

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

In the Matter of Application by)
)
XM RADIO LLC) Call Sign S2786
)
For Modification of the XM-5 License to Add the)
2315-2320 MHz and 2345-2350 MHz Bands)

APPLICATION OF XM RADIO LLC

XM Radio LLC (“XM Radio”), a satellite digital audio radio service (“SDARS”) licensee, hereby applies to modify its license for the XM-5 in-orbit spare spacecraft at 85.15° W.L. to add authority for operations in the Wireless Communications Service (“WCS”) spectrum immediately adjacent to the SDARS band, 2315-2320 MHz (“C Block”) and 2345-2350 MHz (“D Block”). As discussed herein, grant of the modification will serve the public interest by allowing XM Radio to use XM-5 to serve government public safety agencies to support national security, emergency response, disaster relief, and other essential communications.

A completed Form 312 is attached, and XM Radio incorporates by reference the technical information previously provided regarding XM-5.¹ In addition, this application includes technical information relating to the proposed modification to the XM-5 license on Schedule S and in narrative form pursuant to Section 25.114 of the Commission’s Rules.

¹ The most recent technical data regarding XM-5 was submitted in File No. SAT-MOD-20101216-00264.

MODIFICATION

The XM-5 space station at 85.15° W.L. is authorized to operate throughout the SDARS frequencies, 2320-2345 MHz.² The satellite's design characteristics enable operations in the WCS frequencies adjacent to the SDARS band as well. Earlier this year, XM Radio requested and received Special Temporary Authority that allowed it to test XM-5 in the WCS C and D Block spectrum,³ and that testing confirmed the satellite's performance characteristics in these bands.

XM Radio now seeks to modify the XM-5 License to add the WCS C and D Block frequencies. 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."⁴

XM Radio's affiliate Sirius XM Radio Inc. ("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 (the "WCS Assignments").⁵ Pending consummation of the sale of these WCS licenses, AT&T has agreed to permit XM Radio to operate XM-5 in this spectrum.

² See XM Radio LLC, Call Sign S2786, File No. SAT-MOD-20180831-00065, granted Nov. 1, 2018 (the "XM-5 License").

³ See XM Radio LLC, Call Sign S2786, File No. SAT-STA-20210406-00045, granted Apr. 29, 2021 (the "XM-5 Testing STA").

⁴ 47 C.F.R. § 27.2(c).

⁵ See *Sirius XM Radio Inc.*, ULS File Nos. 0009368515 (the "WCS Spectrum Assignment Application"), 0009368531, and 0009368523 (consented to Jan. 19, 2020).

XM Radio plans to use the WCS C and D Block frequencies on XM-5 to provide a one-way point-to-multipoint service to homeland security and public safety organizations that will be transmitted by satellite and will otherwise be ancillary to and wholly separate from Sirius XM's satellite radio service. As discussed in the WCS Spectrum Assignment Application, this offering is fully consistent with the Commission's rules.⁶ Specifically, the Commission has confirmed that SDARS operators are authorized to provide ancillary services,⁷ and has identified public safety agencies as potential users of such services.⁸

Operating XM-5 in these frequencies will not limit use of the satellite for SDARS or adversely affect any other party. Because XM-5 is acting as a spare satellite and is not actively used for delivery of SDARS signals to customers, transmissions in the WCS spectrum will not affect XM Radio's service to subscribers.

As discussed above, pending consummation of the assignment of these WCS licenses, AT&T continues to hold Commission licenses for the WCS C and D Blocks, and AT&T has agreed to allow the proposed transmissions. In addition to the AT&T licenses, which cover the contiguous United States, RigNet SatCom, Inc. ("RigNet") holds WCS licenses for the

⁶ WCS Spectrum Assignment Application, Narrative at 3-4 & nn.9-13 ("Assignment Narrative").

⁷ *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) ("1995 SDARS NPRM") (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) ("1997 SDARS Order").

⁸ 1997 SDARS Order, 12 FCC Rcd at 5773, ¶ 45.

Gulf of Mexico, and Liberty Latin America (“LLA”) entities hold WCS licenses for Puerto Rico and the U.S. Virgin Islands. XM Radio has advised RigNet and LLA of its plans to operate XM-5 in the WCS bands. Prior to transmitting in these frequencies under the XM-5 Testing STA, XM Radio shared with RigNet an analysis demonstrating that the testing would not cause harmful interference to RigNet’s operations, and RigNet did not raise any interference concerns during the testing. The parameters proposed herein for XM-5’s operations in the WCS bands are consistent with those used in the testing. XM Radio’s understanding is that LLA is not operating in the WCS C and D Block bands.

The proposed operations also will not result in harmful interference to regularly authorized terrestrial operations. The uplink earth stations that will communicate with XM-5 will use X-band frequencies in the 7025-7075 MHz range that have been coordinated with terrestrial licensees. XM Radio will not exceed the previously-coordinated power density parameters.

XM Radio recognizes that accommodating the proposed XM-5 operations in the WCS C and D Block spectrum may require the Commission to resolve issues arising under the cross-border agreements of the United States with Canada and Mexico that apply to these bands (jointly, the “Cross-Border Agreements”).⁹ Among other matters, the power flux density

⁹ See Agreement Concerning the Coordination Between U.S. Satellite Digital Audio Radio Service and Canadian Fixed Service and Mobile Aeronautical Telemetry Service in the Band 2320-2345 MHz (Aug. 25, 1998), <https://transition.fcc.gov/ib/sand/agree/files/can-bc/can-dars.pdf>; Interim Arrangement Concerning the Use of the Frequency Bands 2305-2320 MHz and 2345-2360 MHz by Stations in the Wireless Communications Service (WCS) Near the Canada/United States of America Border (Jun. 23, 2003), <https://transition.fcc.gov/ib/sand/agree/files/can-nb/wcsagree.pdf>; and Agreement Between the Government of the United States of America and the Government of the United Mexican States Concerning the Use of the 2310-2360 MHz Band (July 24, 2000), <https://transition.fcc.gov/ib/sand/agree/files/mex-nb/usmexdars.pdf> (collectively, the “Cross-Border Agreements”).

(“PFD”) levels proposed in this modification exceed the PFD limits currently specified in the Cross-Border Agreements, although they are the same levels XM Radio is authorized to use for SDARS.¹⁰ XM Radio requests modification of the XM-5 license conditioned on any necessary revisions to the Cross-Border Agreements or exchange of letters with Canada and Mexico to coordinate the XM-5 operations in the WCS C and D Block spectrum.

PUBLIC INTEREST SHOWING

The International Bureau has explained that “the Commission will generally grant a licensee’s request to modify its system, provided there are no compelling countervailing public interest considerations.”¹¹ Grant of the requested XM-5 modification will advance the public interest by enabling XM Radio to deploy a potentially lifesaving service to spectrum-limited public safety entities using the WCS C and D Blocks. XM Radio has been in discussions with public safety agencies including the Federal Emergency Management Agency (“FEMA”) regarding this planned offering, which will make spectrum available to organizations to deliver critical communications during and after natural disasters and other emergencies.

This use of the WCS C and D Block spectrum will allow XM Radio and its affiliates to build on their long history of providing essential connectivity to support public safety operations. The SDARS network already delivers time-sensitive weather forecasts, news reports, and other potentially life-saving information. Sirius XM uses its platform to provide public services in emergencies and natural disasters, routinely making The Weather Channel available for free to all satellite radios during hurricanes, such as Hurricanes Florence, Harvey, Irma, and

¹⁰ Assignment Narrative at 9-10 & n.16.

¹¹ *AMSC Subsidiary Corp.*, Order and Authorization, DA 98-493, 13 FCC Rcd 12316 (IB 1998) at 12318, ¶ 8 (footnote omitted).

Maria. In response to the COVID-19 pandemic, Sirius XM created a 24/7 channel dedicated to providing the latest information on the coronavirus outbreak and made it available free to all Sirius XM radios, regardless of subscriber status, and through the Sirius XM and Pandora streaming platforms.

Sirius XM actively participates in the Emergency Alert System (“EAS”) administered by the Commission in conjunction with FEMA and the National Weather Service. 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 Primary Entry Point (“PEP”) stations,¹² working with FEMA to provide a backup mechanism for distributing EAS alerts to PEP stations and others, including state emergency operations centers. Under this arrangement, Sirius XM designed and provided more than one hundred EAS receivers to be installed at PEP stations and state emergency communications centers across the country.

The proposed license modification will permit XM Radio to supplement these existing operations by supplying capacity for communications in emergency situations that agencies can use for internal communications and for delivery of critical information to the public. Because SDARS is a satellite service available across North America, 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 service. As a result, authorizing XM-5 operations in the WCS C and D Block spectrum will help ensure that public safety and homeland security agencies have access to a reliable and nationwide network for urgent communications.

¹² 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.

CONCLUSION

For the foregoing reasons, XM Radio respectfully requests modification of the XM-5 license to add the WCS C and D Block bands.

Respectfully submitted,

XM Radio LLC

/s/ Patrick L. Donnelly

Patrick L. Donnelly

Secretary

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TECHNICAL NARRATIVE IN SUPPORT OF XM-5 MODIFICATION

A.1 GENERAL DESCRIPTION (Section 25.114(d)(1))

XM Radio LLC (XM Radio) and its affiliates Sirius XM Radio Inc. and Satellite CD Radio LLC currently operate a network of geostationary Satellite Digital Audio Radio Service (SDARS) satellites, including the XM-5 satellite, which is located at 85.15°W.L. and serves as an in-orbit spare. This network of satellites provides SDARS in the 2320-2345 MHz band (Space-to-Earth) and receives uplink transmissions in the 7025-7075 MHz band (Earth-to-Space).

XM Radio is seeking modification of the XM-5 license to add authority for the satellite to transmit digital communications service in the WCS C Block (2315-2320 MHz) and D Block (2345-2350 MHz) spectrum bands using operating parameters consistent with those authorized for the SDARS band. Sirius XM plans to make bandwidth from these spectrum blocks available to government public safety agencies to support national security, emergency response, disaster relief, and other essential communications. XM-5 will continue to be able to operate across the full range of frequencies used by the existing SDARS fleet, 7025-7075 MHz band (Earth-to-Space) but will extend the Space-to-Earth band from 2320-2345 MHz to 2315-2350 MHz.

XM Radio incorporates by reference the technical information it previously provided regarding XM-5¹ and provides here technical information relating to the proposed changes. XM Radio certifies pursuant to Section 25.117(c) of the Commission's rules that apart from the matters addressed in this application, the information on file with the Commission regarding XM-5 has not changed.

¹ The most recent technical data regarding XM-5 was submitted in File No. SAT-MOD-20101216-00264.

A.2 SCHEDULE S

Section 25.114(c)(4)(ii)

The SDARS communication payload beam XM2T has a maximum transmit EIRP density of 8.4 dBW/Hz, which exceeds the maximum of 0.0 dBW/Hz allowed by Schedule S. As a result, a value of -8.4 dBW/Hz has been entered in Schedule S. The XM2T maximum EIRP occurs when the satellite is operated with a 1.84 MHz transmission bandwidth.

Section 25.114(c)(4)(vi)(A)

The space station antenna gain contours for XM-5 are not changing as a result of the instant modification. For the Commission's convenience, XM Radio is attaching to the Schedule S copies of the original service beam contours in PDF format. Contours in GXT format are on file with the Commission as part of the original XM-5 application, File No. SAT-LOA-20090217-00025.

Section 25.114(c)(5)(i)

The online Schedule S automatically rounds the orbital location to a whole number, but the actual XM-5 orbital location is 85.15°W.L.

CERTIFICATION OF PERSON RESPONSIBLE FOR PREPARING
ENGINEERING INFORMATION

I hereby certify that I am the technically qualified person responsible for preparation of the engineering information contained in this application, that I am familiar with Part 25 of the Commission's rules, that I have either prepared or reviewed the engineering information submitted in this application, and that it is complete and accurate to the best of my knowledge and belief.

/s/ Bridget Neville

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