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To: Nimesh Sangani

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Subject: Request for Info - File # 0583-EX-CN-2020

Message:

1. The 0.0079 m²/kg is for a tumbling Slingshot-1 with the solar arrays deployed. We assume tumbling, which is an off-nominal and undesirable situation is a possible outcome if attitude control fails sometime after the solar arrays deployed. In this case, DAS3.1 predicts a 2 year orbit lifetime. The 0.0098 m²/kg is for the satellite in a solar inertial attitude throughout its lifetime, which is nominal and desired. In that attitude, DAS3.1 also predicts a 2-year lifetime. Since we expect to operate the vehicle for 2 years, then it can be said that the satellite will remain pointed at the sun until it re enters. In both attitudes, the large object collision probability is 0.00000, per DAS 3.1.

2. The solar arrays are restrained by a Blue Canyon Technologies designed and built device that uses a shape memory alloy to initiate the release of the solar arrays. This mechanism has previously flown on 3 missions (6 individual mechanisms) with 100% success. (If the solar arrays fail to deploy, then the vehicle area/mass is 0.0032 m²/kg and re entry is in 10 years with a large object collision probability 0.00000, per DAS 3.1. This anomalous configuration still meets requirements.)