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SMECm FM acceptance test report

Prepared by:	Signature
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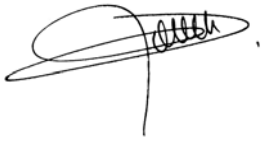
Gerard Rousset Date: 17 july 2006	

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Change record

Date	Issue	Revision	Modification	Pages affected
17 July 2006	1	0	Creation of the document	

Distribution list

Institute	Name	Issue/Revision							
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1 Scope of the document

This document is the report of the various vibrations and thermal tests conducted on the SMECm FM prior to its delivery.

2 Documents

2.1 Applicable Documents

	Title	Author	Reference	Date

2.2 Reference Documents

	Title	Author	Reference	Date
1	SMECm FM - Vibrations - Recette - 24 mars 2006	P.Laurent	LAM.ESS.SPI.PRV.032809 Issue 1 Rev 0	13/04/2006
2	SMECm FM - Essai vide/thermique 27 au 31 mars 2006	E.Grassi	LAM.ESS.SPI.CRE.002813 Issue 1 Rev 0	13/04/2006
3	SMECm FM - Vibrations - Cryo-Vibration test report CSL - 10 to 17 April 2006	J.Servaye	RP-CSL-SHK-06005 Issue 1 Rev 0	11/05/2006
4	SMECm FM - Essai vide/thermique 11 au 15 mai 2006	E.Grassi	LAM.ESS.SPI.CRE.002913 Issue 1 Rev 0	12/06/2006
5	SMECm FM - Essai vide/thermique 6 au 9 juin 2006	E.Grassi	LAM.ESS.SPI.CRE.003013 Issue 1 Rev 0	12/06/2006
6	SMECm FM - Vibrations (Z axis) - Vérification latch après test cryo LAM - 12 juin 2006	P.Laurent	LAM.ESS.SPI.PRV.033209 Issue 1 Rev 0	12/06/2006
7	SMECm FM - Essai vide/thermique 13 au 16 juin 2006	E.Grassi	LAM.ESS.SPI.CRE.003113 Issue 1 Rev 0	19/06/2006
8	SMECm FM : Vibrations X : Validation après changement de la carte électronique pré ampli	P.Laurent	LAM.ESS.SPI.PRV.033309 Issue 1 Rev 0	29/06/2006
9	SMECm FM - Essai vide/thermique 29 juin au 10 juillet 2006	E.Grassi	LAM.ESS.SPI.CRE.003213 Issue 1 Rev 0	11/07/2006

3 Tests

Type	300K Acceptance vibrations
Date	24 March 2006
Specifications	LAM.PJT.SPI.SPT.060215_01 Issue 1 Rev 4
Axis	X, Y, Z
Configuration	LAM.SSP.SPI.PRV.060215_01 Issue 1 Rev 3
Result	SMECm FM accepted Functional test conducted on the 25thMarch 2006 showed nominal behaviour
Report	LAM.ESS.SPI.PRV.032809 Issue 1 Rev 0

Type	Thermal test
Date	27 to 31 March 2006
Specifications	SMECm disengaged during the transients. Cool down and warm up rate = 20K/h
Configuration	LAM.SSP.SPI.PRV.060215_01 Issue 1 Rev 3
Result	SMECm FM sticks at cryogenic temperature ⇨ not able to reach its mechanical stops ⇨ impossible to latch the mechanism Functional test conducted after the test, at 300K, showed nominal behaviour
Report	LAM.ESS.SPI.CRE.002813 Issue 1 Rev 0
Action	Increase the gaps on the Y mechanical stops, +X side. Nothing more to be done due to planning constraint (cryogenic vibration date)

Type	4K Acceptance vibrations
Date	10 to 17 April 2006
Specifications	LAM.PJT.SPI.SPT.06031401_01 Issue 1 Rev 2
Axis	X, Z
Configuration	LAM.SSP.SPI.PRV.060215_01 Issue 1 Rev 3 + modification of the Y gap at the front of the mechanism (-60µ/+100µ)
Remark	Problem of condensation on the mechanism (mechanism at +10°C when unpacked) SMECm FM had to be engaged when cold by inclining the cryostat. This was expected as nothing has been changed w.r.t. to the previous thermal test except the Y front gap.
Results	Cryovibrations OK as visual inspection Ok after the tests and functional tests Ok at 300K before and after the test
Report	RP-CSL-SHK-06005 Issue 1 Rev 0

Modification of the thermal I/F between the SMECm FM and the LAM cryostat.

Type	Thermal test to verify that the I/F is not responsible for the sticking
Date	11 to 15 May 2006
Specifications	SMECm disengaged during the transients. Cool down and warm up rate = 20K/h
Configuration	Same as before
Results	SMECm FM sticks at cryogenic temperature Functional test conducted after the test, at 300K, showed nominal behaviour The sticking problem comes from the mechanism and not from its I/F.
Report	LAM.ESS.SPI.CRE.002913 Issue 1 Rev 0

Removal of the extruded material on the Z stops and on the Y rear stop.

Type	Thermal test to validate the positive effect of the extruded material removal
Date	6 to 9 June 2006
Specifications	SMECm disengaged during the transients. Cool down and warm up rate = 20K/h
Configuration	Delivery configuration i.e.: Same as before + all extruded material removed on all the Z stops and on the Y stop at the rear end of the mechanism.
Results	The preamplifier board does not work (effect of the condensation problem at CSL) SMECm free to engage and disengage from its stops. No performance test at cryo temperature as preamplifier board not operational.
Report	LAM.ESS.SPI.CRE.003013 Issue 1 Rev 0

Type	300K Acceptance vibrations – Z axis only – To check launch latch Ok after extruded material removal
Date	12 June 2006
Specifications	LAM.PJT.SPI.SPT.060215_01 Issue 1 Rev 5
Axis	Z
Configuration	Same as before (preamplifier board not operational)
Result	The launch latch remains engaged during the vibrations
Report	LAM.ESS.SPI.PRV.033209 Issue 1 Rev 0

Type	2nd thermal test to check repeatibility
Date	13 to 16 June 2006
Specifications	SMECm disengaged during the transients. Cool down and warm up rate = 20K/h
Configuration	Same as before (preamplifier board not operational)
Results	SMECm free to engage and disengage from its stops. No performance test at cryo temperature as preamplifier board not operational.
Report	LAM.ESS.SPI.CRE.003113 Issue 1 Rev 0

The preamplifier board, the optical encoder flex circuit and the board harness are replaced.

Type	300K Acceptance vibrations – X axis only – To check preamplifier board Ok after replacement
Date	29 June 2006
Specifications	LAM.PJT.SPI.SPT.060215_01 Issue 1 Rev 5
Axis	X
Configuration	Definitive (preamplifier board problem fixed)
Result	Functional tests before and after vibrations Ok
Report	LAM.ESS.SPI.PRV.033309 Issue 1 Rev 0

Type	3rd and 4th thermal tests with performance test at cryogenic temperature
Date	29 June to 10 July 2006
Specifications	
Configuration	Same as before
Results	No problem. SMECm free to engage and disengage from its stops. Performance test at cryo temperature Ok.
Report	LAM.ESS.SPI.CRE.003213 Issue 1 Rev 0