

2. Board: <input type="checkbox"/> Space Station Control Board (SSCB) <input type="checkbox"/> ISS Mission Management Team (IMMT) <input checked="" type="checkbox"/> Multilateral Systems Engineering and Integration Control Board (MSEICB)	3. Date: Oct 18, 2017
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4. Title: OA8 external NRCSD Cubesats

5. The following items have been approved for jettison by the general partnership of the International Space Station Program, as agreed to by the International Partner Program Managers or their MSEICB designees.

- a) Lemur-2 (8 Satellites)
- b) CHEFSat
- c) AeroCube 7 B/C (2 Satellites)
- d) PropCube
- e) ISARA
- f) Asgardia

6. Initiator Name:	Organization/Company:	Phone:
Charles Gray	OM	281-244-8525

7. NASA Responsible POC:	Organization:	Phone:
Charles Gray	OM	281-244-8525

8. Flight Effectivity: OA8 EVA (if applicable): N/A

9. Requirements from PPD 1011, Multilateral ISS and ISS Visiting Vehicle Jettison Policy (see PPD 1011 Rev B for complete list of criterion)

- 3.1-1 – The jettison candidate(s) shall be trackable by the Space Surveillance Network (SSN).
  - Expedited Approval Criteria: Candidate has metallic cross sectional area  $\geq 100 \text{ cm}^2$  on three orthogonal sides.
- 3.1-2 – Jettison candidate has demonstrated that risk of on-orbit fragmentation has been controlled.
- 3.2-1 – Analysis has demonstrated that jettison candidate will not contact any ISS structure during jettison.
  - Expedited Approval Criteria: Jettison is planned to occur from a location and in a direction which has been previously approved for jettison, utilizing a jettison/deployment method that has been previously analyzed and approved.
- 3.2-2 – Jettisoned object demonstrates safe relative motion with the ISS.
  - Expedited Approval Criteria: Candidate pre-activation and operational Ballistic Number (BN) meet the following criteria:

Deploy dV (m/s)	BN (kg/m <sup>2</sup> )
< 0.5	$\leq 100$
$\geq 0.5$	$\leq 120$
- 3.2-3 – Candidates with systems capable of modifying or adding energy into the candidate's orbit have demonstrated that they do not pose a collision hazard with ISS or visiting vehicles.
  - Expedited Approval Criteria: Jettison candidate does not have systems capable of modifying or adding energy into the candidate's orbit.
- 3.3-1 – Jettison shall be scheduled such that there is sufficient time to determine the jettisoned object's orbital parameters and assess effects on any visiting vehicle operations.
- If the above criteria cannot be met, see blocks 11 and 12 for exception to the policy.

10. Jettison Rationale (must fall into one or more of the following categories)



- Items that pose a safety issue for the ISS or for return onboard a visiting vehicle (contamination, materials, degradation, etc.)
- Items that negatively impact ISS utilization, return or on-orbit stowage manifests
- Items that represent an EVA timeline savings
- Items that are designed for jettison

11. An exception is granted to the following requirement(s):


3.2-3 Expedited Approval Criteria: All Cubesats meet the Expedited Approval Criteria with the exception of the 2 AeroCube 7 B/C satellites, which have a warm water propulsion system.

12. Rationale for the exception:

Analysis provided by the AeroCube 7 Payload Developer and NanoRacks validates that the satellite still meets the 3.2-3 Requirement: the dV capability of the satellite is so low as to not pose a collision hazard with ISS or visiting vehicles. AeroCube conservative maximum dV is 0.033 m/s. Taking this value into account, TOPO analysis demonstrates that the risk posed by this propellant system is not appreciably greater than the risk posed by a non-propulsive satellite.

13. Submitting Signatures			
<b>13a. Initiator</b>			
Print Name:	Charles Gray	Phone:	281-244-8525
Signature:		Date:	10/25/17
<b>13b. NASA Responsible POC</b>			
Print Name:	Adam Baker	Phone:	281-483-2747
Signature:		Date:	10/25/17
14. Concurrence Signatures			
<b>14a. ISS Safety Review Panel:</b>			
Print Name:		Phone:	
Signature:		Date:	
<b>14b. Multilateral Systems Engineering &amp; Integration Office:</b>			
Print Name:	Jeff Arend	Phone:	281-244-7038
Signature:		Date:	

15. International Partner	Approve of Decision		Dissenting Opinion
Roscosmos	Y <input type="checkbox"/>	N <input type="checkbox"/>	<input type="checkbox"/>
Canadian Space Agency	Y <input type="checkbox"/>	N <input type="checkbox"/>	<input type="checkbox"/>
European Space Agency	Y <input type="checkbox"/>	N <input type="checkbox"/>	<input type="checkbox"/>
Japan Aerospace Exploration Agency	Y <input type="checkbox"/>	N <input type="checkbox"/>	<input type="checkbox"/>
Agenicia Spatiale Italiano	Y <input type="checkbox"/>	N <input type="checkbox"/>	<input type="checkbox"/>

Official Poll Taken By: 	Date: 10/25/17
<input type="checkbox"/> Program Manager ISS Program, <input type="checkbox"/> Operations Integration Manager or <input checked="" type="checkbox"/> MSEICB Chair	