HWG | HARRIS, WILTSHIRE & GRANNIS LLP

1919 M STREET NW
SUITE 800
WASHINGTON DC 20036

TEL +1 202 730 1300
FAX +1 202 730 1301
HWGLAW.COM

ATTORNEYS AT LAW

July 30, 2019

BY ELECTRONIC FILING

Jose P. Albuquerque
Chief, Satellite Division
International Bureau
Federal Communications Commission
445 Twelfth Street, S.W.
Washington, DC 20554

Re: *Myriota Pty Ltd., IBFS File No. SAT-PDR-20190328-00020*

Dear Mr. Albuquerque:

On July 19, 2019, Myriota Pty Ltd. ("Myriota") filed its response to your request for additional information with respect to the above referenced application.[1] Among the information provided in that response was the following table showing the aggregate collision risk of a constellation of 26 satellites with 3U form factor, as calculated using NASA's Debris Assessment Software ("DAS").

Property \ Configuration	**Stowed 3U**	**Deployed 3U**
Mass (kg)	7	7
Mean CSA (m^2)	0.040841	0.131743
Area-to-Mass (m^2/kg)	0.005834	0.018820
Release Year	2019.9	2019.9
Orbital Lifetime* (yrs)	24.78	5.52
Probability of Collision*	0.000004	0.000004
Aggregate Collision Probability	0.000104	0.000104

* Solar Flux Table Dated April 9th, 2019

Subsequently, your staff requested an explanation for why the stowed 3U satellites (orbital lifetime of 24.78 years) and the deployed 3U satellites (orbital lifetime of 5.52 years) have the same reported aggregate collision risk of 0.000104.

As confirmed by the attached activity log, the table submitted by Myriota accurately reflects the results produced by NASA's DAS software. As that log shows, for both the stowed configuration (area-to-mass ratio of 0.005834 m^2/kg) and the deployed configuration (area-to-mass ratio of 0.018820 m^2/kg), the output indicates a collision probability of 0.000004 for each

[1] Letter from William M. Wiltshire to Jose P. Albuquerque, IBFS File No. SAT-PDR-20190328-00020 (July 19, 2019).

satellite, yielding an aggregate probability of 0.000104 for both cases. This is due in large measure to the DAS software's limitation on significant figures, reporting results only to the nearest 0.000001. With respect to the impact of orbital lifetime on this calculation, it is worth noting that the software yields the same result whether the lifetime is one year or fifty years. It simply does not have the precision required to deliver a more accurate result.

Should you have any questions, please do not hesitate to contact me.

Sincerely,

William M. Wiltshire
Counsel to Myriota

Attachment

07 05 2019; 09:56:40AM Activity Log Started

07 05 2019; 11:49:56AM Processing Requirement 4.5-1: Return Status : Passed

Run Data
==========

INPUT

Space Structure Name = Stowed 3U
Space Structure Type = Payload
Perigee Altitude = 600.000000 (km)
Apogee Altitude = 600.000000 (km)
Inclination = 97.770000 (deg)
RAAN = 0.000000 (deg)
Argument of Perigee = 0.000000 (deg)
Mean Anomaly = 0.000000 (deg)
Final Area-To-Mass Ratio = 0.005834 (m^2/kg)
Start Year = 2019.000000 (yr)
Initial Mass = 7.000000 (kg)
Final Mass = 7.000000 (kg)
Duration = 3.000000 (yr)
Station-Kept = False
Abandoned = True
PMD Perigee Altitude = -1.000000 (km)
PMD Apogee Altitude = -1.000000 (km)
PMD Inclination = 0.000000 (deg)
PMD RAAN = 0.000000 (deg)
PMD Argument of Perigee = 0.000000 (deg)
PMD Mean Anomaly = 0.000000 (deg)

OUTPUT

Collision Probability = 0.000004
Returned Error Message: Normal Processing
Date Range Error Message: Normal Date Range
Status = Pass

==========

INPUT

Space Structure Name = Deployed 3U
Space Structure Type = Payload
Perigee Altitude = 600.000000 (km)
Apogee Altitude = 600.000000 (km)
Inclination = 97.770000 (deg)
RAAN = 0.000000 (deg)
Argument of Perigee = 0.000000 (deg)
Mean Anomaly = 0.000000 (deg)
Final Area-To-Mass Ratio = 0.018820 (m^2/kg)
Start Year = 2019.000000 (yr)
Initial Mass = 7.000000 (kg)
Final Mass = 7.000000 (kg)
Duration = 3.000000 (yr)
Station-Kept = False
Abandoned = True
PMD Perigee Altitude = -1.000000 (km)
PMD Apogee Altitude = -1.000000 (km)
PMD Inclination = 0.000000 (deg)
PMD RAAN = 0.000000 (deg)
PMD Argument of Perigee = 0.000000 (deg)
PMD Mean Anomaly = 0.000000 (deg)

OUTPUT

Collision Probability = 0.000004
Returned Error Message: Normal Processing
Date Range Error Message: Normal Date Range
Status = Pass

==========

========== End of Requirement 4.5-1 ==========