist these licensees in minimizing instances of interference. We note that current rules do not require broadband PCS licensees to notify the Commission of the location of existing transmitter sites. We therefore seek comment on possible methods to improve information sharing among licensees, including comment on the types of circumstances that would trigger information disclosure or sharing requirements. For example, we note that an industry association made up of representatives of many current licensees has established a detailed protocol for exchanging technical information.[204] We seek comment on whether this existing

[204] *See* "Inter-PCS Co-Block Coordination Procedures," National Spectrum Managers Association, (continued….)

sharing protocol will be sufficient if we were to raise radiated power levels as CTIA proposes. As an alternative, should we require such licensees to notify adjacent licensees about the technical specifications of such base station prior to commencing operation, or should we require licensees (or lessees, in the case of secondary markets) to register such stations in ULS?

67. Finally, we seek comment regarding whether radiated power limit increases will impact licensee's administrative burden in making filings required for proper evaluation of transmission sites in regard to environmental compliance. We note that wireless systems, including broadband PCS systems, are subject to environmental evaluation with respect to human exposure of RF radiation for non-building mounted antennas when the antenna height above ground level is less than 10 meters and the total power of all channels is greater than 2000 watts ERP and for building mounted antennas when the total power from all channels is greater than 2000 watts ERP. Otherwise, these systems are categorically excluded from such environmental evaluation.[205] We note that we are not proposing any change to RF exposure standards, and that CTIA "sees no connection between its proposal and RF exposure limits."[206] However, we seek comment as to whether adoption of higher radiated power limits would increase the number of facilities requiring full environmental evaluation rather than being categorically excluded, and whether adoption of higher radiated power limits would outweigh any possible increased administrative burden. We also note that engineers considering the RF environment at a site location which includes a PCS cell may not in fact know the exact operating power of all the transmitters at that location, since that information is not collected by Commission and is not typically made available by licensees. Nonetheless, we find it reasonable that an engineer assume that the power is no greater than our rules permit. How would an increase in the radiated power limits affect the ability of consultants to analyze a site? Would high power use "lock out" other users from co-locating at a site, because to do so would exceed the RF exposure limits?

E. Peak vs. Average Radiated Power Limits

68. For most of the last 50 years, wireless telecommunications services such as land mobile and public mobile telephone services, including analog cellular, used frequency or phase modulation (FM or PM) to transmit analog voice and/or tone modulation. The emissions from these older technologies have a "constant envelope," which is to say, there are no peaks or valleys in the envelope of the modulated waveform. As a result, the peak power of such emissions is equal to the average power. In our power limit rules for private and public land mobile services, we did not need to specify either "peak"[207] or "average"[208] because the two were equal.

69. In recent years, we have allowed greater technical flexibility in many of our wireless services so that licensees could utilize newer technologies without having to obtain prior FCC approval. As a result, licensees in these services have employed a variety of newer and more efficient digital

(Continued from previous page)

Recommendation WG 20.97.048, Rev. 1.0, January, 1999, available at www.nsma.org.

[205] *See* 47 C.F.R. § 1.1307.

[206] CTIA *ex parte* filed February 7, 2005 at 6.

[207] Peak power or "Peak Envelope Power" is defined as the average power supplied to the antenna transmission line by a transmitter during one radio frequency cycle at the crest of the modulation envelope taken under normal operating conditions. *See* Commission rule § 2.1, 47 C.F.R. § 2.1.

[208] Average or "mean" power is defined as the average power supplied to the antenna transmission line by a transmitter during an interval of time sufficiently long compared with the lowest frequency encountered in the modulation taken under normal operating conditions. *See* Commission rule § 2.1, 47 C.F.R. § 2.1.

technologies, many of which produce an emission where the modulation envelope is not of constant amplitude. With these emissions, the peak power is larger than the average power, and the ratio between the two is referred to as the peak-to-average ratio (PAR). Because the PAR can vary from 0 dB to as much as 13 dB, depending on the technology used and the modulation conditions, stations having equal average radiated powers could have substantially different peak radiated powers. Because receivers often begin to exhibit interference effects when the power of an undesired signal exceeds a certain value, even if only for a short duration, the peak radiated power of the emission can be an important factor in evaluating the interference potential of a transmitting station.[209] Consequently, the Commission has in recent years adopted rules in our flexible services that limit peak radiated power rather than average radiated power.

70. The CTIA filing states that the Commission's use of peak radiated power is subject to interpretation and could lead to confusion and proposes that the Commission's radiated power limits for PCS and AWS be specified in terms of average power, either instead of, or as an alternative to, peak power.[210] CTIA points out that when several signals are present in an amplifier, that they can combine to produce high peaks even though individually they would not have high peaks.[211] Given this concern, we seek comment as to whether we should depart from the Commission's practice of specifying peak radiated power and specify average radiated power as CTIA proposes. We note that the peak power of a radiated emission is always equal to or higher than the average power. Under the CTIA proposal, peak power could reach levels much higher than the increased limits CTIA recommends for the rule. If we specify average radiated power, should we also include a limit on the PAR, in order to guard against interference, and what should that limit be? We request that commenters consider the pros and cons of peak and average radiated power limits in terms of controlling the interference potential of stations, conforming to current industry measurement procedures using available measuring instruments, minimizing the burden of compliance with the rules, and having applicability to the wide range of technologies in use today and in the future.

V. PROCEDURAL MATTERS

A. Comment Filing Procedures

71. Pursuant to Sections 1.415 and 1.419 of the Commission's rules, 47 C.F.R. §§ 1.415, 1.419, interested parties may file comments and reply comments on the Further Notice of Proposed Rulemaking, WT Docket No. 03-264, on or before 60 and 90 days after publication in the Federal Register, respectively. Comments may be filed using: (1) the Commission's Electronic Comment Filing System (ECFS), (2) the Federal Government's eRulemaking Portal, or (3) by filing paper copies. *See* Electronic Filing of Documents in Rulemaking Proceedings, 63 FR 24121 (1998).

- *Electronic Filers*: Comments may be filed electronically using the Internet by accessing the ECFS: http://www.fcc.gov/cgb/ecfs/ or the Federal eRulemaking Portal:

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[209] Although the peak power transmitted, resulting from the modulation envelope, is used in determining interference potential, peaks in the received signal resulting from fading in the propagation path are not. The latter are normally accounted for by use of a reliability factor (or fade margin) that is included in the criteria (*e.g.* D/U ratio) used for evaluating interference, or by using a field strength curve that has been adjusted from the median field strength by such a factor.

[210] CTIA *ex parte* February 7, 2005 at 5.

[211] *Id.* at 6. We note that the Commission's current radiated power rule applies individually to each emission, and not to the combination of several of them.

http://www.regulations.gov. Filers should follow the instructions provided on the website for submitting comments.

- For ECFS filers, if multiple docket or rulemaking numbers appear in the caption of this proceeding, filers must transmit one electronic copy of the comments for each docket or rulemaking number referenced in the caption. In completing the transmittal screen, filers should include their full name, U.S. Postal Service mailing address, and the applicable docket or rulemaking number. Parties may also submit an electronic comment by Internet e-mail. To get filing instructions, filers should send an e-mail to ecfs@fcc.gov, and include the following words in the body of the message, "get form." A sample form and directions will be sent in response.

- *Paper Filers*: Parties who choose to file by paper must file an original and four copies of each filing. If more than one docket or rulemaking number appears in the caption of this proceeding, filers must submit two additional copies for each additional docket or rulemaking number.

  Filings can be sent by hand or messenger delivery, by commercial overnight courier, or by first-class or overnight U.S. Postal Service mail (although we continue to experience delays in receiving U.S. Postal Service mail). All filings must be addressed to the Commission's Secretary, Office of the Secretary, Federal Communications Commission.

  - The Commission's contractor will receive hand-delivered or messenger-delivered paper filings for the Commission's Secretary at 236 Massachusetts Avenue, NE., Suite 110, Washington, DC 20002. The filing hours at this location are 8:00 a.m. to 7:00 p.m. All hand deliveries must be held together with rubber bands or fasteners. Any envelopes must be disposed of before entering the building.

  - Commercial overnight mail (other than U.S. Postal Service Express Mail and Priority Mail) must be sent to 9300 East Hampton Drive, Capitol Heights, MD 20743.

  - U.S. Postal Service first-class, Express, and Priority mail should be addressed to 445 12th Street, SW, Washington DC 20554.

  People with Disabilities: Contact the FCC to request materials in accessible formats (braille, large print, electronic files, audio format, etc.) by e-mail at FCC504@fcc.gov or call the Consumer & Governmental Affairs Bureau at 202-418-0530 (voice), 202-418-0432 (TTY).

B. *Ex Parte* Rules —Permit-But-Disclose

72. This is a permit-but-disclose notice and comment rulemaking proceeding. *Ex parte* presentations are permitted, except during the Sunshine Agenda period, provided they are disclosed pursuant to the Commission's rules.[212]

C. Congressional Review Act

73. The Commission will send a copy of the *Report and Order*, including a copy of the Final Regulatory Flexibility Certification, in a report to Congress pursuant to the Congressional Review Act.[213]

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[212] *See generally* 47 C.F.R. §§ 1.1202, 1.1203, 1.1206.

[213] *See* 5 U.S.C. § 801(a)(1)(A).

In addition, the *Report and Order* and the final certification will be sent to the Chief Counsel for Advocacy of the SBA, and will be published in the Federal Register.[214]

D. Final Regulatory Flexibility Certification

74. The Regulatory Flexibility Act of 1980, as amended (RFA),[215] requires that a regulatory flexibility analysis be prepared for notice-and-comment rule making proceedings, unless the agency certifies that "the rule will not, if promulgated, have a significant economic impact on a substantial number of small entities."[216] The RFA generally defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction."[217] In addition, the term "small business" has the same meaning as the term "small business concern" under the Small Business Act.[218] A "small business concern" is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration (SBA).[219]

75. As required by the RFA, an Initial Regulatory Flexibility Analysis (IRFA) was incorporated in the *Notice*,[220] which commenced a proceeding to streamline and harmonize licensing provisions in the wireless radio services (WRS). The Commission sought written public comment on the proposals in the *Notice*, including comment on the IRFA. This Final Regulatory Flexibility Certification conforms to the RFA.[221]

76. This *Report and Order* adopts several measures intended to streamline and harmonize certain licensing provisions in the wireless radio services (WRS) and further Commission efforts to maintain clear spectrum rights and obligations for these licensees, fulfill the Commission's mandate under Section 11 of the Communications Act to conduct biennial reviews, support recent efforts to maximize the public benefits derived from the use of the radio spectrum, and increase the ability of wireless service providers to use licensed spectrum resources flexibly and efficiently to offer a variety of services in a cost-effective manner.

77. The *Report and Order* resolves the question of whether relevant provisions should be (1) streamlined as a result of competitive, technological, or subsequent administrative rule changes and/or (2) harmonized because they treat similarly situated services differently. The Order accomplishes this

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[214] *See* 5 U.S.C. § 605(b).

[215] The RFA, *see* 5 U.S.C. § 601 – 612, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. No. 104-121, Title II, 110 Stat. 857 (1996).

[216] 5 U.S.C. § 605(b).

[217] 5 U.S.C. § 601(6).

[218] 5 U.S.C. § 601(3) (incorporating by reference the definition of "small-business concern" in the Small Business Act, 15 U.S.C. § 632). Pursuant to 5 U.S.C. § 601(3), the statutory definition of a small business applies "unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register."

[219] 15 U.S.C. § 632.

[220] *See* In the Matter of Biennial Regulatory Review – Amendment of Parts 1, 22, 24, 27, and 90 to Streamline and Harmonize Various Rules Affecting Wireless Radio Services, WT Docket No. 03-264, *Notice of Proposed Rulemaking*, 19 FCC Rcd 708, 729 (2004) (*Notice*).

[221] *See* 5 U.S.C. § 605(b).

primarily by eliminating provisions when necessary and modifying provisions when appropriate. For example, as we have done in recent years in adopting modulation-independent masks (emission masks D, E, and F), we conform the Emission Mask G rule to the others and place no limitation on the spectral power density profile within the maximum authorized bandwidth. This action, supported by all commenting parties, will improve design flexibility while maintaining interference control, thus creating, we believe, no significant adverse economic impact.

78. Also, we modified our rules to remove the distinction between urban and suburban sites when setting the maximum power and antenna height limits for conventional 800 MHz and 900 MHz systems. Our experience has been that there is no bright line distinction between the operational requirements of urban and suburban systems. In fact, because they might need to cover larger geographic areas than their urban counterparts, suburban facilities arguably could require greater power. In general, we found that "urban" versus "suburban" thresholds actually increase infrastructure and compliance costs, without providing any countervailing public interest benefit. We found that removing those distinctions might actually eliminate or significantly reduce those compliance costs. Therefore, we certify that the requirements of the *Report and Order* will not have a significant economic impact on a substantial number of small entities.

E. Initial Regulatory Flexibility Analysis

79. As required by the Regulatory Flexibility Act,[222] the Commission has prepared an Initial Regulatory Flexibility Analysis (IRFA) of the possible significant economic impact on a substantial number of small entities of the proposals addressed in the Further Notice of Proposed Rulemaking. The IRFA is set forth in Appendix D. Written public comments are requested on the IRFA. These comments must be filed in accordance with the same filing deadlines for comments on the Further Notice of Proposed Rulemaking, and they should have a separate and distinct heading designating them as responses to the IRFA. The Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, will send a copy of the *Notice* of Proposed Rulemaking, including the IRFA, to the Chief Counsel for Advocacy of the Small Business Administration.[223]

F. Paperwork Reduction Act of 1995

80. This document does not contain any proposed, new, or modified information collection subject to the Paperwork Reduction Act of 1995 (PRA), Public Law 104-13. In addition, therefore, it does not contain any new or modified "information collection burden for small business concerns with fewer than 25 employees," pursuant to the Small Business Paperwork Relief Act of 2002, Public Law 107-198. *See* 44 U.S.C. 3506(c)(4).

G. Contact Information

81. The primary Wireless Telecommunications Bureau contacts for this proceeding are Wilbert E. Nixon, Jr., and B.C. "Jay" Jackson, Jr. of the Wireless Telecommunications Bureau's Mobility Division (202-418-0620). Press inquiries should be directed to Chelsea Fallon, Wireless Telecommunications Bureau, at (202) 418-7991, TTY at (202) 418-7233, or e-mail at Chelsea.Fallon@fcc.gov.

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[222] *See* 5 U.S.C. § 603.

[223] *See* 5 U.S.C. § 603(a).

VI. ORDERING CLAUSES

82. IT IS ORDERED that, pursuant to the authority of sections 4(i), 7, 11, 303(c), 303(f), 303(g), 303(r), and 332 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 154(i), 303(c), 303(f), 303(g), 303(r), and 332, the rule changes specified in Appendix A ARE ADOPTED.

83. IT IS FURTHER ORDERED that the rule changes set forth in Appendix A WILL BECOME EFFECTIVE 60 days after publication in the *Federal Register*.

84. IT IS FURTHER ORDERED that the Commission's Consumer Information Bureau, Reference Information Center, SHALL SEND a copy of this *Report and Order*, including the Final Regulatory Flexibility Certification and the Initial Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch
Secretary

APPENDIX A

Rule Changes

Part 1 of Title 47 of the Code of Federal Regulations is amended as follows:

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

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

2. The title of Part I, Subpart F is revised to read as follows:

Subpart F – Wireless Radio Services Applications and Proceedings

3. Section 1.927 is amended by revising paragraph (g) to read as follows:

§ 1.927 Amendment of applications.

* * * * *

(g) Where an amendment to an application specifies a substantial change in beneficial ownership or control (*de jure* or *de facto*) of an applicant, the applicant must provide an exhibit with the amendment application containing an affirmative, factual showing as set forth in § 1.948(i)(2).

* * * * *

4. Section 1.929 is amended by revising paragraph (c) to read as follows:

§ 1.929 Classification of filings as major or minor.

* * * * *

(c) In addition to those changes listed in subparagraph (a) above, the following are major changes applicable to stations licensed to provide base-to-mobile, mobile-to-base, mobile-to-mobile on a site-specific basis:

(1) In the Paging and Radiotelephone Service, Rural Radiotelephone Service and 800 MHz Specialized Mobile Radio Service (SMR), any change that would increase or expand the applicant's existing composite interference contour.

(2) In the 900 MHz SMR and 220 MHz Service, any change that would increase or expand the applicant's service area as defined in the rule parts governing the particular radio service.

(3) In the Paging and Radiotelephone Service, Rural Radiotelephone Service, Offshore Radiotelephone Service, and Specialized Mobile Radio Service:

(i) Request an authorization or an amendment to a pending application that would establish for the filer a new fixed transmission path;

(ii) Request an authorization or an amendment to a pending application for a fixed station (i.e., control, repeater, central office, rural subscriber, or inter-office station) that would increase the effective radiated power, antenna height above average terrain in any azimuth, or relocate an existing transmitter;

(4) In the Private Land Mobile Radio Services (PLMRS), the remote pickup broadcast auxiliary service, and GMRS systems licensed to non-individuals

(i) Change in frequency or modification of channel pairs, except the deletion of one or more frequencies from an authorization;

(ii) Change in the type of emission;
(iii) Change in effective radiated power from that authorized or, for GMRS systems licensed to non-individuals, an increase in the transmitter power of a station;
(iv) Change in antenna height from that authorized;
(v) Change in the authorized location or number of base stations, fixed, control, except for deletions of one or more such stations or, for systems operating on non-exclusive assignments in GMRS or the 470-512 MHz, 800 MHz or 900 MHz bands, a change in the number of mobile transmitters, or a change in the area of mobile transmitters, or a change in the area of mobile operations from that authorized;
(vi) Change in the class of a land station, including changing from multiple licensed to cooperative use, and from shared to unshared use.

* * * * *

5. Section 1.939 is amended by revising paragraph (b) to read as follows:

§ 1.939 Petitions to deny.

* * * * *

(b) *Filing of petitions*. Petitions to deny and related pleadings may be filed electronically via ULS. Manually filed petitions to deny must be filed with the Office of the Secretary, 445 Twelfth Street, S.W., Room TW-B204, Washington, DC 20554. Attachments to manually filed applications may be filed on a standard 31/4" magnetic diskette formatted to be readable by high density floppy drives operating under MS-DOS (version 3.X or later compatible versions). Each diskette submitted must contain an ASCII text file listing each filename and a brief description of the contents of each file on the diskette. The files on the diskette, other than the table of contents, should be in Adobe Acrobat Portable Document Format (PDF) whenever possible. Petitions to deny and related pleadings must reference the file number of the pending application that is the subject of the petition.

* * * * *

6. Section 1.955 is amended by revising paragraph (a) to read as follows:

§ 1.955 Termination of authorizations.

(a) * * *

(1) * * *

(2) *Failure to meet construction or coverage requirements*. Authorizations automatically terminate, without specific Commission action, if the licensee fails to meet applicable construction or coverage requirements. *See* § 1.946(c) of this part.

* * * * *

Part 22 of Title 47 of the Code of Federal Regulations is amended as follows:

7. The authority citation for Part 22 continues to read as follows:

AUTHORITY: 47 U.S.C. 154, 222, 303, 309 and 332.

8. Section 22.303 is amended to read as follows:

§ 22.303 Retention of station authorizations; identifying transmitters.

The current authorization for each station, together with current administrative and technical information concerning modifications to facilities pursuant to § 1.929 and added facilities pursuant to § 22.165 must be retained as a permanent part of the station records. A clearly legible photocopy of the authorization must be available at each regularly attended control point of the station, or in lieu of this photocopy, licensees may instead make available at each regularly attended control point the address or location where the licensee's current authorization and other records may be found.

9. Section 22.947 is amended by revising paragraph (c) to read as follows:

§ 22.947 Five year build-out period.

* * * * *

(c) *System information update*. Sixty days before the end of the five year build-out period, the licensee of each cellular system authorized on each channel block in each cellular market must file, in triplicate, a system information update (SIU), comprising a full size map, a reduced map, and an exhibit showing technical data relevant to determination of the system's CGSA. Separate maps must be submitted for each market into which the CGSA extends, showing the extension area in the adjacent market. Maps showing extension areas must be labeled (i.e. marked with the market number and channel block) for the market into which the CGSA extends. SIUs must accurately depict the relevant cell locations and coverage of the system at the end of the five year build-out period. SIUs must be filed at the Federal Communications Commission, Wireless Telecommunications Bureau, Mobility Division, 445 12th Street, SW, Washington, DC 20554. If any changes to the system occur after the filing of the SIU, but before the end of the five year build-out period, the licensee must file, in triplicate, additional maps and/or data as necessary to insure that the cell locations and coverage of the system as of the end of the five year build-out period are accurately depicted.

10. Section 22.948 is amended by revising paragraph (d) to read as follows:

§ 22.948 Partitioning and Disaggregation.

* * * * *

(d) *License Term*. The license term for the partitioned license area and for disaggregated spectrum shall be the remainder of the original cellular licensee's or the unserved area licensee's license term.

11. Section 22.949 is amended by revising paragraph (d) to read as follows:

§ 22.949 Unserved area licensing process.

* * * * *

(d) *Limitations on amendments*. Notwithstanding the provisions of § 1.927, Phase I applications are subject to the following additional limitations in regard to the filing of amendments.

(1) * * *

* * * * *

12. Section 22.953 is amended by revising paragraph (b) and (c) to read as follows:

§ 22.953 Content and form of applications.

* * * * *

(b) *Existing systems--major modifications*. Licensees making major modifications pursuant to § 1.929(a)-(b) must file FCC Form 601 and need only contain the exhibits required by paragraphs (a)(1) through (a)(3) of this section.

(c) *Existing systems--minor modifications*. Licensees making minor modifications pursuant to § 1.929(k)--in which the modification causes a change in the CGSA boundary (including the removal of a transmitter or transmitters)--must notify the FCC (using FCC Form 601) and include full-sized maps, reduced maps, and supporting engineering exhibits as described in paragraphs (a)(1)-(3) of this section. If the modification involves a contract SAB extension, it must include a statement as to whether the five-year build-out for the system on the relevant channel block in the market into which the SAB extends has elapsed, and as to whether the SAB extends into any unserved area in that market.

Part 24 of Title 47 of the Code of Federal Regulations is amended as follows:

13. The authority citation for Part 24 continues to read as follows:

AUTHORITY: 47 U.S.C. 154, 301, 302, 303, 309 and 332.

14. Section 24.12 is amended to read as follows:

§ 24.12 Eligibility.

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

15. Section 24.232 is revised to read as follows:

§ 24.232 Power and antenna height limits.

(a) Base stations are limited to 1640 watts peak equivalent isotropically radiated power (EIRP) with an antenna height up to 300 meters HAAT, except as described in paragraph (b) below. *See* Sec. 24.53 for HAAT calculation method. Base station antenna heights may exceed 300 meters with a corresponding reduction in power; *see* Table 1 of this section. The service area boundary limit and microwave protection criteria specified in Sec. 24.236 and Sec. 24.237 apply.

Table 1--Reduced Power for Base Station Antenna Heights Over 300 Meters

HAAT in meters	Maximum EIRP watts
≤300	1640
≤500	1070
≤1000	490
≤1500	270
≤2000	160

(b) Base stations that are located in counties with population densities of 100 persons or fewer per square mile, based upon the most recently available population statistics from the Bureau of the Census, are limited to 3280 watts peak equivalent isotropically radiated power (EIRP) with an antenna height up to 300 meters HAAT; *See* Sec. 24.53 for HAAT calculation method. Base station antenna heights may exceed 300 meters with a corresponding reduction in power; *see* Table 2 of this section. The service area boundary limit and microwave protection criteria specified in Sec. 24.236 and Sec. 24.237 apply. Operation under this paragraph must be coordinated in advance with all PCS licensees within 120 kilometers (75 miles) of the base station and is limited to base stations located more than 120 kilometers (75 miles) from the Canadian border and more than 75 kilometers (45 miles) from the Mexican border.

Table 2--Reduced Power for Base Station Antenna Heights Over 300 Meters

HAAT in meters	Maximum EIRP watts
≤300	3280
≤500	2140
≤1000	980
≤1500	540
≤2000	320

(c) Mobile/portable stations are limited to 2 watts EIRP peak power and the equipment must employ means to limit the power to the minimum necessary for successful communications.

(d) Peak transmit power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage. The measurement results shall be properly adjusted for any instrument limitations, such as detector response times, limited resolution bandwidth capability when compared to the emission bandwidth, sensitivity, etc., so as to obtain a true peak measurement for the emission in question over the full bandwidth of the channel.

16. Section 24.843 is removed.

Part 27 of Title 47 of the Code of Federal Regulations is amended as follows:

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

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

18. Section 27.3 is amended by redesignating paragraphs (o) and (p) as (p) and (q) and adding paragraph (o) to read as follows:

§ 27.3 Other applicable rule parts.

* * * * *

(o) *Part 74*. This part sets forth the requirements and conditions applicable to experimental radio, auxiliary, special broadcast and other program distributional services.

* * * * *

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

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

AUTHORITY: Sections 4(i), 11, 303(g), 303(r), and 332(c)(7) of the Communications Act of 1934, as amended, 47 U.S.C. 154(i), 161, 303(g), 303(r), 332(c)(7).

20. Section 90.20 is amended by revising the Public Safety Pool Frequency Table of Section 90.20(c)(3) (Frequencies.) to replace limitation 77 with 78 for frequency 35.02 Megahertz; replace limitation 27 with 17 for frequency 42.40 Megahertz; replace limitation 19 with 29 for frequency 152.0075 Megahertz; replace frequency 158.4725 Megahertz with 159.4725 Megahertz; remove limitation 43 for frequencies 156.165, 156.1725, 156.180, 156.1875, 156.195, 156.2025, 156.225, 156.2325, 156.240, 158.985, 158.9925, 159.000, 159.0075, 159.015, 159.0225, 159.045, 159.0525, 159.060, 159.0675, 159.075, 159.0825, 159.105, 159.1125, 159.120, 159.1275, 159.135, 159.1425, 159.165 and 159.1725 Megahertz; and remove the frequency coordinator designation for frequencies 220.8025, 220.8075, 220.8125, 220.8175, 220.8225, 220.8275, 220.8325, 220.8375, 220.8425, 220.8475, 221.8025, 221.8075, 221.8125, 221.8175, 221.8225, 221.8275, 221.8325, 221.8375, 221.8425 and 221.8475 Megahertz.

21. Section 90.20 is further amended by replacing limitation 38 with 10 in the Public Safety Pool Frequency Table of Section 90.20(c)(3) (Frequencies.) for frequencies 155.325, 155.3325, 155.355, 155.3625, 155.385, 155.3925, 155.4, 155.4075, 462.9375, 462.95625, 462.9625, 462.96875, 462.975, 462.98125, 462.9875, 462.99375, 467.95, 467.95625, 467.9625, 467.96875, 467.975, 467.98125, 467.9875 and 467.99375, and by removing paragraph (d)(38) and adding a new paragraph (d)(38) to read as follows:

§ 90.20 Public Safety Pool.

* * * * *
(d) * * *
(1) * * *
* * * * *
(38) [Reserved]
* * * * *

22. Section 90.35 is amended by deleting the duplicate entry of "Frequency 35.48 Megahertz" of the Industrial/Business Pool Frequency Table of Section 90.35(b)(3) and by removing paragraph (c)(45) and adding a new paragraph (c)(45) to read as follows:

§ 90.35 Industrial/Business Pool.

* * * * *
(c) * * *
(1) * * *
* * * * *
(45) [Reserved]
* * * * *

23. Section 90.149 is amended by removing paragraph (d) and revising paragraph (a) to read as follows:

§ 90.149 License term.

(a) Except as provided in subpart R of this part, licenses for stations authorized under this part will be issued for a term not to exceed ten (10) years from the date of the original issuance or renewal.

(b) * * *

(c) * * *

24. Section 90.175 is amended by revising paragraph (j) to read as follows:

§ 90.175 Frequency coordinator requirements.

* * * * *

(j) The following applications need not be accompanied by evidence of frequency coordination:

(1) Applications for frequencies below 25 MHz.
(2) Applications for a Federal Government frequency.
(3) Applications for frequencies in the 72-76 MHz band except for mobile frequencies subject to § 90.35(c)(77).
(4) Applications for a frequency to be used for developmental purposes.
(5) Applications in the Industrial/Business Pool requesting a frequency designated for itinerant operations, and applications requesting operation on 154.570 MHz, 154.600 MHz, 151.820 MHz, 151.880 MHz, and 151.940 MHz.
(6) Applications in the Radiolocation Service.
(7) Applications filed exclusively to modify channels in accordance with band reconfiguration in the 806-824/851-869 band.
(8) Applications for frequencies listed in the SMR tables contained in §§ 90.617 and 90.619.
(9) Applications indicating license assignments such as change in ownership, control or corporate structure if there is no change in technical parameters.
(10) Applications for mobile stations operating in the 470-512 MHz band, 764- 776/794-806 MHz band, or above 800 MHz if the frequency pair is assigned to a single system on an exclusive basis in the proposed area of operation.
(11) Applications for add-on base stations in multiple licensed systems operating in the 470-512 MHz, 764-776/794-806 MHz band, or above 800 MHz if the frequency pair is assigned to a single system on an exclusive basis.
(12) Applications for control stations operating below 470 MHz, 764-776/794- 806 MHz, or above 800 MHz and meeting the requirements of § 90.119(b).
(13) Except for applications for the frequencies set forth in §§ 90.719(c) and 90.720, applications for frequencies in the 220-222 MHz band.
(14) Applications for a state license under § 90.529.
(15) Applications for narrowband low power channels listed for itinerant use in § 90.531(b)(4).
(16) Applications for DSRCS licenses (as well as registrations for Roadside Units) in the 5850-5925 GHz band.
(17) Applications for the deletion of a frequency and/or transmitter site location.

25. Section 90.210 is amended by removing 90.210(g)(1) and redesignating paragraphs (2) and (3) as paragraphs (1) and (2), and by revising paragraph (m) to read as follows:

§ 90.210 Power and antenna height limits.

* * * * *

(g) Emission Mask G. For transmitters that are not equipped with an audio low-pass filter, the power of any emission must be attenuated below the unmodulated carrier power (P) as follows:

(1) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (fd in kHz) of more than 10 kHz, but no more than 250 percent of the authorized bandwidth:

At least 116 log (fd/6.1) dB, or 50 + 10 log (P) dB, or 70 dB, whichever is the lesser attenuation; and

(2) On any frequency removed from the center of the authorized bandwidth by more than 250 percent of the authorized bandwidth: At least 43 + 10 log (P) dB.

* * * * *

(m) Other frequency bands. Transmitters designed for operation under this part on frequencies other than listed in this section must meet the emission mask requirements of Emission Mask B. Equipment operating under this part on frequencies allocated to but shared with the Federal Government, must meet the applicable ITU Regulation S3.10 technical standards.

26. Section 90.607 is amended by removing paragraph (a) and redesignating paragraphs (b), (c), (d), and (e) as paragraphs (a), (b), (c), and (d) to read as follows:

§ 90.607 Supplemental information to be furnished by applicants for facilities under this subpart.

(a) Except for applicants for SMR licenses, all applicants for conventional radio systems must:
(1) List all radio systems licensed to them or proposed by them within 64 km (40 mi.) from the location of the base station transmitter site of the facility for which they have applied.
(2) Specify the number of mobile units to be placed in operation upon grant of the authorization and the number of such units that will be placed in operation within 8 months of the date of grant.

(b) Except for applicants for SMR licenses, all applicants for trunked systems must:
(1) List all radio systems licensed to them within 64 km (40 mi.) from the location of the base station transmitter site of the facility for which they have applied;
(2) Specify the number of vehicular and portable mobile units and control stations to be placed in operation within the term of the license.

(c) [Reserved]

(d) Except for applicants requesting frequencies in the SMRS category listed in §§ 90.617(d) and 90.619, all applicants for frequencies governed by this subpart must comply with the frequency coordination requirements of § 90.175(b).

27. Section 90.631 is amended by revising paragraphs (b) and (d) and removing paragraph (i) to read as follows:

§ 90.631 Trunked systems loading, construction and authorization requirements.

(a) * * *

(b) Each applicant for a non-SMR trunked system must certify that a minimum of seventy (70) mobiles for each channel authorized will be placed into operation within five (5) years of the initial license grant.

(c) * * *

(d) In rural areas, a licensee of a trunked system may request to increase its system capacity by five more channels than it has constructed without meeting the loading requirements specified in paragraphs (b) and (c) of this section. A rural area is defined for purposes of this section as being beyond a 100-mile radius of the designated centers of the following urbanized areas:

New York, NY; Los Angeles, CA; Chicago, IL; Philadelphia, PA: San Francisco, CA; Detroit, MI; Boston, MA; Houston, TX; Washington, DC; Dallas-Fort Worth, TX; Miami, FL; Cleveland, OH; St. Louis, MO; Atlanta, GA; Pittsburgh, PA; Baltimore, MD; Minneapolis-St. Paul, MN; Seattle, WA; San Diego, CA; and Tampa-St. Petersburg, FL. The coordinates for the centers of these areas are those referenced in § 90.635, except that the coordinates (referenced to North American Datum 1983 (NAD83)) for Tampa-St. Petersburg are latitude 28[deg] 00[min] 1.1[sec] N, longitude 82[deg] 26[min] 59.3[sec] W.

* * * * *

28. Section 90.635 is amended by removing paragraphs (a) and (b), Tables 1, 3 and 4, and redesignating paragraphs (c) and (d) as paragraphs (a) and (b) and revising the new paragraph (a) and redesignating Table 2 as Table and revising to read as follows:

§ 90.635 Limitations on power and antenna height.

(a) The effective radiated power and antenna height for base stations may not exceed 1 kilowatt (30 dBw) and 304 m. (1,000 ft.) above average terrain (AAT), respectively, or the equivalent thereof as determined from the Table. These are maximum values, and applicants will be required to justify power levels and antenna heights requested.

(b) The maximum output power of the transmitter for mobile stations is 100 watts (20 dBw).

Table -- Equivalent Power and Antenna Heights for Base Stations in the 851-869 MHz and 935-940 MHz Bands Which Have a Requirement for a 32 km (20 mi) Service Area Radius

Antenna height (ATT) meters (feet)	Effective radiated power (watts) 1,2,4
Above 1,372 (4,500).....	65
Above 1,220 (4,000) to 1,372 (4,500).....	70
Above 1,067 (3,500) to 1,220 (4,000).....	75
Above 915 (3,000) to 1,067 (3,500).....	100
Above 763 (2,500) to 915 (3,000).....	140
Above 610 (2,000) to 763 (2,500).....	200
Above 458 (1,500) to 610 (2,000).....	350
Above 305 (1,000) to 458 (1,500).....	600
Up to 305 (1,000) …….....	\3\ 1,000

\1\ Power is given in terms of effective radiated power (ERP).
\2\ Applicants in the Los Angeles, CA, area who demonstrate a need to serve both the downtown and fringe areas will be permitted to utilize an ERP of 1 kw at the following mountaintop sites: Santiago Park, Sierra Peak, Mount Lukens, and Mount Wilson.
\3\ Stations with antennas below 305 m (1,000 ft) (AAT) will be restricted to a maximum power of 1 kw (ERP).
\4\ Licensees in San Diego, CA, will be permitted to utilize an ERP of 500 watts at the following mountaintop sites: Palomar, Otay, Woodson and Miguel.

29. Section 90.653 is removed.

30. Section 90.658 is removed.

31. Section 90.693 is amended by revising paragraphs (b) and (c) to read as follows:

§ 90.693 Grandfathering provisions for incumbent licensees.

(a) * * *

(b) Spectrum blocks A through V. An incumbent licensee's service area shall be defined by its originally licensed 40 dB[mu]V/m field strength contour and its interference contour shall be defined as its originally-licensed 22 dB[mu]V/m field strength contour. The “originally-licensed" contour shall be calculated using the maximum ERP and the actual height of the antenna above average terrain (HAAT) along each radial. Incumbent licensees are permitted to add, remove or modify transmitter sites within their original 22 dB[mu]V/m field strength contour without prior notification to the Commission so long as their original 22 dB[mu]V/m field strength contour is not expanded. Incumbent licensee protection extends only to its 40 dB[mu]V/m signal strength contour. Pursuant to the minor modification notification procedures set forth in 1.947 (b), the incumbent licensee must notify the Commission within 30 days of any change in technical parameters for stations that are authorized under a waiver of 90.621 (b)(4), or that are authorized under 90.621 (b)(5).

(c) Special provisions for spectrum blocks F1 through V. Incumbent licensees that have received the consent of all affected parties or a certified frequency coordinator to utilize an 18 dB[mu]V/m signal strength interference contour shall have their service area defined by their originally-licensed 36 dB[mu]V/m field strength contour and their interference contour shall be defined as their originally-licensed 18 dB[mu]V/m field strength contour. The “originally-licensed" contour shall be calculated using the maximum ERP and the actual HAAT along each radial. Incumbent licensees seeking to utilize an 18 dB[mu]V/m signal strength interference contour shall first seek to obtain the consent of affected co-channel incumbents. When the consent of a co-channel licensee is withheld, an incumbent licensee may submit to any certified frequency coordinator an engineering study showing that interference will not occur, together with proof that the incumbent licensee has sought consent. Incumbent licensees are permitted to add, remove or modify transmitter sites within their original 18 dB[mu]V/m field strength contour without prior notification to the Commission so long as their original 18 dB[mu]V/m field strength contour is not expanded. Incumbent licensee protection extends only to its 36 dB[mu]V/m signal strength contour. Pursuant to the minor modification notification procedures set forth in 1.947 (b), the incumbent licensee must notify the Commission within 30 days of any change in technical parameters for stations that are authorized under a waiver of 90.621 (b)(4), or that are authorized under 90.621 (b)(5).

(d) * * *

32. Section 90.737 is removed.

33. Section 90.743 is amended by revising paragraphs (a) and (c) to read as follows:

§ 90.743 Renewal expectancy.

(a) All licensees seeking renewal of their authorizations at the end of their license term must file a renewal application in accordance with the provisions of § 1.949. Licensees must demonstrate, in their application, that:

(b) * * *

(c) Phase I non-nationwide licensees have license terms of 10 years, and therefore must meet these requirements 10 years from the date of initial authorization in order to receive a renewal expectancy. Phase I nationwide licensees and all Phase II licensees have license terms of 10 years, and therefore must meet these requirements 10 years from the date of initial authorization in order to receive a renewal expectancy.

APPENDIX B

Initial Regulatory Flexibility Analysis

1. As required by the Regulatory Flexibility Act of 1980, as amended (RFA),[1] the Commission has prepared this present Initial Regulatory Flexibility Analysis (IRFA) of the possible significant economic impact on a substantial number of small entities by the policies and rules proposed in this Report and Order and Further Notice of Proposed Rulemaking (*Further Notice*). Written public comments are requested on this IRFA. Comments must be identified as responses to the IRFA and must be filed by the deadlines for comments on the *Further Notice* provided in paragraph 71 of the item. The Commission will send a copy of the *Further Notice*, including this IRFA, to the Chief Counsel for Advocacy of the Small Business Administration (SBA).[2] In addition, the *Further Notice* and IRFA (or summaries thereof) will be published in the Federal Register.[3]

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

2. In the Report and Order, we revise the Broadband PCS transmitting power rule by eliminating the transmitter output power limit portion of that rule. We note, however, that various proposals before us concerning the radiated power portion of the rule (EIRP limits), particularly those introduced into the record by CTIA's recent *ex parte* filing, give rise to practical and technical concerns that we believe should be further evaluated and addressed before we act on these proposals. Although it appears that some of these radiated power proposals have considerable merit, especially as applied across various bands or services in a harmonized fashion, we find that a more complete record would assist us in properly analyzing the technical details and specifics needed to craft a clear and workable radiated power rule that is not unduly burdensome. Accordingly, in this *Further Notice*, we ask a number of questions on the details of the CTIA proposals for changes to the broadband PCS radiated power limits. In addition, we consider whether these proposals should be applicable to those Part 22 and Part 27 services that operate under a flexible regulatory framework similar to Part 24 Broadband PCS. Finally, we also seek comment on possible changes to other technical rules that may be appropriate if we adopt changes to the radiated power rules, as explained further below.

B. Legal Basis

3. The potential actions on which comment is sought in this *Further Notice* would be authorized under Sections 4(i), 7, 11, 303(c), 303(f), 303(g), 303(r), and 332 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 154(i), 303(c), 303(f), 303(g), 303(r), and 332.

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

4. The RFA requires that an initial regulatory flexibility analysis be prepared for notice-and-comment rulemaking proceedings, unless the Agency certifies that "the rule will not, if promulgated, have

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[1] *See* 5 U.S.C. § 603. The RFA, *see* 5 U.S.C. §§ 601-612, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. No. 104-121, Title II, 110 Stat. 857 (1996).

[2] *See* 5 U.S.C. § 603(a).

[3] *See id*.

a significant impact on a substantial number of small entities."[4] The RFA generally defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction."[5] In addition, the term "small business" has the same meaning as the term "small business concern" under the Small Business Act.[6] A small business concern is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration (SBA).[7] A small organization is generally "any not-for-profit enterprise which is independently owned and operated and is not dominant in its field."[8] This IRFA describes and estimates the number of small entity licensees that may be affected if the proposals in this *Further Notice* are adopted.

5. **Small Businesses**. Nationwide, there are a total of 22.4 million small businesses, according to SBA data.[9]

6. **Small Organizations**. Nationwide, there are approximately 1.6 million small organizations.[10]

7. **Small Governmental Jurisdictions**. The term "small governmental jurisdiction" is defined as "governments of cities, towns, townships, villages, school districts, or special districts, with a population of less than fifty thousand."[11] As of 1997, there were approximately 87,453 governmental jurisdictions in the United States.[12] This number includes 39,044 county governments, municipalities, and townships, of which 37,546 (approximately 96.2%) have populations of fewer than 50,000, and of which 1,498 have populations of 50,000 or more. Thus, we estimate the number of small governmental jurisdictions overall to be 84,098 or fewer.

8. We have included small incumbent local exchange carriers in this present RFA analysis. As noted above, a "small business" under the RFA is one that, inter alia, meets the pertinent small business size standard (e.g., a telephone communications business having 1,500 or fewer employees), and "is not dominant in its field of operation."[13] The SBA's Office of Advocacy contends that, for RFA purposes, small incumbent local exchange carriers are not dominant in their field of operation because any such dominance is not "national" in scope.[14] We have therefore included small incumbent local

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[4] 5 U.S.C. § 603(b)(3).

[5] *Id*. at § 601(6).

[6] 5 U.S.C. § 601(3) (incorporating by reference the definition of "small business concern" in 15 U.S.C. § 632). Pursuant to the RFA, the statutory definition of a small business applies "unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register." 5 U.S.C. § 601(3).

[7] Small Business Act, 15 U.S.C. § 632 (1996).

[8] 5 U.S.C. § 601(4).

[9] *See* SBA, Programs and Services, SBA Pamphlet No. CO-0028, at page 40 (July 2002).

[10] Independent Sector, The New Nonprofit Almanac & Desk Reference (2002).

[11] 5 U.S.C. § 601(5).

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

[13] 15 U.S. C. § 632.

[14] Letter from Jere W. Glover, Chief Counsel for Advocacy, SBA, to William E. Kennard, Chairman, FCC (May 27, (continued….)

exchange carriers in this RFA analysis, although we emphasize that this RFA action has no effect on Commission analyses and determinations in other, non-RFA contexts.

9. When identifying small entities that could be affected by our new rules, we provide information describing auctions results, including the number of small entities that are winning bidders. We note, however, that the number of winning bidders that qualify as small businesses at the close of an auction does not necessarily reflect the total number of small entities currently in a particular service. The Commission does not generally require that applicants provide business size information, except in the context of an assignment or transfer of control application where unjust enrichment issues are implicated. Consequently, to assist the Commission in analyzing the total number of potentially affected small entities, we request commenters to estimate the number of small entities that may be affected by any rule changes resulting from this *Further Notice*.

10. The potential rules on which comment is sought in this *Further Notice*, if adopted, would possibly affect small entity licensees of the services identified below.

Wireless Radio Services

11. **Cellular Licensees**. The SBA has developed a small business size standard for wireless firms within the broad economic census category "Cellular and Other Wireless Telecommunications."[15] Under this SBA category, a wireless business is small if it has 1,500 or fewer employees. For the census category Cellular and Other Wireless Telecommunications firms, Census Bureau data for 1997 show that there were 977 firms in this category, total, that operated for the entire year.[16] Of this total, 965 firms had employment of 999 or fewer employees, and an additional 12 firms had employment of 1,000 employees or more.[17] Thus, under this category and size standard, the great majority of firms can be considered small. According to the most recent Trends in Telephone Service data, 719 carriers reported that they were engaged in the provision of cellular service, personal communications service, or specialized mobile radio telephony services, which are placed together in the data.[18] We have estimated that 294 of these are small, under the SBA small business size standard.[19]

(Continued from previous page) ———————————

1999). The Small Business Act contains a definition of "small-business concern," which the RFA incorporates into its own definition of "small business." *See* 15 U.S.C. § 632(a) (Small Business Act); 5 U.S.C. § 601(3) (RFA). SBA regulations interpret "small business concern" to include the concept of dominance on a national basis. *See* 13 CFR § 121.102(b).

[15] 13 CFR § 121.201, NAICS code 513322 (changed to 517212 in October 2002).

[16] U.S. Census Bureau, 1997 Economic Census, Subject Series: "Information," Table 5, Employment Size of Firms Subject to Federal Income Tax: 1997, NAICS code 513322 (issued October 2000).

[17] U.S. Census Bureau, 1997 Economic Census, Subject Series: "Information," Table 5, Employment Size of Firms Subject to Federal Income Tax: 1997, NAICS code 513322 (issued October 2000). The census data do not provide a more precise estimate of the number of firms that have employment of 1,500 or fewer employees; the largest category provided is "Firms with 1000 employees or more."

[18] FCC, Wireline Competition Bureau, Industry Analysis and Technology Division, "Trends in Telephone Service" at Table 5.3, page 5-5 (August 2003). This source uses data that are current as of December 31, 2001.

[19] FCC, Wireline Competition Bureau, Industry Analysis and Technology Division, "Trends in Telephone Service" at Table 5.3, page 5-5 (August 2003). This source uses data that are current as of December 31, 2001.

12. **220 MHz Radio Service – Phase I Licensees.** The 220 MHz service has both Phase I and Phase II licenses. Phase I licensing was conducted by lotteries in 1992 and 1993. There are approximately 1,515 such non-nationwide licensees and four nationwide licensees currently authorized to operate in the 220 MHz band. The Commission has not developed a definition of small entities specifically applicable to such incumbent 220 MHz Phase I licensees. To estimate the number of such licensees that are small businesses, we apply the small business size standard under the SBA rules applicable to "Cellular and Other Wireless Telecommunications" companies. This category provides that a small business is a wireless company employing no more than 1,500 persons.[20] According to the Census Bureau data for 1997, only twelve firms out of a total of 977 such firms that operated for the entire year in 1997, had 1,000 or more employees.[21] If this general ratio continues in the context of Phase I 220 MHz licensees, the Commission estimates that nearly all such licensees are small businesses under the SBA's small business standard.

13. **220 MHz Radio Service – Phase II Licensees.** The 220 MHz service has both Phase I and Phase II licenses. The Phase II 220 MHz service is subject to spectrum auctions. In the *220 MHz Third Report and Order*, we adopted a small business size standard for defining "small" and "very small" businesses for purposes of determining their eligibility for special provisions such as bidding credits and installment payments.[22] This small business standard indicates that a "small business" is an entity that, together with its affiliates and controlling principals, has average gross revenues not exceeding $15 million for the preceding three years.[23] A "very small business" is defined as an entity that, together with its affiliates and controlling principals, has average gross revenues that do not exceed $3 million for the preceding three years.[24] The SBA has approved these small size standards.[25] Auctions of Phase II licenses commenced on September 15, 1998, and closed on October 22, 1998.[26] In the first auction, 908 licenses were auctioned in three different-sized geographic areas: three nationwide licenses, 30 Regional Economic Area Group (EAG) Licenses, and 875 Economic Area (EA) Licenses. Of the 908 licenses auctioned, 693 were sold.[27] Thirty-nine small businesses won 373 licenses in the first 220 MHz auction. A second auction included 225 licenses: 216 EA licenses and 9 EAG licenses. Fourteen companies claiming small business status won 158 licenses.[28] A third auction included four licenses: 2 BEA licenses and 2 EAG licenses in the 220 MHz Service. No small or very small business won any of these licenses.[29]

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[20] 13 C.F.R. § 121.201, NAICS code 517212.

[21] U.S. Census Bureau, 1997 Economic Census, Subject Series: Information, "Establishment and Firm Size (Including Legal Form of Organization)," Table 5, NAICS code 513322 (October 2000).

[22] Amendment of Part 90 of the Commission's Rules to Provide For the Use of the 220-222 MHz Band by the Private Land Mobile Radio Service, *Third Report and Order*, 12 FCC Rcd 10943, 11068-70 ¶¶ 291-295 (1997).

[23] *Id.* at 11068 ¶ 291.

[24] *Id.*

[25] *See* Letter to Daniel Phythyon, Chief, Wireless Telecommunications Bureau, Federal Communications Commission, from Aida Alvarez, Administrator, Small Business Administration, dated January 6, 1998.

[26] *See generally* "220 MHz Service Auction Closes," *Public Notice*, 14 FCC Rcd 605 (WTB 1998).

[27] *See* "FCC Announces It is Prepared to Grant 654 Phase II 220 MHz Licenses After Final Payment is Made," *Public Notice*, 14 FCC Rcd 1085 (WTB 1999).

[28] *See* "Phase II 220 MHz Service Spectrum Auction Closes," *Public Notice*, 14 FCC Rcd 11218 (WTB 1999).

[29] *See* "Multi-Radio Service Auction Closes," *Public Notice*, 17 FCC Rcd 1446 (WTB 2002).

14. **Lower 700 MHz Band Licenses.** We adopted criteria for defining three groups of small businesses for purposes of determining their eligibility for special provisions such as bidding credits.[30] We have defined a small business as an entity that, together with its affiliates and controlling principals, has average gross revenues not exceeding $40 million for the preceding three years.[31] A very small business is defined as an entity that, together with its affiliates and controlling principals, has average gross revenues that are not more than $15 million for the preceding three years.[32] Additionally, the lower 700 MHz Service has a third category of small business status that may be claimed for Metropolitan/Rural Service Area (MSA/RSA) licenses. The third category is entrepreneur, which is defined as an entity that, together with its affiliates and controlling principals, has average gross revenues that are not more than $3 million for the preceding three years.[33] The SBA has approved these small size standards.[34] An auction of 740 licenses (one license in each of the 734 MSAs/RSAs and one license in each of the six Economic Area Groupings (EAGs)) commenced on August 27, 2002, and closed on September 18, 2002. Of the 740 licenses available for auction, 484 licenses were sold to 102 winning bidders. Seventy-two of the winning bidders claimed small business, very small business or entrepreneur status and won a total of 329 licenses. [35] A second auction commenced on May 28, 2003, and closed on June 13, 2003, and included 256 licenses: 5 EAG licenses and 476 CMA licenses.[36] Seventeen winning bidders claimed small or very small business status and won sixty licenses, and nine winning bidders claimed entrepreneur status and won 154 licenses.[37]

15. **Upper 700 MHz Band Licenses.** The Commission released a *Report and Order*, authorizing service in the upper 700 MHz band.[38] This auction, previously scheduled for January 13, 2003, has been postponed.[39]

16. **Paging.** In the *Paging* Second *Report and Order*, we adopted a size standard for "small businesses" for purposes of determining their eligibility for special provisions such as bidding credits and installment payments.[40] A small business is an entity that, together with its affiliates and controlling

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[30] *See* Reallocation and Service Rules for the 698-746 MHz Spectrum Band (Television Channels 52-59), *Report and Order*, 17 FCC Rcd 1022 (2002).

[31] *Id.* at 1087-88 ¶ 172.

[32] *Id.*

[33] *Id.* at 1088 ¶ 173.

[34] *See* Letter to Thomas Sugrue, Chief, Wireless Telecommunications Bureau, Federal Communications Commission, from Aida Alvarez, Administrator, Small Business Administration, dated August 10, 1999.

[35] *See* "Lower 700 MHz Band Auction Closes," *Public Notice*, 17 FCC Rcd 17272 (WTB 2002).

[36] *See* "Lower 700 MHz Band Auction Closes," *Public Notice*, 18 FCC Rcd 11873 (WTB 2003).

[37] *Id*.

[38] Service Rules for the 746-764 and 776-794 MHz Bands, and Revisions to Part 27 of the Commission's Rules, *Second Memorandum Opinion and Order*, 16 FCC Rcd 1239 (2001).

[39] *See* "Auction of Licenses for 747-762 and 777-792 MHz Bands (Auction No. 31) Is Rescheduled," *Public Notice*, 16 FCC Rcd 13079 (WTB 2003).

[40] Revision of Part 22 and Part 90 of the Commission's Rules to Facilitate Future Development of Paging Systems, *Second Report and Order*, 12 FCC Rcd 2732, 2811-2812 ¶¶ 178-181 (*Paging Second Report and Order*); *see also* Revision of Part 22 and Part 90 of the Commission's Rules to Facilitate Future Development of Paging Systems, (continued….)

principals, has average gross revenues not exceeding $15 million for the preceding three years.[41] The SBA has approved this definition.[42] An auction of Metropolitan Economic Area (MEA) licenses commenced on February 24, 2000, and closed on March 2, 2000. Of the 2,499 licenses auctioned, 985 were sold.[43] Fifty-seven companies claiming small business status won 440 licenses.[44] An auction of Metropolitan Economic Area (MEA) and Economic Area (EA) licenses commenced on October 30, 2001, and closed on December 5, 2001. Of the 15,514 licenses auctioned, 5,323 were sold.[45] 132 companies claiming small business status purchased 3,724 licenses. A third auction, consisting of 8,874 licenses in each of 175 EAs and 1,328 licenses in all but three of the 51 MEAs commenced on May 13, 2003, and closed on May 28, 2003. Seventy-seven bidders claiming small or very small business status won 2,093 licenses.[46] Currently, there are approximately 24,000 Private Paging site-specific licenses and 74,000 Common Carrier Paging licenses. According to the most recent *Trends in Telephone Service,* 608 private and common carriers reported that they were engaged in the provision of either paging or "other mobile" services.[47] Of these, we estimate that 589 are small, under the SBA-approved small business size standard.[48] We estimate that the majority of private and common carrier paging providers would qualify as small entities under the SBA definition.

17. **Broadband Personal Communications Service (PCS).** The broadband PCS spectrum is divided into six frequency blocks designated A through F, and the Commission has held auctions for each block. The Commission has created a small business size standard for Blocks C and F as an entity that has average gross revenues of less than $40 million in the three previous calendar years.[49] For Block F, an additional small business size standard for "very small business" was added and is defined as an entity that, together with its affiliates, has average gross revenues of not more than $15 million for the preceding three calendar years.[50] These small business size standards, in the context of broadband PCS auctions, have been approved by the SBA.[51] No small businesses within the SBA-approved small

(Continued from previous page)

Memorandum Opinion and Order on Reconsideration, 14 FCC Rcd 10030, 10085-10088 ¶¶ 98-107 (1999).

[41] *Paging Second Report and Order*, 12 FCC Rcd at 2811 ¶ 179.

[42] *See* Letter to Amy Zoslov, Chief, Auctions and Industry Analysis Division, Wireless Telecommunications Bureau, from Aida Alvarez, Administrator, Small Business Administration, dated December 2, 1998.

[43] *See* "929 and 931 MHz Paging Auction Closes," *Public Notice*, 15 FCC Rcd 4858 (WTB 2000).

[44] *See id*.

[45] *See* "Lower and Upper Paging Band Auction Closes," *Public Notice*, 16 FCC Rcd 21821 (WTB 2002).

[46] *See* "Lower and Upper Paging Bands Auction Closes," *Public Notice*, 18 FCC Rcd 11154 (WTB 2003).

[47] *See Trends in Telephone Service,* Industry Analysis Division, Wireline Competition Bureau, Table 5.3 (Number of Telecommunications Service Providers that are Small Businesses) (May 2002).

[48] 13 C.F.R. § 121.201, NAICS code 517211.

[49] *See* Amendment of Parts 20 and 24 of the Commission's Rules – Broadband PCS Competitive Bidding and the Commercial Mobile Radio Service Spectrum Cap, *Report and Order*, 11 FCC Rcd 7824, 7850-7852 ¶¶ 57-60 (1996); *see also* 47 C.F.R. § 24.720(b).

[50] *See* Amendment of Parts 20 and 24 of the Commission's Rules – Broadband PCS Competitive Bidding and the Commercial Mobile Radio Service Spectrum Cap, *Report and Order*, 11 FCC Rcd 7824, 7852 ¶ 60.

[51] *See* Letter to Amy Zoslov, Chief, Auctions and Industry Analysis Division, Wireless Telecommunications Bureau, Federal Communications Commission, from Aida Alvarez, Administrator, Small Business Administration, dated December 2, 1998.

business size standards bid successfully for licenses in Blocks A and B. There were 90 winning bidders that qualified as small entities in the Block C auctions. A total of 93 "small" and "very small" business bidders won approximately 40 percent of the 1,479 licenses for Blocks D, E, and F.[52] On March 23, 1999, the Commission reauctioned 155 C, D, E, and F Block licenses; there were 113 small business winning bidders.[53]

18. **Narrowband PCS.** The Commission held an auction for Narrowband PCS licenses that commenced on July 25, 1994, and closed on July 29, 1994. A second commenced on October 26, 1994 and closed on November 8, 1994. For purposes of the first two Narrowband PCS auctions, "small businesses" were entities with average gross revenues for the prior three calendar years of $40 million or less.[54] Through these auctions, the Commission awarded a total of forty-one licenses, 11 of which were obtained by four small businesses.[55] To ensure meaningful participation by small business entities in future auctions, the Commission adopted a two-tiered small business size standard in the *Narrowband PCS Second Report and Order*.[56] A "small business" is an entity that, together with affiliates and controlling interests, has average gross revenues for the three preceding years of not more than $40 million.[57] A "very small business" is an entity that, together with affiliates and controlling interests, has average gross revenues for the three preceding years of not more than $15 million.[58] The SBA has approved these small business size standards.[59] A third auction commenced on October 3, 2001 and closed on October 16, 2001. Here, five bidders won 317 (MTA and nationwide) licenses.[60] Three of these claimed status as a small or very small entity and won 311 licenses.

19. **Specialized Mobile Radio (SMR)**. The Commission awards "small entity" bidding credits in auctions for Specialized Mobile Radio (SMR) geographic area licenses in the 800 MHz and 900 MHz bands to firms that had revenues of no more than $15 million in each of the three previous calendar years. [61] The Commission awards "very small entity" bidding credits to firms that had revenues of no

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[52] FCC News, "Broadband PCS, D, E and F Block Auction Closes," No. 71744 (rel. January 14, 1997).

[53] *See* "C, D, E, and F Block Broadband PCS Auction Closes," *Public Notice*, 14 FCC Rcd 6688 (WTB 1999).

[54] Implementation of Section 309(j) of the Communications Act – Competitive Bidding Narrowband PCS, *Third Memorandum Opinion and Order and Further Notice of Proposed Rulemaking*, 10 FCC Rcd 175, 196 ¶ 46 (1994).

[55] *See* "Announcing the High Bidders in the Auction of ten Nationwide Narrowband PCS Licenses, Winning Bids Total $617,006,674," *Public Notice*, PNWL 94-004 (rel. Aug. 2, 1994); "Announcing the High Bidders in the Auction of 30 Regional Narrowband PCS Licenses; Winning Bids Total $490,901,787," *Public Notice*, PNWL 94-27 (rel. Nov. 9, 1994).

[56] Amendment of the Commission's Rules to Establish New Personal Communications Services, Narrowband PCS, *Second Report and Order and Second Further Notice of Proposed Rule Making*, 15 FCC Rcd 10456, 10476 ¶ 40 (2000).

[57] *Id*.

[58] *Id*.

[59] *See* Letter to Amy Zoslov, Chief, Auctions and Industry Analysis Division, Wireless Telecommunications Bureau, Federal Communications Commission, from Aida Alvarez, Administrator, Small Business Administration, dated December 2, 1998.

[60] *See* "Narrowband PCS Auction Closes," *Public Notice*, 16 FCC Rcd 18663 (WTB 2001).

[61] 47 C.F.R. § 90.814(b)(1).

more than $3 million in each of the three previous calendar years.[62] The SBA has approved these small business size standards for the 900 MHz Service.[63] The Commission has held auctions for geographic area licenses in the 800 MHz and 900 MHz bands. The 900 MHz SMR auction began on December 5, 1995, and closed on April 15, 1996. Sixty bidders claiming that they qualified as small businesses under the $15 million size standard won 263 geographic area licenses in the 900 MHz SMR band. The 800 MHz SMR auction for the upper 200 channels began on October 28, 1997, and was completed on December 8, 1997. Ten bidders claiming that they qualified as small businesses under the $15 million size standard won 38 geographic area licenses for the upper 200 channels in the 800 MHz SMR band.[64] A second auction for the 800 MHz band was held on January 10, 2002 and closed on January 17, 2002 and included 23 BEA licenses. One bidder claiming small business status won five licenses.[65]

20. The auction of the 1,050 800 MHz SMR geographic area licenses for the General Category channels began on August 16, 2000, and was completed on September 1, 2000. Eleven bidders won 108 geographic area licenses for the General Category channels in the 800 MHz SMR band qualified as small businesses under the $15 million size standard. In an auction completed on December 5, 2000, a total of 2,800 Economic Area licenses in the lower 80 channels of the 800 MHz SMR service were sold. Of the 22 winning bidders, 19 claimed "small business" status and won 129 licenses. Thus, combining all three auctions, 40 winning bidders for geographic licenses in the 800 MHz SMR band claimed status as small business.

21. In addition, there are numerous incumbent site-by-site SMR licensees and licensees with extended implementation authorizations in the 800 and 900 MHz bands. We do not know how many firms provide 800 MHz or 900 MHz geographic area SMR pursuant to extended implementation authorizations, nor how many of these providers have annual revenues of no more than $15 million. One firm has over $15 million in revenues. We assume, for purposes of this analysis, that all of the remaining existing extended implementation authorizations are held by small entities, as that small business size standard is established by the SBA.

22. **Private Land Mobile Radio (PLMR).** PLMR systems serve an essential role in a range of industrial, business, land transportation, and public safety activities. These radios are used by companies of all sizes operating in all U.S. business categories, and are often used in support of the licensee's primary (non-telecommunications) business operations. For the purpose of determining whether a licensee of a PLMR system is a small business as defined by the SBA, we could use the definition for "Cellular and Other Wireless Telecommunications." This definition provides that a small entity is any such entity employing no more than 1,500 persons.[66] The Commission does not require PLMR licensees to disclose information about number of employees, so the Commission does not have information that could be used to determine how many PLMR licensees constitute small entities under

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[62] *Id*.

[63] *See* Letter to Thomas Sugrue, Chief, Wireless Telecommunications Bureau, Federal Communications Commission, from Aida Alvarez, Administrator, Small Business Administration, dated August 10, 1999. We note that, although a request was also sent to the SBA requesting approval for the small business size standard for 800 MHz, approval is still pending.

[64] *See* "Correction to Public Notice DA 96-586 'FCC Announces Winning Bidders in the Auction of 1020 Licenses to Provide 900 MHz SMR in Major Trading Areas,'" *Public Notice*, 18 FCC Rcd 18367 (WTB 1996).

[65] *See* "Multi-Radio Service Auction Closes," *Public Notice*, 17 FCC Rcd 1446 (WTB 2002).

[66] *See* 13 C.F.R. § 121.201, NAICS code 517212.

this definition. We also note that PMLR licensees generally are not in the business of providing cellular or other wireless telecommunications services but instead use the licensed facilities in support of other business activities. According to the Bureau of the Census, only twelve firms out of a total of 977 cellular and other wireless telecommunications firms that operated for the entire year in 1997 had 1,000 or more employees.[67] Therefore, even if all twelve of these firms were cellular telephone companies, nearly all carriers are small businesses under the SBA's definition.

23. **Public Safety Radio Services.** Public Safety radio services include police, fire, local government, forestry conservation, highway maintenance, and emergency medical services.[68] There are a total of approximately 127,540 licensees in these services. Governmental entities[69] as well as private businesses comprise the licensees for these services. All governmental entities with populations of less than 50,000 fall within the definition of a small entity.[70]

24. **Fixed Microwave Services.** Fixed microwave services include common carrier,[71] private-operational fixed,[72] and broadcast auxiliary radio services.[73] Currently, there are approximately 22,015 common carrier fixed licensees and 61,670 private operational-fixed licensees and broadcast

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[67] U.S. Census Bureau, 1997 Economic Census, Subject Series: Information, "Establishment and Firm Size (Including Legal Form of Organization)," Table 5, NAICS code 513322 (October 2000).

[68] With the exception of the special emergency service, these services are governed by Subpart B of part 90 of the Commission's Rules, 47 C.F.R. §§ 90.15-90.27. The police service includes approximately 27,000 licensees that serve state, county, and municipal enforcement through telephony (voice), telegraphy (code) and teletype and facsimile (printed material). The fire radio service includes approximately 23,000 licensees comprised of private volunteer or professional fire companies as well as units under governmental control. The local government service that is presently comprised of approximately 41,000 licensees that are state, county, or municipal entities that use the radio for official purposes not covered by other public safety services. There are approximately 7,000 licensees within the forestry service which is comprised of licensees from state departments of conservation and private forest organizations who set up communications networks among fire lookout towers and ground crews. The approximately 9,000 state and local governments are licensed to highway maintenance service provide emergency and routine communications to aid other public safety services to keep main roads safe for vehicular traffic. The approximately 1,000 licensees in the Emergency Medical Radio Service (EMRS) use the 39 channels allocated to this service for emergency medical service communications related to the delivery of emergency medical treatment. 47 C.F.R. §§ 90.15-90.27. The approximately 20,000 licensees in the special emergency service include medical services, rescue organizations, veterinarians, handicapped persons, disaster relief organizations, school buses, beach patrols, establishments in isolated areas, communications standby facilities, and emergency repair of public communications facilities. 47 C.F.R. §§ 90.33-90.55.

[69] 47 C.F.R. § 1.1162.

[70] 5 U.S.C. § 601(5).

[71] 47 C.F.R. §§ 101 *et seq.* (formerly, part 21 of the Commission's Rules).

[72] Persons eligible under parts 80 and 90 of the Commission's rules can use Private Operational-Fixed Microwave services. *See generally* 47 C.F.R. parts 80 and 90. Stations in this service are called operational-fixed to distinguish them from common carrier and public fixed stations. Only the licensee may use the operational-fixed station, and only for communications related to the licensee's commercial, industrial, or safety operations.

[73] Auxiliary Microwave Service is governed by part 74 of Title 47 of the Commission's Rules. *See* 47 C.F.R. Part 74. Available to licensees of broadcast stations and to broadcast and cable network entities, broadcast auxiliary microwave stations are used for relaying broadcast television signals from the studio to the transmitter, or between two points such as a main studio and an auxiliary studio. The service also includes mobile TV pickups, which relay signals from a remote location back to the studio.

auxiliary radio licensees in the microwave services. The Commission has not yet defined a small business with respect to microwave services. For purposes of this IRFA, we will use the SBA's definition applicable to "Cellular and Other Wireless Telecommunications" companies—that is, an entity with no more than 1,500 persons.[74] The Commission does not have data specifying the number of these licensees that have more than 1,500 employees, and thus is unable at this time to estimate with greater precision the number of fixed microwave service licensees that would qualify as small business concerns under the SBA's small business size standard. Consequently, the Commission estimates that there are 22,015 or fewer small common carrier fixed licensees and 61,670 or fewer small private operational-fixed licensees and small broadcast auxiliary radio licensees in the microwave services that may be affected by the rules and policies adopted herein. The Commission notes, however, that the common carrier microwave fixed licensee category includes some large entities.

25. **Wireless Communications Services.** This service can be used for fixed, mobile, radiolocation, and digital audio broadcasting satellite uses. The Commission defined "small business" for the wireless communications services (WCS) auction as an entity with average gross revenues of $40 million for each of the three preceding years, and a "very small business" as an entity with average gross revenues of $15 million for each of the three preceding years.[75] The SBA has approved these definitions.[76] The FCC auctioned geographic area licenses in the WCS service. In the auction, which commenced on April 15, 1997 and closed on April 25, 1997, there were seven bidders that won 31 licenses that qualified as very small business entities, and one bidder that won one license that qualified as a small business entity. An auction for one license in the 1670-1674 MHz band commenced on April 30, 2003 and closed the same day. One license was awarded. The winning bidder was not a small entity.

26. **39 GHz Service.** The Commission defines "small entity" for 39 GHz licenses as an entity that has average gross revenues of less than $40 million in the three previous calendar years.[77] "Very small business" is defined as an entity that, together with its affiliates, has average gross revenues of not more than $15 million for the preceding three calendar years.[78] The SBA has approved these definitions.[79] The auction of the 2,173 39 GHz licenses began on April 12, 2000, and closed on May 8, 2000. The 18 bidders who claimed small business status won 849 licenses.

27. **Local Multipoint Distribution Service.** An auction of the 986 Local Multipoint Distribution Service (LMDS) licenses began on February 18, 1998, and closed on March 25, 1998. The Commission defined "small entity" for LMDS licenses as an entity that has average gross revenues of less

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[74] 13 C.F.R. § 121.201, NAICS code 517212.

[75] Amendment of the Commission's Rules to Establish Part 27, the Wireless Communications Service (WCS), *Report and Order*, 12 FCC Rcd 10785, 10879 ¶ 194 (1997).

[76] *See* Letter to Amy Zoslov, Chief, Auctions and Industry Analysis Division, Wireless Telecommunications Bureau, Federal Communications Commission, from Aida Alvarez, Administrator, Small Business Administration, dated December 2, 1998.

[77] *See* Amendment of the Commission's Rules Regarding the 37.0-38.6 GHz and 38.6-40.0 GHz Band, *Report and Order*, 12 FCC Rcd 18600 (1997).

[78] *Id*.

[79] *See* Letter to Margaret Wiener, Chief, Auctions and Industry Analysis Division, Wireless Telecommunications Bureau, Federal Communications Commission, from Hector Barreto, Administrator, Small Business Administration, dated January 18, 2002.

than $40 million in the three previous calendar years.[80] An additional classification for "very small business" was added and is defined as an entity that, together with its affiliates, has average gross revenues of not more than $15 million for the preceding three calendar years.[81] These regulations defining "small entity" in the context of LMDS auctions have been approved by the SBA.[82] There were 93 winning bidders that qualified as small entities in the LMDS auctions. A total of 93 small and very small business bidders won approximately 277 A Block licenses and 387 B Block licenses. On March 27, 1999, the Commission re-auctioned 161 licenses; there were 32 small and very small business winning bidders that won 119 licenses.

28. **218-219 MHz Service.** The first auction of 218-219 MHz (previously referred to as the Interactive and Video Data Service or IVDS) spectrum resulted in 178 entities winning licenses for 594 Metropolitan Statistical Areas (MSAs).[83] Of the 594 licenses, 567 were won by 167 entities qualifying as a small business. For that auction, we defined a small business as an entity that, together with its affiliates, has no more than a $6 million net worth and, after federal income taxes (excluding any carry over losses), has no more than $2 million in annual profits each year for the previous two years.[84] In the *218-219 MHz Report and Order and Memorandum Opinion and Order*, we defined a small business as an entity that, together with its affiliates and persons or entities that hold interests in such an entity and their affiliates, has average annual gross revenues not exceeding $15 million for the preceding three years.[85] A very small business is defined as an entity that, together with its affiliates and persons or entities that hold interests in such an entity and its affiliates, has average annual gross revenues not exceeding $3 million for the preceding three years.[86] The SBA has approved of these definitions.[87] At this time, we cannot estimate the number of licenses that will be won by entities qualifying as small or very small businesses under our rules in future auctions of 218-219 MHz spectrum. Given the success of small businesses in the previous auction, and the prevalence of small businesses in the subscription television services and message communications industries, we assume for purposes of this IRFA that in future auctions, many, and perhaps all, of the licenses may be awarded to small businesses.

29. **Location and Monitoring Service (LMS)**. Multilateration LMS systems use non-voice radio techniques to determine the location and status of mobile radio units. For purposes of auctioning

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[80] *See* Rulemaking to Amend Parts 1, 2, 21, 25, of the Commission's Rules to Redesignate the 27.5-29.5 GHz Frequency Band, Reallocate the 29.5-30.5 Frequency Band, to Establish Rules and Policies for Local Multipoint Distribution Service and for Fixed Satellite Services, *Second Report and Order*, *Order on Reconsideration, and Fifth Notice of Proposed Rule Making,* 12 FCC Rcd 12545, 12689-90 ¶ 348 (1997).

[81] *Id*.

[82] *See* Letter to Daniel Phythyon, Chief, Wireless Telecommunications Bureau, Federal Communications Commission, from Aida Alvarez, Administrator, Small Business Administration, dated January 6, 1998.

[83] *See* "Interactive Video and Data Service (IVDS) Applications Accepted for Filing," *Public Notice*, 9 FCC Rcd 6227 (1994).

[84] Implementation of Section 309(j) of the Communications Act – Competitive Bidding, *Fourth Report and Order*, 9 FCC Rcd 2330 (1994).

[85] Amendment of Part 95 of the Commission's Rules to Provide Regulatory Flexibility in the 218-219 MHz Service, *Report and Order and Memorandum Opinion and Order*, 15 FCC Rcd 1497 (1999).

[86] *Id*.

[87] *See* Letter to Daniel Phythyon, Chief, Wireless Telecommunications Bureau, Federal Communications Commission, from Aida Alvarez, Administrator, Small Business Administration, dated January 6, 1998.

LMS licenses, the Commission has defined "small business" as an entity that, together with controlling interests and affiliates, has average annual gross revenues for the preceding three years not exceeding $15 million.[88] A "very small business" is defined as an entity that, together with controlling interests and affiliates, has average annual gross revenues for the preceding three years not exceeding $3 million.[89] These definitions have been approved by the SBA.[90] An auction for LMS licenses commenced on February 23, 1999, and closed on March 5, 1999. Of the 528 licenses auctioned, 289 licenses were sold to four small businesses. We cannot accurately predict the number of remaining licenses that could be awarded to small entities in future LMS auctions.

30. **Rural Radiotelephone Service**. We use the SBA definition applicable to cellular and other wireless telecommunication companies, *i.e.*, an entity employing no more than 1,500 persons.[91] There are approximately 1,000 licensees in the Rural Radiotelephone Service, and the Commission estimates that there are 1,000 or fewer small entity licensees in the Rural Radiotelephone Service that may be affected by the rules and policies adopted herein.

31. **Air-Ground Radiotelephone Service.** We use the SBA definition applicable to cellular and other wireless telecommunication companies, *i.e.*, an entity employing no more than 1,500 persons.[92] There are approximately 100 licensees in the Air-Ground Radiotelephone Service, and the Commission estimates that almost all of them qualify as small entities under the SBA definition.

32. **Offshore Radiotelephone Service.** This service operates on several ultra high frequency (UHF) TV broadcast channels that are not used for TV broadcasting in the coastal area of the states bordering the Gulf of Mexico. At present, there are approximately 55 licensees in this service. We use the SBA definition applicable to cellular and other wireless telecommunication companies, *i.e.*, an entity employing no more than 1,500 persons.[93] The Commission is unable at this time to estimate the number of licensees that would qualify as small entities under the SBA definition. The Commission assumes, for purposes of this IRFA, that all of the 55 licensees are small entities, as that term is defined by the SBA.

33. **Multiple Address Systems (MAS).** Entities using MAS spectrum, in general, fall into two categories: (1) those using the spectrum for profit-based uses, and (2) those using the spectrum for private internal uses. With respect to the first category, the Commission defines "small entity" for MAS licenses as an entity that has average gross revenues of less than $15 million in the three previous calendar years.[94] "Very small business" is defined as an entity that, together with its affiliates, has

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[88] Amendment of Part 90 of the Commission's Rules to Adopt Regulations for Automatic Vehicle Monitoring Systems, *Second Report and Order*, 13 FCC Rcd 15182, 15192 ¶ 20 (1998); *see also* 47 C.F.R. § 90.1103.

[89] Amendment of Part 90 of the Commission's Rules to Adopt Regulations for Automatic Vehicle Monitoring Systems, *Second Report and Order*, 13 FCC Rcd at 15192 ¶ 20; *see also* 47 C.F.R. § 90.1103.

[90] *See* Letter to Thomas Sugrue, Chief, Wireless Telecommunications Bureau, Federal Communications Commission, from Aida Alvarez, Administrator, Small Business Administration, dated February 22, 1999.

[91] 13 C.F.R. § 121.201, NAICS code 517212.

[92] *Id.*

[93] *Id*.

[94] *See* Amendment of the Commission's Rules Regarding Multiple Address Systems, *Report and Order*, 15 FCC Rcd 11956, 12008 ¶ 123 (2000).

average gross revenues of not more than $3 million for the preceding three calendar years.[95] The SBA has approved of these definitions.[96] The majority of these entities will most likely be licensed in bands where the Commission has implemented a geographic area licensing approach that would require the use of competitive bidding procedures to resolve mutually exclusive applications. The Commission's licensing database indicates that, as of January 20, 1999, there were a total of 8,670 MAS station authorizations. Of these, 260 authorizations were associated with common carrier service. In addition, an auction for 5,104 MAS licenses in 176 EAs began November 14, 2001, and closed on November 27, 2001.[97] Seven winning bidders claimed status as small or very small businesses and won 611 licenses.

34. With respect to the second category, which consists of entities that use, or seek to use, MAS spectrum to accommodate their own internal communications needs, we note that MAS serves an essential role in a range of industrial, safety, business, and land transportation activities. MAS radios are used by companies of all sizes, operating in virtually all U.S. business categories, and by all types of public safety entities. For the majority of private internal users, the definitions developed by the SBA would be more appropriate. The applicable definition of small entity in this instance appears to be the "Cellular and Other Wireless Telecommunications" definition under the SBA rules. This definition provides that a small entity is any entity employing no more than 1,500 persons.[98] The Commission's licensing database indicates that, as of January 20, 1999, of the 8,670 total MAS station authorizations, 8,410 authorizations were for private radio service, and of these, 1,433 were for private land mobile radio service.

35. **Incumbent 24 GHz Licensees.** The rules that we adopt could affect incumbent licensees who were relocated to the 24 GHz band from the 18 GHz band, and applicants who wish to provide services in the 24 GHz band. The Commission did not develop a definition of small entities applicable to existing licensees in the 24 GHz band. Therefore, the applicable definition of small entity is the definition under the SBA rules for "Cellular and Other Wireless Telecommunications." This definition provides that a small entity is any entity employing no more than 1,500 persons.[99] We believe that there are only two licensees in the 24 GHz band that were relocated from the 18 GHz band, Teligent[100] and TRW, Inc. It is our understanding that Teligent and its related companies have less than 1,500 employees, though this may change in the future. TRW is not a small entity. Thus, only one incumbent licensee in the 24 GHz band is a small business entity.

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[95] *Id*.

[96] *See* Letter to Thomas Sugrue, Chief, Wireless Telecommunications Bureau, Federal Communications Commission, from Aida Alvarez, Administrator, Small Business Administration, dated June 4, 1999.

[97] *See* "Multiple Address Systems Spectrum Auction Closes," *Public Notice*, 16 FCC Rcd 21011 (2001).

[98] *See* 13 C.F.R. § 121.201, NAICS code 517212.

[99] *See id*. According to Census Bureau data for 1997, in this category, there were a total of 977 firms that operated for the entire year. U.S. Census Bureau, 1997 Economic Census, Subject Series: Information, "Establishment and Firm Size (Including Legal Form of Organization)," Table 5, NAICS code 513322 (October 2000). Of this total, 965 firms had employment of 999 or fewer employees, and an additional 12 firms had employment of 1,000 employees or more. *Id.* The census data do not provide a more precise estimate of the number of firms that have 1,500 or fewer employees; the largest category provided is "Firms with 1,000 employees or more."

[100] Teligent acquired the Digital Electronic Message Service (DEMS) licenses of FirstMark, the only licensee other than TRW in the 24 GHz band whose license has been modified to require relocation to the 24 GHz band.

36. **Future 24 GHz Licensees.** With respect to new applicants in the 24 GHz band, we have defined "small business" as an entity that, together with controlling interests and affiliates, has average annual gross revenues for the three preceding years not exceeding $15 million.[101] "Very small business" in the 24 GHz band is defined as an entity that, together with controlling interests and affiliates, has average gross revenues not exceeding $3 million for the preceding three years.[102] The SBA has approved these definitions.[103] The Commission will not know how many licensees will be small or very small businesses until the auction, if required, is held.

37. **700 MHz Guard Band Licenses.** In the *700* MHz *Guard Band Order*, we adopted size standards for "small businesses" and "very small businesses" for purposes of determining their eligibility for special provisions such as bidding credits and installment payments.[104] A small business in this service is an entity that, together with its affiliates and controlling principals, has average gross revenues not exceeding $40 million for the preceding three years.[105] Additionally, a "very small business" is an entity that, together with its affiliates and controlling principals, has average gross revenues that are not more than $15 million for the preceding three years.[106] SBA approval of these definitions is not required.[107] An auction of 52 Major Economic Area (MEA) licenses commenced on September 6, 2000, and closed on September 21, 2000.[108] Of the 104 licenses auctioned, 96 licenses were sold to nine bidders. Five of these bidders were small businesses that won a total of 26 licenses. A second auction of 700 MHz Guard Band licenses commenced on February 13, 2001, and closed on February 21, 2001. All eight of the licenses auctioned were sold to three bidders. One of these bidders was a small business that won a total of two licenses.[109]

38. **Multipoint Distribution Service, Multichannel Multipoint Distribution Service, and Instructional Television Fixed Service.** Multichannel Multipoint Distribution Service (MMDS) systems, often referred to as "wireless cable," transmit video programming to subscribers using the microwave frequencies of the Multipoint Distribution Service (MDS) and Instructional Television Fixed Service (ITFS).[110] In connection with the 1996 MDS auction, the Commission defined "small business"

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[101] Amendments to Parts 1, 2, 87 and 101 of the Commission's Rules To License Fixed Services at 24 GHz, *Report and Order*, 15 FCC Rcd 16934, 16967 ¶ 77 (2000) (*24 GHz Report and Order*); *see also* 47 C.F.R. § 101.538(a)(2).

[102] *24 GHz Report and Order*, 15 FCC Rcd at 16967 ¶ 77; *see also* 47 C.F.R. § 101.538(a)(1).

[103] *See* Letter to Margaret W. Wiener, Deputy Chief, Auctions and Industry Analysis Division, Wireless Telecommunications Bureau, Federal Communications Commission, from Gary M. Jackson, Assistant Administrator, Small Business Administration, dated July 28, 2000.

[104] *See* Service Rules for the 746-764 MHz Bands, and Revisions to Part 27 of the Commission's Rules, *Second Report and Order*, 15 FCC Rcd 5299 (2000).

[105] *Id.* at 5343 ¶ 108.

[106] *Id.*

[107] *Id*. at 5343 ¶ 108 n.246 (for the 746-764 MHz and 776-794 MHz bands, the Commission is exempt from 15 U.S.C. § 632, which requires Federal agencies to obtain Small Business Administration approval before adopting small business size standards).

[108] *See* "700 MHz Guard Bands Auction Closes: Winning Bidders Announced," *Public Notice*, 15 FCC Rcd 18026 (2000).

[109] *See* "700 MHz Guard Bands Auction Closes: Winning Bidders Announced," *Public Notice*, 16 FCC Rcd 4590 (WTB 2001).

[110] Amendment of Parts 21 and 74 of the Commission's Rules with Regard to Filing Procedures in the Multipoint (continued….)

as an entity that, together with its affiliates, has average gross annual revenues that are not more than $40 million for the preceding three calendar years.[111] The SBA has approved of this standard.[112] The MDS auction resulted in 67 successful bidders obtaining licensing opportunities for 493 Basic Trading Areas (BTAs).[113] Of the 67 auction winners, 61 claimed status as a small business. At this time, we estimate that of the 61 small business MDS auction winners, 48 remain small business licensees. In addition to the 48 small businesses that hold BTA authorizations, there are approximately 392 incumbent MDS licensees that have gross revenues that are not more than $40 million and are thus considered small entities.[114]

39. In addition, the SBA has developed a small business size standard for Cable and Other Program Distribution,[115] which includes all such companies generating $12.5 million or less in annual receipts.[116] According to Census Bureau data for 1997, there were a total of 1,311 firms in this category, total, that had operated for the entire year.[117] Of this total, 1,180 firms had annual receipts of under $10 million, and an additional 52 firms had receipts of $10 million or more but less than $25 million.[118] Consequently, we estimate that the majority of providers in this service category are small businesses that may be affected by the rules and policies proposed in the *Further Notice*.

40. Finally, while SBA approval for a Commission-defined small business size standard applicable to ITFS is pending, educational institutions are included in this analysis as small entities.[119] There are currently 2,032 ITFS licensees, and all but 100 of these licenses are held by educational institutions. Thus, we tentatively conclude that at least 1,932 ITFS licensees are small businesses.

41. **Cable Television Relay Service.** This service includes transmitters generally used to relay cable programming within cable television system distribution systems. The SBA has defined a small business size standard for Cable and other Program Distribution, consisting of all such companies

(Continued from previous page)

Distribution Service and in the Instructional Television Fixed Service and Implementation of Section 309(j) of the Communications Act – Competitive Bidding, *Report and Order*, 10 FCC Rcd 9589, 9593 ¶ 7 (1995) (*MDS Auction R&O)*.

[111] 47 C.F.R. § 21.961(b)(1).

[112] *See* Letter to Margaret Wiener, Chief, Auctions and Industry Analysis Division, Wireless Telecommunications Bureau, Federal Communications Bureau, from Gary Jackson, Assistant Administrator for Size Standards, Small Business Administration, dated March 20, 2003 (noting approval of $40 million size standard for MDS auction).

[113] Basic Trading Areas (BTAs) were designed by Rand McNally and are the geographic areas by which MDS was auctioned and authorized. *See MDS Auction R&O*, 10 FCC Rcd at 9608 ¶ 34.

[114] 47 U.S.C. § 309(j). Hundreds of stations were licensed to incumbent MDS licensees prior to implementation of Section 309(j) of the Communications Act of 1934, 47 U.S.C. § 309(j). For these pre-auction licenses, the applicable standard is SBA's small business size standard for "other telecommunications" (annual receipts of $12.5 million or less). *See* 13 C.F.R. § 121.201, NAICS code 517910.

[115] 13 C.F.R. § 121.201, NAICS code 517510.

[116] *Id.*

[117] U.S. Census Bureau, 1997 Economic Census, Subject Series: Information, "Establishment and Firm Size (Including Legal Form of Organization)," Table 4 (issued October 2000).

[118] *Id*.

[119] In addition, the term "small entity" under SBREFA applies to small organizations (nonprofits) and to small governmental jurisdictions (cities, counties, towns, townships, villages, school districts, and special districts with populations of less than 50,000). 5 U.S.C. §§ 601(4)-(6). We do not collect annual revenue data on ITFS licensees.

having annual receipts of no more than $12.5 million.[120] According to Census Bureau data for 1997, there were 1,311 firms in the industry category Cable and Other Program Distribution, total, that operated for the entire year.[121] Of this total, 1,180 firms had annual receipts of $10 million or less, and an additional 52 firms had receipts of $10 million or more but less than $25 million.[122] Thus, under this standard, we estimate that the majority of providers in this service category are small businesses that may be affected by the rules and policies proposed in the *Further Notice*.

42. **Multichannel Video Distribution and Data Service.** MVDDS is a terrestrial fixed microwave service operating in the 12.2-12.7 GHz band. No auction has yet been held in this service, although an action has been scheduled for January 14, 2004.[123] Accordingly, there are no licensees in this service.

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

43. The policy proposals in this *Further Notice* could apply to a significant number of Commission licensees of wireless services. Specifically, the *Further Notice* seeks comment on possible changes to the broadband PCS radiated power limits including the introduction of power spectral density limits and specifying average radiated power in additional to peak radiated power in measuring emissions. We recognize that if we were to increase radiated power levels, it may be necessary to enhance coordination efforts between licensees,[124] which will assist licensees in minimizing instances of interference. Also, we seek comment on possible methods to improve information sharing among licensees and the level of burden increase such information sharing might entail.[125] We also note that we have discussed possible changes to the likelihood of needing environmental evaluations as a result of our proposed actions in Section E of this IRFA, *infra*.

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

44. The RFA requires an agency to describe any significant, specifically small business, alternatives that it has considered in reaching its proposed approach, which may include the following four alternatives (among others): "(1) the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance or reporting requirements under the rule for small entities; (3) the use of performance, rather than design, standards; and (4) an exemption from coverage of the rule, or any part thereof, for small entities."[126]

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[120] 13 C.F.R. § 121.201, NAICS code 517510.

[121] U.S. Census Bureau, 1997 Economic Census, Subject Series: Information, "Establishment and Firm Size (Including Legal Form of Organization)," Table 4 (issued October 2000).

[122] *Id.*

[123] "Auctions of Licenses in the Multichannel Video Distribution and Data Service Rescheduled for January 14, 2004," *Public Notice*, DA 03-2354 (August 28, 2003).

[124] *See Further Notice* at para. 60, *supra*.

[125] *Id*.

[126] 5 U.S.C. §§ 603(c)(1)-(c)(4).

45. In addition to our discussion of compliance burdens, *supra*, we have noted in the *Further Notice* that radiated power limit increases may impact licensee's administrative burden in making filings required for proper evaluation of transmission sites in regard to environmental compliance. We have sought comment on this issue. We note that wireless systems, including broadband PCS systems, are subject to environmental evaluation with respect to human exposure of RF radiation for non-building mounted antennas when the antenna height above ground level is less than 10 meters and the total power of all channels is greater than 2000 watts ERP and for building mounted antennas when the total power from all channels is greater than 2000 watts ERP. Otherwise, these systems are categorically excluded from such environmental evaluation.[127] Although we are not proposing any change to RF exposure standards, we seek comment as to whether adoption of higher radiated power limits would increase the number of facilities requiring full environmental evaluation rather than being categorically excluded, and whether adoption of higher radiated power limits would outweigh any possible increased administrative burden.

F. Federal Rules That May Duplicate, Overlap, or Conflict with the Proposed Rules

46. None.

[127] *See* 47 C.F.R. § 1.1307.

APPENDIX C

List of Commenters

COMMENTS

1. American Automobile Association (AAA)
2. American Mobile Telecommunications Association, Inc. (AMTA)
3. American Petroleum Institute (API)
4. Cellular Telecommunications & Internet Association (CTIA)
5. Cingular Wireless, LLC (Cingular)
6. Ericsson, Inc. (Ericsson)
7. Lucent Technologies, Inc. (Lucent)
8. Motorola, Inc. (Motorola)
9. National Association of Manufacturers and MRFAC, Inc. (NAM/MRFAC)
10. Nextel Communications, Inc. (Nextel)
11. PCIA, the Wireless Infrastructure Association (PCIA) (Personal Communications Industry Association)
12. Powerwave Technologies, Inc. (Powerwave)
13. QUALCOMM Incorporated (QUALCOMM)

REPLY COMMENTS

1. American Mobile Telecommunications Association, Inc. (AMTA)
2. Ericsson, Inc. (Ericsson)
3. Industrial Telecommunications Association, Inc. (ITA)
4. Motorola, Inc. (Motorola)
5. Powerwave Technologies, Inc. (Powerwave)
6. Qualcomm, Inc. (Qualcomm)

EX PARTE FILINGS

1. Cellular Telecommunications & Internet Association (CTIA)
2. Ericsson, Inc. (Ericsson)
3. National Public Safety Telecommunications Council
4. Powerwave Technologies, Inc. (Powerwave)
5. Qualcomm, Inc. (Qualcomm)
6. Crown Castle International Corp. (Crown Castle)

STATEMENT OF COMMISSIONER
MICHAEL J. COPPS
Approving in part, dissenting in Part

RE: Biennial Regulatory Review – Amendment of Parts 1, 22, 24, 27, and 90 to Streamline and Harmonize Various Rules Affecting Wireless Radio Services.

I support the vast majority of today's Order and NPRM. But I must dissent from one important part of this item. Today the FCC alters the sliding-scale relationship between tower height and permissible power. This change increases the permissible height of full-power communications towers in suburban areas of our Country for the 800 MHz and 900 MHz bands. We should have analyzed the environmental impact of this change before taking final action.

Towers in many of our communities are already enormous. But because of this FCC Order we may well see more full-power 1,000 foot towers in suburban areas. A 1,000 foot tower is twice as high as the Washington Monument. While we all would like to find ways to improve wireless quality, we should study the impact on our communities before making a change that could dot the suburban landscape with more potentially intrusive structures. We therefore should have studied how many more high towers are likely to be constructed because of our actions and how these towers will affect the environment, aviation safety, and other issues important to communities around the Nation. We did not do so.

The assertion that we can review these issues when individual towers are erected does not allay my concern. The FCC itself does not usually investigate when towers are built, and our history on these matters suggests that ad hoc reviews will inadequately protect our communities. The assertion that high towers already exist in many communities also does not solve this problem. That is because this change potentially will allow companies to build more of these towers without the FCC even asking what the impact of these towers will be. Because I believe that we should at a minimum examine whether our action will negatively impact the environment, safety, and other community concerns, I must dissent to this part of the Order.