

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

In the Matter of	)	
Sirius XM Radio LLC	)	
	)	
Application for Authority to Launch and	)	
Operate SDARS Replacement Spacecraft	)	File No. SAT-RPL-20260727-00312
	)	
at 86.15° W.L.	)	

APPLICATION OF SIRIUS XM RADIO LLC

Sirius XM Radio LLC (“Sirius XM”) hereby applies for authority under the Communications Act of 1934, as amended, and the Federal Communications Commission’s regulations thereunder, to launch, test, and operate a satellite digital audio radio service (“SDARS”) replacement satellite, designated SXM-12. Specifically, Sirius XM requests: (1) authority to launch and operate SXM-12 at 86.15° W.L. +/- 0.1 degrees to replace FM-5;¹ (2) authority for SXM-12 to transmit in the SDARS band (2320-2345 MHz) and the WCS C and D Blocks (2315-2320 MHz and 2345-2350 MHz, respectively); (3) authority to perform in-orbit testing (“IOT”) of SXM-12 at 88° W.L. +/- 0.1 degrees; (4) authority to perform telemetry, tracking and command (“TT&C”) in order to position SXM-12 at the test orbital location during IOT and thereafter drift the satellite to its assigned orbital location; and (5) the flexibility to subsequently reposition

¹ *Satellite Licensing Division and Satellite Programs and Policy Division Information RE: Actions Taken*, Public Notice, DA No. 25-780, Sirius XM Radio LLC, FCC Call Sign 2710, ICFS File No. SAT-MOD-20250703-00134 (rel. Aug. 29, 2025).

and operate SXM-12 at any of the Sirius XM orbit locations – 85.15° W.L, 86.15° W.L, 115.25° W.L., or 116.15° W.L. – as needed to meet service requirements. Granting this application will serve the public interest by facilitating Sirius XM’s ability to provide continuous, reliable satellite radio service to 33 million subscribers and other users.

Pursuant to Section 25.114 of the Commission’s rules, Sirius XM is attaching a technical narrative that describes the SXM-12 spacecraft. In addition, a completed FCC Form 312 and a location-specific Schedule S are attached. Associated ITU-related materials also are being submitted separately.

I. BACKGROUND

Sirius XM provides a full range of audio programming through its flagship satellite radio service, including music, news, talk, sports, weather, and traffic, to approximately 33 million U.S. customers. This content is transmitted to users over a fleet of geostationary orbit (“GSO”) spacecraft at four orbital locations: SXM-9 at 85.15° W.L., FM-5 at 86.15° W.L., XM-5 (to be replaced by SXM-11 once on station) at 115.25° W.L., and SXM-10 at 116.15° W.L. Back-up capacity for the four primary space stations is provided by the SXM-8 in-orbit spare satellite, which flies in formation with SXM-7 and SXM-9 at 85.15° W.L. XM-5 will provide back-up capacity once it is replaced by SXM-11. The SXM-7 satellite also provides limited in-orbit spare capacity.²

² See Letter of Karis Hastings, outside counsel for Sirius XM, to Marlene H. Dortch, Call Sign S3033, File No. SAT-RPL-20180430-00033, dated Apr. 1, 2021, at 1 (noting that certain SXM-7 payload units failed during in-orbit testing of the satellite).

In order to ensure continuity of service to its customers, Sirius XM is now building and is preparing to launch a next-generation satellite, SXM-12. Sirius XM proposes to operate SXM-12 at 86.15° W.L., but the satellite is capable of operating at any of the Sirius XM orbit locations, namely 85.15° W.L, 86.15° W.L, 115.25° W.L. or 116.15° W.L. Sirius XM currently plans to launch SXM-12 potentially as early as March 2027. Prior to commencing operations, the satellite will undergo IOT at 88.0° W.L., which will allow Sirius XM to verify the performance characteristics of the spacecraft prior to deployment.

The SXM-12 satellite has downlink frequencies in the 2320-2345 MHz SDARS band and will receive uplink transmissions in the 7025-7075 MHz band designated for SDARS feeder links. The SXM-12 satellite also will have downlink frequencies in WCS C Block and D Block bands (2315-2320 MHz and 2345-2350 MHz), which are ancillary to SDARS operations.

During the satellite's normal operations, including during IOT and drifts to its regular orbital location, TT&C will also be performed in the 2315-2345 MHz (space-to-Earth) and 7025-7075 MHz (Earth-to-space frequency bands). However, Sirius XM also seeks authority to conduct TT&C during initial orbit raising for the satellite using C-band frequencies: 4196-4198.5 MHz (Space-to-Earth) and 6422-6425 MHz (Earth-to-Space). As discussed below, this limited use of C-band spectrum for TT&C will help ensure safe operation of the satellite prior to placement at its assigned location. Sirius XM notes that its operations would be conducted on frequencies not designated for

auction and that in any event, its use would occur long before wireless use of the upper C-band is scheduled to commence.³

The primary mission for the SXM-12 satellite is to serve as a replacement for the FM-5 satellite at 86.15° W.L., but the satellite may also be used to provide back-up capacity for other satellites in the Sirius XM fleet. Ensuring robust, continuous satellite radio service may require Sirius XM in the future to relocate SXM-12 from its primary assigned orbital location, moving it to any of the authorized Sirius XM orbit locations, 85.15° W.L, 86.15° W.L, 115.25° W.L. or 116.15° W.L. Sirius XM requests herein the authority to perform such relocations without the need for a prior modification application, consistent with the authority the Commission has granted to Sirius XM with reference to other satellites in its fleet.

II. AUTHORIZING SXM-12 WILL SERVE THE PUBLIC INTEREST AND IS CONSISTENT WITH COMMISSION PRECEDENT

A. Continued Operation in SDARS Band

Granting the requested authority for Sirius XM to launch, test, operate, and relocate SXM-12 will serve the public interest by ensuring Sirius XM's ability to provide satellite radio service continuity and is fully consistent with Commission precedent.

³ *Upper C-band (3.98–4.2 GHz), Expanding Flexible Use of the 3.7 to 4.2 GHz Band*, GN Docket Nos. 25-59 and 18-1232, Report and Order, Order of Proposed Modification, and Order on Reconsideration, FCC 26-46 at ¶¶ 53-56 (band plan) and ¶¶ 111-112 (transition schedule) (rel. Jul. 24, 2026).

The Commission has repeatedly recognized that satellite radio offers enormous public interest benefits for the American public.⁴

Sirius XM provides high-quality, continuous digital multi-channel audio service to approximately 33 million subscribers, from downtown urban cores to rural and remote parts of the United States, using the SDARS band. SDARS signals also play a critical public safety role during natural disasters and emergencies when terrestrial communications networks may be unavailable. Specifically, Sirius XM uses its network to disseminate emergency alerts and to make available critical weather information not just to paying subscribers, but to over 180 million SDARS receivers and specialized receivers for the public safety community. By launching and operating a next-generation satellite, Sirius XM will ensure its ability to continue providing these and other important services.

The Commission has expressly recognized a replacement expectancy for GSO satellite operators:

Given the huge costs of building and operating GSO space stations, we have found that there should be some assurance that operators will be able to continue to serve their customers. Therefore, the Commission has stated that, when an orbit location remains available for a U.S. satellite with the technical characteristics of the proposed replacement satellite, it will generally authorize the replacement satellite at the same location.⁵

⁴ See, e.g., *Establishment of Rules and Policies for the Digital Audio Radio Satellite Service*, Report and Order, Memorandum Opinion and Order, and Further Notice of Proposed Rulemaking, 12 FCC Rcd 5754 (1997) at ¶ 1.

⁵ *Amendment of the Commission's Space Station Licensing Rules and Policies*, First Report and Order and Further Notice of Proposed Rulemaking, 18 FCC Rcd 10760, 10854-55 (2003) (footnotes omitted). More recently, the Commission codified its processing policy with respect to replacement satellites in Section

The Commission has also made clear that a replacement satellite need not be identical to the current spacecraft:

We do not require replacement satellites to be technically *identical* to the existing satellite. We recognize that next-generation satellites will incorporate satellites with technical advancements made since the previous generation satellite was launched. We do not intend to change this policy, which facilitates state-of-the-art systems. Rather, we will continue to assess only whether operations of the replacement satellite will be consistent with our international coordination obligations pursuant to regulations promulgated by the International Telecommunication Union.⁶

FM-5 currently operates in the 7050.5-7072.5 MHz (Earth-to-space) and 2320-2332.5 MHz (space-to-Earth) frequency bands at 86.15° W.L., giving Sirius XM a replacement expectancy for operations on these frequencies at that orbital location. Expansion of the frequencies available on SXM-12 to include the full 2320-2345 MHz SDARS band as well as the 7025-7075 MHz band designated for SDARS feeder links is consistent with other satellites in Sirius XM's SDARS fleet for which Sirius XM holds the exclusive U.S. SDARS license. Similarly, as discussed further below, the addition of WCS C and D Block spectrum is consistent with other recent Sirius XM satellite authorizations and employs WCS frequencies for which Sirius XM is the exclusive WCS CONUS licensee. The limited use of C-band frequencies for orbit raising activities, as also discussed further below, is consistent with recent satellite authorizations in Sirius

25.158(a)(2) of its rules, which exempts replacement spacecraft from the filing queue otherwise applicable to new space station applications.

⁶ See *id.* at 10857 (emphasis in original; footnotes omitted).

XM's SDARS fleet. All of these frequencies remain available for use by Sirius XM and the operation of SXM-12 will conform to the Commission's international coordination obligations. Deploying SXM-12 as requested herein will allow Sirius XM to use a state-of-the-art satellite to ensure long-term continuity of service for SDARS customers and others. This is exactly what the Commission's long-standing replacement expectancy policy is designed to promote.

B. Use of WCS C Block and D Block Bands

Sirius XM's proposed transmission of WCS C and D Block frequencies on the SXM-12 satellite is consistent with Commission rules and precedent. Section 27.2(c) of the Commission's rules expressly permits SDARS operations in WCS frequencies.⁷

Sirius XM now holds the WCS licenses for these spectrum blocks pursuant to a Commission-approved transaction⁸ and the Commission previously approved the use of these frequencies on the SXM-7, SXM-8, and SXM-11 satellites.⁹

The initial offering that Sirius XM provides using the WCS C and D Block frequencies on its satellites is a one-way point-to-multipoint service for use by the

⁷ 47 C.F.R. § 27.2(c).

⁸ See Sirius XM Radio Inc., ULS File Nos. 0009368515 (lead), 0009368531, and 0009368523 (consented to Jan. 19, 2021). See also *Public Notice*, Wireless Telecommunications Bureau Action, Report No. 19164, Notice of Consummation ULS File Nos. 0009368515, 0009368531, 0009368523 (rel. Dec. 11, 2024).

⁹ *Stamp Grant*, Sirius XM Radio Inc., FCC Call Sign S3033 (SXM-7), ICFS File No. SAT-MOD-20240606-00124 (granted Sep. 18, 2024); *Stamp Grant*, Sirius XM Radio Inc., FCC Call Sign S3034 (SXM-8), ICFS File No. SAT-MOD-20240606-00125 (granted Sep. 18, 2024); *Stamp Grant*, Sirius XM Radio Inc., FCC Call Sign S3233 (SXM-11), ICFS File No. SAT-LOA-20250605-00138 (granted Dec. 18, 2025). Sirius XM notes that pursuant to Commission consent, all licenses previously held by Sirius XM Radio Inc. have been assigned to Sirius XM Radio LLC. Sirius XM Radio LLC, ICFS File No. ASG-20240617-01497, granted Jun. 18, 2024 (consummated Sep. 10, 2024).

Federal Emergency Management Agency (“FEMA”) and services to other public safety entities. These services are transmitted by satellite but are otherwise be ancillary to and wholly separate from Sirius XM’s satellite radio service. This offering is fully consistent with the Commission’s rules and serves the public interest.¹⁰ The Commission has specifically confirmed that SDARS operators are authorized to provide ancillary services¹¹ and has identified public safety agencies as potential users of such services.¹²

Allowing SXM-12 to use the WCS C and D Block spectrum will not limit use of the satellite for SDARS or adversely affect any other party. Sirius XM will manage its operations to ensure that transmissions in the WCS spectrum will not affect service to SDARS subscribers.

The proposed operations also will not result in harmful interference to regularly authorized terrestrial operations. The uplink earth stations that will communicate with SXM-12 will use X-band frequencies in the 7025-7075 MHz range that have already been coordinated with terrestrial licensees. Sirius XM will not exceed the previously coordinated power density parameters.

¹⁰ New Cingular Wireless PCS, LLC, AT&T Mobility Spectrum LLC, and New Cingular Wireless Services, Inc., Request for Waiver, Order, 39 FCC Rcd 12473 (WTB Mobility Div. 2024).

¹¹ *Establishment of Rules and Policies for the Digital Audio Radio Satellite Service in the 2310-2360 MHz Frequency Band*, Notice of Proposed Rulemaking, 11 FCC Rcd 1, 10 ¶ 29 (1995) (observing that SDARS applicants “propose to offer additional services to their end users which are ancillary to DARS,” including “high-speed broadcast data or location-based geographic information, electronic graphic/visual information, voice mail, and alphanumeric messages on dedicated channels or in conjunction with (multiplexed into) the channels used for digital audio”); *see also 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, 5792-93 ¶¶ 94-96 (1997).

¹² *Id.* 12 FCC Rcd at 5773, ¶ 45.

Authorizing use of the WCS C and D Blocks on the SXM-12 satellite will advance the public interest by facilitating Sirius XM's ability to offer new and productive uses of its WCS spectrum, initially by providing potentially lifesaving services to spectrum-limited public safety entities. FEMA will use Sirius XM's WCS spectrum to deliver a satellite-based backup of emergency alert messages to its Primary Entry Point ("PEP") stations for further distribution to the public and other public safety entities are using this spectrum to receive information regarding emergency weather conditions, with additional concepts being developed to deliver critical communications during and after natural disasters and other emergencies.

This use of the WCS C and D Block spectrum allows Sirius XM to build on its long history of providing essential connectivity to support public safety operations. The SDARS network already delivers emergency alerts, weather forecasts, news reports, and other vital information. Sirius XM uses its platform to provide other public services in emergencies and natural disasters, routinely making nationwide weather information available for free to all satellite radios during weather crises. In addition to transmitting national alerts directly to satellite radio subscribers, Sirius XM also serves as one of a limited number of non-broadcast entities designated as PEP stations,¹³ responsible for distributing EAS alerts to PEP stations and others, including state emergency operations centers.

¹³ See *Strengthening the Emergency Alert System (EAS): Lessons Learned from the Nationwide EAS Test*, EB Docket No. 04-296 (PSHSB rel. Apr. 14, 2013) at 10 n.21.

Because SDARS is a satellite service available throughout CONUS and elsewhere in North America, Sirius XM's transmissions can be received even in remote areas unserved or underserved by terrestrial networks. Moreover, natural disasters and power outages that may impair operation of terrestrial networks are unlikely to affect the satellite-based SDARS operations. As a result, authorizing SXM-12 operations in the WCS C and D Block spectrum will help ensure that public safety entities have access to a reliable and nationwide network for urgent communications.

C. IOT Test Location and Flexibility to Use SXM-12 at Different Sirius XM Orbital Locations

Sirius XM's request for authority to test SXM-12 at 88.0° W.L. will enable verification of the satellite's operating capabilities without disrupting existing services that Sirius XM currently provides from the nominal 86.15° W.L. orbital location. The proposed testing will not cause harmful interference to the operations of any other spacecraft. Sirius XM does not share S-band spectrum with other satellite systems and no satellites use either S-band or X-band frequencies within two degrees of the 88.0° W.L. test location.

Allowing Sirius XM to position the SXM-12 satellite at any of the Sirius XM orbit locations, 85.15° W.L, 86.15° W.L, 115.25° W.L. or 116.15° W.L., will also serve the public interest. This flexibility will enhance Sirius XM's ability to deploy its satellite assets as needed to ensure service continuity.

III. THE COMMISSION SHOULD GRANT ANY NECESSARY RULE WAIVERS FOR SXM-12

Sirius XM seeks limited waivers of the Commission's rules in connection with this application for the SXM-12 replacement satellite. Granting these requested waivers is consistent with Commission policy:

The Commission may waive a rule for good cause shown. Waiver is appropriate if special circumstances warrant a deviation from the general rule and such deviation would better serve the public interest than would strict adherence to the general rule. Generally, the Commission may grant a waiver of its rules in a particular case if the relief requested would not undermine the policy objective of the rule in question and would otherwise serve the public interest.¹⁴

The waivers requested also will allow operations consistent with those the Commission previously permitted for the SXM-9, SXM-10, and SXM-11 satellites.¹⁵

SXM-12 will comply with the Commission's rules, but certain waivers are appropriate given the scope of the authority requested, the frequencies to be used, and the planned spacecraft operating parameters. Because SXM-12 will allow Sirius XM to continue to provide high-quality satellite radio programming to its listeners, granting the following waivers will serve the public interest.

¹⁴ *PanAmSat Licensee Corp.*, 17 FCC Rcd 10483, 10492 (Sat. Div. 2002) (footnotes omitted).

¹⁵ *Stamp Grant*, Sirius XM Radio Inc., FCC Call sign S3166, SAT-RPL-20230406-00073; SAT-AMD-20240301-00047 (granted Jul. 7, 2024); *Stamp Grant*, Sirius XM Radio Inc., FCC Call Sign S3167, ICFS File No. SAT- RPL-20230406-00074, SAT-AMD-20240301-00046 (granted Jul. 17, 2024); and *Stamp Grant*, Sirius XM Radio Inc., FCC Call Sign S3233 (SXM-11), ICFS File No. SAT-LOA-20250605-00138 (granted Dec. 18, 2025).

Section 25.118(e): Sirius XM requests any necessary waiver of Section 25.118(e) to allow the SXM-12 satellite to be relocated as needed and operated at any of the Sirius XM orbit locations, 85.15° W.L, 86.15° W.L, 115.25° W.L., or 116.15° W.L. Grant of such a waiver is consistent with the purpose of this rule, which is to facilitate the relocation of a satellite among orbital locations assigned to a licensee, provided that such moves do not increase the satellite's interference potential.¹⁶ This waiver is also consistent with authorizations that the Commission has granted to prior Sirius XM satellites.¹⁷

Under the Section 25.118(e) framework, a geostationary satellite operator may reposition satellites without prior Commission approval subject to specified requirements, including providing 30 days' notice and submitting certain certifications. Specifically, the rule states in pertinent part:

(e) Relocation of GSO space stations. A space station licensee may relocate a GSO space station without prior authorization, but upon 30 days prior notice to the Commission and any potentially affected licensed spectrum user, provided that the operator meets the following requirements. The notification must be filed electronically on FCC Form 312 through the International Bureau Filing System (IBFS) in accordance with the applicable provisions of part 1, subpart Y of this chapter:

- (1) The space station will be relocated to a position within $\pm 0.15^\circ$ of an orbital location assigned to the same licensee.
- (2) The licensee certifies that the space station will operate after the relocation within the technical parameters authorized and coordinated for the space station previously assigned to that location.

¹⁶ *Amendment of the Commission's Space Station Licensing Rules and Policies*, Second Report and Order, 18 FCC Rcd 12507 (2003) ("Second Space Station Reform Order") at 12509, ¶ 7.

¹⁷ See note 20, *supra*.

- (3) The licensee certifies that it will comply with all the conditions of its license for operation at the changed location.
- (4) The licensee certifies that it will limit operations of the space station to tracking, telemetry, and command functions during the relocation and satellite drift transition period.
- (5) The licensee certifies that:
 - (i) It has assessed and limited the probability of the satellite becoming a source of debris as a result of collisions with large debris or other operational satellites at the new orbital location; and
 - (ii) The proposed station-keeping volume of the satellite following relocation will not overlap a station-keeping volume reasonably expected to be occupied by any other satellite, including those authorized by the Commission, applied for and pending before the Commission, or otherwise the subject of an ITU filing and either in orbit or progressing towards launch.
- (6) The licensee certifies that the relocation will not result in a lapse of service for any current customer.¹⁸

Consistent with subsections (1), (2), and (3) of Section 25.118(e), Sirius XM seeks authority to position the SXM-12 satellite at any of the Sirius XM orbit locations, 85.15° W.L, 86.15° W.L, 115.25° W.L., or 116.15° W.L., subject to all the technical parameters and license terms and conditions associated with each orbital position. The requirements in subsection (5) of the rule are met as well: the orbital debris mitigation showing provided in the technical appendix to this application is not dependent on the specific orbital location at which SXM-12 is operating and any overlap of the station-keeping volume at any of the specified orbital slots would involve only other satellites

¹⁸ 47 C.F.R. § 25.118(e). The final two provisions of the rule, subsections (7) and (8), are limited to DBS spacecraft and thus are not applicable to the SDARS satellites at issue here.

operated by Sirius XM or its affiliates. Moreover, Sirius XM would reposition SXM-12 solely to ensure service continuity, consistent with the mandate of subsection (6) of the rule.

The authority Sirius XM requests requires waiving the provisions of Section 25.118(e) in two respects. First, rather than providing 30 days' notice to the Commission prior to any relocation of SXM-12, Sirius XM seeks advance authority to reposition the satellite subject only to a requirement to notify the Commission within two business days after commencing a move. Second, Sirius XM requests a waiver of subsection (4) of the rule to allow SDARS operations, not just TT&C functions, during any satellite relocation.

Departure from the Commission's typical requirements is justified under the specific circumstances here. As noted above, Sirius XM is the sole licensee in the SDARS frequency bands, having purchased the spectrum at auction, and the 85.15° W.L., 86.15° W.L., 115.25° W.L., and 116.15° W.L. orbital locations are already assigned to Sirius XM. As a result, repositioning SXM-12 among these orbital locations and operating the satellite's SDARS payload during the drift would not create interference issues affecting other satellite operators.

Affording Sirius XM the requested flexibility is fully consistent with the purpose underlying the Section 25.118(e) fleet management provision. In adopting the rule, the Commission observed:

Establishing a streamlined procedure for satellite fleet management modifications . . . would expedite grant of modification applications that do not involve

increased interference potential. We have previously allowed satellite operators to rearrange satellites in their fleet to reflect business and customer considerations where no other public interest factors are adversely affected. Moreover, such a streamlined procedure would facilitate satellite operators' efforts to meet the service needs of their customers. Further, by devoting fewer administrative resources to satellite fleet management modification requests, we can direct more attention to other pending applications.¹⁹

Granting the requested repositioning flexibility for SXM-12 will promote these goals by allowing Sirius XM to manage its spacecraft as needed to facilitate service continuity for SDARS subscribers, while minimizing unnecessary administrative burdens on the Commission and its staff. Because no other party is authorized to use SDARS spectrum, enforcing the full requirements in Section 25.118(e), including the advance notification obligation and the restriction to TT&C operations during drift, is not needed to prevent interference. Moreover, the Commission has previously authorized SDARS operations during satellite drift to enable the provision of uninterrupted service, allowing Sirius XM's FM-5 satellite communications payload to remain active as the satellite was relocated from 96° W.L. to 86.15° W.L.²⁰

The authority Sirius XM seeks to reposition SXM-12 is fully consistent with the purpose of Section 25.118(e), with the public interest in continuity of satellite radio

¹⁹ *Second Space Station Reform Order*, 18 FCC Rcd at 12509-12510, ¶ 7 (footnotes omitted).

²⁰ See *Sirius XM Radio Inc.*, Call Sign S2710, File No. SAT-MOD-20151211-00081, granted Feb. 25, 2016. See also *XM Radio, Inc.*, Call Sign S2616, File No. SAT-MOD-20100722-00165, granted Oct. 14, 2010 (authorizing SDARS operations during drift of XM-4 satellite from 115° W.L. to 115.25° W.L.).

service, and with Commission precedent. Accordingly, the Commission should grant limited waivers of the Section 25.118(e) requirements to afford Sirius XM the flexibility to redeploy its satellite as needed between the authorized Sirius XM orbital locations and to provide service during any such relocations.

Section 25.202(g) and C-band Freeze: Sirius XM requests any necessary waiver of the requirements of Section 25.202(g) of the Commission's rules relating to performing telemetry, tracking and command ("TT&C") within the bands assigned for satellite operations.²¹ The Commission has explained:

The purpose of this rule is to simplify the coordination process for satellite systems, to provide an incentive for an operator to maximize the efficiency of its system's TT&C operations, and to minimize the constraints placed on other satellite operations.²²

Here, Sirius XM is seeking to use specific frequencies at the edges of the conventional C-band spectrum for a limited time during the orbit-raising stage following launch of SXM-12. During that phase, when the satellite circumnavigates the globe, Sirius XM needs to be able to reliably send commands and receive telemetry signals in order to ensure the safe transit of the spacecraft.

Prior geostationary Sirius XM satellites relied for TT&C solely on S-band SDARS downlink spectrum at 2320-2345 MHz and uplink spectrum at 7025-7075 MHz. However, Sirius XM experienced significant interference from S-band terrestrial

²¹ 47 C.F.R. § 25.202(g).

²² *Orbcomm License Corp.*, 23 FCC Rcd 4804 at ¶ 20 (IB & OET 2008).

systems during orbit raising of previous satellites, putting them at risk by impairing Sirius XM's ability to reliably receive telemetry information regarding the satellites' position. Sirius XM seeks to avoid similar interference events by employing conventional C-band spectrum for TT&C during this phase as the Commission permitted it to do, without incident, during the orbit raising of SXM-7, SXM-8, SXM-9, SXM-10, and SXM-11.

Granting this waiver will not undermine the rule's objectives, which include facilitating coordination, avoiding undue constraints on other satellite operations, and ensuring efficient use of spectrum for TT&C. No other party will be harmed by the limited C-band operations. Consistent with industry practice, all TT&C operations during orbit-raising will be coordinated with satellites that use the same frequency bands and are in the orbit-raising path. U.S. earth stations supporting the orbit-raising maneuvers will need to obtain special temporary authority ("STA") from the Commission and any such STA grant will authorize operations that will be unprotected and may not cause harmful interference.

Grant of a waiver will also serve the public interest. Using conventional C-band spectrum during the brief but critical orbit-raising phase will improve the reliability of the telemetry data received. Moreover, the requested C-band use will greatly increase the number of earth stations around the globe capable of supporting the orbit-raising process.

The Commission has previously waived Section 25.202(g) to allow use of TT&C frequencies outside a satellite's service bands based on similar considerations involving

international frequency usage and earth station availability. For example, the Commission authorized the use of C-band TT&C spectrum in connection with the legacy Sirius non-geostationary SDARS fleet based on a finding that using C-band frequencies would avoid potential interference issues involving terrestrial services outside the U.S.²³ The Commission has also waived Section 25.202(g) for transfer orbit operations given the unavailability of service-band earth station facilities around the globe.²⁴ Waiving the rule to permit C-band TT&C for SXM-12 during transfer orbit maneuvers is fully consistent with this precedent.

If and to the extent required, Sirius XM also requests a waiver of the C-band freeze.²⁵ As noted above, Sirius XM's operations would be conducted on frequencies not designated for auction and that in any event, its use would occur long before wireless use of the upper C-band is scheduled to commence. In announcing the freeze, the Commission stated: "[t]he International Bureau will consider requests for waiver of this freeze on a case-by case basis and upon a demonstration that waiver will serve the public interest and not undermine the objectives of the freeze."²⁶ If required, for the

²³ *Sirius Satellite Radio Inc.*, 16 FCC Rcd 5419, 5425 at ¶ 15 (IB 2001) (waiving Section 25.202(g) to allow C-band TT&C "will prevent interference to terrestrial systems in the Southern Hemisphere thereby decreasing the coordination difficulties with countries in the region").

²⁴ See, e.g., *DIRECTV Enterprises, LLC*, 21 FCC Rcd 8028, 8035 at ¶ 14 (Sat. Div. 2006) (the lack of available DBS-band TT&C facilities around the world constitutes special circumstances "that warrant a deviation from Section 25.202(g) for the limited purpose of short-term transfer orbit TT&C operations").

²⁵ See *International Bureau Announces Temporary Filing Freeze on New Fixed Satellite Service Space Stations in the 3.7-4.2 GHz Band*, Public Notice, 33 FCC Rcd 6119 (IB Jun. 21, 2018) (Space Station Freeze Public Notice).

²⁶ *International Bureau Announces Temporary Filing Freeze on New Fixed-Satellite Service Space Station Applications in the 3.7-4.2 GHz Band*, Public Notice, DA 18-640 at p. 3 (rel. Jun. 21, 2018).

reasons discussed above relative to the need to use C-band frequencies for a limited time during the orbit-raising stage following launch of SXM-12, a waiver of the freeze for this purpose falls squarely within such considerations.

Section 25.210(j): Section 25.210(j) of the Commission's rules specifies that geostationary space stations "must be maintained within 0.05° of their assigned orbital longitude in the east/west direction, unless specifically authorized by the Commission to operate with a different longitudinal tolerance."²⁷ Sirius XM seeks authority for an expanded station-keeping volume to facilitate flying SXM-12 in formation with other spacecraft at the 86.15° W.L. orbital location. Specifically, at SXM-12's initially authorized orbital location, it will be collocated with FM-5 until such time as that satellite is relocated or retired. Sirius XM also proposes to maintain SXM-12 with a +/- 0.1 degree station-keeping tolerance at the 88.0° W.L. test locations during IOT in order to minimize interruptions to the payload testing operations due to station-keeping maneuvers.

The Commission has previously waived this rule based on a finding that allowing an increased station-keeping volume would "not adversely affect the operations of other spacecraft, and would conserve fuel for future operations."²⁸ In

²⁷ 47 C.F.R. § 25.210(j).

²⁸ *SES Americom, Inc. Application for Modification of Satcom SN-4 Fixed Satellite Space Station License*, 20 FCC Rcd 11542, 11545 (Sat. Div. 2005).

addition, the Commission has waived the rule to allow operating multiple space stations in formation within a combined station-keeping volume.²⁹

The facts here fit squarely within this precedent. Allowing SXM-12 to operate within an increased station-keeping volume will not harm other operators. The only satellites with which SXM-12's station-keeping volume will overlap are other spacecraft in Sirius XM's own fleet. Sirius XM will ensure that SXM-12's flight is closely controlled to ensure the fleet's continued safe operation. Furthermore, the proposed operations will not materially affect the interference environment.

Finally, allowing SXM-12 to be flown in formation with FM-5 in an east-west station-keeping volume of +/-0.1 degree facilitates in-orbit sparing by allowing faster service restoral on a backup satellite in the event of an issue on the primary satellite. Under these circumstances, grant of any necessary waiver of Section 25.210(j) will serve the public interest.

²⁹ See *SES Americom, Inc.*, File No. SAT-MOD-20080314-00072, Call Sign S2135, grant-stamped May 19, 2008 at ¶ 1 ("We agree with SES Americom that increasing the station-keeping volume of the AMC-4 spacecraft will not adversely affect the operations of other spacecraft, will conserve fuel for future operations and will facilitate coordinated operation of AMC-4 and AMC-2 in the same station-keeping range.").

IV. WAIVER PURSUANT TO SECTION 304 OF THE ACT

In accordance with Section 304 of the Communications Act of 1934, as amended, 47 U.S.C. § 304, Sirius XM hereby waives any claim to the use of any particular frequency or of the electromagnetic spectrum as against the regulatory power of the United States because of the previous use of the same, whether by license or otherwise.

V. CONCLUSION

For the foregoing reasons, Sirius XM hereby respectfully requests that the Commission promptly grant this Application to authorize the launch, operation, testing, and potential relocation of the SXM-12 replacement satellite as described herein, allowing Sirius XM to continue to provide to the public the significant benefits of high-quality, reliable satellite radio service and ancillary WCS services.

Respectfully submitted,

Sirius XM Radio LLC

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