

## EXHIBIT 1

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

Pursuant to 47 U.S.C. § 25.117, Hughes Network Systems, LLC (“Hughes”) hereby submits this application (“Application”) requesting modification of its authorization (“Authorization”) to launch and operate EchoStar XXIV (also known as “HNS 95W” or “Jupiter 3”) (Call Sign S3017), a Ka- and Q/V-band geostationary orbit (“GSO”) Fixed-Satellite Service (“FSS”) satellite, at the 95.2° W.L. orbital location.<sup>1</sup> Specifically, Hughes seeks modification to: 1) add spectrum at 28.6-29.1 GHz (Earth-to-space) for FSS feeder uplinks; 2) add spectrum at 18.8-19.3 GHz (space-to-Earth) for FSS downlinks to user terminals in the United States; and 3) to provide an updated description of the orbital debris mitigation plan (collectively, the “Proposed Modification”).

The Proposed Modification serves the public interest by increasing the efficiency and effectiveness of EchoStar XXIV to deliver cost-efficient, competitive broadband services to U.S. consumers, wherever they live.<sup>2</sup> EchoStar XXIV will replace Spaceway 3, a Ka-band satellite currently providing broadband services to the United States at the nominal 95° W.L. orbital location,<sup>3</sup> and will augment and enhance the remaining Hughes satellite broadband constellation, consisting of EchoStar XVII (or “Jupiter 1”)<sup>4</sup> and

---

<sup>1</sup> See Hughes Network Systems, LLC, Stamp Grant, IBFS File No. SAT-LOA-20170621-00092 (Mar. 20, 2018) (“EchoStar XXIV Authorization”); see also Hughes Network Systems, LLC, Stamp Grant, IBFS File No. SAT-AMD-20170908-00128 (Mar. 20, 2018) (“EchoStar XXIV Amended Authorization”).

<sup>2</sup> As Chairman Pai has stated in numerous public remarks, his “number one priority [is] closing the digital divide and bringing the benefits of the Internet age to all Americans.” See e.g. Ajit Pai, Chairman, FCC, Remarks at the Farm Foundation/U.S.D.A Summit, Washington, D.C. (Apr. 18, 2018).

<sup>3</sup> Hughes expects to relocate the Spaceway 3 satellite to another orbital location upon successful deployment of EchoStar XXIV. See Hughes Network Systems, LLC, Stamp Grant, IBFS File No. SAT-AMD-20060306-00025 (granted June 29, 2006).

<sup>4</sup> See Hughes, Stamp Grant, IBFS File No. SAT-LOA-20120424-00075 (granted June 12, 2012)

EchoStar XIX (or “Jupiter 2”),<sup>5</sup> to provide increased speed and capacity for U.S. satellite broadband consumers.<sup>6</sup>

## **I. DESCRIPTION OF THE PROPOSED MODIFICATION**

Hughes seeks access to additional Ka-band spectrum at 28.6-29.1 GHz (Earth-to-space) for FSS feeder uplinks (i.e., transmissions from gateway earth stations to EchoStar XXIV) in order to provide additional capacity to support broadband services to consumers. Hughes further seeks access to additional Ka-band spectrum at 18.8-19.3 GHz (space-to-Earth) for FSS service downlinks to user terminals in the United States in order to provide additional capacity for broadband services to U.S. consumers. Accordingly, Hughes requests modification of its Authorization to permit operations on these additional Ka-band frequencies, and remove terms limiting use of the 18.8-19.3 GHz band to permit Hughes to operate on a secondary, non-interference basis in the United States.

Consistent with the Commission’s allocation rules, the proposed EchoStar XXIV operations at 18.8-19.3 GHz (space-to-Earth) and 28.6-29.1 GHz (Earth-to-space) will be on a secondary (*i.e.*, unprotected, non-harmful interference) basis with respect to authorized non-geostationary orbit (“NGSO”) FSS systems.<sup>7</sup> As further discussed in the attached Technical Annex (Attachment A), Hughes will implement coordination mechanisms to avoid causing harmful interference to authorized NGSO FSS operations on

---

(EchoStar XVII grant).

<sup>5</sup> See Hughes, Stamp Grant, IBFS File No. SAT-PPL-20160421-00037 (granted June 9, 2016) (EchoStar XIX grant).

<sup>6</sup> See Press Release, Hughes, *Hughes Selects Space Systems Loral to Build Next-Generation Ultra High Density Satellite* (Aug. 9, 2017), <https://www.echostar.com/en/Press/Newsandmedia/Hughes%20Selects%20Space%20Systems%20Loral%20To%20Build%20Next-Generation%20Ultra%20High%20Density%20Satellite.aspx>.

<sup>7</sup> See 47 C.F.R. § 2.106 n.NG165; see also *Update to Parts 2 and 25 Concerning Non-Geostationary, Fixed-Satellite Service Systems and Related Matters*, Report and Order and Further Notice of Proposed Rulemaking, 32 FCC Rcd 7809, ¶ 14 (2017).

these Ka-band frequencies.

The proposed EchoStar XXIV operations on additional Ka-band frequencies at 18.8-19.3 GHz and 28.6-29.1 GHz are reflected in the attached Schedule S and are further discussed in the attached Technical Annex (Attachment A).<sup>8</sup> The attached Schedule S replaces all prior Schedule S filings in support of the EchoStar XXIV application.

Additionally, pursuant to Condition No. 18 of the Authorization, Hughes has updated its orbital debris mitigation plan to ensure compliance with 47 C.F.R. § 25.114(d)(14).<sup>9</sup> A description of the revised orbital debris mitigation plan is provided in Section A.22 of the attached Technical Annex (Attachment A), which replaces prior orbital debris mitigation information filed in support of the Authorization.

Except as otherwise noted above, information provided in this Application supplements, and does not replace, prior filings in support of the Authorization. Pursuant to 47 C.F.R. § 25.117(c), Hughes certifies that all information provided in prior filings in support of the Authorization remains materially unchanged, except with respect to the Proposed Modification.

## **II. THE PROPOSED MODIFICATION IS CONSISTENT WITH COMMISSION RULES AND POLICIES, AND SERVES THE PUBLIC INTEREST**

As noted in Section I above, the Proposed Modification is consistent with the Commission's allocation rules and adopted Ka-band plan (with respect to proposed operations in additional Ka-band spectrum on a secondary basis), and also consistent with

---

<sup>8</sup> The Schedule S includes the 40-42 GHz band for use by both satellite gateway and user terminal downlinks. *See* Letter from Fernando Carrillo, Senior Principal Engineer, Hughes to Marlene H. Dortch, Secretary, FCC, IBFS File Nos. SAT-LOA-20170621-00092 & SAT-AMD-20170908-00128 (filed Apr. 27, 2018).

<sup>9</sup> *See* EchoStar XXIV Authorization, at Condition No. 18; *see also* EchoStar XXIV Amended Authorization, at Condition No. 18.

the Commission's orbital debris mitigation requirements under 47 C.F.R. § 25.114(d)(14) (with respect to providing updated debris mitigation plan information).

Moreover, Commission approval of the proposed changes in the EchoStar XXIV satellite design and technical operations is consistent with the Commission's established policy of leaving satellite design decisions to system operators in order "[t]o promote competition, flexibility, and technical innovation."<sup>10</sup> 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."<sup>11</sup>

Additionally, the Proposed Modification serves the public interest by providing additional spectrum and capacity for new broadband services to consumers in the United States and abroad. The additional available spectrum and capacity, in turn, supports increased efficiencies in providing cost-effective and resilient broadband services to U.S. and global consumers. The resulting increase in efficiencies will help ensure the successful deployment of the EchoStar XXIV satellite system, which is crucial for Hughes' to continue to serve the ever-growing demand for broadband services in the United States and abroad. Moreover, as demonstrated in the attached Technical Annex (Attachment A), the Proposed Modification will generate increased efficiencies without causing harmful interference to authorized NGSO FSS operations.

---

<sup>10</sup> See *New ICO Services G.P.*, Memorandum Opinion and Order, 21 FCC Rcd 14603, ¶ 5 (IB 2006).

<sup>11</sup> See *id.*; see also *The Boeing Co.*, Order and Authorization, 18 FCC Rcd 12317, ¶ 7 (IB 2003). ("In recognition of the length of time it takes to construct a satellite system, the rapid pace of technological change, and the goal of promoting more efficient use of the radio spectrum, the [Commission] has granted such requests in cases where the proposed modification presents no significant interference problem and is otherwise consistent with Commission policies.").

### **III. CONCLUSION**

Based on the foregoing, the Proposed Modification of the EchoStar XXIV Authorization is consistent with Commission rules and policies, and serves the public interest by creating increased efficiencies without causing harmful interference to authorized NGSO FSS systems. Accordingly, the Commission should promptly approve the Proposed Modification.

### Technical Certification

I, Fernando Carrillo, hereby certify, under penalty of perjury, that I am the technically qualified person responsible for the engineering information contained in the foregoing application and the related exhibits, that I am familiar with Part 25 of the Commission's rules, and that the engineering information is complete and accurate to the best of my knowledge and belief.

/s/ Fernando Carrillo  
Fernando Carrillo  
Senior Principal Engineer, Regulatory Affairs

Dated: February 12, 2019