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TO: Federal Communications Commission

ATTN: Mr. Anthony Serafini

DATE: September 9, 2010

RE: FCC File # 0084-EX-ML-2010

Background:

Aprize Satellite Inc. ("Aprize") is a small business concern, which is independently owned and financed by its two founders. The overall goal of Aprize is to develop, deploy, and operate a constellation of low-Earth orbit satellites to provide fixed and mobile data services at affordable prices to satisfy critical remote monitoring requirements for homeland security and in-transit visibility. Experimental work to date has shown significant promise that an affordable space network can be built and operated with a modest investment of capital and expanded as necessary to meet customer demand for satellite services.

The Aprize experimental satellites are 10-inch cubes with a mass of 10 kg each. The purpose of these satellites is to validate its spacecraft technology and to develop evaluate satellite data communications applications. The experimental tests and demonstrations will be conducted by SpaceQuest, Ltd. on behalf of Aprize using SpaceQuest's experimental ground station licenses. Following the successful completion of orbital testing, Aprize plans to seek a commercial license to construct, deploy, and operate an international satellite data network.

After considering the possibility of orbital debris and contamination, Aprize is able to provide the following information: The expected operational lifetime of the Aprize satellites is 7 to 10 years based on the history of previous satellites of this class. With a perigee altitude of 615 km and an apogee altitude of 700 km, the Aprize experimental satellites are calculated to re-enter the Earth's atmosphere and burn up completely in 25 years or less. The actual orbital lifetime will be reduced by the presence of nine fixed antenna elements and twelve deployable antenna elements that will significantly increase satellite drag and dissipate energy.

The Aprize satellites will be in a polar, sun-synchronous orbit. Due to its higher orbital inclination angle and much higher altitude, there is no possibility of collision between the Aprize satellites and the International Space Station.

Technical Information:

1. The Aprize satellites will be disposed of by uncontrolled atmospheric re-entry.

2. Due to the small size of the Aprize satellites (10-inch cube) and soft metal structure (aluminum), the entire satellite will burn up and be consumed due to atmospheric heating. No large or small pieces of the spacecraft will survive to the Earth's surface.

3. There is 0% probability of human casualty resulting from surviving fragments of the satellites due to the fact that all pieces will disintegrate during atmospheric re-entry.

4. These conclusions are based on the formulas and calculations in NSS 1740.14, *NASA Guidelines and Assessment Procedures for Limiting Orbital Debris*, dated August 1995.

5. The assumptions and parameters used in developing the estimates are:
   a. Apogee 700 km
   b. Perigee 615 km
   c. Inclination 98.25 degees
   d. Mass 10 kg
   e. Area 0.35 meters
   f. Appendages 9 fixed and 12 deployable antenna elements.
   g. Area^2/Mass 0.0123 m^2/kg

6. The NASA Debris Assessment Software confirmed that the AprizeSat spacecraft satisfies all of the Requirements for Limiting Orbita Debris including:
   a. Mission-Related Debris Passing Through LEO
   b. Mission-Related Debris Passing Near GEO
   c. Long-Term Risk from Planned Breakups
   d. Probabiliy of Collision With Large Objects
   e. Probability of Damage from Small Objects
   f. Post-mission Disposal
   g. Casualty Risk from Re-entry Debris

7. The results from running the NASA Debris Assessment Software are provided in Figure 1.

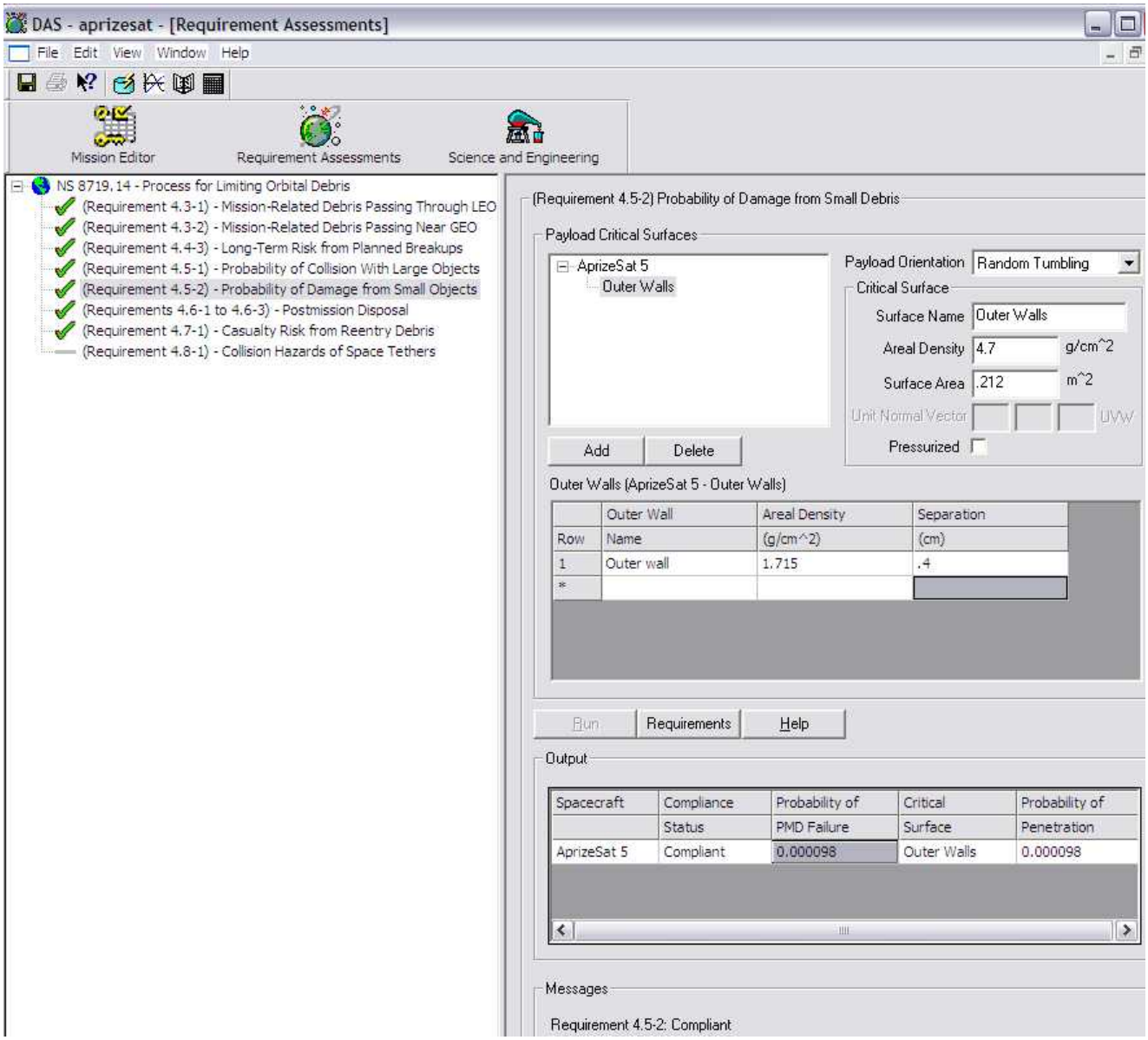

Figure 1. Aprize Satellites Satisfy All of the NASA Debris Assessment Requirements

Orbital Debris Mitigation Requirement Analysis Results

In accordance with the ***U.S. Goverment Orbital Debris Mitigation Standard Practice***s, the following information regarding the operation of the Aprize satellites is hereby submitted:

Requirement 1. Control of Debris Released During Normal Operations.

1-1. *For all operational orbit regimes:* The Aprize spacecraft are designed to eliminate the release of any debris larger than 5 mm in any dimension during its orbital lifetime.

Requirement 2. Minimizing Debris Generated By Accidental Explosions.

2.1. *Limiting the risk to other space systems from accidental explosions during mission operatons:* The Aprize satellites have no on-board fuels, no explosives, or pressure vessels. The only stored energy on board the satellites is contained in the six nickel-cadmium batteries, which are non-explosive and will be fully discharged at end-of-life. Similar nickel-cadmium cells have been used successfully on many small satellite programs without incident. Thus, the Aprize satellites will not generate additional sources of debris.

2.2. *Limiting the risk to other space systems from accidental explosions after completion of mission operations.* After completion of its mission operations, the Aprize Satellites will remain dormant until they re-enter the atmosphere and disintegrate during their return to Earth.

Requirement 3. Selection of Safe Flight Profile and Operational Configuration.

3.1 *Collision with large objects during orbital lifetime.* The probability of the Aprize satellites colliding with an object larger than 1 meter is less than 0.25% as shown in Figure 3.

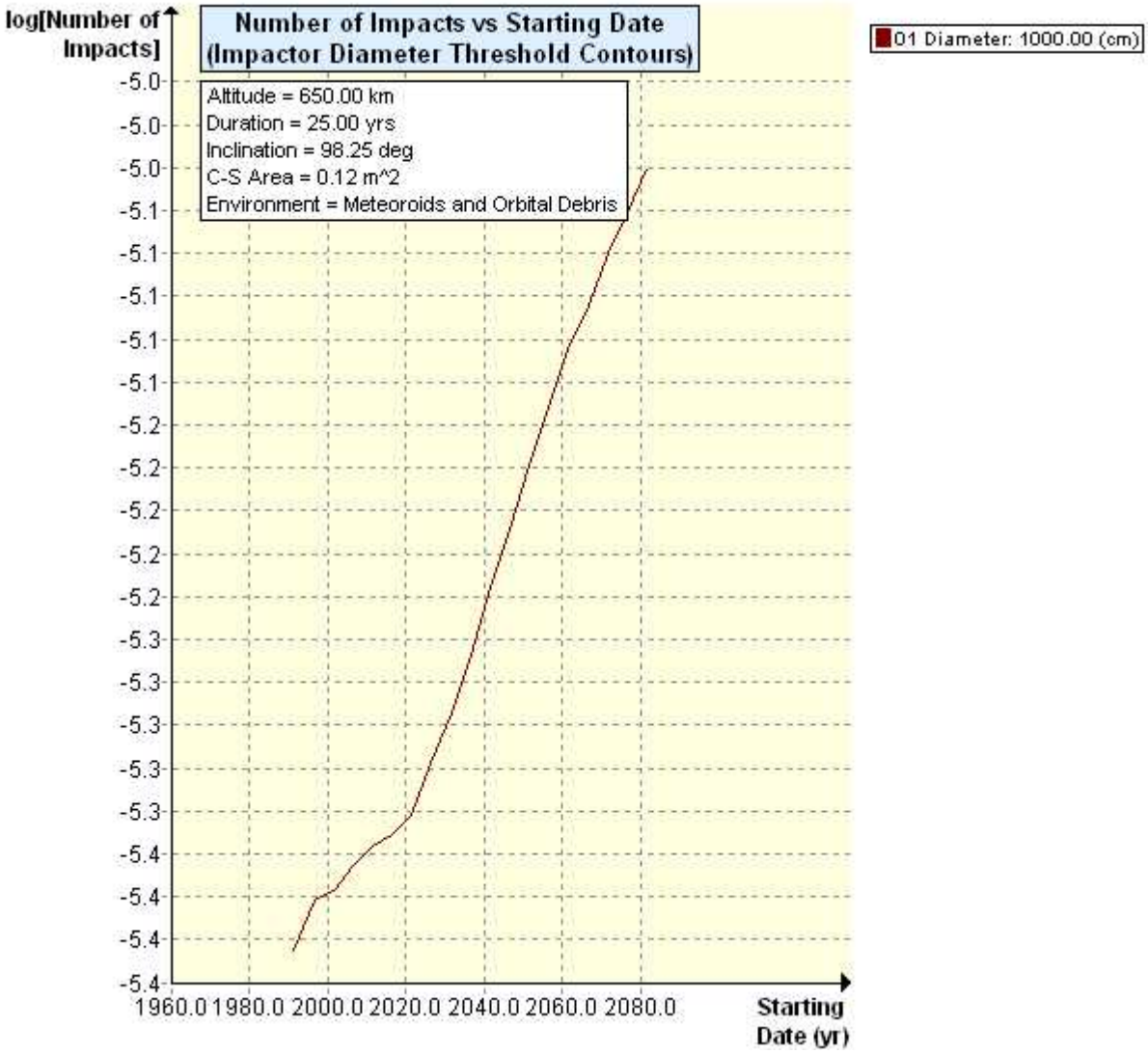

Figure 3. Log Number of Impacts of 1 Meter Objects Vs. Time

3.2 *Collision with small debris during mission operations*: Collision with debris smaller than 1 cm diameter will not prevent post-mission disposal as the Aprize satellites will re-enter the atmosphere without any action taken by the spacecraft itself. Figures 4, 5 and 6 show the probability of impact with small debris.

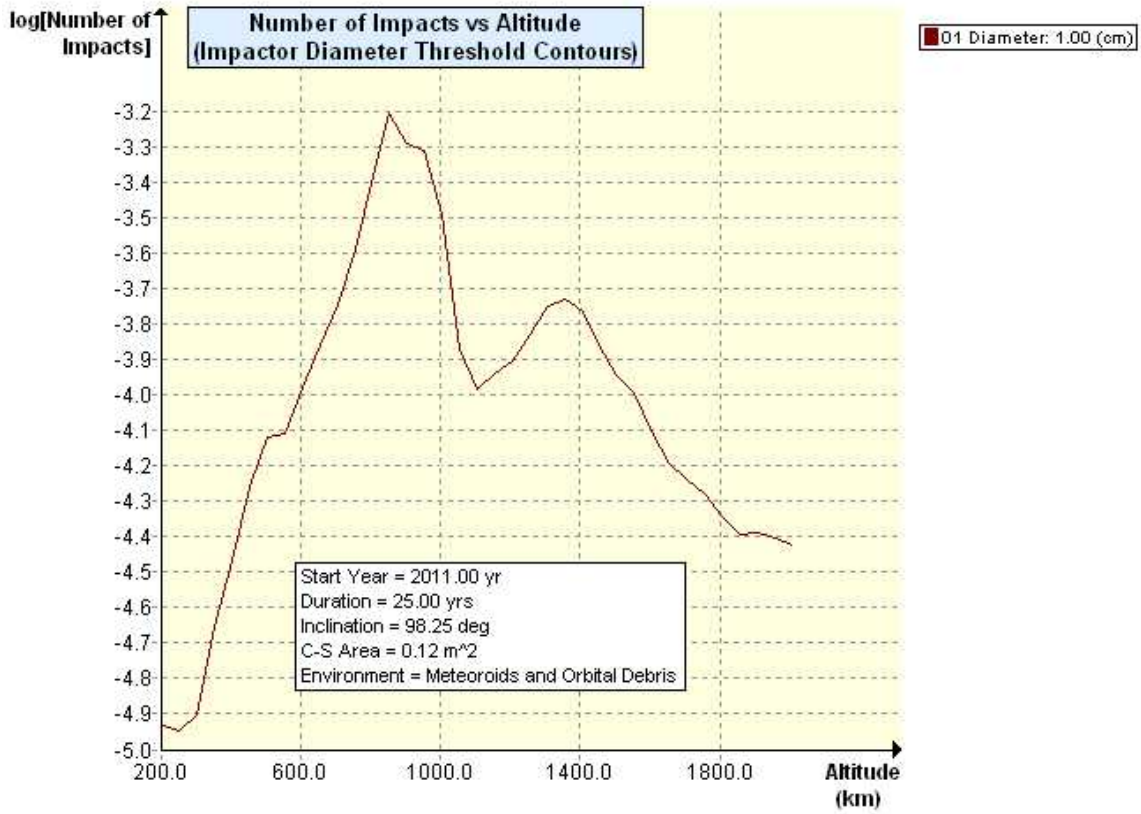

Figure 4. Log Number of Impacts of 1 cm Objects Vs. Satellite Altitude

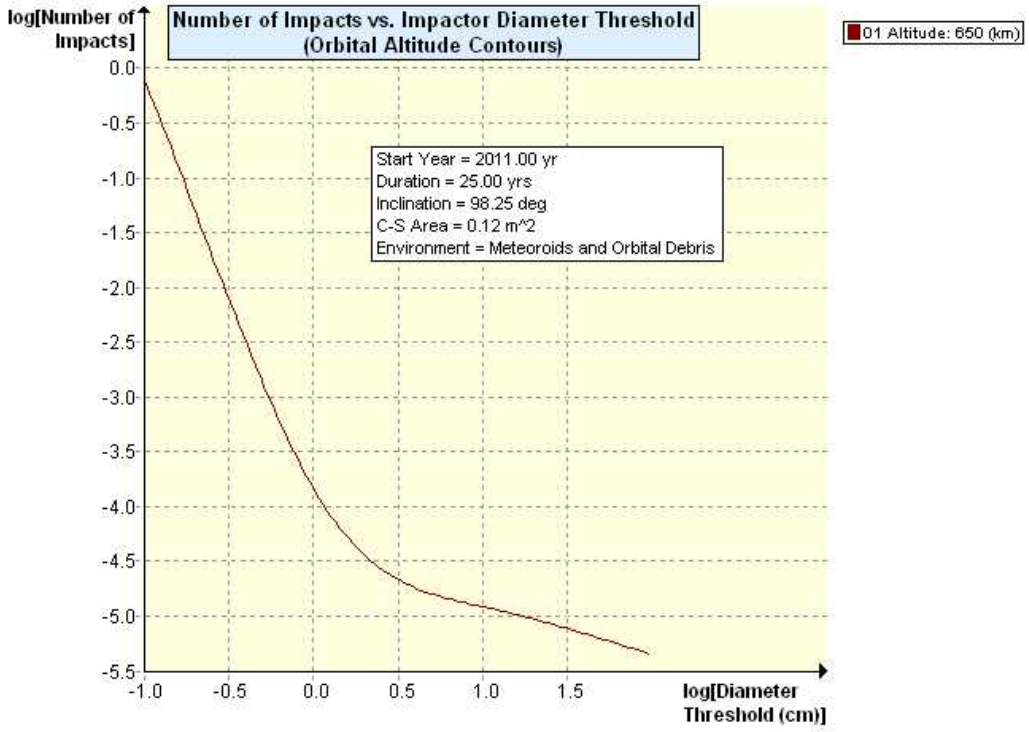

Figure 5. Log Number of Impacts Vs. the Log Diameter of Particles

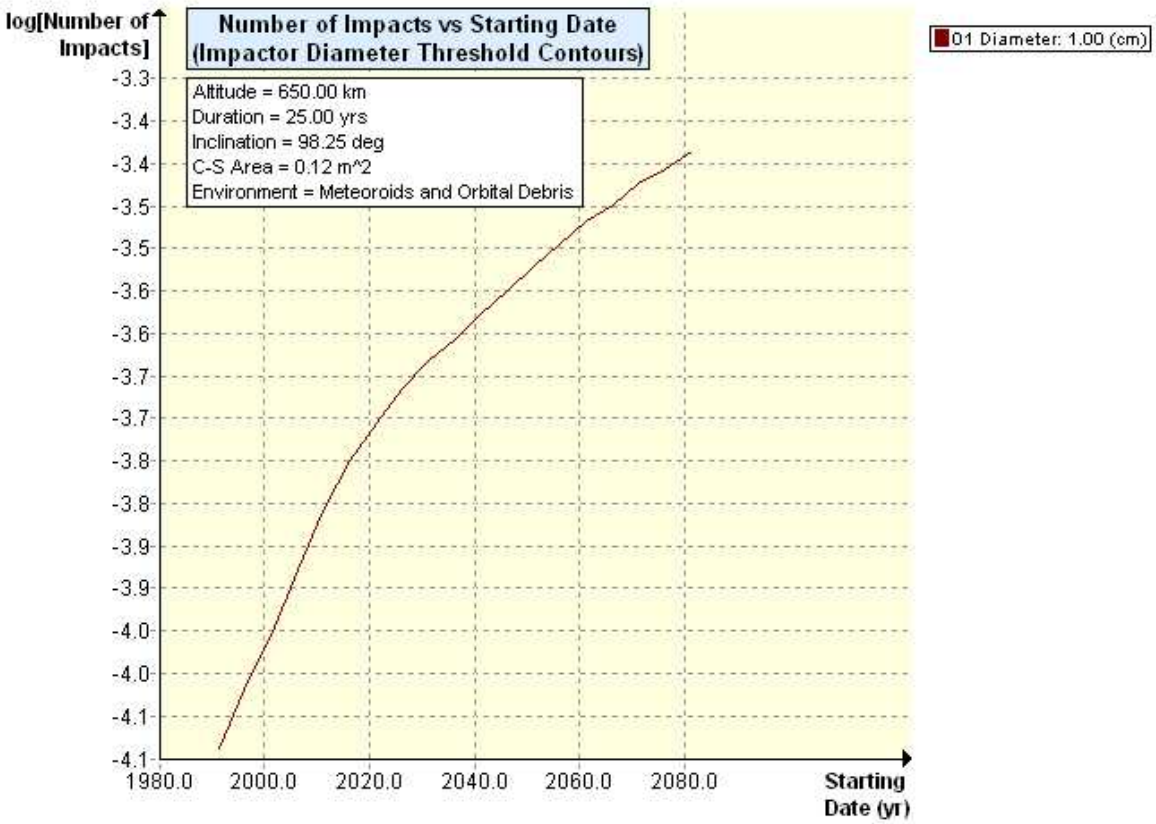

Figure 6. Log Number of Impacts of 1 cm Objects Vs. Time

3.3 *Tether Systems:* The Aprize satellites do not deploy any tether systems.

Requirement 4. Post-mission Disposal of Space Structures.

4.1 *Disposal for final mission orbits:*

a. Atmospheric reentry option: The requirement is to "Leave the structure in an orbit in which, using conservative projections for solar activity, atmospheric drag will limit the lifetime to no longer than 25 years after completion of mission." Using conservative projections for solar activity and atmospheric drag, the total orbital lifetime of the Aprize satellites will be less than 25 years after completion of its mission operations. The fixed and deployable antennas will increase the overall atmospheric drag causing the satellites to decay faster than the orbital prediction model. A plot of the orbital decay history for the Aprize satellites calculated using the NASA Debris Assessment Software is shown in Figure 7.

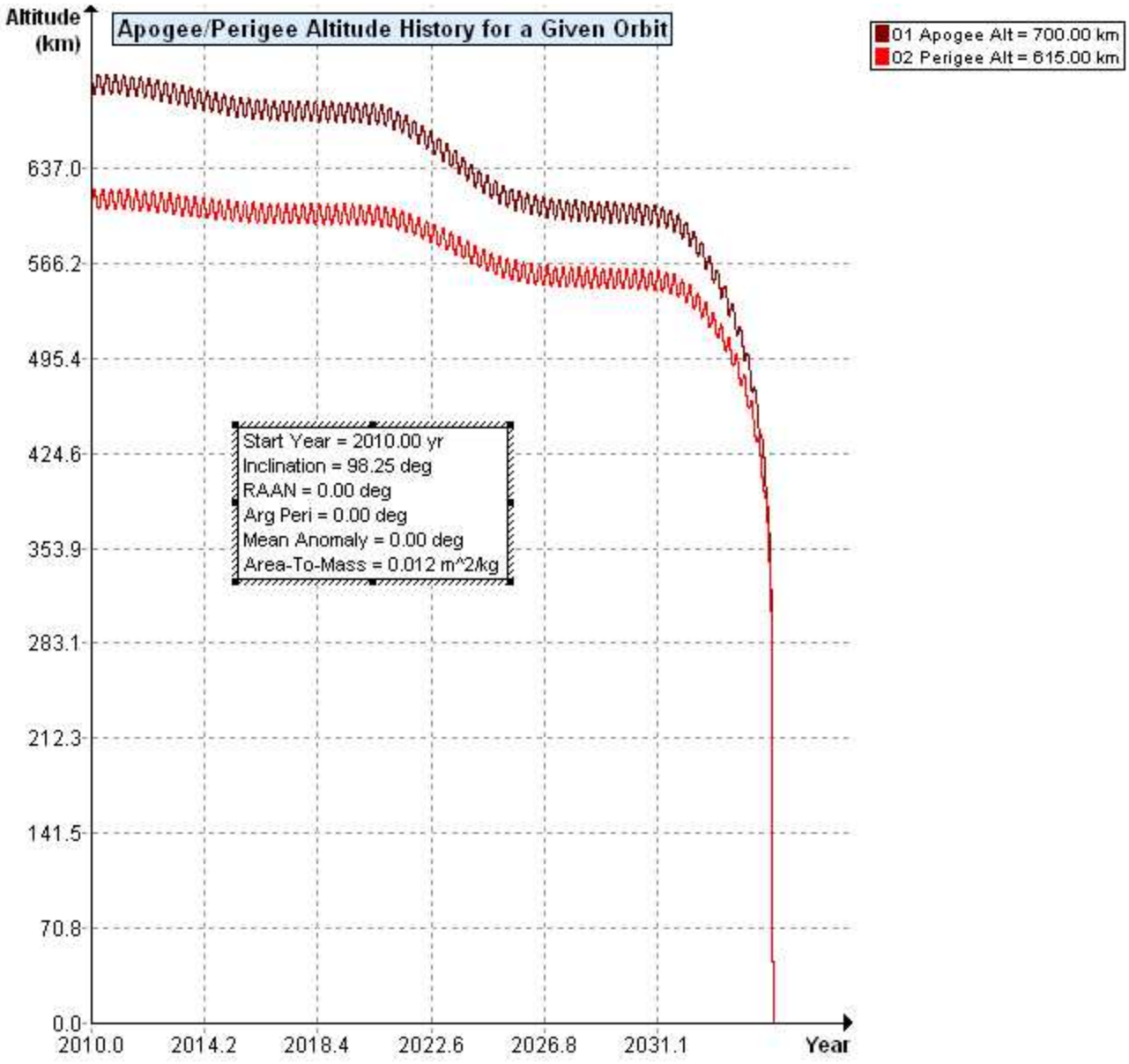

Figure 7. NASA DAS Predicts the Aprize Satellites Will Decay in About 25 years.

b. Human Casualty Risk: The requirement is that "If a space structure is to be disposed of by reentry into the Earth's atmosphere, the risk of human casualty will be less than 1 in 10,000." According to the calculations made with the NASA Debris Assessment Software, there will be no risk of human casualty as the small spacecraft will completely disintegrate at an altitude of 58.2 km during re-entry. The results of these calculations are shown in Figure 8.

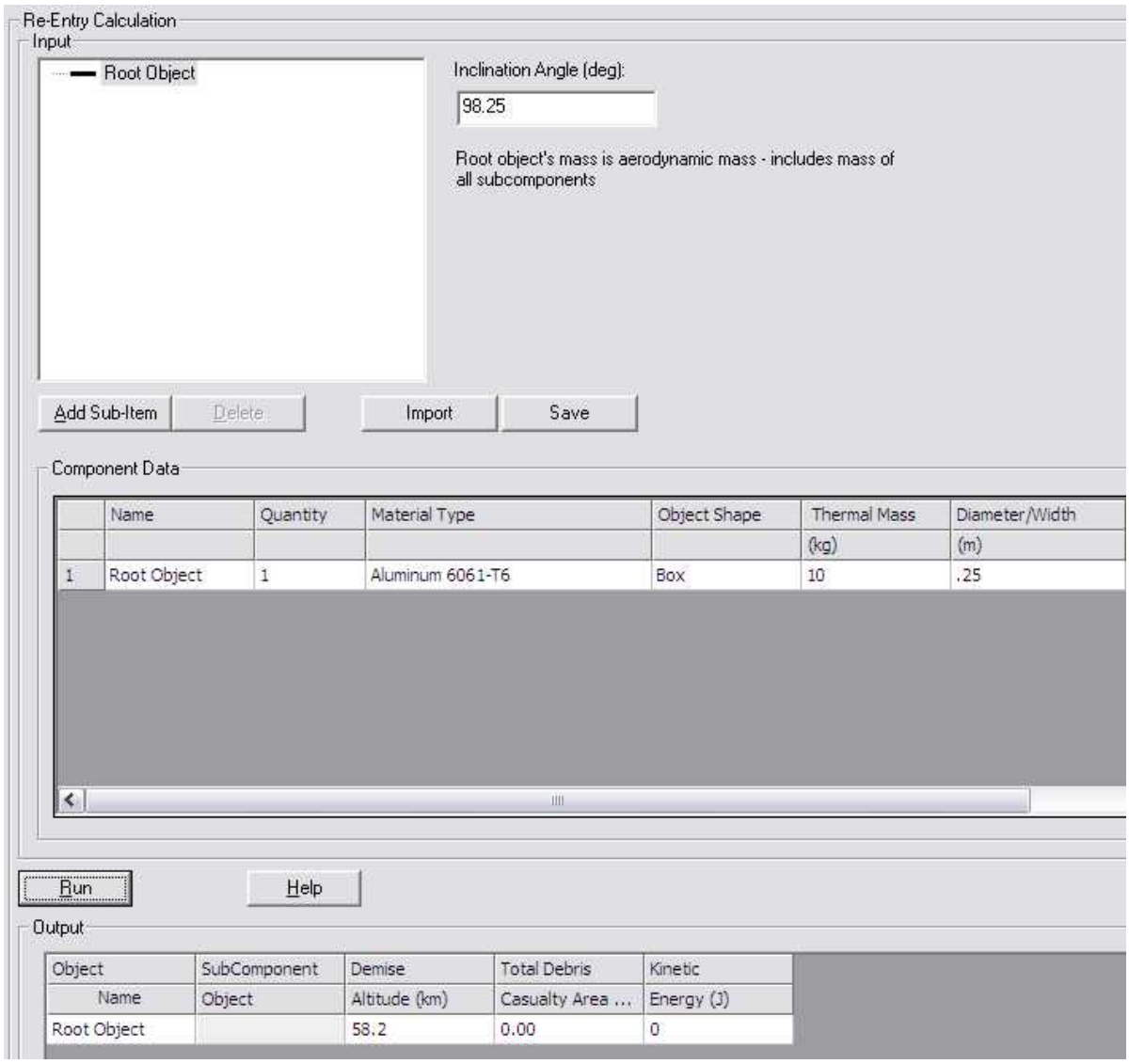

Figure 8. The AprizeSats Will Burn Up and Disintegrate at an Altitude of 58.2 km

b. Maneuvering to a storage orbit: Not Applicable

c. Direct Retrieval: Not Applicable

4.2 *Tether Systems*. Not Applicable

Sincerely,

Dino A. Lorenzini
President, Aprize Satellite Inc.