



EPD/Kiel FM/PFM units

Environmental Tests Proposal, v3.

EPTHET-1 FM

EPTHET-2 PFM

STEP FM

**Updated based on EPD-IQR Co-location meeting
on 17.02.2016 at ESTEC**

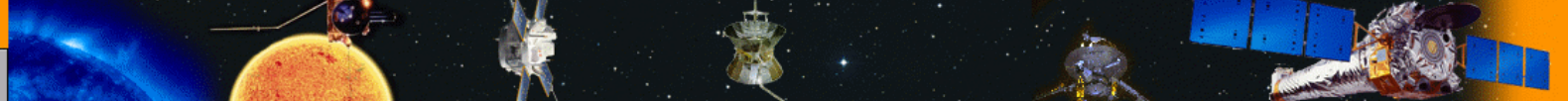


FUNCTIONAL & PROPERTIES TEST

✓: performed, □: Planned

Models and applicable units	STM and EM		PQM		FM/PFM		
	Old-STEIN	EPT-HET	STEP	EPT-HET	STEP FM	EPTHET-1 FM	EPTHET-2 PFM
Functional Tests	✓EM	✓EM	✓	✓	□	□	□
Physical Properties (Mass, CoG, MOI, Dimensions, electrical connectors, etc.)							
Mechanical Interfaces Check							
Visual Inspection(1)	✓ STM	✓STM	✓	✓	□	□	□

- (1) The STM CoG and Mol were verified by Analysis. This is explained in the approved RFD "SO-EPD-KIE-RD-0001, issue 2.1".
- (2) According to the RFD approval comment, "...no concern; unit mass and size are relatively small..." and the very similar properties, only mass, dimensions and electrical connections will be measured.



STRUCTURAL TEST

✓: performed, □: Planned

Models and applicable units	STM	PQM		FM/PFM		
	EPT-HET	STEP	EPT-HET	STEP FM	EPHET-1 FM	EPHET-2 PFM
Sine Vibration Test	Q✓	Q✓	Q✓	□A/A	□A/A	□Q/A
Random Vibration (1)(2)(3)	Q/Q✓	Q/Q✓	Q/Q✓	□A/A	□A/A	□Q/A
Acoustic Noise Test	-	-	-	RFD	RFD	RFD
Shock Test	-	-	-	-	-	-

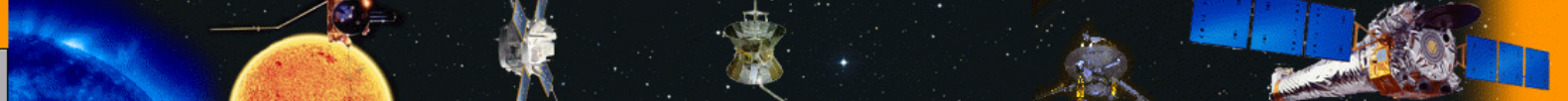
(1) Q/Q: Qualification level and Qualification duration

(2) A/A: Acceptance level and Acceptance duration

(3) Q/A: Qualification level and Acceptance duration

Note:

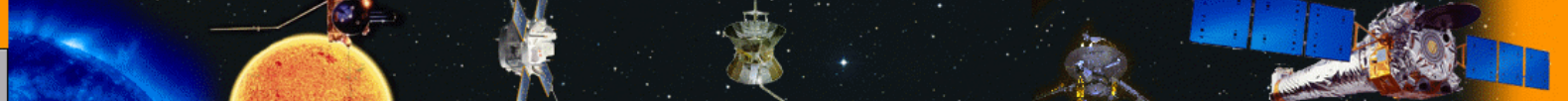
EIDA R-499 qualification load is no longer applicable for RV test but new loads from ESA indicated in SO-EPD-KIE-RD-0011 for Qualification.



THERMAL TEST

✓: performed, □: Planned

Models and applicable units	STM	PQM		FM/PFM		
	EPT-HET	STEP	EPT-HET	STEP FM	EPHET-1 FM	EPHET-2 PFM
Thermal Balance Test	Q✓	Q✓	Q✓	-	-	-
Thermal Vacuum Cycling	-	Q✓	-	□A (4 cycles)	□A (4 cycles)	□Q (4 cycles)



EMC TEST

✓: performed, □: Planned

Models and applicable units	EM		PQM		FM/PFM		
	Old-STEIN	EPT-HET	STEP	EPT-HET	STEP FM	EPTHET-1 FM	EPTHET-2 PFM
Bonding, Isolation, Conductivity and Grounding	✓	✓	✓	✓	□	□	□
Inrush current	✓	✓	✓	✓	□	□	□
Conducted Emission	✓	✓	✓	✓	□	□	□
Conducted Susceptibility	-	✓	✓	✓	RFD	RFD	RFD
Radiated Emission	-	-	✓	✓	□ (1)	□ (1)	□ (1)
Radiated Susceptibility	-	-	✓	✓	RFD	RFD	RFD
DC Magnetic Properties	-	-	✓	✓	□	□	□
E-field characterization	-	-	✓	✓	□ (2)	□ (2)	□ (2)
H-field characterization	-	-	✓	✓	□ (3)	□ (4)	□ (5)
ESD	-	-	✓	✓	-	-	-

- (1) RE measurements will be done up to 1 GHz including the X band Notch.
- (2) E-field characterization will be done up to 20 MHz.
- (3) Whole range but limited to worst sensor axis from PQM and just one distance. i.e.,
Z-axis of sensor, +X face of STEP FM at 1m and 3.17m.
- (4) Whole range but limited to worst sensor axis from PQM and just one distance. i.e.,
Z-axis of sensor, -X face of EPT-HET1 PFM at 1m and 2.75 m.
- (5) Whole range but limited to worst sensor axis from PQM and just one distance. i.e.,
Z-axis of sensor, +Y face of EPT-HET2 PFM at 1m and 2.90 m.