

Exhibit C to Form 312

Orbital Debris Mitigation

Section 25.145(c)(3) of the Commission's rules requires a demonstration of the strategies that will be used to mitigate orbital debris from non-geostationary satellite orbit ("NGSO") Fixed-Satellite Service ("FSS") satellites in the Ka-band, including a casualty risk assessment if planned post-mission disposal involves atmospheric re-entry of the spacecraft. The Commission requested SkyBridge II, via a letter dated October 17, 2003,¹ to make such a demonstration in connection with the pending SkyBridge II Ka-band NGSO FSS application.²

The following discussion is based upon the U.S. Government guidelines (the "Government Standard Practices") applied to U.S. Government missions, which SkyBridge II intends to follow.³ In the Government Standard Practices, four separate scenarios in which orbital debris may be created are identified. SkyBridge II discusses how it plans to address each of those scenarios below.

Control of Orbital Debris Released During Mission Operations

As is typically the case with communications payloads, it is anticipated that operation of the spacecraft will require no purposeful release of debris, in the absence of accidental explosions or collisions.

Minimizing Debris Generated by Accidental Explosions

To minimize the risk of accidental explosions during mission operations, failure mode analysis, or the equivalent, will be performed on the final spacecraft design to identify failure modes that could credibly lead to an explosion, and to take steps (design or operational) to limit the probability of explosion.

To minimize the risk of accidental explosions at the end of the life of each satellite, all on-board sources of energy will be depleted once the satellite has reached its storage or reentry orbit (see below).

¹ See Letter to Phillip L. Spector from Jennifer M. Gilsenan, Chief, Policy Branch, Satellite Division, File No. SAT-LOA-19971222-00221, dated October 17, 2003 (the "FCC Letter").

² Application of SkyBridge II L.L.C. for Authority to Launch and Operate the SkyBridge II System, File No. SAT-LOA-19971222-00221, December 22, 1997.

³ See In the Matter of Mitigation of Orbital Debris, *Notice of Proposed Rulemaking*, IB Docket No. 02-54, 17 FCC Rcd 5586 (2002) (the "Orbital Debris NPRM"), Appendix A.

Selection of a Safe Flight Profile and Operational Configuration

SkyBridge II will plan launch, orbital maneuvers, and operational orbits, and maintain stationkeeping to within 0.1°, which will limit the probability of collision with known large objects during the spacecraft lifetime.

The SkyBridge II satellites will be assessed by their designer/manufacturer in order to limit the probability that a collision with a small object in space could lead to debris. In particular, spacecraft shielding, placement of components, and use of redundant systems, will be considered, as appropriate, in order to protect the spacecraft, and reduce the probability that a collision could lead to loss of spacecraft control that would prevent proper disposal. It should be noted that SkyBridge II has every economic incentive to ensure the robustness of its spacecraft design to prevent loss of valuable assets.

Post-Mission Disposal of Spacecraft

The method for disposal of the SkyBridge II satellites at the end of their operational lives has not been definitely determined. Most likely, disposal will involve atmospheric reentry, which is one of the disposal options identified in the Government Standard Practices appropriate for LEO satellites. In this case, the structure will be either directly de-orbited for atmospheric reentry, or placed in a decaying orbit, which will lead to eventual atmospheric reentry in less than 25 years. The Commission has identified atmospheric reentry as one of the most effective methods for ensuring that the spacecraft will not, through collision, become a source of a large number of orbital debris in the future.⁴

SkyBridge II will fully assess the safety concerns associated with atmospheric reentry before any such maneuver, and take whatever steps, in satellite design and in reentry protocols, are feasible to reduce the probability that portions of the spacecraft may survive reentry and reach the surface of the earth. In particular, SkyBridge II will ensure that the results of its casualty assessment are well within all applicable rules and guidelines.

It is possible that a storage orbit could be used for some or all of the SkyBridge II satellites. In that event, SkyBridge II will maneuver its satellites so as to reduce risk that any satellite will be placed near any operational orbit. Once the satellites have reached the disposal orbit, all on-board energy sources will be depleted, in accordance with the Government Standard Practices.

In neither scenario (atmospheric reentry or storage orbit) will the SkyBridge II satellites remain in operational orbit more than 25 years beyond their end of life.⁵

⁴ Orbital Debris *NPRM*, ¶ 52.

⁵ See FCC Letter.

SkyBridge II will take steps to ensure that the on-board fuel of its spacecraft does not drop below that required to reliably execute planned end-of-life maneuvers.

As the Commission is aware, the plans for post-mission disposal of spacecraft (as well as for safe mission operation) are developed in detail as part of the design process for the spacecraft. SkyBridge II is prepared to provide the Commission, upon request, greater specificity on its plans for spacecraft operation and disposal, as those plans are further developed in accordance with the standard design review process.

**CERTIFICATION OF PERSON RESPONSIBLE FOR
PREPARING ENGINEERING INFORMATION**

I hereby declare under penalty of perjury that I am a technically qualified person responsible for preparation of the engineering information contained in this orbital debris mitigation plan, that I am familiar with Part 25 of the Commission's Rules, and that I have either prepared or reviewed the engineering information submitted in this filing, and that it is complete and accurate to the best of my knowledge and belief.

By:



Didier Casasoprana
Director, Regulatory and Special Projects
SKYBRIDGE II L.L.C.

November 4, 2003