

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of Applications by	)	
	)	
SIRIUS XM RADIO INC.	)	Call Signs: S3033
	)	E080185
For Space Station and Earth Station	)	
Special Temporary Authority to	)	
Perform Tests with SXM-7	)	

REQUEST FOR SPECIAL TEMPORARY AUTHORITY

Sirius XM Radio Inc. (“Sirius XM”) respectfully requests space station and earth station special temporary authority (“STA”) for a period of 14 days commencing on July 10, 2023, to perform a test involving communications between the SXM-7 satellite digital audio radio service (“SDARS”) spacecraft at 85.15° W.L. and Sirius XM’s E080185 earth station using the 2348.0 MHz frequency, which is within the 2345-2350 MHz Wireless Communications Service spectrum (“WCS D Block”) immediately adjacent to the SDARS band at 2320-2345 MHz. As discussed herein, grant of the requested STAs will serve the public interest by allowing Sirius XM to validate a procedure intended to optimize the performance of SXM-8, which has the same design as SXM-7 and serves as the primary SDARS satellite at 85.15° W.L. By testing the procedure first on SXM-7 using a frequency in the WCS D Block, Sirius XM can confirm the procedure’s effectiveness without affecting SXM-8’s delivery of SDARS to customers.

Sirius XM holds Commission licenses for the SXM-7¹ and SXM-8² space stations at 85.15° W.L. and the E080185 earth station in Vernon, NJ.³ Sirius XM provides SDARS at 85.15° W.L. using SXM-8, while SXM-7 serves as a partial in-orbit spare and is not in active use due to payload failures discussed in previous Sirius XM filings.⁴

The manufacturer of SXM-7 and SXM-8 has recommended that we implement a procedure intended to optimize transponder operation by adjusting the on-board commandable phase shifters to maximize the output power and improve the cross-polarization performance. The procedure involves transmitting a continuous wave (“CW”) signal to the satellite. Sirius XM plans to perform the procedure on SXM-8 this summer but first proposes to validate the procedure by testing it on SXM-7 using a frequency in the WCS D Block spectrum to avoid any potential impact on SDARS operations.

This use of WCS spectrum by an SDARS satellite is consistent with Commission rules and precedent. Section 27.2(c) of the Commission’s rules expressly permits SDARS operations in WCS frequencies.⁵ The Commission has approved Sirius XM’s application to acquire WCS

¹ See Sirius XM Radio Inc., Call Sign S3033, File No. SAT-RPL-20180430-00033, granted Oct. 3, 2018; Letter of Karis A. Hastings, Counsel for Sirius XM Radio Inc., to Marlene H. Dortch, File No. SAT-RPL-20180430-00033, Oct. 18, 2022 (advising the Commission of the relocation of SXM-7 to 85.15° W.L.).

² Sirius XM Radio Inc., Call Sign S3034, File No. SAT-RPL-20180430-00034, granted Oct. 3, 2018, reissued June 11, 2021.

³ Sirius XM Radio Inc., Call Sign E080185, File No. SES-MOD-20220302-00226, granted Oct. 31, 2022.

⁴ See, e.g., Letter of Karis A. Hastings, Counsel for Sirius XM Radio Inc., to Marlene H. Dortch, File No. SAT-RPL-20180430-00033, Apr. 1, 2021; Sirius XM Radio Inc., Call Sign S3033, File No. SAT-STA-20211105-00149, granted Jan. 13, 2022 (“SXM-7 2022 STA”), Narrative at 2.

⁵ 47 C.F.R. § 27.2(c) (SDARS “may be provided using the 2310-2320 and 2345-2360 MHz bands . . . in a manner consistent with part 25 of this chapter”).

licenses from AT&T Mobility Spectrum LLC and other affiliated entities (collectively, “AT&T”), which hold Commission authorizations for the WCS C Block and D Block spectrum,⁶ and AT&T has previously agreed to permit Sirius XM to conduct satellite testing in this spectrum pending consummation of these assignments. The Commission has granted prior STA applications authorizing Sirius XM and its affiliate XM Radio LLC (“XM Radio”) to use WCS frequencies to test satellites, including a prior application for SXM-7.⁷

As noted above, the procedure involves use of a CW carrier, and the technical details of the planned operations are set forth in the attached annex. The uplink signal will originate from Sirius XM’s E080185 earth station, which is authorized to communicate with SXM-7 and will use the licensed SDARS feeder link spectrum in the 7025-7075 MHz X-band. The downlink signals in the WCS D Block spectrum will be received by that same earth station.

The proposed operations will not adversely affect any other party. As discussed above, AT&T is the licensee of the WCS D Block, and AT&T has consented to previous tests in this spectrum using SXM-7 and other SDARS spacecraft. Affiliates of Sirius XM operate the only satellites authorized to use either S-band or X-band frequencies located within two degrees of 85.15° W.L. Sirius XM does not share S-band spectrum with other satellite systems (except its

⁶ See Sirius XM Radio Inc., ULS File Nos. 0009368515, 0009368531, and 0009368523 (consented to Jan. 19, 2021). These transactions have not yet been consummated.

⁷ See SXM-7 2022 STA (authorizing SXM-7 testing in the WCS D Block spectrum); XM Radio LLC, Call Sign S2617, File No. SAT-STA-20220204-00014, granted Mar. 2, 2022 (authorizing XM-3 testing in the WCS C and D Block frequencies); XM Radio LLC, Call Sign S2786, File No. SAT-STA-20210406-00045, granted Apr. 29, 2021 (authorizing XM-5 testing in the WCS C and D Block frequencies). The Commission also authorized Sirius XM to test SXM-7 in the WCS C and D Block frequencies during in-orbit testing, but SXM-7 was not tested in that spectrum because testing efforts were refocused on attempting to restore SXM-7’s full SDARS functionality following that satellite’s payload failures. See Sirius XM Radio Inc., Call Sign S3033, File No. SAT-STA-20201002-00118, granted Nov. 2, 2020.

affiliates, XM Radio and Satellite CD Radio LLC), and these frequencies are not subject to two-degree spacing rules. The planned temporary use of the WCS spectrum will not affect Sirius XM's service to subscribers.

The proposed procedure also will not result in harmful interference to regularly authorized terrestrial operations. The E080185 uplink earth station has been coordinated to communicate with Sirius XM's SDARS satellites in an arc that includes 85.15° W.L. The CW carrier will be transmitted for a short duration lasting no more than four hours on any given day. In addition, and in any event, Sirius XM will conduct all testing on a non-harmful interference basis, and will cease transmissions promptly in the event any harmful interference is caused by such operations.⁸ Along these lines, neither Sirius XM nor XM Radio received any complaints or other indications that the companies' prior testing using the WCS spectrum caused interference to any domestic or international operations.

Sirius XM hereby certifies that no party to this application is subject to a denial of federal benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. § 862.

For the foregoing reasons, Sirius XM respectfully requests special temporary authority for a period of 14 days commencing on July 10, 2023, for communications between SXM-7 and E080185 using a WCS D Block frequency as described herein. Grant of the requested authority will serve the public interest by facilitating Sirius XM's ability to evaluate a procedure to

⁸ The 24/7 point of contact for any interference concerns is: Donald Jefferson, 973-970-0262, donald.jefferson@siriusxm.com.

improve the performance of the SXM-8 space station and will not result in harmful interference to any other regularly authorized operations.

Respectfully submitted,

Sirius XM Radio Inc.

/s/ James S. Blitz

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Dated: June 6, 2023

ANNEX

E080185 Site Details

24 Vernon Crossing Road, Vernon, NJ 07462

41° 12' 45.0" N; 74° 29' 39.0" W

Antenna Details

Antenna ID	G7	G11
Manufacturer/Model	Viasat	Viasat
Antenna Size	7.3 meters	11.3 meters
Antenna Gain Transmit	52.4 dBi at 7.05 GHz	56.4 dBi at 7.05 GHz
Antenna Gain Receive	42.0 dBi at 2.326 GHz	45.2 dBi at 2.326 GHz
Height Above Ground Level	7.3 meters	17.9 meters
Height Above Sea Level	136.3 meters	146.5 meters
Total Input Power at the Flange	281.8 watts	72.4 watts
Total EIRP for all carriers	75 dBW	75 dBW

Operational Details

Frequency (MHz)	Transmit/Receive	Polarization	Emissions Designator	Max EIRP per Carrier (dBW)	Max EIRP Density per Carrier (dBw/4kHz)
7057.0	T	L and R	0H00N0N	75	75
2348.0	R	L and R	0H00N0N		