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

In the Matter of	)	
	)	
Amendment of Part 27 of the	)	
Commission's Rules to Govern the	)	WT Docket No. 07-293
Operation of Wireless Communications	)	
Services in the 2.3 GHz Band	)	
	)	
Establishment of Rules and Policies for the	)	IB Docket No. 95-91
Digital Audio Radio Satellite Service in the	)	GEN Docket No. 90-357
2310-2360 MHz Frequency Band	)	RM No. 8610
	)	

NOTICE OF PROPOSED RULEMAKING
AND SECOND FURTHER NOTICE OF PROPOSED RULEMAKING

Adopted: December 17, 2007 **Released: December 18, 2007**

Comment Date: [30 days after date of publication in the Federal Register]
Reply Comment Date: [60 days after date of publication in the Federal Register]

By the Commission:

I. INTRODUCTION

1. By this notice, we seek additional comment on the appropriate rules and policies for licensing satellite digital audio radio service (SDARS) terrestrial repeaters in the 2320-2345 MHz frequency band.[1] In order to establish fully a nationwide radio service, SDARS licensees seek to implement complementary terrestrial repeater stations (SDARS repeaters) in certain areas where it may be difficult to receive signals transmitted by a satellite.[2] Since the Commission established general service rules for SDARS in 1997,[3] the SDARS licensees – Sirius Satellite Radio Inc. (Sirius) (formerly, Satellite CD Radio, Inc.) and XM Radio Inc. (XM) (formerly, American Mobile Radio Corporation) – have purchased their licenses at auction, successfully launched their satellite systems, and commenced commercial service to the public.[4] The licensees have taken these steps, however, in the absence of a

[1] SDARS is commonly referred to as "satellite radio." The Commission's rules define SDARS as "[a] radiocommunication service in which audio programming is digitally transmitted by one or more space stations directly to fixed, mobile, and/or portable stations, and which may involve complementary repeating terrestrial transmitters, telemetry, tracking and control facilities." 47 C.F.R. § 25.201.

[2] SDARS repeaters are used in certain areas to re-transmit the same signals provided by satellites directly to subscribers in order to maintain adequate signal power available to the end user. These areas include "urban canyons" between tall buildings, heavily foliaged areas, tunnels and other places where obstructions could limit satellite visibility and cause multipath interference from reflected signals.

[3] *See* Establishment of Rules and Policies for the Digital Audio Radio Satellite Service in the 2310-2360 MHz Frequency Band, *Report and Order, Memorandum Opinion and Order and Further Notice of Proposed Rulemaking*, 12 FCC Rcd 5754 (1997).

[4] XM Radio commenced nationwide commercial service on November 12, 2001. Sirius began commercial service on February 14, 2002. Currently, there are over 15 million SDARS subscribers in the United States.

regulatory framework for the operation of SDARS repeaters.

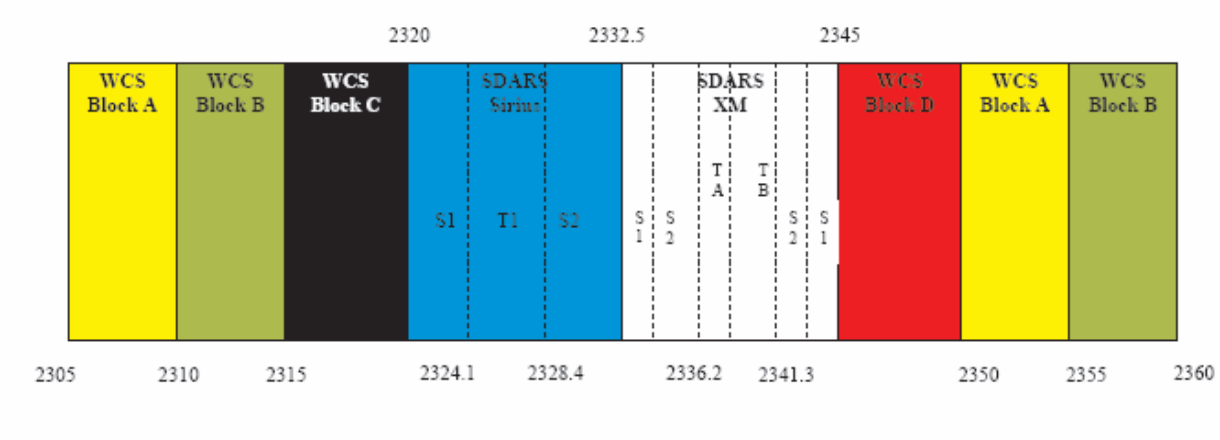
2. A principal challenge in establishing a regulatory framework for SDARS repeaters has been the difficulty of resolving potential interference issues between SDARS repeaters and the proposed operations of terrestrial licensees in the Wireless Communications Service (WCS) in adjacent frequency bands that will permit the two services to co-exist. Since these interference issues came to light nearly a decade ago, the Commission has been developing a record on methods to balance competing interests of SDARS and WCS service providers. Recently, there have been submissions in the record that may provide a basis for resolving the interference issues between SDARS and WCS licensees and therefore warrant further comment.

3. In order to have the greatest flexibility in resolving these issues, we are issuing not only a Second Further Notice of Proposed Rulemaking in the SDARS terrestrial repeater rulemaking (IB Docket No. 95-91), but are also issuing a Notice of Proposed Rulemaking to consider changes to the rules governing WCS licensees (WT Docket No. 07-293), which may be necessary to facilitate the coexistence of SDARS and WCS licensees.[5] Although the focus of our action today is to update the record on the issue of potential interference between SDARS repeaters and WCS operations, our inquiry is broader than this one issue. We invite comment on a full range of issues related to the proposed regulation of SDARS terrestrial repeaters and WCS operations and seek generally to update the record in order to take into account recent developments, as well as the emergence of new technologies, since the Commission last sought comment on proposals to govern SDARS repeater and WCS operations.

II. BACKGROUND

A. Overview of the SDARS and WCS Services

4. The SDARS and WCS services occupy 55 megahertz of spectrum from 2305-2360 MHz in a portion of the radiofrequency spectrum frequently referred to as the "S band." SDARS occupies the center portion of 2305-2360 MHz band (2320-2345 MHz) and is divided evenly between the two SDARS licensees, Sirius (2320-2332.5 MHz) and XM (2332.5-2345 MHz). The WCS service occupies frequencies on either side of the SDARS allocation and consists of six blocks of five megahertz each in the 2305-2320 MHz and 2345-2360 MHz bands. As shown in the following figure, the WCS spectrum is separated into paired blocks (blocks A and B) that have been allocated on a regional basis and unpaired blocks (C and D) that have been allocated over very wide service areas.



5. Initially, all but five megahertz of 2305-2360 frequency band was allocated exclusively

[5] The rules governing WCS licensees are codified in Part 27 of the Commission's rules. 47 C.F.R. § 27.1 *et seq*.

for SDARS. In 1992, the World Administrative Radio Conference (WARC-92) adopted international frequency allocations for Broadcasting Satellite Service (sound) – the international term for SDARS – in the 2310-2360 MHz band for the United States.[6] In 1995, the Commission allocated the 2310-2360 MHz band to SDARS on a primary basis[7] and issued a Notice of Proposed Rulemaking ("*Notice"*) proposing service and licensing rules to govern SDARS in that band.[8]

6. After the release of the *Notice*, however, Congress directed the Commission to make spectrum available at 2305-2320 MHz and 2345-2360 MHz for wireless services, consistent with international agreements, and to award licenses using competitive bidding no later than April 1997.[9] Thus, twenty-five megahertz of SDARS spectrum, immediately above and below the current SDARS allocation, was reallocated for use by a flexible wireless service. In February 1997, the Commission adopted the *WCS Report and Order* implementing the reallocation.[10] The *WCS Report and Order* established WCS as a service and granted WCS licensees flexibility to provide fixed, mobile, and radiolocation services on a primary basis in the 2305-2320 and 2345-2360 MHz bands.[11] The Commission found that allowing a broad range of services would permit the development and deployment of new telecommunications services and products to consumers.[12] Specific potential services advocated by WCS proponents at the time included high-speed wireless Internet access, return links for interactive cable and broadcasting service, mobile data, fixed terrestrial use, and the provision of wireless local loop services.[13]

7. The auction and licensing of the SDARS and WCS services occurred swiftly in 1997. The Commission adopted general service rules for SDARS in March 1997 (except for the use of terrestrial repeaters).[14] In early April, the two available licenses to provide SDARS within the United States were auctioned.[15] The Commission auctioned WCS licenses to the public later that same month, as mandated by Congress.[16] In July 1997, the Commission issued licenses to the WCS auction winners.[17]

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6 *See* International Telecommunications Union, *Final Acts of the World Administrative Radio Conference* (Malaga-Torremolinos, 1992).

7 *See* Amendment of the Commission's Rules with Regard to the Establishment and Regulation of New Digital Audio Radio Services, *Report and Order*, 10 FCC Rcd 2310 (1995) (*"SDARS Allocation Order"*).

8 *See* Establishment of Rules and Policies for the Digital Audio Radio Service in the 2310-2360 MHz Frequency Band, *Notice of Proposed Rulemaking*, 11 FCC Rcd 1 (1995) (*"Notice"*).

9 *See* Omnibus Consolidated Appropriations Act, 1997, Pub. L. 104-208, 110 Stat. 3009 (1996).

10 *See* Amendment of the Commission's Rules to Establish Part 27, the Wireless Communications Service, *Report and Order*, 12 FCC Rcd 10785 (1997) (*"WCS Report and Order"*).

11 *See id.* at 10797 ¶ 25. The Commission also permitted WCS licensees to provide SDARS in the 2310-2320 and 2345-2360 MHz bands that were previously allocated to SDARS. *See id.*

12 *See id.* at 10798 ¶ 26.

13 *See id.* ¶ 27.

14 *See generally 1997 SDARS Order and FNPRM,* 12 FCC Rcd 5754.

15 *See* Public Notice, *"FCC Announces Auction Winners for Digital Audio Radio Service,"* 12 FCC Rcd 18727 (Apr. 2, 1997). Sirius and XM Radio paid a total of $173.2 million for the two SDARS licenses.

16 *See* Public Notice, "*WCS Auction Closes,"* 12 FCC Rcd 21653 (Apr. 28, 1997). Seventeen winning bidders won 126 WCS licenses with total net bids of more than $13.6 million.

17 *See* Public Notice, *"FCC Announces the Grant of Wireless Communications Service ("WCS") Licenses, Balance of Winning Bids are Due by August 4, 1997,"* 13 FCC Rcd 4782 (July 21, 1997).

Licensing of Sirius and XM, the winners in the SDARS auction, occurred in October 1997.[18]

B. SDARS Terrestrial Repeater Rulemaking

8. As noted above, the Commission did not adopt rules for SDARS repeater operations when it adopted general service rules for SDARS in March 1997. Instead, the Commission concurrently issued a Further Notice of Proposed Rulemaking ("*1997 Further Notice*") seeking comment on the proposed use and authorization of repeaters in conjunction with SDARS systems.[19] The *1997 Further Notice* acknowledged the SDARS applicants' intention to use repeaters in conjunction with their satellite systems in urban canyons and other areas where satellite signal reception would be difficult and proposed authorizing deployment of SDARS repeaters on an "as-needed" basis in order to meet service requirements.[20] The *1997 Further Notice* also invited comment to address any potential impact that the operation of SDARS repeaters would have on services of neighboring countries and on any potential effects radio frequency (RF) emissions from SDARS repeaters may have on the public.[21] In addition, the *1997 Further Notice* sought comment on how the Commission's rules could ensure that any use of SDARS repeaters remains complementary to the satellite service, as well as on the tentative conclusion to prohibit the use of SDARS repeaters to transmit locally originated programming.[22]

9. In response to the *1997 Further Notice* and later supplemental filings by Sirius and XM describing the technical characteristics of their proposed repeater operations,[23] WCS licensees raised the possibility of harmful interference to WCS stations from SDARS repeaters operating at more than two kilowatts (kW) Equivalent Isotropically Radiated Power (EIRP),[24] which is the upper power limit imposed on WCS stations.[25] Specifically, WCS licensees raised concerns over two types of potential interference from SDARS repeater operations: "blanketing interference"[26] and "3rd order intermodulation

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[18] *See* Satellite CD Radio, Inc. Application for Authority to Construct, Launch, and Operate Two Satellites in the Satellite Digital Audio Radio Service, *Order and Authorization*, 13 FCC Rcd 7971 (Int'l Bur. 1997) (*"Sirius Authorization Order"*), application for review denied, 16 FCC Rcd 21458 (2001); American Mobile Radio Corporation Application for Authority to Construct, Launch, and Operate Two Satellites in the Satellite Digital Audio Radio Service, *Order and Authorization*, 13 FCC Rcd 8829 (Int'l Bur. 1997) (*"XM Radio Authorization Order"*), application for review denied, 16 FCC Rcd 21431 (2001). Petitions for review of both authorizations were denied in an unpublished opinion in 2004 by the U.S. Court of Appeals for the District of Columbia Circuit under the name *Primosphere Ltd. Partnership v. FCC* (slip op., Case Nos. 01-1526 and 1527). The licensees have requested authority to merge the two companies. *See* Applications of XM Satellite Radio Holdings, Inc., Transferor, and Sirius Satellite Radio Inc., Transferee, Consolidated Applications for Authority to Transfer Control of XM Radio and Sirius Satellite Radio Inc., MB Docket No. 07-57 (filed March 20, 2007).

[19] *See SDARS Order and FNPRM*, 12 FCC Rcd at 5810-12 ¶¶ 138-142.

[20] *See id.* at 5812 ¶ 142.

[21] *See id.*

[22] *See id.*

[23] *See* Letter from Robert D. Briskman, Chief Technical Officer, CD Radio Inc., to Rosalee Chiara, Deputy Chief, Satellite Policy Branch, International Bureau, FCC, dated Nov. 14, 1997; Letter from William Garner, Chief Scientist, American Mobile Radio Corporation, to Rosalee Chiara, Deputy Chief, Satellite Policy Branch, International Bureau, FCC, dated Nov. 14, 1997; Supplemental Comments of Sirius Satellite Radio (filed Jan. 18, 2000)("Sirius Supplemental Comments"); Supplemental Comments of XM Radio Inc. (filed Dec. 17, 1999)("XM Radio Supplemental Comments").

[24] Equivalent Isotropically Radiated Power is the product of the power supplied to an antenna and the antenna gain in a given direction relative to an isotropic antenna. *See* 47 C.F.R. § 2.1.

[25] *See* 47 C.F.R. § 27.50.

[26] In *XM Radio Inc*, the Commission said that: "Blanketing interference occurs when a receiver is near a relatively high-powered transmitter and the high power overloads the components of the receiver and prevents (continued….)

distortion (IMD)."[27] The SDARS licensees generally acknowledged the possibility of blanketing interference and IMD, but opposed placing a 2 kW EIRP limit on their repeater operations, arguing such a limit would impose substantial costs on SDARS licensees and that economical and practical engineering techniques exist to mitigate any potential interference from SDARS repeater operations.[28]

10. Commission staff met with SDARS and WCS licensees several times in 2001 to supplement the record on these issues.[29] In November of 2001, the International Bureau sought comment on various additional proposals to resolve interference, but the supplemental record developed in response did not provide a basis for resolving these issues.[30] In May 2002, the SDARS and WCS licensees requested that the Commission forbear from adopting SDARS repeater rules while they attempted to resolve privately the interference concerns. Although initially promising, these negotiations have not been successful, and no agreement between the parties appears imminent.

11. As a result, there are no final rules for SDARS terrestrial repeater operations. The SDARS licensees operate their terrestrial repeater networks pursuant to grants of special temporary authority (STA), which were granted on a non-interference basis and subject to various other conditions.[31] Since 2001, both Sirius and XM have submitted additional STA requests seeking to modify their repeater networks or to add new repeaters.[32]

C. Recent Developments

12. Recent developments call for an updating of the record in this proceeding. In October 2006, Sirius filed a petition for rulemaking, which included new proposals for resolving interference

(Continued from previous page)
reception of the desired signal by the receiver." XM Radio Inc., Application for Special Temporary Authority to Operate Satellite Digital Audio Radio Service Complementary Terrestrial Repeaters, File No. SAT-STA-20010712-00063, *Order and Authorization*, 16 FCC Rcd 16781, 16782 ¶ 4 n 5 (Int'l. Bur. 2001).

[27] The SDARS licensees intend to operate their terrestrial repeaters in the middle of their authorized frequency bands (*i.e.*, 2324.1-2328.4 MHz for Sirius and 2336.2-2341.3 for XM Radio). WCS licensees fear that the SDARS repeater frequencies will mix with WCS transmission frequencies to create higher order frequencies that will land directly in the WCS band and render WCS receivers inoperable.

[28] *See* Reply Comments of Sirius Satellite Radio (filed Mar. 8, 2000) ("Sirius Supplemental Reply Comments") at 2-3; Consolidated Reply of XM Radio Inc. (filed Mar. 8, 2000) ("XM Radio Supplemental Reply Comments") at 8.

[29] For example, the International, Wireless Telecommunications, and Media Bureaus of the Commission – together with the Commission's Office of Engineering and Technology – held industry meetings on January 11, 2001, March 1, 2001, and August 30, 2001 with the SDARS licensees and WCS representatives in an attempt to reach solutions to the SDARS-WCS interference issues. See Letter from Paul J. Sinderbrand, Counsel for WCIA, to Secretary, FCC, dated Jan. 11, 2001; Letter from Carl R. Frank, Counsel for Sirius, to Secretary, FCC, dated Mar. 2, 2001; Letter from Donald C. Brittingham, Director of Spectrum Policy, Verizon, to Secretary, FCC, dated Aug. 31, 2001.

[30] Public Notice, "*Request for Further Comment on Selected Issues Regarding the Authorization of Satellite Digital Audio Radio Service Terrestrial Repeater Networks*," Report No. SPB-176, 16 FCC Rcd 19435 (Int'l Bur. Nov. 1, 2001)(*"2001 Public Notice"*).

[31] *See* Sirius Satellite Radio, Inc., Application for Special Temporary Authority to Operate Satellite Digital Audio Radio Service Complementary Terrestrial Repeaters, *Order and Authorization*, 16 FCC Rcd 16773 (Int'l Bur. 2001) (*"Sirius 2001 STA Order"*); XM Radio, Inc., Application for Special Temporary Authority to Operate Satellite Digital Audio Radio Service Complementary Terrestrial Repeaters, *Order and Authorization*, 16 FCC Rcd 16781 (Int'l Bur. 2001) (*"XM Radio 2001 STA Order*").

[32] A full list of SDARS STA requests are available through the International Bureau Filing System (IBFS), which is available online at http://fjallfoss.fcc.gov/myibfs/welcome.do.

issues between SDARS and WCS licensees.[33] Sirius's proposals are based chiefly on a White Paper it submitted to the Commission in March 2006, in which it examined the technical difficulties involved in SDARS and WCS co-existence in the S-band.[34] In its *2006 Petition for Rulemaking*, Sirius asserts that resolution of the SDARS repeater rulemaking is "imperative" for the continued provision of robust satellite radio offerings and for the deployment of WCS networks and services.[35] XM supports Sirius's proposals and urges the Commission to seek comment on them expeditiously.[36] In response to Sirius's petition, WCS licensees offered their own counter-proposals for the resolution of SDARS-WCS interference issues.[37]

13. Separately, in December 2006, the Wireless Telecommunications Bureau (WTB) granted a three-year extension of the construction deadline for certain WCS licensees, which was originally scheduled to expire in July 2007.[38] The WCS licensees argued, among other things, that the uncertainty regarding the rules governing the operation of adjacent band SDARS terrestrial repeaters hindered WCS equipment development, network design, and facility deployment and that an extension would allow it to deploy newly developed WiMAX technology in the 2.3 GHz band in the next few years.[39] WTB found it in the public's interest to granted relief because of the prospect of deploying WiMAX technology and equipment in the near term.[40] Recently, WCS licensees have warned that the United States will fall behind other countries in the deployment of wireless broadband WiMAX services in the S-band, unless the Commission soon adopts rules that provide for the reasonable coexistence of WCS and SDARS.[41] For this reason, and the reasons set forth in the paragraphs above, we believe the time is right to update the record in order to establish the respective rights of SDARS and WCS licensees so that they may co-exist in the S-band.

III. DISCUSSION

14. We seek comment on a range of issues regarding the licensing of SDARS repeaters in general and the interference issues between SDARS and WCS licensees in particular. Although the focus of our discussion is on the recent proposals made by Sirius and the WCS Coalition in 2006 and 2007, we also seek to update the record and seek additional comment on certain proposals made as part of, or in

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33 Sirius Satellite Radio Inc., Petition for Rulemaking and Comments, filed Oct. 17, 2006 (*"2006 Petition for Rulemaking"*).

34 White Paper: Interference to the SDARS Service from WCS Transmitters, attached to Letter from Carl R. Frank, Counsel to Sirius Satellite Radio Inc., to Marlene H. Dortch, Secretary, FCC, WT Docket No. 05-256 and IB Docket No. 95-91 (Mar. 29, 2006) (*"2006 Sirius White Paper"*).

35 *2006 Petition for Rulemaking* at 2, 4.

36 Letter from Bruce D. Jacobs, Counsel for XM Radio Inc., to Marlene H. Dortch, Secretary, FCC, dated Jan. 5, 2007.

37 Letter from Paul J. Sinderbrand, Counsel to the WCS Coalition, to Marlene H. Dortch, Secretary, FCC, dated July 9, 2007 (*"WCS July 2007 Letter"*).

38 Consolidated Request of the WCS Coalition for Limited Waiver of Construction Deadline for 132 WCS Licenses, *Order*, 21 FCC Rcd 14134 (WTB, 2006) (*"WCS Extension Order"*). Section 27.14(a) of the Commission's rules requires WCS licensees to make a showing of substantial service in their license area by the end of their initial 10-year license term, which commenced on July 21, 1997. 47 C.F.R. § 27.14(a).

39 *WCS Extension Order*, 21 FCC Rcd at 14137 ¶ 5.

40 *Id.* at 14140-41 ¶ 12. WiMAX (World Interoperability for Microwave Access) is a wireless broadband technology based on the IEEE 802.16 standard, which supports delivery of last mile wireless broadband access as an alternative to cable and digital subscriber lines (DSL). WiMAX can support fixed and nomadic, as well as portable and mobile wireless broadband applications without the need for direct line-of-sight with a base station. *Id.* at n.56.

41 *See WCS July 2007 Letter* at 14.

response to, the *1997 Further Notice* and *2001 Public Notice*. In addition, we inquire whether any alternative proposals should be considered, given the passage of time and the emergence of new technologies since the Commission last sought comment on these issues.

A. SDARS/WCS Power Limits and Out-of-Band Emissions (OOBE) Levels

1. Sirius Proposal: Ground-Level Emission Limit

15. As part of its *2006 Petition for Rulemaking*, Sirius proposes resolving interference issues between SDARS repeaters and WCS stations by establishing a "ground-level emission limit" of -44 dBm, which would be applicable to both SDARS and WCS stations commencing service after the effective date of any final rules that the Commission may adopt.[42] Sirius asserts that this limit is derived from laboratory tests conducted by Sirius and described in the *2006 Sirius White Paper*.[43] Sirius states that its tests demonstrated that a received signal power level of approximately -43 dBm from a WCS C-block transmitter would interfere with and prevent a Sirius subscriber from receiving either of the two satellite Sirius signals.[44] To verify compliance, Sirius proposes that the received power from either an SDARS repeater or a WCS base station would be measured at a height of two meters above ground level, at a distance from the base of the antenna that is equal or greater than the effective height above ground level of the SDARS or WCS station's antenna.[45] Additionally, under Sirius's proposal, the average power received at a distance of one meter from a transmitting WCS subscriber station's antenna would also be limited to -44 dBm.[46]

16. Sirius also proposes to allow SDARS and WCS licensees to designate circular "exclusion zones," up to a specified number of square meters within a specified distance from each transmitter,[47] in which a SDARS repeater or WCS base station would be allowed to exceed the ground-level emission limit, up to a received power level of -32 dBm.[48] Such exclusion zones are unavoidable, according to Sirius, despite best efforts of SDARS and WCS licensees due to terrain, clutter, and other factors that generate ground-level variations in the received power level of SDARS repeaters and WCS base

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42 *2006 Petition for Rulemaking* at 4. Sirius originally referred to its proposed "ground-level emission limit" as a power flux density ("PFD") limit in an *ex parte* presentation on August 11, 2006. *See Notice of Ex Parte Presentation*, page 1, Carl R. Frank, Wiley Rein & Fielding, August 14, 2006. Sirius has also recently submitted pleadings that also refer to its emission limit proposal as a "PFD limit". *See* Written Ex Parte, September 19, 2007, at pp. 7-8 and Annex 2. We note, however, that the proposal by Sirius is not a PFD limit, but is actually a received power limit (similar to the limits on incidental radiator emissions in Section 15.209 of the Commission's Rules, 47 C.F.R. § 15.209). Notwithstanding this, a final rule incorporating Sirius's basic idea could be expressed as an equivalent PFD or electric field strength limit. Assuming a 0 dBi measurement antenna (as Sirius does), the -44 dBm received power limit is equivalent to a PFD limit of -45.3 dBW/m² or a field strength limit of 100.5 dBμV/m.

43 *Id.*

44 Sirius states that there would be similar results for XM receivers and WCS D-block emissions. *Id.* at 5.

45 *See 2006 Petition for Rulemaking*, Appendices A, proposed Section 25.214(d)(2)(A)(i)) and B, proposed Section 27.50(a)(1)(A).

46 *See 2006 Petition for Rulemaking*, Appendix B, proposed Section 27.50(a)(1)(C). SDARS subscriber units are receivers only and do not transmit, therefore, there is no similar provision applicable for SDARS.

47 For example, Sirius proposes for SDARS: "Within the area, as measured from the base of the repeater antenna, between (1) the radiation center height above ground level and (2) 5000 meters, each satellite DARS licensee may designate and identify up to 20,000 square meters, with no contiguous area greater than 8,000 square meters, where such repeater shall not exceed an average power level of -32 dBm (112 dBμV/m) measured 2 meters above ground level." *See 2006 Petition for Rulemaking*, Appendix A, page A1.

48 Assuming a 0 dBi measurement antenna (as Sirius does), the proposed exclusion zone received power limit of -32 dBm is equivalent to a PFD limit of -33.3 dBW/m² or a field strength limit of 112.5 dBμV/m.

stations.[49] In these exclusion zones, Sirius states that SDARS and WCS licensees might need to deploy additional transmitters to compensate for increased interference.[50]

17. Sirius asserts that the adoption of rules based on a uniform limit would place a mutual burden on both SDARS and WCS licensees.[51] It also claims that, because its proposed rules are based on a single criterion, they would be simple to administer and would maximize flexibility in system design.[52] Sirius notes that the Commission used power flux density (PFD) limits to resolve interference issues between similarly-situated broadcast-like and mobile services in the *Lower 700 MHz*[53] and *MSS ATC*[54] proceedings.[55]

18. We seek comment on Sirius's power limit proposal and the methodology on which it is based. Would the adoption of such a limit, in general or as specifically proposed by Sirius, facilitate the deployment of both SDARS and WCS services to the public? What would be the interference, economic and business impact of Sirius's proposed limit of -44 dBm on WCS and SDARS operations, both as they currently exist and as they are expected to be deployed in the future? Is -44 dBm the optimum level to balance flexibility with interference potential, or would a different power level be better? We encourage parties proposing alternative limits to provide technical studies demonstrating the affect such alternative limits would have on the ability of SDARS and WCS licensees to serve the public. We seek comment on whether an equivalent PFD limit (expressed in dBW/m²) or field strength limit (expressed in dBμV/m) would be more appropriate because it would eliminate the need to make an assumptions about receiver antenna gain.[56] If the Commission were to adopt the PFD limit, what would be the appropriate bandwidth to be used in calculation of this limit? We also seek comment on whether a solution based upon a measured emission limit as proposed by Sirius is practical from an administrative standpoint. For example, what mechanisms would be available to verify compliance and resolve disputes arising under such a proposal?

19. We also invite comment on the potential impact of the "exclusion zones" provision that Sirius states will be an unavoidable result of SDARS repeater and WCS base station deployments. What should be the size of such exclusion zones and what would be the economic and business impact of such zones on the deployment plans of SDARS and WCS licensees?

20. In addition, Sirius's proposal contemplates an implicit obligation for WCS receivers to exhibit a certain level of out of band signal rejection. Under Sirius's proposed rules, WCS licensees would not be able to claim harmful interference from SDARS licensees (or from other WCS licensees) unless such interference would result despite the inclusion of a front-end band-pass filter that attenuates out-of-band emissions by 16 dB.[57] We seek comment on whether the filtering specification proposed by Sirius is feasible from an economic or technical standpoint. If it is, should the Commission apply this as a

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49 *2006 Petition for Rulemaking* at 6.

50 *Id.*

51 *Id.* at 5.

52 *Id.* at 6.

53 Reallocation and Service Rules for the 698-746 MHz Spectrum Band (Tel. Channels 54-59), *Report and Order*, 17 FCC Rcd 1022 (2002).

54 Flexibility for Delivery of Communications by Mobile Satellite Service Providers in the 2 GHz Band, the L Band and the 1.6/2.4 GHz Bands, *Report and Order and Notice of Proposed Rulemaking*, 18 FCC Rcd 1962 (2003).

55 *2006 Sirius White Paper* at 8.

56 *See supra* notes 42 & 48.

57 *See 2006 Petition for Rulemaking*, Appendix B, proposed Section 27.50(k).

requirement or only protect receivers against interference that meet this criterion? Should the Commission place a similar filtering obligation on SDARS receivers? Should any compensation be required from the relevant licensees for the installation of filters on adjacent spectrum equipment?

2. WCS Coalition Proposal: 2 kW EIRP Average Power Limit

21. WCS licensees offer an alternative power limit to Sirius's ground level emission limits. They propose to allow both WCS base stations and SDARS repeaters to operate up to two kilowatts (kW) EIRP based on average, rather than peak, power per 5 MHz, with a 6 dB peak-to-average ratio.[58] This proposed maximum power limit would include a power spectral density limit such that only 400 watts average EIRP can be emitted per 1 MHz to ensure the transmitted energy is spread across the band.[59] WCS subscriber stations would be limited to twenty watts average power.[60] WCS licensees had previously advocated that SDARS repeaters be limited to 2 kW EIRP peak power, which is the same power limit currently placed on WCS licensees.[61] The WCS proposal would allow SDARS repeaters and WCS base stations to operate at peak power levels exceeding 2 kW EIRP, so long as the average power limit is limited two kilowatts. As proposed by the WCS Coalition, average EIRP would be calculated using the average power of the transmitter measured in accordance with the definition of mean power in Section 2.1 of the Commission's rules.[62] WCS Coalition asserts that a 2 kW EIRP average power limit is simpler to administer than the emission limit proposed by Sirius and would facilitate deployment of both SDARS repeaters and WCS stations.[63]

22. We seek comment on the WCS Coalition's proposal and the methodology on which it is based. Would the adoption of a 2 kW EIRP average power limit – in general or as specifically proposed by the WCS Coalition – permit the deployment of SDARS and WCS services to the public? What impact, if any, would adoption of an average – rather than peak – power limit for WCS and SDARS stations have on the ability of the licensees to deploy their services? Does average, rather than peak, power increase the risk of interference with adjacent channel licensees, whether they are WCS, SDARS or licensees outside of the 2305-2360 MHz range? We also seek comment on whether we should adopt the 6 dB peak-to-average power ratio suggested by the WCS Coalition, or whether a different ratio may be more appropriate. Possibilities on the record for peak-to-average power ratios include 6 dB (currently used by SDARS repeaters) or 13 dB (which was recently adopted by Commission for wireless services in the 700 MHz band).[64]

23. We invite interested parties to suggest alternative power limits on operations in the 2305-2360 MHz band. For example, we seek comment on whether a hybrid power approach might be

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58 *WCS July 2007 Letter* at 3.

59 *Id.* Appendix A, proposed Sections 27.50(a)(1) and 25.XX(a).

60 *Id.*, Exhibit A, proposed Section 27.50(a)(2).

61 *Id.* at 4. Currently, WCS subscriber stations are limited to twenty watts EIRP. *See* 47 C.F.R. § 27.50.

62 *Id.*, Exhibit A, proposed Section 27.50(a)(3). Section 2.1 of the Commission's rules defines mean power of a radio transmitter as "[t]he average power supplied to the antenna transmission line by a transmitter during an interval of time sufficiently long compared to the lowest frequency encountered in the modulation taken under normal operating conditions." 47 C.F.R. § 2.1.

63 We note that, in 2002, WCS licensees proposed a spectral PFD limit for SDARS repeaters in order to allow for higher power operation without interference to WCS, but we assume their more recent filings indicate their current position. *See Ex Parte Presentation*, IB Docket No. 95-91, AT&T Wireless Services, Inc. *et al*, February 19, 2002.

64 *See* Service Rules for the 698-746, 747-762 and 777-792 MHz Bands, *Report and Order and Further Notice of Proposed Rulemaking*, 22 FCC Rcd 8064, 8103-04 (2007) ¶¶ 105-06.

appropriate in this instance so that SDARS repeaters would have the flexibility to operate on high towers with more power if they meet a certain emission limit on the ground, while WCS would have the flexibility to meet an average EIRP limit using towers lower to the ground. If a hybrid approach is appropriate, what should the limits be? We note that a similar approach was adopted for the lower 700 MHz band where commercial base stations had to meet an ERP limit of 1 or 2 kW depending on whether or not they are deployed in rural areas, but stations could also transmit at 50 kW ERP if they do not produce signals exceeding a PFD of 3 mW/m^2 on the ground within 1 kilometer of the station.[65] Finally, we note that NAB has previously proposed a power limit of no higher than one kW equivalent radiated power (ERP) (which corresponds to 1.640 kW EIRP) for SDARS repeaters in order to ensure that the repeaters are used solely to fill in coverage in limited areas where the satellite signal cannot be received.[66] We seek comment on the appropriateness of this power limit for SDARS repeaters. All comments submitted should be supported with technical analysis and a realistic assessment of the impact on all relevant services of the suggested approach.

24. In addition to proposing a 2 kW EIRP average power limit for both WCS and SDARS licensees, the WCS Coalition also proposes establishing uniform restrictions on out-of-band emissions (OOBE) for both WCS and SDARS operations. Currently, WCS licensees are required to suppress their OOBE by 110+10log(p)dB for mobile applications and 80+10log(p)dB for fixed applications into the SDARS band under Part 27 of the Commission's rules.[67] The WCS Coalition states that the 110 dB suppression requirement for mobile applications that was adopted in 1997 is overly restrictive and unnecessary to protect SDARS operations and has impeded the ability of WCS licensees to develop wireless broadband services, particularly those based on WiMAX technology.[68] Under the WCS proposal, WCS base stations and SDARS repeaters would share a common obligation to attenuate emissions into the other service's band by a factor of 75+10log(p)dB.[69] For WCS subscriber stations operating at less than two watts EIRP (average) and incorporating transmitter power control mechanisms, the WCS licensees propose that the suppression of OOBE would be: (1) 55+10log(p)dB for 2320-2324 MHz and 2341-2345 MHz; (2) 61+10log(p)dB for 2324-2328 MHz and 2337-2341 MHz; and (3) 67+10log(p)db for 2328-2337 MHz.[70]

25. We also seek information on what the interference, economic and business impact would be on SDARS operations if the Commission were to modify the OOBE limits for WCS stations, as proposed by the WCS Coalition? Similarly, what is the impact on the WCS industry if the OOBE limits are not relaxed? Does the use of signal and time diversity, terrestrial repeaters, and buffering by SDARS licensees in their networks support a modification of the OOBE limits for WCS from the limits adopted

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65 *See* 47 C.F.R. §§27.50(c), 27.55(b).

66 *See* Response to Supplemental Comments of Satellite DARS Licensees by the National Association of Broadcasters, IB Docket No. 95-91 (filed Jan. 9, 1998) at 3.

67 *Id.* at 7.

68 *Id.*

69 *Id.* at 6.

70 *Id.*, Exhibit A, proposed Section 27.53(a)(2). The full text of this proposed rule reads as follows:

"Notwithstanding [the suppression of OOBE by 75+10log(p) for WCS base station operations], for non-mobile stations transmitting less than 2 Watts average transmitter output power, and for mobile stations transmitting less than 2 Watts average equivalent isotropically radiated power (EIRP), by a factor of not less than 55+10log(P) dB on all frequencies between 2320-2324 MHz, and between 2341 and 2345 MHz; by a factor of not less than 61+10log(P) dB for frequencies between 2324 and 2328 and between 2337 and 2341 MHz and by 67+10log(P) dB between 2328 and 2337 MHz. All stations employing this less restrictive spectrum mask. . . shall incorporate a transmit power control mechanism to lower the output power from the maximum permitted power to a lower level sufficient to accomplish the desired communications."

by the Commission in 1997, as suggested by the WCS Coalition?[71] If the limits are relaxed, should they be to the values suggested by the WCS Coalition or are other values more appropriate. We also seek comment on whether the WCS Coalition's proposed OOBE limit of 75+10log(p) for SDARS repeaters is appropriate or whether some other OOBE limit would be more appropriate. All comments supporting changes to the existing OOBE limits must be supported with technical analysis and an assessment of the impact of their proposal on the relevant parties in this proceeding.

B. Restrictions on Collocation of SDARS/WCS Stations

26. As part of its *2006 Petition for Rulemaking*, Sirius proposes to restrict the collocation of SDARS and WCS stations, either with stations within the same service or with stations of the other service, in order to prevent interference from third order intermodulation or other sources.[72] Sirius proposes a rule that would allow a SDARS licensee to collocate a repeater with one or more repeaters licensed to an unrelated party, or with a 2.3 GHz WCS base station, only upon a showing that the collocation will not increase aggregate interference (from overload, intermodulation and OOBE) above interference levels from a single site.[73] A similar rule is proposed for WCS licensees seeking to collocate with other WCS licensees or with SDARS licensees.[74] Mitigation would be responsibility of the licensee adding an antenna.[75]

27. The WCS Coalition opposes adoption of Sirius's proposed collocation rules.[76] Although the WCS Coalition agrees that intermodulation interference will have to be addressed by WCS and SDARS licensees, it states that the Commission should rely on the licensees to work out such issues privately.[77] It states that this approach is consistent with the approach typically taken by the Commission for intermodulation interference concerns.[78] If Sirius's proposal is adopted, however, the WCS Coalition urges that collocation be permitted for WCS licensees with multiple licenses in geographic area so that all WCS spectrum can be utilized at a given base station location.[79]

28. We seek comment on the need for collocation rules in general, and Sirius's proposal for collocation rules in particular. Commenters are encouraged to support their positions on this issue with detailed technical studies. We also seek comment on what would constitute an adequate "showing" that the collocation will not increase aggregate interference. In addition, we invite comment on mechanisms for dispute resolution if parties are unable to agree on a particular showing. Does the use of multiple, sectorized antennas on SDARS repeaters ameliorate or exacerbate collocation concerns?

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71 *WCS July 2007 Letter* at 10-12.

72 *2006 Petition for Rulemaking* at 6.

73 *Id.* at Appendix A, proposed Section 25.214(d)(3).

74 *Id.* at Appendix B, proposed Section 27.50(a)(2).

75 *Id.* at Appendices A, proposed Section 25.214(d)(3) and B, proposed Section 27.50(a)(2).

76 *WCS July 2007 Letter* at 5, n.10.

77 *Id.*

78 *Id.*

79 *Id.*

C. SDARS/WCS Coordination, Notification, and Recordkeeping Requirements

29. The *1997 Further Notice* proposed to license SDARS repeaters on an "as needed" basis without requiring coordination of the use of such repeaters with other licensees.[80] Subsequent to the release of the *1997 Further Notice*, WCS urged the Commission to require coordination of SDARS repeaters with potentially affected WCS licensees operating within the area of the SDARS repeaters, particularly if the repeaters would operate at levels higher than two kilowatts EIRP.[81] Pending adoption of final repeater rules, all grants of STA for SDARS repeaters have been conditioned on SDARS licensees coordinating repeater operations with affected WCS licensees.[82]

30. The *2001 Public Notice* sought comment on a proposal to require SDARS licensees to coordinate in good faith with WCS licensees and required WCS licensees to exchange information with the SDARS licensees about WCS station deployment.[83] This information would include the number of base stations planned to be in operation in the 18 months following the effective date of the rules, the station locations within the liability zones, the technical characteristics of those stations, and the estimated reasonable cost to resolve interference to the WCS stations receiving blanketing interference from the specified SDARS repeater.[84] It also sought comment on proposals to permit the deployment of SDARS repeaters at power levels greater than two kilowatts EIRP, but only after agreement among SDARS and affected WCS licensees.[85]

31. More recently, Sirius proposes notice and recordkeeping requirements for both SDARS and WCS licensees as part of its *2006 Petition for Rulemaking*. Specifically, it proposes that licensees of both services must maintain and make available to other licensees, via a secure Internet web site, certain information about their transmitter deployments.[86] This information includes: (1) a list of all operating transmitters and the technical parameters of such operations; (2) telephone and email address of emergency contacts to investigate complaints of harmful interference; and (3) the radiation patterns for all transmit antenna types, together with manufacturer name and model number.[87] In addition, a licensee must also provide on the website, no later than 90 days before any transmitter begins commercial operations, a predictive analysis that the transmitter satisfies the emission limits proposed by Sirius.[88] SDARS licensees would not have to report or keep records for very low power (that is., repeaters

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80 *See SDARS Order and FNPRM*, 12 FCC Rcd at 5812 ¶142.

81 *See, e.g.,* Letter from Karen L. Gulick, Counsel for AT&T Wireless Services, Inc., to Magalie Roman Salas, Secretary, FCC, dated Feb. 1, 2001, at 2 (stating that it may be possible to coordinate some SDARS repeaters at power levels above 2 kW EIRP, provided that sufficient information is provided about the number and location of such deployments).

82 *See, e.g., Sirius 2001 STA Order*, 16 FCC Rcd at 16778 ¶ 14 (stating that Sirius "is not permitted to commence commercial operations on any repeater identified in the comments as affecting an operational WCS base station until Sirius has pre-coordinated the operation of that repeater with the affected WCS licensee(s)").

83 *See 2001 Public Notice* at 6.

84 *See id.*

85 See *id.* at 8. Under this proposal, each SDARS licensee would be required to exchange information with affected WCS licensees about the deployment and technical parameters of its repeaters. Prior to commencing operation of such a high-power repeater, the SDARS licensee would be required to certify to the Commission that it has completed coordination of the high-power repeater with all affected WCS licensees. *Id.*

86 *2006 Petition for Rulemaking* at 6.

87 *Id.* at Appendix A, proposed Section 25.214(d)(6) and Appendix B, proposed Section 27.50(l).

88 *Id.*

operating with EIRP of ten watts or less) and repeaters deployed before the date the rule becomes effective.[89]

32. We seek to update the record on the proposals made as part of the *1997 Further Notice,* the *2001 Public Notice,* and the various proposals before us. Specifically, we seek comment on the most effective and efficient means for these parties to exchange information necessary to avoid interference and coexist in adjacent spectrum. Given how the record has evolved over time and the various proposals before us, what type of notice or coordination, as well as record keeping, is needed? In particular, is Sirius's proposal necessary to provide notice to all licensed radio stations potentially affected by SDARS repeater and WCS station deployments? Is the 90 day notice and predictive analysis only applicable if we adopt Sirius' ground level emission limit proposal or is it also applicable if we adopt an EIRP limit or hybrid approach? Would some other form of coordination be more efficient or effective than that proposed by Sirius? We invite comment on the extent to which SDARS and WCS licensees should be required to coordinate deployments of SDARS repeaters and WCS base stations and various methods of record keeping and information sharing that may be helpful in avoiding interference in this situation.

D. Grandfathering of Existing SDARS Repeaters

33. Sirius seeks to exempt, or "grandfather," SDARS repeaters placed into commercial service prior to the effective date of any final repeater rules from the power level restrictions and collocation restrictions of its proposal.[90] Sirius also seeks to exempt "very low power repeaters" (that is, repeaters ten watts or less over five megahertz bandwidth) and "substitute repeaters" from these same proposed rules.[91] As defined by Sirius, "substitute repeaters" are repeaters intended to replace grandfathered repeaters, the existing sites of which have become physically unusable or economically impractical.[92] The SDARS licensees state that replacement of repeaters already deployed pursuant to STAs would cost hundreds of millions of dollars and would lead to enormous disruptions in service during a transition that would take years to complete.[93] We observe, however, that the SDARS licensees deployed their repeaters pursuant to grants of special temporary authority that explicitly state that any actions taken under the STAs are "solely at [the licensee's] own risk," and that the grant of the STAs "shall not prejudice the outcome of any final repeater rules adopted by the Commission."[94]

34. The WCS Coalition opposes grandfathering of existing SDARS repeaters and maintains that all repeaters must transition to new power limits within one year of date of release of order adopting repeater rules.[95] It states that a one-year transition period is sufficient to minimize disruption to SDARS consumers while providing sufficient certainty to WCS licensees of the interference environment to commence deployment and initiate new advanced wireless services.[96]

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89 *Id.* at Appendix A, proposed Section 25.214(d)(6).

90 *See 2006 Petition for Rulemaking* at 6.

91 *Id.* at Appendix A, proposed Section 25.214(d)(4).

92 *Id.* Under Sirius' proposal, the new substitute site would have to be within three kilometers of the grandfathered site, and the substitute repeater could neither increase the size of the area within the -44 dBm contour of the repeater it replaces nor extend the size of the -44 dBm contour of the repeater it replaces by more than three kilometers in any direction. *Id.*

93 Letter from Patrick L. Donnelly, Sirius Satellite Radio Inc., and James S. Blitz, XM Radio Inc., to Marlene H. Dortch, Secretary, FCC, IB Docket No. 95-91 (dated Sept. 19, 2007) at 2.

94 *See, e.g., Sirius 2001 STA Order*, 16 FCC Rcd at 16779 ¶ 18; *XM Radio 2001 STA Order*, 16 FCC Rcd at 16787 ¶ 18.

95 *WCS July 2007 Letter* at 13-14.

96 *Id.*

35. We seek comment on Sirius's proposal to grandfather currently deployed repeaters from power limits and other requirements. What specific economic and technical difficulties would SDARS licensees face if currently deployed repeaters are not grandfathered? What specific economic and technical difficulties would grandfathering of existing SDARS repeaters pose for WCS licensees? We also request comment on the extent to which grandfathering should be applied. Should the Commission apply a limit or cutoff point at which a particular repeater will not be eligible for grandfathering? In this regard, if grandfathering is adopted, should it be limited to the authorized parameters of the SDARS licensees' repeater STAs?

36. If we determine that it would not be appropriate to exempt existing SDARS repeaters from final repeater rules and requirements, we seek comment on how best to transition terrestrial repeaters deployed pursuant to SDARS licensees' STAs. We ask commenters to discuss whether we should adopt the one-year transition advocated by the WCS Coalition, apply a different transition period, or permit SDARS repeaters to continue existing operations until a request is made by a WCS licensee for the SDARS licensee to come into compliance with final rules. We encourage parties addressing the reconfiguration of SDARS repeaters to provide quantitative analysis and technical studies in support of their comments.

E. SDARS Compliance with International Agreements

37. In the *1997 Further Notice*, the Commission stated its obligation to consider and address any potential impact that the operation of SDARS repeaters would have on the services of adjacent countries (that is, Canada and Mexico).[97] Subsequent to the release of the *1997 Further Notice*, the U.S. government entered into agreements with the governments of Canada and Mexico in order to facilitate the deployment of U.S.-licensed SDARS operations along common border areas.[98] The agreements specifically contemplate the use of SDARS repeaters as part of the U.S.-licensed SDARS systems and establish maximum power flux density levels for U.S. SDARS repeater operations in the vicinity of the U.S.-Mexico and U.S.-Canada borders.[99] As a general matter, further coordination is not required if the repeaters of U.S.-licensed SDARS systems do not exceed the threshold PFD limits established by the agreements. The prior concurrence of the Canadian or Mexican administrations would be required, however, before U.S. SDARS licensees can deploy any repeaters that exceed these threshold PFD limits.

38. The *2001 Public Notice* proposed to make compliance with these agreements a prerequisite to operation of SDARS repeaters.[100] Specifically, it sought comments on requiring SDARS licensees to obtain prior Commission approval to operate any SDARS repeater that exceeds the power levels and/or proximity restrictions specified in the international agreements with Canada and Mexico. SDARS repeaters already coordinated successfully with Canada or Mexico would be excluded from this requirement. We seek to update the record on the proposals of the *1997 Further Notice* and the *2001 Public Notice* that SDARS repeaters operating above the threshold the power levels specified in the international agreements with Canada and Mexico do not qualify for blanket licensing and that SDARS

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97 *See SDARS Order and FNPRM*, 12 FCC Rcd at 5812 ¶ 142.

98 *See* Agreement Concerning the Coordination Between U.S. Satellite Digital Audio Radio Service and Canadian Fixed Service and Mobile Aeronautical Telemetry Service in the Band 2320-2345 MHz (Aug. 25, 1998) ("U.S.-Canada Agreement"); Agreement Between the Government of the United States of America and the Government of the United Mexican States Concerning the Use of the 2310-2360 MHz Band (July 24, 200) ("U.S.-Mexico Agreement"). The texts of these agreements are available via the Internet at http://www.fcc.gov/ib/.

99 *See* U.S.-Canada Agreement at 5 (coordination of terrestrial repeaters not necessary provided individual repeaters do not exceed PFD limit of -119 dB ($W/m^2/4kHz$) at and beyond common border); U.S.-Mexico Agreement, Appendix I (setting PFD limit for terrestrial repeaters at -154 dB ($W/m^2/4kHz$) at the U.S.-Mexico border).

100 *See November 2001 Public Notice* at 3.

licensees must seek specific prior approval from the Commission to operate repeaters above these threshold power limits.

39. As part of its *2006 Petition for Rulemaking*, Sirius proposes to require SDARS repeaters to conform to the terms of the U.S.-Mexico Agreement entered into in 2000 (or any successor), but is silent on whether SDARS repeaters must conform with the agreement between the U.S. and Canada.[101] We seek comment on Sirius's proposal. We also invite comment on any other alternatives that may be appropriate.

F. SDARS Environmental Impact and Radio Frequency (RF) Safety

40. In the *1997 Further Notice*, the Commission acknowledged the need to consider and address any potential effects of SDARS repeater radio frequency emissions to the public.[102] In order to address these concerns, the *1997 Further Notice* proposed to require SDARS licensees to demonstrate that their terrestrial repeaters comply with the environmental regulations of Sections 1.1301 through 1.1319 of the Commission's rules,[103] or to obtain prior approval from the Commission for non-complying repeaters.[104] The *2001 Public Notice* repeated the proposal to require prior Commission approval before SDARS licensees can operate any repeater that would have significant environmental effects, as that term is defined by Sections 1.1301 through 1.1319 of the Commission's rules.[105]

41. Specifically, under Section 1.1307 licensees are subject to routine environmental evaluation if a particular facility, operation, or transmitter would cause human exposure to levels of RF emissions in excess of specified limits.[106] For terrestrial cellular, and paging services, this limit is set at 1640 W EIRP (or 1000 W ERP).[107] The *2001 Public Notice*, however, sought comment on a proposal by the SDARS licensees to allow SDARS repeaters to operate at power levels up to 2000 W EIRP before becoming subject to routine environmental evaluation in order to match the 2 kW EIRP limit proposed in the *Public Notice* as the separating line for blanket licensing of low-powered repeaters.[108] Pending adoption of final repeater rules, all grants of STA for SDARS repeaters are conditioned on SDARS licensees complying with Sections 1.1301-1.1319 of the Commission's rules.[109] The rules proposed by Sirius in its *2006 Petition for Rulemaking*, however, do not mention any requirement to demonstrate compliance with the environmental regulations provisions of the Commission's rules.

42. Specifically, under Section 1.1307(b) licensees are required to prepare an Environmental Assessment (EA) if a particular facility, operation, or transmitter would cause human exposure to levels of RF fields in excess of limits specified in section 1.1310. Currently, all licensees in the Satellite Communications Service (Part 25 of the Commission's rules) are required to perform a routine environmental evaluation to determine compliance with the exposure limits.[110] The *2001 Public Notice*

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101 *See 2006 Petition for Rulemaking*, Appendix A, proposed Section 25.214(d)(5)(B).

102 *See SDARS Order and FNPRM*, 12 FCC Rcd at 5812 ¶ 142.

103 47 C.F.R. §§ 1.1301-1319.

104 *See SDARS Order and FNPRM*, 12 FCC Rcd at 5845, App. C, proposed Section 25.144(e)(3).

105 *See 2001 Public Notice* at 3.

106 *See* 47 C.F.R. § 1.1307(b).

107 *See id.* at tbl. 1 ("Transmitters, Facilities and Operations Subject to Routine Environmental Evaluation").

108 *See 2001 Public Notice* at 8.

109 *See, e.g., Sirius 2001 STA Order*, 16 FCC Rcd at 16778 ¶ 14 (stating that Sirius "is not permitted to commence commercial operations on any repeater identified in the comments as affecting an operational WCS base station until Sirius has pre-coordinated the operation of that repeater with the affected WCS licensee(s)").

110 *See* 47 C.F.R. § 1.1307(b)(1).

sought comment on a proposal by the SDARS licensees to allow SDARS repeaters to operate at power levels up to 2000 W EIRP before becoming subject to routine environmental evaluation.[111] Pending adoption of final repeater rules, all grants of STA for SDARS repeaters are conditioned on SDARS licensees complying with Sections 1.1301-1.1319 of the Commission's rules.[112] The rules proposed by Sirius in its *2006 Petition for Rulemaking*, however, do not mention any requirement to demonstrate compliance with the environmental provisions of the Commission's rules.

43. In addition, we seek comment on whether any additional RF safety considerations arise from deployment of very low power (10 watts or less) repeaters indoors where members of the general public may be present? Are additional safeguards necessary in such an instance, for example warning labels or a requirement for professional installation? As a general matter, is equipment certification by the Commission necessary for SDARS repeaters, either for very low power repeaters or for repeaters operating at higher power levels?

44. The Commission has also proposed that all SDARS repeaters must comply with Part 17 of the Commission's rules regarding antenna structure clearance with the Federal Aviation Administration.[113] Pending adoption of final repeater rules, all grants of STA for SDARS repeaters are conditioned on SDARS licensees complying with the provisions of Part 17.4 of the Commission's rules.[114] The rules proposed by Sirius in its *2006 Petition for Rulemaking*, however, do not mention any requirement to demonstrate compliance with the environmental regulations provisions of the Commission's rules. We seek comment on whether SDARS licensees should be required to demonstrate compliance with Part 17 of the Commission's rules as part of any request for blanket authorization of SDARS terrestrial repeaters.

G. Licensing Regime for SDARS Repeaters

1. Blanket Authorization for SDARS Repeaters

45. The *1997 Further Notice* proposed to license repeaters on an "as needed" basis to allow licensees to deploy SDARS repeaters where necessary to meet service requirements.[115] The Commission stated at that time that it would be burdensome for both the licensees and the Commission if licensees were required to seek separate authorization for each SDARS repeater.[116] Thus, as proposed in the *1997 Further Notice*, an SDARS licensee would be able to deploy an unlimited number of terrestrial repeaters under a single authorization upon demonstrating to the Commission that the repeaters comply with the Commission's rules governing environmental safety and antenna structure clearance and comply with the requirements of international agreements with Canada and Mexico.[117] The *1997 Further Notice* did not specify the format of such a demonstration, or whether this prior approval must be sought as a modification to the licensee's space station authorization or through some other procedural vehicle.

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111 *See 2001 Public Notice* at 8. Similarly situated WCS licensees are required to perform routine evaluations for terrestrial stations that exceed 1640 Watts EIRP. *See* 47 C.F.R. § 1.1310.

112 *See, e.g., Sirius 2001 STA Order*, 16 FCC Rcd at 16778 ¶ 16 (stating that Sirius "is not permitted to commence commercial operations on any repeater identified in the comments as affecting an operational WCS base station until Sirius has pre-coordinated the operation of that repeater with the affected WCS licensee(s)").

113 *See SDARS Order and FNPRM*, 12 FCC Rcd at 5845, App. C, proposed Section 25.144(e)(2).

114 *See, e.g., Sirius 2001 STA Order*, 16 FCC Rcd at 16778 ¶ 14 (stating that Sirius "is not permitted to commence commercial operations on any repeater identified in the comments as affecting an operational WCS base station until Sirius has pre-coordinated the operation of that repeater with the affected WCS licensee(s)").

115 *See SDARS Order and FNPRM*, 12 FCC Rcd at 5812 ¶ 142.

116 *Id.*

117 *Id.* at Appendix C, proposed Section 25.144(e).

46. In its *2006 Petition for Rulemaking*, Sirius proposes to allow SDARS licensees to construct and operate an unlimited number of terrestrial repeaters under existing SDARS space station authorizations, so long as the repeaters satisfy the power limits and other rules proposed by Sirius.[118] No additional authorization or prior approval would be needed from the Commission under Sirius's proposal.[119] Sirius proposes that authority to operate these repeaters will not expire as long as the licensee maintains a valid space station license.[120] The WCS Coalition does not oppose blanket licensing of SDARS repeaters *per se*.[121] However, it opposes many of the standards and rules proposed by the SDARS licensees for operation of such repeaters, such as the use of ground level emission limits as the basis for such blanket licensing and the "grandfathering" of already deployed SDARS repeaters as part of a blanket authorization.

47. We invite comment on the proposal for blanket licensing of SDARS repeaters and seek to update the record on this matter. Is such a procedure appropriate for SDARS repeaters, either in general or as specifically proposed by Sirius? If blanket licensing is not appropriate, are other alternative licensing procedures available? For example, should the Commission adopt similar blanket authorization procedures used for large networks of very small aperture terminals (VSAT) in the Fixed-Satellite Service (FSS), in which the operator applies for an earth station license to operate up to a specific number of remote terminal?[122] Another possible model is the procedure adopted by the Commission for Mobile-Satellite Service (MSS) ancillary terrestrial components (ATC), in which the MSS licensee must seek a modification of its space station license in order to operate up to a specific number of terrestrial facilities.[123]

2. Eligibility to Operate SDARS Repeaters

48. The *1997 Further Notice* proposed rules that would prohibit the stand-alone operation of SDARS repeaters by requiring the repeaters to transmit only in conjunction with an operating SDARS satellite.[124] This requirement, the Commission reasoned, would ensure that SDARS repeaters are used to complement the end user satellite service, and so would be consistent with the frequency allocation for the digital audio radio service.[125] The *2001 Public Notice* reiterates the proposal to require SDARS system operators to have operational space stations to be eligible for SDARS repeater authority.[126]

49. In addition to operating its own licensed SDARS satellites, Sirius states that it intends to transmit programming to its terrestrial repeaters through leased capacity on a third-party's VSAT network.[127] Sirius proposes to use FSS VSAT networks to send to its SDARS repeaters the exact same signal that is sent from Sirius' broadcast studio through its SDARS satellites to subscribers.[128] Each Sirius repeater will be co-located with a VSAT antenna, which will receive transmissions in the Ku-band

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118 *See 2006 Petition for Rulemaking*, Appendix A, proposed Section 25.214(d)(1).

119 *Id.*

120 *Id.*

121 *WCS July 2007 Letter* at 1 n.3.

122 *See* 47 C.F.R. § 25.134(d).

123 *See* 47 C.F.R. § 25.149.

124 *See SDARS Order and FNPRM*, 12 FCC Rcd at 5811 ¶ 139 and Appendix C.

125 *See id.*

126 *See 2001 Public Notice* at 3.

127 *See* Sirius Supplemental Reply Comments at 5.

128 *See id.*

via a FSS satellite in geostationary orbit.[129] The repeater will convert the Ku-band signal into S-band frequencies used for SDARS repeater transmissions and will retransmit the signal to subscribers.[130] Sirius states that this distribution method is necessary to avoid self-interference, or "ring-around," which would otherwise be caused by the co-location of a receiver and a transmit antenna on the same repeater using adjacent frequencies.[131] NAB has opposed the use of non-SDARS licensed satellites to feed repeaters, arguing that the elimination of a requirement that repeaters be fed from a SDARS satellite paves the way for terrestrial repeaters to act independently from the satellite-based network.[132] Accordingly, NAB asks the Commission to adopt a rule requiring SDARS repeaters to be fed only from the same satellite signal that is used by subscribers and to expressly prohibit all other means of signal delivery to SDARS repeaters.[133]

50. In addition, Sirius has filed requests in 2006 for special temporary authority to operate terrestrial repeaters in Alaska and Hawaii, where it is difficult to receive a signal directly from the Sirius satellites.[134] NAB and the broadcasters' associations of Alaska and Hawaii have petitioned to deny this STA request, arguing that the repeaters in this instance are not complementary to a satellite service, but are rather stand alone terrestrial facilities.[135]

51. We invite comment and seek to update the record on the proposal of the *1997 Further Notice* and NAB's comments that the SDARS licensees may construct and operate SDARS repeaters only in conjunction with operational SDARS space stations. We also seek comment on the proposal to allow SDARS licensees to use non-SDARS-licensed satellites to feed terrestrial repeaters under the set of circumstances envisioned by Sirius above. In addition, we seek comment on whether is it appropriate, as a general principle, to adopt rules governing the ability of SDARS licensees to deploy repeaters in geographic areas not within the service footprint of SDARS satellites? If so, commenters should propose specific rules and address what impact such rules would have on the ability of the American public residing in those areas to receive satellite radio.

H. Other SDARS Repeater Issues

1. Use of SDARS Spectrum for Repeaters

52. In the *1997 Further Notice*, the Commission proposed rules that would allow SDARS licensees to construct and operate terrestrial repeaters to re-transmit signals received via satellite on the exclusive frequency assignment of the licensee and in the same bandwidth as the satellite space

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129 *See id.*, Exhibit A at 1. The Ku-band refers to paired spectrum in the 11.7-12.2 GHz (space-to-Earth) and 14.0-14.5 GHz (Earth-to-space) bands.

130 *See id.*, Exhibit A at 2 fig.1.

131 *See id.* at 5. Unlike XM Radio, which has divided its center terrestrial repeater spectrum into two equal segments, Sirius' system operates with a single center repeater segment. Sirius' system design will not permit its SDARS repeaters to receive a satellite signal from one of its outer segments of its assigned band and re-transmit it in the center segment without generating self-interference into channels dedicated to subscriber reception. *See id.*, Exhibit A at 1.

132 *See* Comments of the National Association of Broadcasters (filed Feb. 22, 2000) ("NAB Supplemental Comments") at 3-4.

133 *See id.* at 6.

134 *See* Sirius Satellite Radio Inc., *Request for Special Temporary Authority to Operate Four Satellite DARS Terrestrial Repeaters in Alaska and Hawaii*, IBFS File No. SAT-STA-20061107-00131, filed Nov. 11, 2006.

135 *See* Petition to Deny of the National Association of Broadcasters, IBFS File No. SAT-STA-20061107-00131, filed Mar. 19, 2007; Petition to Deny of the Alaska Broadcasters Association and the Hawaii Association of Broadcasters, IBFS File No. SAT-STA-20061107-00131, filed Mar. 19, 2007.

stations.[136] Under these proposed rules, SDARS licensees would be permitted to use their licensed spectrum for both satellite and terrestrial repeater transmissions.

53. In response to the *1997 Further Notice*, Mt. Wilson FM Broadcasters argued that the use of SDARS spectrum for terrestrial repeater operations is inconsistent with the allocation of spectrum set aside for a national satellite radio service, claiming that such use transforms SDARS from a satellite service to a hybrid satellite-terrestrial service.[137] Another commenter, Susquehanna Radio Corp., argued that the setting aside of SDARS spectrum exclusively for terrestrial repeater operations reduces the amount of spectrum available for satellite operations and is therefore contrary to the Commission's finding in the *SDARS Order* that an SDARS system requires at least 12.5 megahertz of bandwidth in order to be economically viable.[138] We seek to update the record on the proposal to allow SDARS licensees to construct and operate terrestrial repeaters to re-transmit signals received via satellite on the exclusive frequency assignment of the licensee and in the same bandwidth as the satellite space stations.

2. Retransmission of Regional Spot Beams

54. In response to the *1997 Further Notice*, one commenter urges the Commission to prohibit SDARS repeaters from re-transmitting satellite spot beams, arguing that, if permitted, SDARS operators could provide localized programming via spot beams, which would in effect transform SDARS repeater networks into terrestrial radio services and would undermine the viability of terrestrial broadcasters.[139] It urges the Commission to adopt rules to preclude the use of SDARS repeaters from transmission of localized programming using spot beams.[140] Although not specifically mentioning the use of spot beams, NAB has urged the Commission to make clear that SDARS licensees are prohibited from using their networks to deliver programming to consumers in one market that is different from that delivered to consumers in another market.[141] Accordingly, NAB has asked to place a condition on the SDARS licenses that SDARS repeaters "may not be used in any manner to facilitate the provision of locally differentiated services by SDARS licensees."[142] We seek to update the record on this issue. We note that no SDARS licensee has constructed, or has proposed to construct, regional spot beams as part of their system.

3. Local Programming Origination from SDARS Repeaters

55. In the*1997 Further Notice*, the Commission requested comment on its tentative proposal to prohibit the use of SDARS repeaters to transmit locally originated programming.[143] The Commission explained that the purpose of this proposal is to ensure the complementary nature of SDARS repeaters and to ensure that there would be no transformation of SDARS into an independent terrestrial network.[144]

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136 *See SDARS Order and FNPRM,* 12 FCC Rcd at 5845, App. C.

137 *See* Comments of Mt. Wilson FM Broadcasters, Inc. (filed June 13, 1997) ("Mt. Wilson Further Notice Comments") at 2.

138 *See* Comments of Susquehanna Radio Corp. (filed June 3, 1997) ("Susquehanna Further Notice Comments") at 5. *See also SDARS Order and FNPRM,* 12 FCC Rcd at 5776 ¶ 49 (concluding, based on the record, that each SDARS licensee will require at least 12.5 megahertz to successfully implement an economically viable SDARS system).

139 *See* Mt. Wilson Further Notice Comments at 1.

140 *See id.* at 5.

141 *See* Letter from Jack N. Goodman, Senior Vice President and General Counsel, NAB, to William F. Caton, Acting Secretary, FCC, dated Mar. 14, 2002.

142 *See id.* at 2-3.

143 *See SDARS Order and FNPRM*, 12 FCC Rcd at 5812.

144 *See id.*

In response, one commenter argued that the language of the *1997 Further Notice* is not sufficiently precise to achieve this purpose and called for more stringent rules that do not leave any ambiguity concerning the absolute prohibition on the use of SDARS repeaters to originate programming, including the carriage of local advertising inserts.[145] NAB strongly supported this position, and urged the adoption of such a prohibition on local programming origination by SDARS repeaters.[146]

56. In the *2001 Public Notice*, the Commission proposed specific language addressing the authorized transmissions of SDARS repeaters.[147] Under the proposed language of the *2001 Public Notice*, SDARS repeaters would be limited to transmitting "the complete programming, and only that programming, that is also transmitted by an authorized DARS satellite and in such a way that the satellite signal and the SDARS repeater signal are received nearly simultaneously by SDARS subscriber receivers."[148] The Commission sought comment on the sufficiency of this language to achieve its tentative conclusion of prohibiting SDARS repeaters from transmitting locally originated programming origination by SDARS repeaters.[149]

57. As an alternative to the language proposed in the *2001 Public Notice*, NAB urged the Commission to incorporate the no-local origination condition that applies to the SDARS licensees' existing STAs, namely: "SDARS repeaters are restricted to the simultaneous retransmission of the complete programming, and only that programming, transmitted by the satellite directly to the SDARS subscriber's receivers."[150] XM recommends adoption of the language of the *2001 Public Notice*, but does not object to using the STA language suggested by NAB, provided that the Commission affirms that the slight delay caused by retransmission of the satellite signal through a terrestrial receiver does not violate the Commission's final rule.[151] We seek to update the record on the appropriate standard to be adopted in this area.

IV. PROCEDURAL MATTERS

A. Ex Parte Presentations

58. This proceeding shall be treated as a "permit-but-disclose" proceeding in accordance with the Commission's *ex parte* rules.[152] Persons making oral *ex parte* presentations are reminded that memoranda summarizing the presentations must contain summaries of the substance of the presentations and not merely a listing of the subjects discussed. More than a one or two sentence description of the views and arguments presented is generally required.[153] Other rules pertaining to oral and written

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145 *See* Petition to Supplement Record (filed Oct. 27, 2000) ("Mt. Wilson Petition") at 4-5.

146 *See, e.g.,* NAB Further Notice Comments at 5 (filed June 18, 1997) ("First and foremost NAB supports as critical to any authorization of SDARS gap fillers the prohibition the Commission and the applicants endorse that the repeaters shall not originate local programming.")

147 *See Public Notice* at 3.

148 *See id.*

149 *See, e.g.,* NAB Further Notice Comments at 5 ("First and foremost NAB supports as critical to any authorization of SDARS gap fillers the prohibition the Commission and the applicants endorse that the repeaters shall not originate local programming.")

150 *See id.* at 7.

151 *See* XM Radio Public Notice Reply Comments at 22 (filed Dec. 21, 2001).

152 47 C.F.R. §§ 1.1200, 1.1206; Amendment of 47 C.F.R. § 1.1200 *et seq*. Concerning Ex Parte Presentations in Commission Proceedings, GC Docket No. 95-21, *Report and Order*, 12 FCC Rcd 7348 (1997).

153 47 C.F.R. § 1.1206(b)(2).

presentations are set forth in Section 1.1206(b) of the Commission's rules as well.

B. Initial Regulatory Flexibility Certification and Analysis

59. With respect to WCS licensees, Appendix A to this document contains the analysis required by the Regulatory Flexibility Act of 1980, 5 U.S.C. § 603.

60. Pursuant to the Regulatory Flexibility Act (RFA), the Commission has prepared an Initial Regulatory Flexibility Certification of the possible significant economic impact on small DARS entities by the policies and actions considered in this *Second Further Notice*.[154] The text of the Certification is set forth in Appendix B.

C. Initial Paperwork Reduction Act of 1995 Analysis

61. This document does not contain new or modified information collection requirements subject to the PRA of 1995, Public Law 104-13. In addition, 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.[155]

D. Comment Filing Procedures

62. 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 or before the dates indicated on the first page of this document. All filings related to this Notice of Proposed Rulemaking should refer to **IB Docket No. 95-91 and WT Docket No. 07-293**. Comments may be filed using: (1) the Commission's Electronic Comment Filing System (ECFS), (2) the Federal Government's rulemaking Portal, or (3) by filing paper copies. *See* Electronic Filing of Documents in Rulemaking Proceedings, 63 Fed. Reg. 24,121 (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: 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

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

[155] 44 U.S.C. § 3506(c)(4).

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, Marlene H. Dortch, Office of the Secretary, Federal Communications Commission, 445 12th Street, S.W., Washington, D.C. 20554.

- The Commission's contractor will receive hand-delivered or messenger-delivered paper filings for the Commission's Secretary at 236 Massachusetts Avenue, N.E., 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 must be addressed to 445 12th Street, S.W., Washington, DC 20554.

63. Comments and reply comments and any other filed documents in this matter may be obtained from Best Copy and Printing, Inc., in person at 445 12th Street, S.W., Room CY-B402, Washington, DC 20554, via telephone at (202) 488-5300, via facsimile at (202) 488-5563, or via e-mail at FCC@BCPIWEB.COM. The pleadings will also be available for public inspection and copying during regular business hours in the FCC Reference Information Center, Room CY-A257, 445 12th Street, S.W., Washington, DC 20554, and through the Commission's Electronic Comment Filing System (ECFS) accessible on the Commission's Web site, http://www.fcc.gov/cgb/ecfs.

64. To request materials in accessible formats for people with disabilities (braille, large print, electronic files, audio format), send an e-mail to fcc504@fcc.gov or call the Consumer & Governmental Affairs Bureau at 202-418-0530 (voice), 202-418-0432 (TTY). This Notice can also be downloaded in Word and Portable Document Format at http://www.fcc.gov/cgb/policy.

65. Commenters who file information that they believe should be withheld from public inspection may request confidential treatment pursuant to Section 0.459 of the Commission's rules. Commenters should file both their original comments for which they request confidentiality and redacted comments, along with their request for confidential treatment. Commenters should not file proprietary information electronically. *See Examination of Current Policy Concerning the Treatment of Confidential Information Submitted to the Commission*, Report and Order, 13 FCC Rcd 24816 (1998), *recon.*, 14 FCC Rcd 20128 (1999). Even if the Commission grants confidential treatment, information that does not fall within a specific exemption pursuant to the Freedom of Information Act (FOIA) must be publicly disclosed pursuant to an appropriate request. *See* 47 C.F.R. § 0.461; 5 U.S.C. § 552. We note that the Commission may grant requests for confidential treatment either conditionally or unconditionally. As such, we note that the Commission has the discretion to release information on public interest grounds that does fall within the scope of a FOIA exemption.

E. Further Information

66. For further information regarding this proceeding, contact Steven Spaeth, Assistant Division Chief, Satellite Division, International Bureau, at (202) 418-1539, or Stephen Duall, Attorney Advisor, Satellite Division, International Bureau, at (202) 418-1103. Information regarding this proceeding and others may also be found on the Commission's website at www.fcc.gov.

V. ORDERING CLAUSES

67. Accordingly, IT IS ORDERED that, pursuant to the authority contained in Sections 1, 4(i), 4(j), 7(a), 301, 303(c), 303(f), 303(g), 303(r), 303(y), and 308 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 154(i), 154(j), 157(a), 301, 303(c), 303(f), 303(g), 303(r), 303(y), 308, this Second Further Notice of Proposed Rulemaking in IB Docket No. 95-91 and Notice of Proposed Rulemaking in WT Docket No. 07-293 IS ADOPTED.

68. IT IS FURTHER ORDERED that the Commission's Consumer and Governmental Affairs Bureau, Reference Information Center SHALL SEND a copy of this Second Further Notice of Proposed Rulemaking in IB Docket No. 95-91 and Notice of Proposed Rulemaking in WT Docket No. 07-293, including the Initial Regulatory Flexibility Certification and Initial Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration, in accordance with Section 603(a) of the Regulatory Flexibility Act, 5 U.S.C. § 601, *et seq*. (1981).

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch
Secretary

APPENDIX A

INITIAL REGULATORY FLEXIBILITY ANALYSIS

Notice of Proposed Rulemaking in WT Docket No. 07-293

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 *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 *Notice* provided in Section IV.D. of the item. The Commission will send a copy of the *Notice*, including this IRFA, to the Chief Counsel for Advocacy of the Small Business Administration (SBA).[2] In addition, the *Notice* and IRFA (or summaries thereof) will be published in the Federal Register.[3]

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

The primary objective of this proceeding is to consider changes to the rules governing Wireless Communications Service (WCS) which may be necessary to facilitate the coexistence of those licensees with licensees in the SDARS and satellite digital audio radio service (SDARS). Such rule changes are needed because SDARS terrestrial repeaters and WCS operate in adjacent frequency bands. SDARS licensees rely on terrestrial repeaters to provide a nationwide service. Thus, without appropriate service rules for WCS and SDARS operations, the out-of-band emissions caused by each service could cause harmful interference into the other, which in turn would limit the development of these services and thereby be detrimental to the public interest.

The *Notice* is intended to refresh the record on any necessary regulatory requirements that would allow SDARS terrestrial repeaters and WCS operation to coexist in adjacent bands. Specifically, the *Notice* specifically invites comments on two options for power and emission limits for WCS operations and SDARS repeaters, including a peak ground-level emission limit of – 44 dBm, or an average EIRP limit of two kilowatts (kW) EIRP, with a 6 dB peak-to-average ratio.[4]

In Section III.C. of the *Notice*, the Commission discusses recordkeeping and coordination proposals to ensure towers are deployed in a fashion to avoid interference. In particular, the Commission is considering whether to adopt a proposal to require licensees to provide notice to all licensed radio stations potentially affected by SDARS repeater and WCS station deployments.

B. Legal Basis for Proposed Rules

The proposed action is authorized under Sections 4(i), 303(r), and 403 of the Communications Act of 1934, as amended, 47 U.S.C. 154(i), 303(r), and 403.

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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* 5 U.S.C. § 603(a).

4 These proposals are discussed in more detail in Section III.A. of the *Notice*.

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

The RFA directs agencies to provide a description of and, where feasible, an estimate of the number of small entities that may be affected by the rules adopted. 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] Below, we further describe and estimate the number of small entity licensees and regulatees that may be affected by the rules changes explored in the *Notices*.

WCS Licensees. Wireless Communication Services have flexible rules that allow licensees to either operate commercial fixed or mobile radio services or use the spectrum for private use. The SBA rules establish a size standard for "Wireless Telecommunications Carriers," which encompasses business entities engaged in radiotelephone communications employing no more that 1,500 persons.[9] There are currently 158 active WCS licenses held by 13 licensees. Of these, 6 licensees qualify as small entities and hold a total of 32 licenses.

RF Equipment Manufacturers. The Census Bureau defines this category as follows: "This industry comprises establishments primarily engaged in manufacturing radio and television broadcast and wireless communications equipment. Examples of products made by these establishments are: transmitting and receiving antennas, cable television equipment, GPS equipment, pagers, cellular phones, mobile communications equipment, and radio and television studio and broadcasting equipment."[10] The SBA has developed a small business size standard for Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing, which is: all such firms having 750 or fewer employees.[11] According to Census Bureau data for 2002, there were a total of 1,041 establishments in this category that operated for the entire year.[12] Of this total, 1,010 had employment of under 500, and an additional 13 had

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5 *See* 5 U.S.C. § 601(6).

6 *See* 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 which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register.

7 *See* Small Business Act, 5 U.S.C. § 632 (1996).

8 *See* 5 U.S.C. § 601(4).

9 *See* 13 C.F.R. § 121.201, NAICS code 517110.

10 U.S. Census Bureau, 2002 NAICS Definitions, "334220 Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing"; http://www.census.gov/epcd/naics02/def/NDEF334.HTM#N3342.

11 *See* 13 C.F.R. § 121.201, NAICS code 334220.

12 U.S. Census Bureau, American FactFinder, 2002 Economic Census, Industry Series, Industry Statistics by Employment Size, NAICS code 334220 (released May 26, 2005); http://factfinder.census.gov. The number of "establishments" is a less helpful indicator of small business prevalence in this context than would be the number of "firms" or "companies," because the latter take into account the concept of common ownership or control. Any single physical location for an entity is an establishment, even though that location may be owned by a different establishment. Thus, the numbers given may reflect inflated numbers of businesses in this category, including the (continued….)

employment of 500 to 999.[13] Thus, under this size standard, the majority of firms can be considered small.

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

There are no specific reporting or recordkeeping requirements proposed in the *Notice*, other than the recordkeeping and coordination requirements discussed in Section A, *supra*.

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

The RFA requires an agency to describe any significant alternatives that it has considered in reaching its proposed approach, which may include the following four alternatives: (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.[14]

As stated in Section A, *supra*, the *Notice* specifically invites comments on two options for power and emission limits for WCS operations and SDARS repeaters, including a peak ground-level emission limit of – 44 dBm, or an average EIRP limit of two kilowatts (kW) EIRP, with a 6 dB peak-to-average ratio. The *Notice* also invites interested parties to suggest alternative proposals.

At this time, the Commission has not excluded any alternative proposal concerning ground-level emission limits and average EIRP limits from its consideration, but it would do so in this proceeding if the record indicates that a particular proposal would have a significant and unjustifiable adverse economic impact on small entities.

However, the Commission has also invited interested parties to propose any other alternative form of coordination if it would be more efficient or effective. However, the Commission will not consider any alternative proposal that would have a significant and unjustifiable adverse economic impact on small entities.

In Section III.C. of the *Notice*, the Commission discusses record keeping and coordination proposals to ensure towers are deployed in a fashion to avoid interference. In particular, the Commission is considering a proposal to require licensees to provide notice to all licensed radio stations potentially affected by SDARS repeater and WCS station deployments. However, as noted *supra* in Section A, the Commission has also invited interested parties to propose any other alternative form of coordination if it would be more efficient or effective. However, the Commission will not consider any alternative that would have a significant and unjustifiable adverse economic impact on small entities.

In Section III.D. of the *Notice*, the Commission seeks comment on grandfathering and transition proposals for existing SDARS repeaters. One proposal is to grandfather all existing SDARS terrestrial repeaters, thereby exempting those repeaters from any out-of-band power limits adopted in this

(Continued from previous page)
numbers of small businesses. In this category, the Census breaks-out data for firms or companies only to give the total number of such entities for 2002, which was 929.

[13] *Id*. An additional 18 establishments had employment of 1,000 or more.

[14] *See* 5 U.S.C. § 603(c).

rulemaking proceeding. Another is to require the operators of those repeaters to come into compliance with any such limits within a year from the adoption of such rules. The Commission invites comments on both of these grandfathering-related and transition-related proposals, and invites commenters to recommend other transition periods. The Commission solicits any alternative proposals that would not incur significant and unjustifiable adverse impact on small entities.

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

None.

APPENDIX B

INITIAL REGULATORY FLEXIBILITY ANALYSIS

Second Further Notice of Proposed Rulemaking in IB Docket No. 95-91

The Regulatory Flexibility Act (RFA)[1] requires that an agency prepare a regulatory flexibility analysis for notice-and-comment rulemaking proceedings, unless the agency certifies that "the rule will not, if promulgated, have a significant economic impact on a substantial number of small entities."[2] The RFA generally defines "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction."[3] In addition, the term "small business" has the same meaning as the term "small business concern" under the Small Business Act.[4] 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).[5]

With respect to the DARS licensees, only two operators hold licenses to provide SDARS service, XM and Sirius. Both of these licensees are dominant in their field and neither qualify as small entities. SDARS provides nationally distributed subscription radio service, which requires a great investment of capital for operation. Because SDARS service requires significant capital, we believe it is unlikely that a small entity as defined by the Small Business Administration would have the financial wherewithal to become an SDARS licensee.[6]

Commission therefore certifies, pursuant to the RFA, that the proposals in this *Second Further Notice* in IB Docket No. 95-91, if adopted, will not have a significant economic impact on a substantial number of small entities. If commenters believe that the proposals discussed in the *Notice* require additional RFA analysis, they should include a discussion of these issues in their comments and additionally label them as RFA comments. The Commission will send a copy of the *Notice*, including a copy of this initial certification, to the Chief Counsel for Advocacy of the SBA. In addition, a copy of the *Notice* and this initial certification will be published in the Federal Register.[7]

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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, 110 Stat. 857 (1996).

2 *See* 5 U.S.C. § 605(b).

3 5 U.S.C. § 601(6).

4 5 U.S.C § 601(3) (incorporating by reference the definition of "small business concern" in 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."

5 15 U.S.C. §632.

6 The small business size standard for the census category, "Radio Networks," which includes radio satellite broadcasting is $6.5 million or less in receipts, per year. See 13 C.F.R. § 121.201, NAICS code 515111.

7 *See* 5 U.S.C. § 605(b).