



NANORACKS

13 July 2017

Jenny Barna
Spire Global
575 Florida St. Suite 150
San Francisco, CA 94110

Re: OA-8 Above Station Deployment Approval

Dear Jenny,

NanoRacks would like to inform you (as demonstrated in the attached minutes from the June 28th ISS Program Multilateral Systems Engineering & Integration Control Board) that the Space Station Program is committed to proceeding forward with the intent to deploy the four (4) LEMUR CubeSats from the Orbital ATK 8 Cygnus vehicle after unberthing from the ISS. The post deploy altitude of the CubeSats should be no less than 45 kilometers higher than the ISS orbit. The final payload orbit should be as close to co-elliptic with the ISS as possible.

The ability to accomplish this is dependent upon the completion of the required work to enable certification of flight readiness and the availability of sufficient propulsion capability. The availability of propulsion capability will not be known until after launch and berthing of the OA-8 vehicle; however, if the launch and rendezvous profile are as planned, there should be sufficient margin to accomplish the deployment at higher altitude – this is the baseline plan.

Best regards,

Conor Brown
Senior Mission Manager
NanoRacks, LLC

Multilateral Systems Engineering & Integration Control Board (MSEICB)

7:30 am Central

Summary Minutes

June 28, 2017

Building 4 South, Room 4419

Board Chair: Jeffrey J. Arend

Topic

Introduction/Opening Comments

Presenter

OM/Jeff Arend

MSEICB - Special Topics

OA8 eNRCSD Candidates

OM/Charles Gray

Summary: Mr. Gray presented the jettison analysis results and recommendation for the External NRCSD Satellites that are to be deployed above the ISS from OA8 while the vehicle is in free flight. It was noted that the revised jettison policy now includes criteria for these types of deployments. External deployments have been previously discussed at the MSEICB; however, this is the first one for formal approval. Background for each of the satellites can be found in the presentation. It was also noted that this request is for more satellites in one deployment than we have done in the past. All candidates have mass below 5 kg. The impact to ISS operations has a 1% likelihood of a debris avoidance per satellite deployed above the ISS; however, there is no immediate risk after deployment as they are so high up and remain in their orbit for several years. None of the satellites deployed above the ISS thus far have decayed to our altitude yet. The BNs with these satellites should not present any risk at 480/460 km; however, we will have a better understanding where they will go once we receive the real-time analysis and are 45 km above the ISS. All the candidates meet the jettison criteria with the exception of AeroCube as it has a warm water propulsive system. Usually prop systems have a higher risk; however, the PD indicated that the AeroCube has a max dV of 0.03 m/s for one thruster firing which cannot present a risk of conjunction with ISS within the six month prox ops timeframe. The SRP is to review these satellites later this week. If any issues are identified, then Mr. Gray will bring the topic back to the Board. Orbital lifetime predictions were provided. The recommendation is to approve the 10 satellites presented from OA-8 external NRCSD.

Disposition: The Board provided approval with the recommendation.