EXHIBIT 1

DESCRIPTION OF PROPOSED MODIFICATION
(Response to Question 43, FCC Form 312)

Pursuant to 47 C.F.R. § 25.117, HNS License Sub, LLC ("Hughes") seeks authorization to modify five gateway earth stations licensed to operate in Cheyenne, WY, Bismarck, ND Lindon, UT, Simi Valley, CA, and Quincy, WA (Call Signs E170164, E170169, E170165, E170163, and E170153, respectively) for communications with EchoStar XXIV (also known as "Jupiter 3"), a Ka- and Q/V-band geostationary orbit satellite licensed to provide fixed-satellite service. Specifically, Hughes seeks authorization for the following modifications: (i) antenna site changes to new location coordinates for all five gateway earth stations; (ii) minor antenna height increases of approximately 0.1 to 1.8 m. for all five gateway earth stations; (iii) reduced power and equivalent isotropically radiated power density levels for all five gateway earth stations; (iv) a minor antenna size increase from 9.2 to 10 m. (in diameter) for two gateway earth stations (in Lindon and Simi Valley); and (v) a minor antenna size reduction from 10 to 9.2 m. (in diameter) for one gateway earth station (in Quincy). The proposed modified technical parameters are further specified in the accompanying Schedule B for each licensed gateway, with all other authorized parameters remaining the same.

Commission Policy and Public Interest Benefits. The proposed modifications are required to accommodate changes in the EchoStar XXIV satellite network design and ensure optimal gateway operations. Commission approval of such technical changes is consistent with the Commission's established policy of leaving satellite design decisions to system operators in

order to promote competition, flexibility, and technical innovation.[1] Accordingly, the Commission consistently has approved satellite system modifications "when a proposed modification presents no significant interference problem and conforms to the Commission's rules and policies."[2]

The proposed modifications will serve the public interest by ensuring optimal operations of gateway facilities that are integral components of the overall EchoStar XXIV satellite network, thus enabling Hughes to better serve more than 1.5 million broadband customers in North, Central, and South America. EchoStar XXIV, by virtue of its capacity and speed capabilities, will join other satellites in Hughes fleet to offer a true competitive broadband alternative across the country. The satellite will provide additional capacity, allowing Hughes to provide advanced broadband services with download speeds of 100 Mbps or higher to enterprises, the government, small businesses, and residential customers across the United States and the Americas. EchoStar XXIV also will support a variety of applications, including broadband access, aeronautical services for in-flight connectivity, residential and business VOIP, and next generation communications services, including 5G.

Furthermore, ensuring successful launch and operations of the EchoStar XXIV satellite network will bolster Hughes' disaster relief efforts and capabilities. In many cases, satellite is the only reliable communications system following a natural disaster.[3] Indeed, Hughes has

[1] *See New ICO Services G.P.*, Memorandum Opinion and Order, 21 FCC Rcd 14603, ¶ 5 (IB 2006).

[2] *Id.*

[3] *See* Comments of Liga de Cooperativas de Puerto Rico, WC Dkt. No. 18-143 et al. at 1 (Jul. 2, 2018); *see also* The Uniendo a Puerto Rico Fund and the Connect USVI Fund, Report and Order and Order on Reconsideration, 34 FCC Rcd 9109, ¶ 46 (2019) ("We agree with numerous commenters that allowing inclusion of satellite providers is particularly valuable in the context of Puerto Rico and the U.S. Virgin Islands due to satellite's resilience and availability post-hurricanes.")

provided crucial broadband services in the wake of numerous disasters, including Hurricane Michael in 2018 and Hurricane Dorian in 2019.[4]

Moreover, Hughes's ubiquitous service coverage and capacity remain key to meeting unprecedented consumer broadband demand resulting from the novel COVID-19 pandemic. Notably, during the ongoing pandemic, Hughes has provided invaluable broadband connectivity to rural, remote, and underserved areas, allowing customers to work remotely, participate in distance learning, and connect to advanced and specialized applications.[5] Hughes also has deployed Internet access within a matter of days to a military base in North Carolina where troops were quarantined after returning from deployment.[6] Additionally, Hughes is providing broadband service to students living with community members in rural New Mexico and connectivity through a community student hub in rural Oklahoma, all to enable those in the hardest-to-reach areas to continue their education without interruption.[7] Consequently, as the COVID-19 pandemic continues to impact broadband usage and demand for years to come, the proposed gateway modifications will serve the public interest by facilitating deployment of additional, advanced broadband services to consumers throughout the United States and the Americas, including remote and underserved areas

[4] *See, e.g.*, Hughes, Special Temporary Authorizations to Extend Service to the Bahamas for Emergency Operations, File Nos. SAT-STA-20190925-00101 & SAT-STA-20190906-00088 (Nov. 14 & Sept. 13, 2019).

[5] *See* Hughes, *Connecting Remote and Rural Businesses*, https://www.hughes.com/collateral-library/connecting-remote-and-rural-businesses (last visited Dec. 4, 2020); Hughes, *How Satellite Internet Helps Farmers Get Food from Farm to Table*, Blog, https://www.hughesnet.com/media/how-satellite-internet-helps-farmers-get-food-farm-table (last visited Dec. 4, 2020).

[6] *See* Hughes, *How Satellite is Helping the Fight Against COVID-19*, Blog (Apr. 15, 2020), https://www.hughes.com/resources/blog/how-satellite-helping-fight-against-covid-19.

[7] *See id.*

Coordination and Compatibility with Terrestrial Operations. As demonstrated in the attached Comsearch Reports (Attachment A), frequency coordination has been successfully completed for the proposed modifications of gateway operations in the 27.5-28.35 GHz ("28 GHz") and 47.2-48.2 GHz ("47 GHz") bands. Specifically, prior notification letters were sent to incumbent terrestrial licensees, and all proposed sites have cleared the coordination process with no objections or concerns raised.

Furthermore, as demonstrated in the attached UMFUS Compatibility Showing (Attachment B) and except as otherwise noted therein, the proposed gateway operations comply with Section 25.136's requirements for compatibility with Upper Microwave Flexible Use Service ("UMFUS") operations in the 28 GHz and 47 GHz bands..[8] As further discussed in the attached UMFUS Compatibility Showing, to the extent that the proposed 28 GHz and 47 GHz gateway operations in Bismarck and Lindon are inconsistent with Section 25.136's UMFUS compatibility requirements with respect to any power flux density ("PFD") contour overlap of a major roadway, such operations may be authorized subject to a condition requiring Hughes "to take immediate corrective action upon receipt of any complaint of actual interference occurring in the portions of roads that lie inside the corresponding pfd contour."[9] .

Additionally, gateway operations in the 50.4-51.4 GHz ("50 GHz") band are grandfathered under Section 25.136(e)(3) of the Commission's rules,[10] and thus may operate

[8] 47 C.F.R. § 25.136(a) & (d).

[9] *See, e.g.*, Hughes, Radio Station Authorization, Call Sign E170163, File No. SES-LIC-20170807-00888 (May 15, 2020) (adopting No. 900583 under Section H (Special and General Provisions) for Simi Valley gateway).

[10] 47 C.F.R. § 25.136(e).

without providing additional interference protection to UMFUS operations in the band.[11] As demonstrated in the attached UMFUS Compatibility Showing, the PFD contours for the proposed 50 GHz gateway operations are substantially similar to the PFD contours for the currently authorized 50 GHz gateway operations with respect to contour coverage of populations and major roadways and venues. Thus, the proposed 50 GHz gateway operations create no significant increase in interference risk to UMFUS operations in the band, and therefore should be authorized with their existing grandfathered status under Section 25.136(e)(3). Moreover, consistent with the established grandfathered qualifications of all of its licensed 50 GHz gateway operations, Hughes requests an administrative correction of the Bismarck and Simi Valley gateway licenses to add the same provisions found in other gateway licenses (*e.g.*, Cheyenne, Lindon, and Quincy) authorizing grandfathered 50 GHz operations pursuant to Section 25.136(e)(3).[12]

Federal Aviation Administration ("FAA") Notification. No FAA notification is required for the proposed gateway operations, except possibly in Bismarck. On November 18, 2020, Hughes filed a request (on FAA Form 7460-1) to study the effects of the proposed Bismarck gateway operations on air navigation facilities and communications. Hughes will update the Commission upon receipt of the results of the requested FAA study, which typically is completed within 45 days.

Radiation Hazard Analyses. Radiation hazard analyses were conducted using the predictive methodology identified in OET Bulletin 65, and calculations are provided in

[11] *See, e.g.*, Hughes, Radio Station Authorizations, Call Signs E170164, E170165 & E170153, File Nos. SES-LIC-20170807-00889, SES-LIC-20170807-00890 & SES-LIC-20170807-00878 (Mar. 5, 2020) (adopting No. 55250 under Section H (Special and General Provisions) for Cheyenne, Lindon, and Quincy gateways).

[12] *See id.*

Attachment C (Radiation Hazard Calculations). As shown in Attachment C, the average exposure levels in the near field, far field, transition field, near reflector surface, and between the reflector and ground are all below the applicable maximum permissible exposure ("MPE") limit for occupational/controlled exposure. As is typical for parabolic antennas, the average exposure level exceeds the occupational/controlled MPE limit only between the feed horn and subreflector. However, since these large antennas will be mounted on a pedestal, the volume of space between the feed horn and subreflector will be above the head of anyone standing in front of the antenna. To ensure protection of the general public, the antennas will be located on private commercial property with limited access. Technicians responsible for operating these antennas are trained to shut down and secure the transmitter before performing any maintenance work.