

EXHIBIT 1

DESCRIPTION OF PROPOSED MODIFICATION (Response to Question 43)

Pursuant to Sections 25.117 and 25.121(b) of the Commission's rules,¹ Hughes Network Systems, LLC (with its affiliates, "Hughes") requests a modification to extend the term of its license to operate the Spaceway 3 satellite (Call Sign S2663) for an additional nine-month period through January 2, 2024.² Hughes further seeks a waiver of Section 25.283(c) of the Commission's rules to permit a minimal amount of helium pressurant, which cannot be vented due to satellite design, to remain on board at the satellite's end-of-life. Grant of the proposed modification and waiver request will serve the public interest and is consistent with the Commission's rules or otherwise warranted under the circumstances.

Requested Extension of License Term. Specifically, the proposed license extension will allow continued operations of the satellite through January 2, 2024, consistent with (and well within) an updated estimate of the satellite's fuel consumption and end-of-life period.³ In support of its request, Hughes certifies that: (i) all spacecraft subsystems, including telemetry, tracking, and command ("TT&C"), are operating normally; and (ii) the spacecraft has no single point of failure affecting its ability to perform planned post-mission disposal procedures.

Hughes anticipates commencing end-of-life disposal maneuvers, including moving the satellite from 94.95° W.L. to 56.75° W.L. and ultimately to a disposal orbit at least 300 km (perigee) above the geostationary orbit ("GSO") arc, prior to or approximately in July 2023,

¹ See 47 C.F.R. §§ 25.117, 25.121(b).

² See *Hughes*, Stamp Grant, IBFS File No. SAT-MOD-20071011-00139 (Apr. 18, 2008). Except as otherwise provided herein, the remaining information under the license has not materially changed. See 47 C.F.R. § 25.117(c).

³ See *Hughes*, Notice of Inclined Orbit Operations, IBFS File No. SAT-MOD-20071011-00139 (Call Sign S2663) (filed Apr. 25, 2022) (noting commencement of Spaceway 3's inclined orbit operations and updating expected satellite lifetime to end approximately on January 1, 2025).

consistent with Section 25.283(a) and (b) of the Commission's rules.⁴ During and after the satellite's drift to 56.75° W.L., Hughes will conduct only authorized TT&C operations at 20.198 GHz (downlink) and 29.5-29.53 GHz (uplink with a command carrier at 29.506 GHz),⁵ and will coordinate with any potentially affected satellite networks, consistent with Section 25.283(b) of the Commission rules.⁶

Additionally, TT&C operations of the satellite at 56.75° W.L. will be within a station-keeping volume of +/- 0.1° W.L., as necessary to minimize the demands of station-keeping and other operations to vent the remaining fuel onboard the spacecraft. Spaceway 3's planned TT&C operations at the currently unoccupied 56.75° W.L. orbital location will not overlap the station-keeping volumes of the nearest space stations (*i.e.*, Intelsat 21 at 58° W.L. and Intelsat 34 at 55.5° W.L.), and will cause no harmful interference as there are no Ka-band satellites operating nearby.⁷

Requested Waiver of Section 25.283(c). Following Spaceway 3's planned relocation to 56.75° W.L., Hughes will commence maneuvers to vent the remaining liquid propellant and move the satellite to a final disposal orbit above the GSO arc, consistent with Section 25.283(a).⁸

⁴ See 47 C.F.R. § 25.283(a)-(b); *see also* Hughes, Application for Authority, IBFS File No. SAT-LOA-20050214-00038, Technical Annex at A20.4 (Feb. 14, 2005).

⁵ See Hughes, *Stamp Grants*, IBFS File Nos. SAT-MOD-20060901-00093 & SAT-LOA-20050214-00038 (Sept. 28, 2006 & Apr. 19, 2005).

⁶ See 47 C.F.R. § 25.283(b).

⁷ See Intelsat, Grant Stamp, IBFS File No. SAT-LOA-20140114-0005 (authorizing Intelsat 34 to operate at 55.5 W.L. with a station-keeping volume of +/- 0.05 degrees W.L.); *see* Intelsat, Grant Stamp, IBFS File No. SA-RPL-20120326-00061 (Jul. 12, 2012) (authorizing Intelsat 21 to operate at 58 degrees W.L. with a station-keeping volume of +/- 0.05 degrees W.L.).

⁸ See 47 C.F.R. § 25.283(a); *see also* Hughes, Application for Authority, IBFS File No. SAT-LOA-20050214-00038, Technical Annex at A20.4 (Feb. 14, 2005) (providing that the satellite will be raised 300 km above GSO operational orbit and using a remaining fuel budget of 12 kg to complete final orbit raising maneuvers).

Hughes, however, requests a waiver of Section 25.283(c) of the Commission's rules to permit a minimal amount of helium pressurant to remain on board at the satellite's end of life.

Grant of the requested waiver is warranted under the circumstances,⁹ will not undermine the purpose of the Commission's venting requirement, and is consistent with Commission precedent granting waivers for the same spacecraft model.¹⁰ As an initial matter, Spaceway 3 is not designed to vent all pressurized systems. The helium pressurant that was used during orbit-raising was permanently isolated from the propulsion system by firing a pyrotechnic valve at the beginning of the satellite's on-orbit life. As a result, residual helium gas (*i.e.*, approximately 5 kg) cannot be vented at the satellite's end of life.

Hughes, however, will ensure that all active units on the satellite are turned off and that all propellant tanks are depleted. The satellite's manufacturer, Boeing, designed the spacecraft to minimize the risk of accidental explosion by minimizing the pressures at the satellite's end of life, following powering down and reducing the temperature of the helium tanks. The Spaceway 3 satellite has two helium tanks with a volume of 69.0 liters each. The total estimated mass of residual helium in the tanks is 5 kg at end-of-life, with a *de minimis* pressure and average temperature of 18° C. This minimal amount of residual helium will not cause the pressure in the tanks to exceed burst pressure, even in a worst-case, end-of-life temperature scenario. The tanks are also designed to leak before they burst. Moreover, even if a leak occurred, it would not

⁹ The Commission may waive its rules "for good cause shown." 47 C.F.R. § 1.3; *WAIT Radio v. FCC*, 418 F.2d 1153, 1159 (D.C. Cir. 1969). Good cause exists if "special circumstances warrant a deviation from the general rule and such deviation will serve the public interest" better than adherence to the general rule. *Northeast Cellular Telephone Co. v. FCC*, 897 F.2d 1164, 1166 (D.C. Cir. 1990). In determining whether waiver is appropriate, the Commission should "take into account considerations of hardship, equity, or more effective implementation of overall policy." *WAIT Radio*, 418 F.2d at 1159.

¹⁰ See *Intelsat License LLC*, Grant Stamp, File No. SAT-MOD-20170523-00077 (Jul. 20, 2017); *DirecTV Enterprises, LLC*, Grant Stamp, File No. SAT-MOD-20170912-00129 (Apr. 25, 2018).

generate sufficient energy to structurally damage the spacecraft and generate debris or meaningfully disrupt the satellite's orbit.

Conclusion. Grant of the requested license extension serves the public interest by facilitating safe end-of-life operations for Spaceway 3, and is consistent with Commission precedent granting similar extensions.¹¹ Moreover, the requested modification will not result in an increased risk of harmful interference and, should any such interference occur during the drift, Hughes will take all reasonable steps to eliminate such interference. Accordingly, the Commission should grant this application expeditiously.

¹¹ See, e.g., Intelsat, Grant Stamp, IBFS File No. SAT-MOD-20210205-00016 (Jan. 27, 2022).