EXHIBIT 1

DESCRIPTION OF PROPOSED EXPERIMENTAL OPERATIONS

Introduction. Pursuant to Sections 5.54(a)(1) and 5.63(c) of the Commission's rules,[1] EchoStar Global Australia Pty Ltd ("EchoStar Global"), a wholly owned subsidiary of EchoStar Corporation ("EchoStar"), seeks a two-year conventional experimental license, commencing on September 15, 2024, to test and develop prototype ground stations, consisting of a gateway earth station in Germantown, MD, and user terminals ("UTs"), for feeder- and service-link communications with EchoStar Global's planned non-geostationary satellite orbit ("NGSO") system for the provision of S-band mobile satellite service ("MSS") (known as the "Lyra System"), pursuant to Australia's International Telecommunication Union ("ITU") filings for the SIRION-1 network. Grant of this application will serve the public interest by permitting testing and development of new satellite equipment and technology planned for commercial deployment to support internet-of-things, machine-to-machine, long range, non-terrestrial network third generation partnership project-based, and other data communications services. Expeditious Commission action will further serve the public interest by allowing commencement of testing in conjunction with a planned October launch of the first two Lyra satellites.

Purpose and Scope of Experimental Operations. The proposed experimental operations will allow testing and development of a gateway earth station for feeder-link communications, as well as a total of 61 fixed, temporary-fixed, and portable UTs for service-link communications, with the Lyra satellites. Pursuant to Australia's SIRION-1 ITU filings, the planned Lyra satellite constellation consists of 28 satellites in low-earth orbit, operating at 5150-5250 MHz (for feeder

[1] 47 C.F.R. §§ 5.54(a)(1), 5.63(c).

uplinks), 7025-7075 MHz (for feeder downlinks), 2000-2025 MHz (for service uplinks), and 2180-2200 MHz (for service downlinks). The Lyra satellites will be registered internationally as space objects under Australian authority,[2] with the first two satellites scheduled for launch in October 2024, followed by a scheduled launch of two additional satellites in June 2025. In addition, EchoStar Global has committed, in its application for Australian launch authority, to abide by the FCC's Part 25 orbital debris mitigation rules.

The technical parameters of the proposed gateway and UTs are detailed in the attached Appendix A and FCC Form 442.[3] EchoStar Global acknowledges that construction of the proposed Lyra System is at its own risk,[4] and orbital debris mitigation information is provided in Exhibit 2 (Orbital Debris Assessment Report).[5]

User Terminals: EchoStar Global proposes to test and demonstrate operations of the following under real-world conditions to simulate the end user's operating environment: (i) up to 20 mobile UTs within the contiguous United States; (ii) up to 40 temporary-fixed UTs within a five-kilometer area in Englewood, Colorado; and (iii) one fixed UT in Germantown, Maryland. The proposed UTs will operate at 2000-2025 MHz (uplink) and 2180-2200 MHz (downlink) on a non-interference basis with respect to other authorized services, including co-frequency MSS and

[2] Orbital debris mitigation information for the satellite constellation is set forth in Exhibit 2. *See* 47 C.F.R. §§ 5.64(b).

[3] These technical parameters are substantially similar to those under prior experimental authorizations for testing with different satellites. *See* EchoStar Global, Experimental License Grant, File No. 0295-EX-CN-2021 (July 9, 2021); EchoStar Global, Experimental License Grant, Call Sign WL2XFJ, File No. 0054-EX-CR-2023 (granted Feb. 10, 2023).

[4] *See* 47 C.F.R. § 5.64(a).

[5] *See* 47 C.F.R. § 5.64(b); *see also* Exhibit 2.

AWS-4 operations licensed to wholly owned subsidiaries of EchoStar.[6] Each temporary-fixed UT will employ four directional antennas pointing in the vertical plane at 45º and horizontal plane at 0º to 360º. The fixed UT will employ a full-tracking directional antenna that will follow the trajectories of the satellites above the horizon by pointing in the vertical plane at 10º to 90º and horizontal plane at 0º to 360º.

Gateway: EchoStar Global seeks to test and demonstrate operations of a gateway earth station in Germantown, MD, at 5150-5250 MHz (uplink) and 7025-7075 MHz (downlink) for feeder-link communications with the Lyra satellites. 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 feeder uplink use of the spectrum is consistent with the Commission's allocation rules.[7] 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") downlinks,[8] though the International Communications Filing System database shows no license for such systems. EchoStar Global has coordinated with the Federal Aviation Administration ("FAA")'s ARNS operations, which share use of the 5150-5250 MHz band on a co-primary basis.[9]

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[6] EchoStar's wholly owned subsidiaries hold authorizations for both S-band MSS and AWS-4 services. *See* DBSD Services Limited, ICFS File No. SAT-MOD-20070919-00129, Stamp Grant (Apr. 2, 2008); Gamma Acquisition L.L.C., ICFS File No. SAT-MOD-20090617-00070, Stamp Grant (June 30, 2009); *see also* DBSD Services Limited, Call Signs T070272001 through T070272176); Gamma Acquisitions L.L.C., Call Signs T060430001 through T060430176.

[7] *See id.* § 2.106 n.5.447A (limiting the fixed-satellite service uplink allocation of the 5150-5250 MHz band on a primary basis to NGSO MSS feeder uplinks).

[8] *See id.* § 2.106 & n.US307.

[9] *See id.* § 2.106 n.US344. Coordination was completed through the FAA's Web Frequency Coordination Request internet portal.

Additionally, the 7025-7075 MHz band is allocated domestically on a primary basis to commercial FSS downlinks.[10] 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 television broadcast auxiliary service and electronic newsgathering use.[11] 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.[12] Accordingly, consistent with Commission precedent, EchoStar Global seeks authorization (including, to the extent required, a waiver of the Commission's allocation rules)[13] to receive feeder downlink transmissions in the 7025-7075 MHz band on an unprotected interference basis.

The proposed gateway operations will operate on a non-interference basis in regard to other authorized services. Based on a review of the results of a series of radiation pattern tests performed by the antenna manufacturer, EchoStar Global certifies that the test results demonstrate compliance with applicable antenna gain limits specified in Section 25.209 of the

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[10] *See id.* § 2.106 n.5.458B.

[11] *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).

[12] *See* GUSA Licensee LLC, *Radio Station Authorization*, IBFS File No. SES-MFS-20101108-01412 *et al.* (June 6, 2011) (authorizing gateway earth station in Sebring, FL, to receive NGSO MSS feeder downlinks 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).

[13] EchoStar Global requests, to the extent required, a waiver of the U.S. table of allocations for good cause, which may be found when: (i) particular facts would make strict compliance inconsistent with the public interest; and (ii) grant of a waiver will not undermine the policy objectives of the rule. *See* 47 C.F.R. § 1.3; *WAIT Radio v. FCC*, 418 F.2d 1153 (D.C. Cir. 1969), *cert. denied*, 409 U.S. 1027 (1972); *Northeast Cellular Telephone Co. v. FCC*, 897 F.2d 1164 (D.C. Cir. 1990). Here, strict rule compliance would be contrary to the public interest by undercutting substantial consumer benefits resulting from use of the Lyra System. Additionally, grant of the requested waiver is consistent with Commission policy objectives and precedent, as noted above.

Commission's rules,[14] using 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 10º to 90º and horizontal plane at 0º to 360º. Further, as discussed above, there are no licensed commercial ARNS or RDSS systems in the 5150-5250 MHz band, and the proposed gateway operations has coordinated with authorized federal government ARNS operations 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 earth stations 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

[14] *See* 47 C.F.R. §§ 25.132(a)(1), 25.209(a)(1) and (b)(1).

Appendix A
Technical Parameters

	Gateway	UTs		
		Portable	Temporary-Fixed	Fixed
Antenna Model	2.4m Type 1 X/Y	1004981	80020711	2.4 m Type 1 X/Y
Antenna Manufacturer	Comtech Mission Critical Technologies	Ethertronics	Kathrein	Comtech Mission Critical Technologies
Number of Units	1	20	40	1
Station Class	FX	MO	FX	FX
Antenna Diameter (m)	2.4	N/A	N/A	2.4
Station Location				
City/County, State	Germantown/Montgomery, Maryland	CONUS and territorial waters	Englewood/ Arapahoe, Colorado	Germantown/Montgomery, Maryland
NAD-83 Coordinates	North 39° 10' 40.8" West 77° 14' 49.2"		North 39° 34' 34.873" West 104° 52' 2.726"	North 39° 10' 40.8" West 77° 14' 49.2"
Street Address	11717 Exploration Ln		100 Inverness Terrace E	11717 Exploration Ln
Radius of Operation (km)	N/A		5	N/A
Directional Antenna	Yes	No	Yes	Yes
Beamwidth (°) @ half-power point	1.7	110	60	4.4
Horizontal Orientation (°) (+/- from true North)	0 to 360	N/A	0 to 360	0 to 360
Vertical Orientation (°) (+/- from horizontal)	10 to 90	N/A	45	10 to 90
Height Above Ground/Building Exceeding 6 Meters	No	No	No	No

Operations/Frequency Use				
Tx Frequency (MHz)	5150.00-5250.00	2000-2020	2000-2020	2000-2020
Tx Polarization	LHCP/RHCP	LHCP/RHCP	Linear slant	RHCP/LHCP
Tx Max Bandwidth (MHz)	100	10	20	20
Tx Min Bandwidth (kHz)	100000	1	1	20000
Peak Output Power (W)	25.7	10	10	21.7
Peak EIRP (dBW)	54.67	14	19.5	45.4
Tx Gain (dBi)	40.57 (@ 5200 MHz)	4 (@ 2000-2020 MHz)	9.5 (@ 2000-2020 MHz)	32 (@ 2000-2020 MHz)
Rx Gain (dBi)	39.9 (@ 7000 MHz)	4 (@ 2180-2200 MHz)	9.5 (@ 2180-2200 MHz)	32 (@ 2180-2200 MHz)
Frequency Tolerance (%)	0.00025	0.00025	0.00025	0.00025
Modulation	QAM, QPSK, 8PSK, 16PSK, 32PSK, 64APSK	BPSK, FSK, MSK, QPSK, APSK	BPSK, FSK, MSK, QPSK, APSK	GMSK, FSK, BPSK, QPSK, CSSM
Emission Designator	156KG1D 180KG1D 2M50G1D 10M0G1D 45M0G1D	10M0G1D 1K00G1D	10M0G1D 1K00G1D	1K00G1D 180KG1D 10M0G1D