Attachment2　New Reaction Wheel Assembly Series ‘Type S’ Environmental Test condition

ID	item	Contents		
1	Temperature Range	Storage　　: −20℃ ～ +50℃ Transportaion : −20℃ ～ +40℃ On-orbit non-operation : −30℃ ～ +70℃ ＊1) Turn-on　　: −30℃ ～ +60℃ ＊1) On-orbit operation　　:−15℃ ～ +60℃ ＊2) ＊1)Temperature range that does not cause any failure or unrecoverable degradation ＊2)Temperature range that satisfies sepcifications for function and performance and operate properly		
2	Sine wave vibration (including acceleration)	Qualification Test Level	Protoflight Test Level	Acceptance Test Level
		5 ～ 31.28Hz : 12.7 mm DA 31.28～100　Hz　:　245{25Go-p} {m/s2} sweep : 2oct/min, 1 round trip	5～ 31.28Hz : 12.7 mm DA 31.28～100　Hz　:　245{25Go-p} {m/s2} sweep : 4oct/min, 1 round trip	N/A
3	Random vibration (including acoustic)	＜in-plane＞ 20 ～　50 Hz : ＋6 dB/oct 50 ～　800 Hz : 30.8 (0.32G^2/Hz) 800 ～　2000 Hz : －6 dB/oct [$(m/s^2)^2$/Hz] (G^2/Hz) Over All　: 196.0 m/s^2rms (20.0 Grms) ＜out-of-plane＞ 20 ～　50 Hz : ＋4.1 dB/oct 50 ～　800 Hz : 33.7 (0.35G^2/Hz) 800 ～　2000 Hz : －5.8 dB/oct [$(m/s^2)^2$/Hz] (G^2/Hz) Over All　: 206.3 m/s^2rms (21.1 Grms) time : 120 sec	＜in-plane＞ 20 ～　50 Hz : ＋6 dB/oct 50 ～　800 Hz : 30.8 (0.32G^2/Hz) 800 ～　2000 Hz : －6 dB/oct [$(m/s^2)^2$/Hz] (G^2/Hz) Over All　: 196.0 m/s^2rms (20.0 Grms) ＜out-of-plane＞ 20 ～　50 Hz : ＋4.1 dB/oct 50 ～　800 Hz : 33.7 (0.35G^2/Hz) 800 ～　2000 Hz : －5.8 dB/oct [$(m/s^2)^2$/Hz] (G^2/Hz) Over All　: 206.3 m/s^2rms (21.1 Grms) time : 60 sec	＜in-plane＞ 20 ～　50 Hz : ＋6 dB/oct 50 ～　800 Hz : 15.4 (0.16G^2/Hz) 800 ～　2000 Hz : －6 dB/oct [$(m/s^2)^2$/Hz] (G^2/Hz) Over All　: 138.6 m/s^2rms (14.1 Grms) ＜out-of-plane＞ 20 ～　50 Hz : ＋4.1 dB/oct 50 ～　800 Hz : 16.9 (0.18G^2/Hz) 800 ～　2000 Hz : －5.8 dB/oct [$(m/s^2)^2$/Hz] (G^2/Hz) Over All　: 146.1 m/s^2rms (14.9 Grms) time : 60 sec
4	Shock	SRS (Q = 10) [m/s2] {G} 100～800Hz :　+8dB/oct 800～3000Hz :　9806　{1000G}		
5	Thermal vacuum	−30℃～+70℃　1 cycle, −15℃～+60℃　8 cycle,　Vacuum : ＜ 0.0013Pa {1 × 10−5 Torr}		
6	Radiation	Resistance of total dose :　above 500Gy　(correspond to 10 years in GSO)		