Before the
Federal Communications Commission
Washington, DC 20554

In the Matter of Intelsat License LLC, as debtor in possession Application to Modify Authorization for Galaxy 15 (S2387)	File No. SAT-MOD-_____

APPLICATION TO MODIFY AUTHORIZATION FOR GALAXY 15

Intelsat License LLC, as debtor in possession ("Intelsat"), pursuant to Section 25.117 of the Federal Communications Commission's ("Commission" or "FCC") rules,[1] hereby seeks to modify the authorization for Galaxy 15 (S2387), a C-band satellite operating at 133.0° W.L.[2] Specifically, Intelsat seeks to extend the license term for the Galaxy 15 satellite through December 2023.[3]

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1 47 C.F.R. § 25.117.

2 *See Policy Branch Information; Actions Taken*, Report No. SAT-00233, File No. SAT-LOA-19991207-00119 (Aug. 13, 2004) (Public Notice) ("*Galaxy 15 Authorization*").

3 The Commission's rules permit modification applications in the 3700-4200 MHz band and these applications are not subject to the FCC's 2018 filing freeze on new fixed satellite service space station applications. *See* 47 C.F.R. § 2.106 n. NG182 ("In the band 3700-4200 MHz ... [a]pplications for extension, cancellation, replacement, or modification of existing space station authorizations in the band will continue to be accepted and processed normally."); *International Bureau Announces Temporary Filing Freeze on New Fixed-Satellite Service Space Station Applications in the 3.7-4.2 GHz Band*, Public Notice, DA 18-640, 33 FCC Rcd 6119 (2018) ("The freeze does not apply to applications for modification of existing authorizations, relocations of existing space stations pursuant to the Commission's fleet management policy, or to applications for replacement space stations."); *see also Expanding Flexible Use of the 3.7 to 4.2 GHz Band*, Report and Order and Order of Proposed Modification, FCC 20-22, 35 FCC Rcd 2343, ¶ 115 n. 327 (2020).

In accordance with the Commission's rules,[4] this application has been filed electronically as an attachment to FCC Form 312 and Schedule S. Consistent with Section 1.62 of the Commission's rules, Intelsat will continue to operate the Galaxy 15 satellite pursuant to the terms and conditions of its expiring license until such time as the Commission makes a determination with respect to this request.[5]

I. REQUEST FOR EXTENSION OF LICENSE TERM

Intelsat seeks to extend the Galaxy 15 license term through December 2023. Galaxy 15 was placed into service on February 27, 2006.[6] Pursuant to the conditions of its authorization, the license term for Galaxy 15 will expire on February 26, 2021. This expiration date is prior to the expected end of service life of the satellite, assuming no inclined orbit operation. Intelsat requests the Commission extend the license term through December 2023 to accommodate the satellite's remaining service life.

II. ORBITAL DEBRIS MITIGATION

Extending the license term of Galaxy 15 will not affect the satellite's post-mission disposal plan. At the end of the Galaxy 15 mission, Intelsat will dispose of the satellite by

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4 47 C.F.R. § 25.117(c).

5 47 C.F.R. § 1.62.

6 *See* Letter from Joseph A. Godles, Attorney for PanAmSat Licensee Corp., to Magalie R. Salas, Secretary, FCC, File No. SAT-LOA-19991207-00119 (Mar. 7, 2006) ("*Galaxy 15 Commencement Letter*").

moving it to an altitude of 266.9 kilometers (perigee) above the geostationary arc.[7] For that purpose, Intelsat has reserved 28.74 kilograms of fuel.[8]

Additionally, Intelsat has assessed the probability of accidental explosions during and after completion of mission operations. Galaxy 15 is designed in a manner to minimize the potential for such explosions. Propellant tanks and thrusters are isolated using redundant valves and electrical power systems are shielded in accordance with standard industry practices. At the completion of the mission and upon disposal of the spacecraft, Intelsat will ensure active units are turned off. Due to the design of Galaxy 15, Intelsat will not be able to vent all pressurized systems. Upon disposal Intelsat will vent the satellite's fuel and helium tanks. However, because of the spacecraft's design, Intelsat will not be able to vent the two oxidizer tanks on Galaxy 15.

III. WAIVER REQUEST

Intelsat requests waiver, to the extent necessary, of Sections 25.114(d)(14)(ii) and 25.283(c) of the Commission's rules, which require that spacecraft are able to vent pressurized systems at end of life.[9] Under Section 1.3 of the Commission's rules, the Commission has

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[7] In calculating the disposal orbit, Intelsat has used simplifying assumptions as permitted under the Commission's Orbital Debris Report and Order. *Mitigation of Orbital Debris*, Second Report and Order, 19 FCC Rcd 11567 (2004) ("*2004 Debris Mitigation Order")*. The effective area to mass ratio (Cr*A/M) of the satellite is 0.029 m2/kg, resulting in a minimum perigee disposal altitude under the Inter-Agency Space Debris Coordination Committee formula of 266.9 kilometers above the geostationary arc.

[8] The reserved propellant figure is an estimate. This figure is calculated taking into account the expected mass of the satellite at the end of life and the required delta-velocity to achieve the desired orbit.

[9] A 2015 revision to rule 25.283(c) that removed the word "all" from the text of the rule, permitting a *de minimis* residual amount of fuel that cannot be vented to remain in the fuel tanks after decommissioning, may obviate the need to grant waiver in this instance. *Comprehensive Review of Licensing and Operating Rules for Satellite Services*, Report and Order, 30 FCC Rcd

authority to waive its rules "for good cause shown."[10] 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.[11] In determining whether waiver is appropriate, the Commission should "take into account considerations of hardship, equity, or more effective implementation of overall policy."[12] As shown below, there is good cause for the requested waiver.

Section 25.114(d)(14)(ii) of the Commission's rules requires an applicant to demonstrate that it will vent any pressurized system at the spacecraft's end of life and Section 25.283(c) requires that excess propellant be vented at the end of a satellite's life.[13] Galaxy 15 is a Northrop Grumman Space Systems (formerly Orbital Sciences) Star 2.2 spacecraft, launched in 2006, that was not designed to vent all pressurized systems.[14] The Galaxy 15 satellite has two oxidizer tanks with a total remaining pressure of 1810.6 kPa at a temperature of 17.2° C. After orbit raising was completed, the oxidizer tanks were permanently isolated from the propulsion system by firing two pyrotechnic valves at beginning of on-orbit life. As a result, these tanks cannot be vented at end of life.

14713, ¶¶ 359-60 (2015) (corrected by *Comprehensive Review of Licensing and Operating Rules for Satellite Services*, Erratum, 31 FCC Rcd 5160 (2016)).

10 47 C.F.R. § 1.3; *WAIT Radio v. FCC*, 418 F.2d 1153, 1159 (D.C. Cir. 1969).

11 *Northeast Cellular Telephone Co. v. FCC*, 897 F.2d 1164, 1166 (D.C. Cir. 1990).

12 *WAIT Radio*, 418 F.2d at 1159.

13 47 C.F.R. §§ 25.114(d)(14)(ii) & 25.283(c).

14 *See* Letter from Karis A. Hastings, Counsel to SES Americom, Inc., to Marlene H. Dortch, Secretary, FCC, IB Docket No. 02-54 (Oct. 29, 2009) (providing a list of satellites and spacecraft models, on behalf of the Satellite Industry Association, that are currently on-orbit and are unable to fully comply with the requirements of rule 25.283(c), including Galaxy 15).

Waiver is appropriate in this case because the satellite was under construction before Section 25.283(c) was adopted and entered into effect[15] and compliance would require direct retrieval of the spacecraft, which is not currently possible.[16] Furthermore, grant would not undermine the purpose of these rules, which is to reduce the risk of accidental explosion and post de-orbit debris. With the exception of the two sealed oxidizer tanks, Intelsat will ensure that all active units on the Galaxy 15 satellite are turned off and that all pressurant tanks are depleted. In addition, the satellite's manufacturer designed the Galaxy 15 spacecraft so that risk of accidental explosion causing additional orbital debris is minimal. This risk is minimized because the pressure in the tanks will be very low at end of life of the satellite, especially after the spacecraft is powered down and the temperature in the tanks drops. The tanks have also been designed so that they leak before they burst. And even if a leak were to occur, there would not be sufficient energy in the gas stream to structurally damage the spacecraft and generate debris. Moreover, a leak would not significantly perturb the satellite's orbit because the expulsion of the pressurant gas would cause the spacecraft to tumble and the change in the spacecraft's velocity (i.e., the thrust) would be randomly distributed, with the resulting impact on the satellite orbit's apogee and perigee being very small.

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[15] The Commission granted Intelsat's predecessor, PanAmSat, authority to launch the Galaxy 15 satellite on August 11, 2004, and the satellite was launched and began operations on February 27, 2006. *See Galaxy 15 Authorization*; *Galaxy 15 Commencement Letter*. The Commission's orbital debris mitigation rule requiring discharge of all propellant, Section 25.283(c), was adopted a month prior to the grant of the initial Galaxy 15 authorization, in an order released June 21, 2004, and which did not become effective October 12, 2004 (Section 25.283(c)) and October 19, 2005 (Section 25.114(d))—long after the satellite was already under construction. *2004 Debris Mitigation Order*; *Mitigation of Orbital Debris*, 69 Fed. Reg. 54581-54589 (Sept. 9, 2004); *Mitigation of Orbital Debris*, Final Rule, 70 Fed. Reg. 59276 (Oct. 12, 2005).

[16] *See, e.g.* n. 18 *infra*.

Grant of the waiver is also supported on hardship grounds. The oxidizer tanks on the Galaxy 15 satellite were permanently sealed off following the completion of launch transfer orbit and consequently cannot be vented at the satellite's end of life. Galaxy 15 is an in-orbit spacecraft. As such, a design change cannot be accomplished at this time. Avoiding such hardship is particularly appropriate where, as here, the licensee acted in good faith. Specifically, the Galaxy 15 satellite was licensed and under construction prior to the rule requiring discharge of remaining fuel at end of life coming into effect.[17] Under these circumstances, good cause exists to waive Sections 25.114(d)(14)(ii) and 25.283(c).[18]

IV. PUBLIC INTEREST SHOWING

Grant of this modification application to extend the license term would serve the public interest by enabling customers to receive service from Galaxy 15 at the 133.0° W.L. orbital location beyond the current license term's February 26, 2021 expiration date. Furthermore, grant of the license term extension request will allow Intelsat to maximize the use of Galaxy 15, which has almost two years of useful life remaining beyond the current license term's February 26, 2021 expiration date.

The Galaxy 15 satellite's subsystems and solar panels are functioning normally, and there are no single points of failure on Galaxy 15 that would result in an inability to de-orbit the satellite. Additionally, the satellite's TT&C functions are operating normally and most of the payload is operational. Extending the license term will promote the continued efficient use of

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17 *Id*.

18 The FCC has previously waived Section 25.283(c) of its rules when the action taken to seal the tank was taken prior to the adoption of this rule, and compliance would require direct retrieval of the spacecraft. *See, e.g., Application of Intelsat License LLC to Modify Authorization for Intelsat 10 Satellite (Call Sign S2382)*, Stamp Grant, File No. SAT-MOD-20130322-00052, Condition 13 (Oct. 23, 2013).

orbital resources and is consistent with prior decisions by the Commission to extend satellite license terms.[19]

V. CONCLUSION

For the reasons set forth above, Intelsat respectfully requests that the Commission grant this license extension.

Respectfully submitted,

Intelsat License LLC

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February 5, 2021

[19] *See, e.g., Policy Branch Information; Actions Taken*, Public Notice, Report No. SAT-01199, File Nos. SAT-MOD-20160805-00079, SAT-MOD-20160816-00084, and SAT-MOD-20160906-00088 (Nov. 4, 2016) (extending license terms of the Intelsat 904, Intelsat 902, and Intelsat 901 satellites, respectively).

Exhibit A

FCC Form 312, Response to Question 34: Foreign Ownership

The Commission previously approved foreign ownership in Intelsat License LLC ("Intelsat"), in the *Intelsat-Serafina Order*.[1] In 2012, the International Bureau authorized the transfer of control of Intelsat.[2] There have been no other material changes to Intelsat's foreign ownership since the date of the *Intelsat-Serafina Order*.

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[1] *Intelsat Holdings, Ltd. and Serafina Holdings Limited, Consolidated Application for Consent to Transfer of Control of Holders of Title II and Title III Authorizations*, Memorandum Opinion and Order, 22 FCC Rcd 22,151 (2007).

[2] *In the Matter of Intelsat Global Holdings, S.A., Applications to Transfer Control of Intelsat Licenses and Authorizations from BC Partners Holdings Limited to Public Ownership*, Order, 27 FCC Rcd 5,226 (2012). The transfer of control was fully consummated on June 14, 2018. *See* Letter from Jennifer D. Hindin, Counsel for Intelsat, to Marlene H. Dortch, FCC, IB Docket No. 11-205 (filed June 14, 2018).

Exhibit B

FCC Form 312, Response to Question 40:
Officers, Directors, and Ten Percent or Greater Shareholders

The officers and directors/managers of Intelsat License LLC and Intelsat License LLC, as debtor in possession, are as follows:

Officers:	Board of Managers:
David Tolley, Chairman	David Tolley
José Toscano, Deputy Chairman	José Toscano
Michelle Bryan, Secretary	Michelle Bryan
Mirjana Hervy, Director, Finance	

The business address of all Intelsat License LLC and Intelsat License LLC, as debtor in possession, officers and members of the Board of Managers is 4, rue Albert Borschette L-1246 Luxembourg.

Intelsat License LLC and Intelsat License LLC, as debtor in possession, are Delaware limited liability companies that are indirectly wholly owned by Intelsat S.A. Specifically, Intelsat License LLC and Intelsat License LLC, as debtor in possession, are wholly owned by Intelsat License Holdings LLC, also a Delaware limited liability company. Intelsat License Holdings LLC is wholly owned by Intelsat Ventures S.à r.l., a Luxembourg company, which is in turn wholly owned by Intelsat Alliance LP, a Delaware limited partnership. Intelsat Alliance LP is managed by one general partner and two limited partners—Intelsat Genesis GP LLC, Intelsat Genesis Inc., and Intelsat Jackson Holdings S.A., respectively. Intelsat Genesis GP LLC is a Delaware limited liability company, which is a wholly owned by Intelsat Genesis Inc., a Delaware corporation.

Intelsat Genesis Inc. is a wholly owned subsidiary of Intelsat Jackson Holdings S.A., a Luxembourg company. Intelsat Jackson Holdings S.A. is wholly owned by Intelsat Connect Finance S.A., a Luxembourg company, which in turn is wholly owned by Intelsat Envision Holdings LLC, a Delaware limited liability company. Intelsat Envision Holdings LLC is wholly owned by Intelsat (Luxembourg) S.A., a Luxembourg company. Intelsat (Luxembourg) S.A. is wholly owned by Intelsat Investments S.A., a Luxemburg company, which in turn is wholly owned by Intelsat Holdings S.A., a Luxembourg company. Intelsat Holdings S.A. is wholly owned by Intelsat Investment Holdings S.à r.l., a Luxembourg company. Intelsat Investment Holdings S.à r.l. is wholly owned by Intelsat S.A., a Luxembourg company. Each of these entities may be contacted at the following address: 4, rue Albert Borschette, L-1246 Luxembourg.

Intelsat S.A. is a publicly traded company. To the best of Intelsat's knowledge, and with the exception of BC Partners Holdings Limited ("BCP"), described below, no person or entity holds a ten percent or greater ownership interest in Intelsat S.A. as of January 26, 2021.

Name:	BCP
Address:	Heritage Hall, Le Marchant Street, St Peter Port, Guernsey, Channel Islands
Citizenship:	Guernsey
Indirect Interest:	Approximately 34%[3]

[3] The exact indirect interest held by BCP is subject to fluctuation as Intelsat S.A.'s stock is publicly traded.