

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

In the Matter of Application by)
)
SIRIUS XM RADIO INC.) Call Sign S3034
)
For Special Temporary Authority to)
Perform In-Orbit Testing of SXM-8)

REQUEST FOR SPECIAL TEMPORARY AUTHORITY

Sirius XM Radio Inc. (“Sirius XM”) respectfully requests special temporary authority (“STA”) for a period of 180 days commencing ten days after launch of its SXM-8 satellite to permit in-orbit testing (“IOT”) of the spacecraft at 120.5° W.L. +/- 0.1 degrees. SXM-8 is a replacement satellite for Sirius XM’s digital audio radio service (“SDARS”) and is currently scheduled to be launched on June 1, 2021. Specifically, Sirius XM seeks STA to: (1) perform IOT using the SDARS frequencies at 2320-2345 MHz; (2) test the satellite’s ability to operate in the Wireless Communications Service (“WCS”) spectrum immediately adjacent to the SDARS band (*i.e.*, the WCS C Block spectrum at 2315-2320 MHz and the D Block spectrum at 2345-2350 MHz); and (3) drift SXM-8 from 120.5° W.L. to 85.15° W.L. following completion of IOT. Grant of the requested STA will serve the public interest by allowing Sirius XM to evaluate the performance of SXM-8 prior to placing the satellite in service.

Sirius XM holds a Commission license to launch and operate the SXM-8 replacement satellite and to test the satellite’s SDARS payload at 120.0° W.L. with an east-west stationkeeping tolerance of +/- 0.1 degrees.¹ However, after the Commission granted the SXM-8

¹ See Sirius XM Radio Inc., Call Sign S3034, File No. SAT-RPL-20180430-00034, granted Oct. 3, 2018 (the “SXM-8 License”).

License, the satellite manufacturer asked to change the IOT orbital position to 120.5° W.L. Sirius XM seeks STA to accommodate this slight change in the testing location.²

Sirius XM also seeks to expand the scope of SXM-8 IOT to include transmissions in the WCS C and D Block spectrum. The satellite’s design characteristics enable operations in the WCS frequencies adjacent to the SDARS band, and Sirius XM proposes to perform testing to confirm the satellite’s performance using these bands. Use of these frequencies for SDARS is consistent with Commission rules. Specifically, Section 27.2(c) states that SDARS “may be provided using the 2310-2320 and 2345-2360 MHz bands . . . in a manner consistent with part 25 of this chapter.”³ Sirius XM has entered into an agreement with AT&T Mobility Spectrum LLC and other affiliated entities (collectively, “AT&T”), which hold WCS licenses for the C and D Block frequencies, to acquire those licenses, and the Commission has approved the license assignments.⁴ Pending consummation of the assignments, AT&T has agreed to permit Sirius XM to perform the SXM-8 testing in this spectrum.

In addition, Sirius XM hereby advises the Commission of a change in the orbital location to which SXM-8 will be drifted once IOT is completed. When Sirius XM sought licenses in 2018 for SXM-7 and SXM-8, which are technically identical SDARS spacecraft, Sirius XM indicated that SXM-7 was intended to replace the XM-3 satellite at 85.15° W.L. and that SXM-8

² In order to minimize interruptions to the payload testing operations due to stationkeeping maneuvers, Sirius XM requests that the Commission waive Section 25.210(j) of the rules to permit Sirius XM to maintain SXM-8 with a +/- 0.1 degree stationkeeping tolerance during IOT, as it did in the SXM-8 License. *See id.*, Attachment to Grant at 2 n.1.

³ 47 C.F.R. § 27.2(c).

⁴ *See Sirius XM Radio Inc.*, ULS File Nos. 0009368515, 0009368531, and 0009368523 (consented to Jan. 19, 2020).

was the intended replacement for XM-4 at 115.25° W.L.⁵ However, Sirius XM requested and received authority to position each satellite at either of these two orbital locations as needed to satisfy SDARS service requirements. The Commission’s license grants included rule waivers allowing Sirius XM to position each satellite at either orbital location without obtaining prior Commission approval, provided that Sirius XM notified the Commission in writing no later than two business days after beginning such a move.⁶ In granting the waivers, the Commission cited a number of SDARS-specific findings, noting that “Sirius XM is the sole licensee in the SDARS frequency bands, and the 85.15° W.L. and 115.25° W.L. orbital locations are both already assigned to Sirius XM,” and permitting “Sirius XM to manage its spacecraft as needed will facilitate service continuity for SDARS subscribers.”⁷

Following failures during testing of certain SXM-7 payload units, Sirius XM notified the Commission of its decision to position SXM-7 at 115.25° W.L. instead of 85.15° W.L.⁸ Consistent with the flexibility awarded in the SXM-8 License, Sirius XM intends to position SXM-8 at 85.15° W.L. instead of 115.25° W.L. and requests that the Commission update its records regarding the SXM-8 License accordingly.

Apart from the change in IOT orbital location, the addition of the WCS C and D Block spectrum, and the update to the satellite’s destination following testing, the planned SXM-8 IOT and drift will conform to the specifications in the SXM-8 License. The uplink signals for the

⁵ See, e.g., *Sirius XM Radio Inc.*, Call Sign S3034, File No. SAT-RPL-20180430-00034, Narrative at 1.

⁶ SXM-8 License, Attachment to Grant at 3, ¶ 12.

⁷ *Id.*

⁸ See Letter of Karis A. Hastings, Counsel for Sirius XM, Call Sign S3033, File Nos. SAT-RPL-20180430-00033 & SAT-STA-20210216-00022, filed Feb. 26, 2021.

testing will originate from earth stations that are authorized to communicate with SXM-8 and will use the licensed SDARS feeder link spectrum in the 7025-7075 MHz X-band. The downlink signals will be focused on Hawaii and will be received by earth stations there on an unprotected basis.

Testing SXM-8 in these frequencies will not adversely affect any other party. As discussed above, AT&T is the licensee of the WCS C Block and WCS D Block bands, and AT&T has agreed to allow the proposed transmissions. Sirius XM does not share S-band spectrum with other satellite systems (except its affiliates, XM Radio LLC and Satellite CD Radio LLC), and these frequencies are not subject to two degree spacing rules. Because IOT will occur before SXM-8 is brought into service as a replacement satellite, the planned testing 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 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.

Once testing is complete, Sirius XM will drift SXM-8 from 120.5° W.L. to 85.15° W.L. using telemetry, tracking and command frequencies in the SDARS bands. The drift of the spacecraft will be coordinated with other satellite operators consistent with industry practice.

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 180 days commencing ten days after launch of SXM-8 to conduct IOT and relocate the spacecraft as described herein. Grant of the requested authority will serve the public interest by facilitating Sirius XM's ability to evaluate the performance of the SXM-8 space station prior to commencing service and will not result in harmful interference to any other regularly authorized operations.

Respectfully submitted,

Sirius XM Radio Inc.

/s/ James S. Blitz

James S. Blitz
Vice President, Regulatory Counsel
1500 Eckington Place, N.E.
Washington, D.C. 20002
(202) 380-4000

Of Counsel

Karis A. Hastings
SatCom Law LLC
6930 Carroll Avenue, Suite 720
Takoma Park, MD 20912
(202) 599-0975

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