

Document: NR-SRD-052	NRCSD ICD Change Notice	NANORACKS
Classification: Public Domain	Date: April 30, 2014	Revision 0.1



Document Change Notice (DCN)

Maximum CubeSat Mass and Vibration Test Spectra

NanoRacks, LLC
18100 Upper Bay Road, Suite 150
Houston, TX 77058
(815) 425-8553
www.NanoRacks.com

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1 Document Purpose

This Document Change Notice (DCN) notifies changes made to the NanoRacks CubeSat Deployer (NRCSD) Interface Control Document (NR-SRD-029). Developers utilizing NanoRacks CubeSat deployment services shall comply with all changes presented in this document, unless otherwise approved by NanoRacks. These changes will be incorporated into the next revision of the NRCSD ICD (Revision 0.37).

2 DCN Summary

DCN Number	NR-SRD-052	
Document Affected	NRCSD ICD REV36, NR-SRD-029	
Change Description	<ol style="list-style-type: none"> 1. Updated CubeSat maximum mass values for the NRCSD ICD, page 8, Section 4.4, Table 1 2. Corrected frequency ranges NRCSD ICD, page 15, Section 6, Table 2 of the NRCSD ICD 	
Reason for Change	<ol style="list-style-type: none"> 1. CubeSat maximum mass values revised to comply with NASA guidance issued March 2014. 2. Correction of typographical errors 	
DCN Distribution	Current and previous external payload developers; NanoRacks Internal	
Originator	Kirk Woellert, External Payloads Manager, NanoRacks	
Reviewers	NanoRacks Flight Safety: Bob Alexander, 5-7-2014	
	NanoRacks Safety: NA	
	NanoRacks Operations: NA	
Approval	Mike Johnson, CTO, NanoRacks: 	5-8-2014

3 Change Notifications

3.1 CubeSat Maximum Mass Limits

NASA issued new guidelines for calculation of Ballistic Number (BN) for payloads deployed from the ISS. This affects the mass properties requirements for CubeSats deployed by NanoRacks listed in Section 4.4, Table 1 of the NRCSD ICD. The updated CubeSat maximum mass limits are displayed in the Table 1. Exceeding these mass limits requires approval by NanoRacks.

Form Factor	Maximum Mass (Kg)
1U	2.40
2U	3.60
3U	4.80
4U	6.00
5U	7.20
6U	8.40

3.2 Vibration Spectrum Corrections

The vibration spectrum outlined in Section 6, Table 2 of the NRCSD ICD contained typographical errors in the frequency ranges. Payload developer should plan flight acceptance vibration tests to the correct vibration test profile displayed in Table 2 below.

Frequency (Hz)	Maximum Flight Envelope (g ² /Hz)
20	0.057 (g ² /Hz)
20-153	0 (dB/oct)
153	0.057 (g ² /Hz)
153-190	+7.67 (dB/oct)
190	0.099 (g ² /Hz)
190-250	0 (dB/oct)
250	0.099 (g ² /Hz)
250-750	-1.61 (dB/oct)
750	0.055 (g ² /Hz)
750-2000	-3.43 (dB/oct)
2000	0.018 (g ² /Hz)
OA (grms)	9.47

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