

## EXHIBIT 1

### DESCRIPTION OF PROPOSED OPERATIONS

Pursuant to 47 C.F.R. § 25.115, EchoStar Global Australia Pty Ltd (“EchoStar Global”) seeks authorization to operate a new gateway earth station in Germantown, MD, for feeder link communications with its Australian-licensed non-geostationary orbit (“NGSO”) mobile satellite service (“MSS”) system (the “EchoStar Global System” or “System”). The proposed gateway operations will be limited to feeder link communications that will support use of the EchoStar Global System to provide machine-to-machine (“M2M”), Internet of things (“IoT”), and other narrowband data communications worldwide.<sup>1</sup>

**Background.** Pursuant to Australian authority and Australia’s International Telecommunication Union (“ITU”) filings for the SIRION-1 network,<sup>2</sup> the EchoStar Global System will provide MSS on S-band frequencies at 2000-2020 MHz (uplink) and 2180-2200 MHz (downlink).<sup>3</sup> The System will consist of a constellation of 28 satellites in low Earth orbit. The first phase of deployment will consist of three satellites, the first two of which are scheduled for launch in the 3<sup>rd</sup> Quarter of 2020, followed by the third in early 2021.

**Public Interest Benefits.** Grant of this application will serve the public interest by facilitating deployment of new MSS offerings that will support mobile communications, public safety, and other services worldwide. The EchoStar Global System will enhance competition by providing new MSS capacity and expanding the options available internationally to consumers for

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<sup>1</sup> EchoStar Global is not seeking market access authorization to use its System to provide service to the United States, and thus Section 25.137’s requirements are inapplicable. See 47 C.F.R. § 25.137.

<sup>2</sup> See ITU, Space Network List Part B Query Results, [https://www.itu.int/net/ITU-R/space/snl/bresult/radvance.asp??sel\\_type=C&sel\\_satname=SIRION-1](https://www.itu.int/net/ITU-R/space/snl/bresult/radvance.asp??sel_type=C&sel_satname=SIRION-1) (last visited Aug. 18, 2020).

<sup>3</sup> An orbital debris mitigation plan for the EchoStar Global System is set forth in Attachment A. See 47 C.F.R. §§ 25.137(b), 25.114(d)(14).

M2M, IoT, and other innovative applications. Additionally, EchoStar Global is a wholly owned, indirect subsidiary of EchoStar Corporation (collectively, “EchoStar”), a U.S. company with extensive experience in the satellite industry. Consequently, the proposed gateway operations in the United States will allow EchoStar to continue expanding its U.S. satellite operations globally, resulting in increased U.S. high-technology jobs.

***Proposed Gateway Operations.*** The proposed gateway earth station will be located in Germantown, MD, at WGS84 coordinates of 39° 10 ' 40.828 "N, 77° 14 ' 49.208 "W, and will operate on the following frequencies for feeder link communications with the EchoStar Global System:

<b>Frequencies (MHz)</b>	<b>Function</b>
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 EchoStar Global System is consistent with the Commission’s allocation rules.<sup>4</sup> In the United States, the 5150-5250 MHz band also is shared on a co-primary basis with federal government aeronautical radionavigation service (“ARNS”) operations,<sup>5</sup> and thus the proposed spectrum use is subject to Commission coordination with the National Telecommunications and Information Administration.<sup>6</sup> Additionally, the 5150-5250 MHz band (or a portion thereof) is shared on a co-primary basis with commercial ARNS and

<sup>4</sup> See *id.* § 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).

<sup>5</sup> See *id.* § 2.106.

<sup>6</sup> See *id.* § 2.106 n.US344.

radiodetermination-satellite service (“RDSS”) downlink operations,<sup>7</sup> but a search of the Commission’s license databases shows no licensed ARNS or RDSS systems.

Furthermore, the 7025-7075 MHz band is allocated domestically on a primary basis to commercial FSS downlinks.<sup>8</sup> 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.<sup>9</sup> 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.<sup>10</sup> 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 from the EchoStar Global System on an unprotected interference basis.

The gateway will employ a directional 2.4-meter antenna that meets applicable antenna gain standards specified in 47 C.F.R. § 25.209(a)(1) and (b)(1). EchoStar Global certifies that the results of a series of radiation pattern tests performed by the antenna manufacturer have been reviewed, and the test results demonstrate that the gateway equipment meets applicable off-axis gain standards specified in 47 C.F.R. § 25.209(b)(1).<sup>11</sup> Additional technical parameters are

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<sup>7</sup> See *id.* § 2.106 & n.US307.

<sup>8</sup> See *id.* § 2.106.

<sup>9</sup> 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).

<sup>10</sup> See *GUSA Licensee LLC*, Applications for Modification, IBFS File Nos. SES-MFS-20101108-01412 *et al.* (granted June 6, 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).

<sup>11</sup> See 47 C.F.R. § 25.132(a)(1).

provided in the accompanying FCC Form 312, Schedule B.

***Federal Aviation Administration (“FAA”) Notification.*** As shown in Attachment B, no notification to the FAA is required for the proposed antenna structure,<sup>12</sup> based upon results using the Commission’s TOWAIR application.

***Radiation Hazard Analysis.*** For the proposed 2.4-meter gateway antenna, radiation hazard analysis was conducted using the predictive methodology identified in OET Bulletin 65, and the results are provided in Attachment C. As shown in Attachment C, the average exposure levels in the near field, far field, transition field, near reflector surface, and between reflector and ground are all below the applicable maximum permissible exposure (“MPE”) limit for occupational/controlled exposure. As is typical for parabolic antennas, the occupational/controlled MPE limit is exceeded only between the feed horn and subreflector. However, since the 2.4-meter antenna will be mounted on a pedestal, the volume of space between the feed horn and subreflector where the limit is exceeded will be above the head of anyone standing in front of the antenna. To ensure protection of the general public, the antenna will be located on private commercial property with limited access. Technicians responsible for operating the antenna are trained to shut down and secure the transmitter before performing any maintenance work.

***Conclusion.*** As demonstrated herein, the proposed gateway operations will provide substantial public interest benefits without causing any harmful interference.

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<sup>12</sup> See *id.* § 17.7.