From: Michael Miller

To: Nimesh Sangani
Date: September 21, 2021

Subject: Additional Information Request

Message:

1) Please provide the large object collision risk value for a single spacecraft.

Answer: The large object collision risk value for a single 3U spacecraft, pre and post solar panel deploy, have been included in the ODAR on page 12. See "3U stowed" and "Deployed" sections of Table 3. We use the latest DAS revision (3.1.2) and both configurations have a probability of less than 0.0000.

2) Please confirm that in the event of a failure of either or both spacecraft, at any point, the flight plans chosen for this mission ensure that the spacecraft do not collide.

Answer:
If either of the spacecraft fail at any point the flight plans ensure they won't collide.

Pre-separation there is obviously no risk. Post-separation they will be passively separating and this will continue until thruster checkout. The two spacecraft have independent thrusters. For nominal operations, if one spacecraft failed completely, we would command the remaining spacecraft to thrust to induce increasing separation over time (i.e. +/- ram depending on if the failed spacecraft is the lagging or leading one).

In the event the thruster fails on the remaining spacecraft, we would orientate it in min or max drag configuration, depending on lead or lag position, while the failed satellite would be tumbling (and therefore have an intermediate area exposed on average). This would lead to a differential drag between satellites and result in increasing separation. Formation flying operations will never induce drift speeds faster than that required to close the distance between the spacecraft in a day.