

EXHIBIT 1

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

Pursuant to 47 C.F.R. § 25.117, HNS License Sub, LLC (together with its affiliates, “Hughes”) seeks authorization to modify its license to operate a gateway earth station in Rifle, CO (Call Sign E170166) (the “Rifle License”) for communications with EchoStar XXIV (also known as “Jupiter 3”), a Ka- and Q/V-band geostationary orbit satellite authorized to provide fixed satellite services. Specifically, Hughes requests the following minor modifications: (i) an antenna site change to a new location within Rifle; (ii) an antenna size increase from 9.2 to 10 m. (in diameter); and (iii) an antenna height increase of approximately 2.2 m. The proposed modifications are further specified in the accompanying Schedule B, with all other authorized parameters remaining the same.

Commission Policy and Public Interest Benefits. Commission approval of the proposed modifications will permit deployment of key components of the overall EchoStar XXIV satellite network, thus enabling Hughes to offer unique and compelling public interest benefits, including new and additional advanced broadband services to more than 1.5 million customers in North, Central, and South America. EchoStar XXIV, along with its capacity and transmission speed capabilities, will join the Hughes fleet of satellites to offer a truly competitive broadband alternative across the country. The satellite will provide additional capacity and help solve the digital divide by offering advanced broadband services with download speeds of 100 Mbps or higher to enterprises, government agencies, small businesses, and residential consumers 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, 5G, and other next-generation communications services.

Additionally, 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.¹ Indeed, Hughes has provided crucial broadband services in the wake of numerous disasters, including Hurricane Michael in 2018 and Hurricane Dorian in 2019.² Moreover, Hughes's ubiquitous service coverage and satellite capacity remain key to meeting unprecedented consumer broadband demand resulting from the coronavirus pandemic.

Grant of the proposed modifications is also consistent with the Commission's established policy of leaving satellite design decisions to system operators in order to promote competition, flexibility, and technical innovation.³ 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."⁴

Coordination and Compatibility with Terrestrial Operations. As demonstrated in Attachment A (Comsearch Reports), frequency coordination has been successfully completed for the proposed 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, with no objections received.

¹ See Comments of Liga de Cooperativas de Puerto Rico, WC Dkt. No. 18-143 et al. at 1-2 (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.")

² See, e.g., EchoStar Satellite Services, LLC, Special Temporary Authorizations to Extend Service to the Bahamas for Emergency Operations, File Nos. SAT-STA-20190925-00101 & SAT-STA-20190906-00088 (Sept. 6 & Nov. 14, 2019).

³ See *New ICO Services G.P.*, Memorandum Opinion and Order, 21 FCC Rcd 14603, ¶ 5 (IB 2006).

⁴ *Id.*

Furthermore, as demonstrated in Attachment B (UMFUS Compatibility Showing) and except as otherwise noted therein, the proposed 28 GHz and 47 GHz operations comply with Section 25.136's requirements for compatibility with terrestrial Upper Microwave Flexible Use Services ("UMFUS").⁵ To the extent that the power flux density ("PFD") contour at 47 GHz overlaps a major road specified in Section 25.136, such overlap is limited to merely 20 meters of roadway and thus *de minimis*, as shown in Attachment B. In any event, the proposed 47 GHz operations nonetheless may be authorized pursuant to an existing license 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."⁶

Additionally, gateway operations in the 50.4-51.4 GHz ("50 GHz") band at the licensed Rifle site are grandfathered under Section 25.136(e)(3) of the Commission's rules, and should remain grandfathered at the new Rifle site.⁷ As demonstrated in Attachment B, PFD contours at both new and licensed sites are substantially similar, thus showing no significant increase in interference risk to any future UMFUS operations. Accordingly, Hughes requests an administrative correction of the Rifle License to add the same provisions found in other EchoStar XXIV gateway licenses authorizing grandfathered 50 GHz operations.⁸ In any event, as further shown in Attachment B, the proposed operations at the new site are nonetheless consistent with

⁵ 47 C.F.R. § 25.136(a) & (d).

⁶ Hughes, Radio Station Authorization, Call Sign E170166, File No. SES-LIC-20170807-00891, Section H (Special and General Provisions) (May 15, 2020) (adopting Special/General Provision No. 900583 as a condition of the Rifle License).

⁷ See *id.* (finding under Special/General Provision No. 900581 that licensed Rifle gateway operations in the 50 GHz band "comply with the rules recently adopted in FCC 19-30"); see also 47 C.F.R. § 25.136(e)(3).

⁸ See Hughes, Radio Station Authorizations, Call Signs E170164, E170165 & E170153, File Nos. SES-LIC-20170807-00889, SES-LIC-20170807-00890 & SES-LIC-20170807-00878, Section H (Special and General Provisions) (Mar. 5, 2020) (adopting Special/General Provision No. 55250 as license condition for EchoStar XXIV gateways in Cheyenne, Lindon, and Quincy).

Section 25.136(e)(4)'s alternative requirements to ensure compatibility with any future UMFUS operations.

Federal Aviation Administration (“FAA”) Notification. No FAA notification is required for gateway operations at the new Rifle site.

Radiation Hazard Analysis. Hughes verifies that a radiation hazard analysis was conducted using the predictive methodology identified in OET Bulletin 65 to ensure compliance with the Commission's revised radiofrequency (“RF”) exposure rules.⁹ As shown in Attachment C (Radiation Hazard Calculations), RF exposure levels are below the applicable maximum permissible exposure (“MPE”) limit for occupational/controlled exposure in all areas (*i.e.*, near field, far field, transition field, near reflector surface, and between reflector and ground), except between the feed horn and subreflector. To ensure protection of the general public, the antenna is installed on private commercial property with restricted access. The antenna is further mounted on a pedestal, thus ensuring that the area between the feed horn and subreflector is well above the head of anyone standing in front of the antenna. As an additional safety precaution, access is restricted to technical personnel who are trained to shut down and secure the transmitter prior to performing any maintenance or other services on or in front of the antenna.

Conclusion. Based on the foregoing, Commission grant of the proposed minor modifications will serve the public interest without creating any significant increase in interference risk.

⁹ See *Proposed Changes in the Commission's Rules Regarding Human Exposure to Radiofrequency Electromagnetic Fields*, Resolution of Notice of Inquiry, Second Report and Order, Notice of Proposed Rulemaking, and Memorandum Opinion and Order, 34 FCC Rcd 11687 (2019); see also *Office of Engineering and Technology Announces May 3, 2021 as the Effective Date for RF Exposure Rule Changes and Beginning of the Two-year Review Period for Existing Parties*, Public Notice, 36 FCC Rcd 6504 (OET 2021).