

EXHIBIT 1

DESCRIPTION OF PROPOSED EXPERIMENTAL OPERATIONS

Introduction. Pursuant to 47 C.F.R. § 5.54(a)(1), EchoStar Global Australia Pty Ltd (“EchoStar Global”), a wholly owned subsidiary of EchoStar Corporation, requests a two-year conventional experimental license to operate a gateway earth station in Germantown, MD, for feeder link communications with its Australian-licensed non-geostationary orbit (“NGSO”) mobile satellite service (“MSS”) system (“EG System” or “System”). Grant of this application will serve the public interest by facilitating testing and development of new MSS equipment and technology that ultimately will be deployed to support mobile communications, public safety, and other services worldwide.

Background. With its parent company’s extensive experience in the satellite industry, EchoStar Global is in the process of designing, constructing, and launching a new NGSO MSS system to provide narrowband data services, including machine-to-machine and Internet of things communications, throughout the globe. Pursuant to Australian authorization and International Telecommunication Union (“ITU”) filings for the SIRION-1 network,¹ the EG System is licensed to provide MSS on S-band frequencies at 2000-2020 MHz (uplink) and 2180-2200 MHz (downlink). The System will consist of a constellation of approximately 28 satellites in low Earth orbit, including EG-1, which was successfully launched in August 2020, and EG-3, scheduled for launch June 2021. Additionally, EchoStar Global has acquired ownership of Pathfinder II, launched in December 2018, for operations under the SIRION-1 ITU filings.

Purpose and Scope of Experimental Operations. The proposed gateway operations will allow EchoStar Global to test, develop, and demonstrate the technical operations of the EG System, together with associated user terminals (“UTs”).² Specifically, EchoStar Global seeks experimental operations of a gateway earth station in Germantown, MD, for feeder link communications with three satellites (*i.e.*, EG-1, EG-3, and Pathfinder II) in the System on the following frequencies:³

¹ See ITU, Space Network List Part B Query Results, https://www.itu.int/net/ITU-R/space/sn/bresult/radvance.asp??sel_type=C&sel_satname=SIRION-1 (last visited Apr. 5, 2021).

² EchoStar Global currently holds a six-month experimental special temporary authorization (“STA”) to operate the Germantown gateway earth station for feeder link communications with the first satellite in its System, as well as a pending application to modify the STA to add the EG-3 and Pathfinder II satellites as points of communication. See EchoStar Global, Experimental STA, File No. 0004-EX-ST-2021 (granted Mar. 16, 2021) (“EG Gateway STA”); EchoStar Global, Application for STA Modification, File No. 0471-EX-ST-2021 (Apr. 5, 2021) (“EG Gateway STA Modification Application”).

³ EchoStar Global also holds a two-year experimental license to test and develop prototype UTs for operations with the first satellite in its System, as well as a pending application to modify the EG Experimental UT License to add the EG-3 and Pathfinder II satellites as points of communication. See EchoStar Global, Experimental Radio Station Construction Permit and License, File No. 0539-EX-CN-

Frequencies (MHz)	Function
5150 – 5250	Feeder uplink
7025 – 7075	Feeder downlink (on unprotected interference basis)

The 5150-5250 MHz band is allocated domestically on a primary basis to commercial (*i.e.*, non-federal government) NGSO MSS feeder uplinks, and thus the proposed use of the spectrum for feeder uplink transmissions to the EG System is consistent with the Commission’s allocation rules.⁴ In the United States, the 5150-5250 MHz band (or a portion thereof) is shared on a co-primary basis with commercial aeronautical radionavigation service (“ARNS”) and radiodetermination-satellite service (“RDSS”) downlink operations,⁵ but a search of the Commission’s license databases shows no licensed ARNS or RDSS systems. The 5150-5250 MHz band also is shared on a co-primary basis with federal government ARNS operations,⁶ with which EchoStar Global has completed frequency coordination, as confirmed by the Federal Aviation Administration (“FAA”) under FAA Coordination No. NG T210101.

Additionally, the 7025-7075 MHz band is allocated domestically on a primary basis to commercial FSS downlinks.⁷ The FSS allocation, however, is limited to two grandfathered NGSO MSS systems and associated grandfathered earth stations in Brewster, WA, Clifton, TX, and Finca Pascual, PR, to preserve sufficient spectrum for TV broadcast auxiliary service and electronic newsgathering use.⁸ Nonetheless, the Commission has licensed a number of non-grandfathered gateway earth stations to receive NGSO MSS feeder downlinks in the 7025-7075 MHz band on an unprotected interference basis.⁹ Accordingly, consistent with Commission precedent, EchoStar Global seeks gateway authorization (including, to the extent required, a waiver of the Commission’s allocation rules) to receive feeder downlink transmissions in the 7025-7075 MHz band on an unprotected interference basis.

2020 (granted Feb. 9, 2021) (“EG Experimental UT License”); EchoStar Global, Application for License Modification, File No. 0061-EX-CM-2021 (filed Apr. 5, 2021).

⁴ See 47 C.F.R. § 2.106 n.5.447A (limiting the fixed-satellite service (“FSS”) uplink allocation of the 5150-5250 MHz band on a primary basis to NGSO MSS feeder uplinks).

⁵ See *id.* § 2.106 & n.US307.

⁶ See *id.* § 2.106 n.US344.

⁷ See *id.* § 2.106 n.5.458B.

⁸ See *id.* § 2.106 nn.5.458B & NG172; see also *GUSA Licensee, LLC*, Order and Authorization, 22 FCC Rcd 65, ¶¶ 8-9 (IB 2007); *GUSA Licensee, LLC*, Order and Authorization, 22 FCC Rcd 70, ¶¶ 8-9 (IB 2007).

⁹ See *GUSA Licensee LLC*, Applications for Modification, IBFS File Nos. SES-MFS-20101108-01411 *et al.* (granted June 6 & 7, 2011) (authorizing NGSO MSS feeder downlinks for gateway earth station in Sebring, FL on an unprotected basis under license condition No. 512); see also *Globalstar Licensee LLC*, Order, 26 FCC Rcd 3948, ¶ 3 nn.3 & 4 (IB 2011).

The proposed gateway earth station employs a full-tracking directional 2.4-meter antenna that will follow the trajectories of NGSO satellites above the horizon by pointing in the vertical plane at 10° to 90° and horizontal plane at 0° to 360°. The gateway antenna meets applicable antenna gain standards specified in Sections 25.209(a)(1) and (b)(1) of the Commission's rules.¹⁰ EchoStar Global certifies that, based on its review of the results of a series of radiation pattern tests performed by the antenna manufacturer, the test results demonstrate that the gateway equipment meets applicable off-axis gain standards specified in Section 25.209 of the Commission's rules.¹¹

The technical parameters of the proposed gateway operations are provided in the accompanying FCC Form 442, and are the same as those authorized under the EG Gateway STA and proposed under the EG Gateway STA Modification Application.¹² Pursuant to 47 C.F.R. § 5.64(a) of the Commission's rules, EchoStar Global hereby notifies the Commission that it has commenced construction of the proposed gateway earth station at its own risk. Additionally, pursuant to 47 C.F.R. § 5.64(b), orbital debris mitigation plans for the EG-1, EG-3, and Pathfinder II satellites are set forth in the EG Experimental UT License application and the EG Gateway STA Modification Application, and thus are incorporated by reference herein.¹³

No Harmful Interference. The proposed operations will not cause harmful interference to other authorized services. As discussed above, no commercial ARNS or RDSS systems are licensed in the 5150-5250 MHz band, and EchoStar Global has completed FAA frequency coordination with federal government ARNS systems in the band. Additionally, the proposed gateway downlink operations in the 7025-7075 MHz band will be on an unprotected interference basis.

Hours of Operation. The proposed gateway earth station may operate 24 hours per day, seven days per week. The following contact is available 24 hours per day, seven days per week, to address interference or other operational issues:

Name: Darren Hamilton
Phone: (303) 519-8168
Email: Darren.Hamilton@echostar.com

¹⁰ See 47 C.F.R. § 25.209(a)(1) & (b)(1).

¹¹ See *id.* § 25.132(a)(1).

¹² See EG Gateway STA at 1; EG Gateway STA Modification Application, STA Form at 1-2.

¹³ See EchoStar Global, Application for Experimental License, File No. 0539-EX-CN-2020, Appendix B (revised) (Aug. 14, 2020); EG Gateway STA Modification Application, Attachments A & B.