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

In the Matter of Application by	)	
	)	
SIRIUS XM RADIO INC.	)	Call Sign S3033
	)	
For Special Temporary Authority to Perform Tests with SXM-7	)	

REQUEST FOR SPECIAL TEMPORARY AUTHORITY

Sirius XM Radio Inc. ("Sirius XM") respectfully requests space station special temporary authority ("STA") for a period of 28 days commencing on January 18, 2022, to permit testing of its impaired SXM-7 satellite digital audio radio service ("SDARS") spacecraft at 115.25° W.L. using 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 STA will serve the public interest by allowing Sirius XM to assess whether, in light of SXM-7's operational failure and resulting inability to serve its intended commercial purpose, the spacecraft is nonetheless still capable of any residual operations. Specifically, Sirius XM's testing will determine whether SXM-7 can potentially: (i) serve as a source of back-up or restoration capacity for a subset of the satellite radio band if necessary; and/or (ii) play a role in providing satellite capacity in the WCS spectrum for critical services to the Federal Emergency Management Agency ("FEMA") and other public safety agencies on a non-commercial, non-revenue-generating basis.

Sirius XM holds a Commission license authorizing operation of SXM-7 at 115.25° W.L.[1] Sirius XM originally intended for the satellite to serve as a replacement that would take over the provision of primary satellite radio service from an older SDARS spacecraft. However, events occurred during SXM-7's in-orbit testing ("IOT") that caused critical failures of certain SXM-7 payload units, and an extensive evaluation of the satellite concluded that it could not serve its intended commercial purpose.

SXM-7 cannot operate as a primary SDARS satellite since it cannot satisfy the technical specifications needed to provide satellite radio service throughout the SDARS band. However, Sirius XM proposes to perform testing to evaluate whether SXM-7 has any residual ability to serve as a source of back-up or restoration capacity for a subset of the satellite radio band in the unlikely event other SDARS spacecraft became impaired and could not transmit these channels. In order to avoid interfering with SDARS operations at 115.25° W.L., Sirius XM proposes to test SXM-7 using the adjacent WCS D Block frequencies.

This use of WCS spectrum on 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.[2] The Commission has approved Sirius XM's application to acquire WCS 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,[3]

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[1] *See* Sirius XM Radio Inc., Call Sign S3033, File No. SAT-RPL-20180430-00033, granted Oct. 3, 2018, reissued June 11, 2021 (the "SXM-7 License").

[2] 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").

[3] *See* Sirius XM Radio Inc., ULS File Nos. 0009368515, 0009368531, and 0009368523 (consented to Jan. 19, 2021).

and AT&T has agreed to permit Sirius XM to conduct satellite testing in this spectrum pending consummation of these assignments.

Another benefit of the testing proposed under this STA is that it would allow Sirius XM to determine whether SXM-7 could also play a role supporting a non-commercial public safety service in the WCS C and D blocks that Sirius XM has been developing for use by FEMA and other government public safety agencies. As currently contemplated with FEMA, this service would transmit essential communications to further FEMA's mission of providing life-critical assistance before, during, and after natural disasters and other emergencies, yielding no revenue to Sirius XM. Although Sirius XM plans to rely primarily on other spacecraft for operations in the C and D blocks, testing SXM-7 for this purpose would provide both FEMA and Sirius XM with useful information.[4]

The planned testing in the WCS D Block will conform to the SXM-7 License with respect to operating parameters, including power levels and emission designators.[5] The uplink signals for the testing will originate from earth stations that are 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 will be received by U.S. earth stations on an unprotected basis.

[4] As an initial validation test of the SDARS satellites' ability to provide public safety service in the WCS spectrum, Sirius XM's affiliate XM Radio LLC ("XM Radio") successfully tested the XM-5 satellite in the WCS C and D Block frequencies pursuant to STA. XM Radio LLC, Call Sign S2786, File No. SAT-STA-20210406-00045, granted Apr. 29, 2021.

[5] The Commission also authorized Sirius XM to test SXM-7 in the WCS C and D Block frequencies during IOT, but SXM-7 was not tested in that spectrum because IOT efforts were refocused on attempting to restore SXM-7's full SDARS functionality following that satellite's payload failures. Sirius XM Radio Inc., Call Sign S3033, File No. SAT-STA-20201002-00118, granted Nov. 2, 2020.

Testing SXM-7 in these frequencies 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 the proposed transmissions. Affiliates of Sirius XM operate the only satellites authorized to use either S-band or X-band frequencies located within two degrees of 115.25° W.L. Sirius XM does not share S-band spectrum with other satellite systems (except its affiliates, XM Radio and Satellite CD Radio LLC), and these frequencies are not subject to two degree spacing rules. The planned testing in the WCS spectrum will not affect Sirius XM's service to subscribers.

The proposed testing also will not result in harmful interference to regularly authorized terrestrial operations. The uplink earth stations that will be used for the testing have already been coordinated with terrestrial licensees. Sirius XM will not exceed the previously-coordinated power density parameters during the proposed testing. 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. Along these lines, XM Radio received no complaints or other indications that its prior testing of XM-5 in the WCS C and D Block 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 28 days commencing on January 18, 2022, to test SXM-7 in the WCS D Block as described herein. Grant of the requested authority will serve the public interest by facilitating

Sirius XM's ability to evaluate the capabilities of the SXM-7 space station and will not result in harmful interference to any other regularly authorized operations.

Respectfully submitted,

Sirius XM Radio Inc.

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