

July 22, 2008

Marlene H. Dortch
Secretary
Federal Communications Commission
445 Twelfth Street, SW
Washington, DC 20554

Re: *Consolidated Application for Authority to Transfer Control of XM Radio Inc. and Sirius Satellite Radio Inc. (MB Docket No. 07-57); Amendment of Part 27 of the Commission's Rules to Govern the Operation of Wireless Communications Services in the 2.3 GHz Band (WT Docket No. 07-293) and Establishment of Rules and Policies for the Digital Audio Radio Satellite Service in the 2310-2360 MHz Frequency Band (IB Docket No. 95-91) – WRITTEN EX PARTE COMMUNICATION*

Dear Ms. Dortch:

For more than a decade, the Commission has been considering issues associated with the coexistence of the satellite Digital Audio Radio Service (“SDARS”) and the Wireless Communications Service (“WCS”) in the 2.3 GHz band. Given recent trade press reports that the Commission is moving towards resolving those issues in the referenced rulemaking proceedings, and that the illegal construction of terrestrial SDARS repeaters has become a focal point in the consideration of the proposed XM Radio Inc. (“XM”) and Sirius Satellite Radio Inc. (“Sirius”) merger, the WCS Coalition is submitting the attached proposed rules for governing WCS and SDARS coexistence. Our objective in doing so is simple – the WCS Coalition wants to assure both that the final rules adopted in the above-referenced rulemaking proceedings permit that viable operation of WCS-based mobile broadband systems, and that no action is taken in connection with the merger, or any associated enforcement proceeding, that inadvertently permits the operation of terrestrial SDARS repeaters in a manner that causes undue interference to WCS.¹

¹ The WCS Coalition previously has reminded the Commission, that in crafting merger conditions, care must be taken to avoid compromising the Commission's ability in IB Docket No. 95-91 and WT Docket No. 07-293 to develop a set of rules that will provide for the reasonable coexistence of the two services. See Letter from Paul J. Sinderbrand, Counsel to WCS Coalition, to Hon. Kevin J. Martin, Chairman, Federal Communications Commission, MB Docket No. 07-57, at 1 (filed May 30, 2008).

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Today's proposal has its genesis in the rules that the WCS Coalition first proposed on July 9, 2007.² Those rules themselves reflected a compromise, as they failed to provide full protection to WCS. However, in part because of the unique nature of SDARS (which is a one-way service with redundant data streams, which is largely provided to automobile-mounted receivers that generally will be separated by at least three meters from mobile WCS transmitters, and which employs buffer and interleaver technology to mitigate interference that is not available to two-way services), the proposed rules will largely avoid harmful interference to SDARS subscribers. Following the close of the formal pleading cycle in the rulemaking proceedings, however, the WCS Coalition has expressed its willingness to accept further compromise solutions on two important points. For the convenience of the Commission, the attached rules incorporate those concessions.³

Grandfathering of SDARS Terrestrial Repeaters

First, the proposal reflects the WCS Coalition's compromise on the rules governing the maximum power level at which a SDARS terrestrial repeater can operate. Since it first became clear that XM and Sirius intended to construct very high power terrestrial repeaters, and not the low power "gap fillers" that the Commission and WCS licensees had anticipated, the WCS community has urged the Commission to limit overload interference to WCS by restricting SDARS terrestrial repeaters to the same maximum equivalent isotropically radiated power ("EIRP") limit as imposed on neighboring WCS base stations. The Commission staff clearly shares the WCS Coalition's concern about potential interference from SDARS terrestrial repeaters to WCS. Indeed, in granting the special temporary authorizations pursuant to which the current repeaters purport to operate, the International Bureau specifically acknowledged that "there are areas around terrestrial repeaters where [WCS] equipment may be susceptible to blanketing interference,"⁴ and mandated that XM and Sirius cure any interference that they may cause in the future to WCS facilities.⁵

² See Letter from Paul J. Sinderbrand, Counsel to WCS Coalition, to Marlene H. Dortch, Secretary, Federal Communications Commission, IB Docket No. 95-91 (filed July 9, 2007). In addition to the specific modifications discussed herein, the proposed rules have been modified to correct typographical and formatting errors.

³ In addition, the proposed rules would impose upon SDARS terrestrial repeaters the same equipment certification requirements imposed on WCS transmitters under Section 27.51 of the Commission's Rules. Given that XM and Sirius have a track record of deploying equipment that fails to meet Commission technical rules, certification is necessary to assure that the repeaters being deployed are compliant with Commission requirements.

⁴ See *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, 16785 (IB 2001), modified, 16 FCC Rcd 18484 (IB 2001) [*Initial XM STA Order*]; *Sirius Satellite Radio, Inc., Application for Special Temporary Authority to Operate Satellite Digital Audio Radio*

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Notwithstanding the arguments advanced by XM and Sirius in support of grandfathering, the Commission is under no compulsion to grandfather the resulting current over-powered repeaters. As the Commission recently noted, “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.’”⁶ And, while XM and Sirius contend that it will be unduly expensive for them to operate a repeater network at the same power levels as WCS base stations, the record shows that XM and Sirius grossly over-state the expenditures they face in bringing their repeater levels to the same 2000 watt average EIRP proposed for WCS base stations.⁷

Nonetheless, in the interest of moving the rulemaking proceedings to closure, the WCS Coalition has made clear that it is prepared to accept a compromise solution under which XM and Sirius would be permitted to continue operating existing repeaters, *so long as those operations continue to be subject to the current absolute obligation to cure interference that might occur in the future to WCS operations.*⁸ The proposed rules accomplish the goal of maintaining the *status quo* by allowing XM and Sirius to continue operating repeaters constructed prior to the adoption of a report and order in the rulemaking proceedings, while requiring subsequent new repeaters or modifications to existing repeaters to comport with the same power limits as WCS base stations (2000 watts average EIRP per 5 MHz and 400 watts average EIRP per MHz).

It should be noted that our proposed rule does not make any distinction between the repeaters that were constructed by XM and Sirius in accordance with their special temporary authorizations and the hundreds of repeaters they constructed illegally. We certainly appreciate that, given the magnitude of the wrongful conduct here and the circumstances surrounding the decisions to construct repeaters without the required Commission approval, the Commission may choose not to provide any grandfathering to illegally constructed repeaters. The WCS Coalition takes no position as to whether such a distinction should be made – from its perspective, the

Service Complementary Terrestrial Repeaters, Order and Authorization, 16 FCC Rcd 16773, 16777 (IB 2001), modified, 16 FCC Rcd 18481 (IB 2001) [*“Initial Sirius STA Order”*].

⁵ See *Initial Sirius STA Order*, 16 FCC Rcd at 16779; *Initial XM STA Order*, 16 FCC Rcd at 16787.

⁶ *Amendment of Part 27 of the Commission’s Rules to Govern the Operation of Wireless Communications Services in the 2.3 GHz Band; Establishment of Rules and Policies for the Digital Audio Radio Satellite Service in the 2310-2360 MHz Frequency Band*, Notice of Proposed Rulemaking and Second Further Notice of Proposed Rulemaking, 22 FCC Rcd 22123, 22135 (2007) [*“Notice”*].

⁷ See Reply Comments of WCS Coalition, WT Docket No. 07-293, at 48 (filed Mar. 17, 2008).

⁸ See Letter from Paul J. Sinderbrand, Counsel to WCS Coalition, to Marlene H. Dortch, Secretary, Federal Communications Commission, WT Docket No. 07-293, Attachment at 7 (filed May 5, 2008).

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important point is that the Commission retains the current obligation on SDARS to cure any interference caused by grandfathered terrestrial repeaters that operate at high power levels.

OOBE Relief For Low-Power WCS Mobile Devices

Among the proposals advanced by WCS was a modification to limits set forth in Section 27.53(a) of the Commission's Rules on WCS out-of-band emission ("OOBE") into the SDARS band – limits that have effectively precluded the deployment of mobile wireless broadband services by WCS licensees. To address certain concerns that have since been raised regarding the WCS Coalition proposal, the attached rules include a revised version of proposed Section 27.53(a) that substantially reduces the maximum permissible power level for battery-operated devices taking advantage of the less restrictive OOBE limits.⁹

Under the initial WCS proposal, non-mobile devices operating at less than 2 watts transmitter output power and mobile devices operating at power levels of less than 2 watts average EIRP would have been entitled to take advantage of a less restrictive OOBE mask than that presently imposed on mobile WCS devices. However, as the WCS Coalition has made clear throughout this proceeding, as a practical matter battery-operated WCS devices would have to operate at substantially lower power levels to comply with the Commission's limits on RF emissions by devices used in close proximity to the human body. Under the revised version of proposed Section 27.53(a) being filed today, WCS licensees would be required to restrict the power level of any battery-operated devices to a maximum of 250 milliwatts average EIRP to take advantage of the less restrictive OOBE limits. And, of course, the WCS Coalition is proposing that all devices built to the new mask incorporate transmit power control mechanisms that will generally reduce transmitter power to levels below the proposed 250 milliwatt maximum. The net result is to provide even greater assurance that WCS mobile devices will operate at power levels that do not pose a threat of substantial interference to SDARS receivers.

* * *

In short, adoption of the attached draft rules will accomplish the objective the Commission set for itself in this proceeding: to "permit the two services to co-exist."¹⁰ The record provides ample evidence that, while adoption of the proposed rules will render neither WCS nor SDARS entirely immune to interference, their adoption both will allow viable WCS operations and will provide SDARS protection against harmful interference except under

⁹ The distinction between battery-operated devices and AC-powered devices that is made in the attached proposal was first made by XM and Sirius earlier this year. *See* Comments of Sirius Satellite Radio Inc., WT Docket No. 07-293, at A13 (filed Feb. 14, 2008); Comments of XM Radio Inc., WT Docket No. 07-293, Exhibit A at 14 (filed Feb. 14, 2008).

¹⁰ *Notice*, 22 FCC Rcd at 22124.

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circumstances that are highly improbable given the nature of the two services. As such, the Commission can and should move promptly towards adoption of the WCS Coalition's proposal.

Pursuant to Sections 1.1206(b)(1) and 1.49(f) of the Commission's Rules, this letter is being filed electronically with the Commission via the Electronic Comment Filing System. Should you have any questions regarding this presentation, please contact the undersigned.

Respectfully submitted,

/s/ Paul J. Sinderbrand

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DRAFT MODIFICATIONS TO PARTS 25 AND 27

Proposed Revisions to Part 27

§ 27.50 Power and antenna height limits.

(a) The following power limits apply to the 2305–2320 MHz and 2345–2360 MHz bands:

- (1) Base stations, fixed stations and radiolocation land stations transmitting are limited to 2000 watts average equivalent isotropically radiated power (EIRP) per 5 MHz and 400 watts average EIRP per 1 MHz;
- (2) User stations are limited to 20 watts average EIRP;
- (3) Average EIRP shall be calculated utilizing the average power of the transmitter measured in accordance with the definition of mean power in § 2.1 of this chapter.

§ 27.53 Emission limits.

(a) For operations in the bands 2305–2320 MHz and 2345–2360 MHz, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by the following amounts:

- (1) By a factor not less than $75 + 10 \log (P)$ dB on all frequencies between 2320 and 2345 MHz;
- (2) Notwithstanding §27.53(a)(1) of this chapter, for (a) any battery-operated user stations transmitting at no greater than 250 milliwatts average EIRP and (b) AC-operated user stations transmitting at no greater than 2 watts average transmitter output power, by a factor of not less than $55 + 10 \log (P)$ dB on all frequencies between 2320 and 2324 MHz, and between 2341 and 2345 MHz; by a factor of not less than $61 + 10 \log (P)$ dB for frequencies between 2324 and 2328 MHz, and between 2337 and 2341 MHz and by $67 + 10 \log (P)$ dB between 2328 and 2337 MHz. All stations employing this less restrictive spectrum mask in lieu of that set forth in §27.53(a)(1) of this chapter 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;
- (3) By a factor not less than $70 + 10 \log (P)$ dB on all frequencies below 2300 MHz and on all frequencies above 2370 MHz; and not less than $43 + 10 \log (P)$ dB on

all frequencies between 2300 and 2320 MHz and on all frequencies between 2345 and 2370 MHz that are outside the licensed bands of operation;

- (4) Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured energy is integrated over the full required measurement bandwidth (*i.e.*, 1 MHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power;
- (5) In complying with the requirements in §27.53(a)(1) and §27.53(a)(2) of this chapter, WCS equipment that uses opposite sense circular polarization from that used by Satellite DARS systems in the 2320–2345 MHz band shall be permitted an allowance of 10 dB;
- (6) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the edges, both upper and lower, of the licensee's bands of operation as the design permits;
- (7) Waiver requests of any of the out-of-band emission limits in paragraphs (a)(1) through (a)(6) of this section shall be entertained only if interference protection equivalent to that afforded by the limits is shown;
- (8) The out-of-band emissions limits in paragraphs (a)(1) through (a)(7) of this section may be modified by the private contractual agreement of all affected licensees, who shall maintain a copy of the agreement in their station files and disclose it to prospective assignees or transferees and, upon request, to the Commission.

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

Proposed Revisions to Part 25

§ 25.xx Technical rules for SDARS repeater stations operating in the 2320-2345 MHz band.

- (a) The following power limits apply to SDARS repeater stations:

- (1) A SDARS repeater station constructed prior to [date of adoption of Report and Order] that operates with one or more transmission antennas exceeding 2000 watts average equivalent isotropically radiated power (EIRP) per 5 MHz and 400 watts average EIRP per 1 MHz may continue to operate at the EIRP at which it was operating on such date, provided that: (a) such operation is on a non-interference basis with respect to all permanently authorized radiocommunication facilities ; and (b) the SDARS licensee provides each WCS licensee with a complete listing of all such repeater stations no later than [10 days following effective date of Report and Order] that includes the location (by coordinates accurate to one tenth of a second), the make and model number of each transmit antenna, any beam tilt employed in the installation of a transmit antenna, the azimuth and average equivalent isotropically radiated power of the main beam of each transmit antenna and the height above ground level of the main beam of each transmit antenna;
 - (2) SDARS repeater stations initially constructed or constructed stations modified on or after [date of adoption of Report and Order] are limited to 2000 watts average equivalent isotropically radiated power (EIRP) per 5 MHz and 400 watts average EIRP per 1 MHz.
- (b) The power of any emission outside the SDARS repeater station's licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by a factor not less than $75 + 10 \log (P)$ dB;
- (c) Out of band emissions shall be measured as in §27.53(a)(4) of this chapter;
- (d) Equipment authorization:
- (1) Each transmitter utilized for operation under this part must be of a type that has been authorized by the Commission under its certification procedure;
 - (2) Any manufacturer of radio transmitting equipment to be used in these services may request equipment authorization following the procedures set forth in subpart J of part 2 of this chapter. Equipment authorization for an individual transmitter may be requested by an applicant for a station authorization by following the procedures set forth in part 2 of this chapter.