

April 15, 2015

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554

Re: Intelsat 10 (Call Sign S2382)
File No. SAT-MOD-20130322-00052

Dear Ms. Dortch:

Intelsat License LLC (“Intelsat”) herein notifies the Federal Communications Commission (“FCC”) of a revised post-mission disposal statement with respect to the Intelsat 10 satellite (Call Sign S2382).

Specifically, Intelsat expects to dispose of the spacecraft by moving it to a planned minimum altitude of 175 kilometers (perigee) above the geostationary arc.¹ Intelsat is reserving 30.1 kg of fuel for this purpose. As the Commission is aware, because there is no mechanism for precisely calculating the amount of fuel left on the spacecraft once it is in orbit, it is possible that the spacecraft will not meet the planned minimum de-orbit altitude. In its Second Report and Order in IB Docket 02-54, Mitigation of Orbital Debris,² the FCC declared that satellites launched prior to March 18, 2002, such as the Intelsat 10 satellite, would be designated as grandfathered satellites not subject to a specific disposal altitude. Therefore, the planned disposal orbit for Intelsat 10 satellite, as revised, complies with the FCC’s rules.

In addition, Intelsat provides the following information:

- 1) Planned orbital eccentricity: 0.00028 (This is a best estimate of optimal eccentricity to match the natural eccentricity circle due to Sun and Moon perturbations after decommissioning.)³

¹ In the above-referenced modification application, Intelsat stated that it expected to de-orbit the Intelsat 10 satellite to an altitude of 300 km. See *Application of Intelsat License LLC to Modify the Intelsat 10 License*, File No. SAT-MOD-20130322-00052 (filed Mar. 22, 2013), Engineering Statement at 8-9.

² Mitigation of Orbital Debris, *Second Report and Order*, IB Docket No. 02-54, released June 21, 2004.

³ Intelsat’s priority is to achieve the planned minimum perigee of 175 km. However, because it is extremely difficult to anticipate end-of-life thruster performance and operational conditions, it is extremely difficult to achieve the planned eccentricity. In order to achieve the planned eccentricity, not only must there be sufficient propellant reserved but, in addition, individual thrusters must be fired at specific times during satellite decommissioning because the timing of thruster firing will affect eccentricity. Due to difficulties in predicting the thruster end-of-life performance, as well as earth station availability and visibility as the satellite drifts, it may not be possible to fire the right thruster at the optimal times. Thus, optimal eccentricity may not be achieved, which, in turn, will affect the apogee altitude.

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- 2) Planned apogee altitude: 198.7 km above the geostationary arc.
- 3) Information concerning the methods that will be used to assess and provide adequate margins concerning fuel gauging uncertainty:⁴
 - a. Intelsat propulsion engineers review the current propellant usage – particularly the mixing ratio – to properly allocate sufficient margin to account for unavailable propellant that may result from a non-optimal mixing ratio, in addition to the nominal hold-back and reserves provided to us by the manufacturer.
 - b. Intelsat performs thermal gauging near the spacecraft's end of life by inferring the remaining propellant from the thermal signature when Intelsat applies heat to different part of the propellant tank system.

Please direct any further questions regarding this supplement to the undersigned at (703) 559-7848.

Sincerely,



Susan H. Crandall
Associate General Counsel
Intelsat Corporation

cc: Stephen Duall
Jay Whaley
Cindy Spiers

⁴ This information is considered when determining the additional hold-back and adjustments to book values to attempt to ensure sufficient propellant to achieve the planned minimum altitude. There are, however, many uncertainties to both methods that could lead to incorrect conclusions regarding remaining fuel, which could affect the disposal altitude the spacecraft reaches.