

Attachment2 Inertial Reference Unit (IRU) Type III-C Environmental resistance

ID	item	Contents		
1	Temperature Range	Storage, Transportaion : $-20^{\circ}\text{C} \sim +52^{\circ}\text{C}$ (Temperature range that does not cause performance degradation and unrecoverable failure) On-orbit non-operation : $-30^{\circ}\text{C} \sim +60^{\circ}\text{C}$ (Temperature range that does not cause performance degradation and unrecoverable failure) Turn-on : $0^{\circ}\text{C} \sim +50^{\circ}\text{C}$ (Temperature range that does not cause performance degradation and unrecoverable failure) On-orbit operation : $-10^{\circ}\text{C} \sim +50^{\circ}\text{C}$ (Temperature range that satisfies the features, performance specifications and correct operation)		
2	Sine wave vibration (including acceleration)	Qualification Test Level	Protoflight Test Level	Acceptance Test Level
		2 ~ 26.5Hz : 12.7 mm DA 26.5 ~ 36 Hz : 176.4{18.0} 36 ~ 41 Hz : 156.8{16.0} 41 ~ 43 Hz : 147.0{15.0} 43 ~ 47 Hz : 132.3{13.5} 47 ~ 50 Hz : 122.5{12.5} 50 ~ 60 Hz : 114.7{11.7} 60 ~ 70 Hz : 98.0{10.0} 70 ~ 100 Hz : 78.4{ 8.0} {m/s ² } sweep : 2oct/min, 1 round trip	2 ~ 26.5Hz : 12.7 mm DA 26.5 ~ 36 Hz : 176.4{18.0} 36 ~ 41 Hz : 156.8{16.0} 41 ~ 43 Hz : 147.0{15.0} 43 ~ 47 Hz : 132.3{13.5} 47 ~ 50 Hz : 122.5{12.5} 50 ~ 60 Hz : 114.7{11.7} 60 ~ 70 Hz : 98.0{10.0} 70 ~ 100 Hz : 78.4{ 8.0} {m/s ² } sweep : 4oct/min, 1 round trip	2 ~ 26.5 Hz : 12.7 mm DA 26.5 ~ 36 Hz : 141.2 {14.4 } 36 ~ 41 Hz : 125.5{12.8 } 41 ~ 43 Hz : 117.7{12.0 } 43 ~ 47 Hz : 105.9{10.8 } 47 ~ 50 Hz : 98.1{10.0 } 50 ~ 60 Hz : 91.8{ 9.36} 60 ~ 70 Hz : 78.5{ 8.0 } 70 ~ 100 Hz : 62.8{ 6.4 } {m/s ² } sweep : 4oct/min, 1 round trip
3	Random vibration (including acoustic)	effective value : 193.1 m/s ² rms {19.7 Grms} time : 120 s	effective value : 128.7 m/s ² rms {13.13 Grms} time : 60 s	effective value : 128.7 m/s ² rms {13.13 Grms} time : 60 s
4	Shock	SRS(Q = 10)[m/s ²] {G} 100Hz : 235.2 { 24} 1300Hz : 9800 {1000} 1300~2500Hz: 9800 {1000} 2500Hz : 9800 {1000} 5000Hz : 19600 {2000} 10000Hz : 9800 {1000}		
5	Thermal vacuum	$-10^{\circ}\text{C} \sim +50^{\circ}\text{C}$ 8 cycle, degree of vacuum : $< 0.0013\text{Pa}$ { 1×10^{-5} Torr}		
6	Radiation	Resistance of total dose : above 39.8 kRAD (correspond to 15 years GSO)		