Doc.No:	TOS-MCV/2004/2964/ln/BL	Issue:	1	Revision:	0
Lab.Act.No:	Eb164.04.538/4	Project:	STEREO	Date:	11.03.2004
Subject:	SEPT TV Cycling Test - PTR of FM 1 and TRR of FM 2				

Minutes of Meeting (FM 1- PTR, FM 2 - TRR)

Participants: S. Böttcher, J. Falenski (University of Kiel, D)

B. Lehmann (secretary), (TOS-MCV)

Date: 11.03.2004
Location: Mechanical Systems laboratory (Eb164 at ESTEC)

SEPT FM 1 - Post Test Review

1. Test configuration deviations
The TV test was stopped 10.03.2004 at 9:00 to investigate the sensor anomaly. The facility was re-pressurised after the test specimens were brought to ~35ºC. The following changes were made:
The sensor head B of SEPT-E was electrically connected to the engineering model (EM) of SEPT being located outside of the facility and controlled by an additional EGSE (Model: Kiel). The additional harness was baked-out for 17 hours at +60ºC.

2. Test procedure deviations
Deviation 1
During the first cycle, the sensor of SEPT-E, side B detector electron had a “short circuit” below a certain temperature threshold (i.e. -30ºC) and it was decided to stop to ramp to +50ºC and return to the low temperature limit. The effect could be reproduced during the hot ramp. Nevertheless, the test was continued with the bake-out phase planned for the weekend.
Deviation 2
TV test interruption 10.03.2004 at 9:00 after the 5th cycle (see point 1). The test was continued after the changes with the pump down starting 10.03.2004 at 10:52. The nominal pressure level of $<10^{-5}$mbar was already reached at 11:05 due to the cold trap.

3. Test results
3.1. SEPT FM1
All functional tests of SEPT FM 1 were executed in accordance with the tests defined in the step-by-step sequence of the test plan, STEREO-ETKI-006.
3.2.Facility
The FM 1 was subjected to 7 TV cycles (one survival and 6 qualification cycles) in the range from -40ºC to +50ºC. The hot and cold dwells were realised according to the test procedure with a change rate of ≤1K/h. The implemented bake-out was conducted at a temperature of 48.5ºC (see annex).

The pressure inside the facility was kept at any time below $<10^{-5}$mbar during the cycling and off-gassed components were collected on a liquid Nitrogen trap installed in the facility.

4. NCR

4.1. SEPT FM 1

NCR 1: Detector “short” in SEPT-E sensor side B, detector electron

NCR 2: Door opening failed during nominal hot phase, SEPT-NS, A side due to open circuit in pinpuller, during cold ramp, the pinpuller became operational and the opening was performed at cold dwell

NCR 3: Door opening failed during nominal cold phase, SEPT-E, A side, pinpuller operated successfully, but electron door failed to open, door opened during the following hot ramp

4.2. Facility: none

Remark: It was observed, that the cooling loop of the cold trap had a very small leak resulting in pressure variation between 2 10^{-6}mbar and 5 10^{-6}mbar during the filling of the trap. It was decided to wait and conduct leak tests after the TV cycling test

5. Open work, AOB

none

6. Conclusion

The electronic parts of SEPT FM 1 passed successfully the TV cycling test consisting of one survival and 6 operational cycles in the qualification temperature range from -40ºC to +50ºC. The door opening mechanism has to be re-worked and the failure of the detector and pinpuller have to be investigated.

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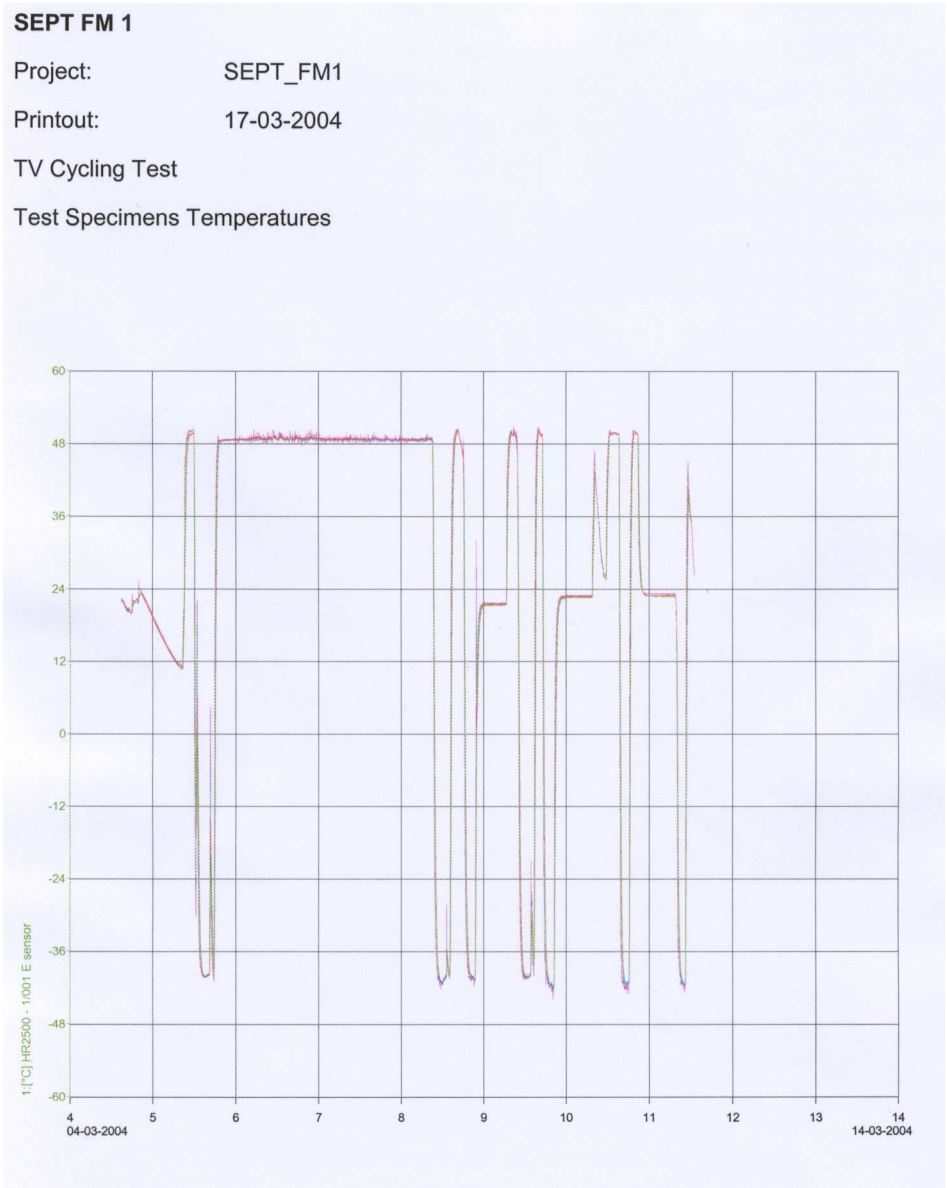
Annex: SEPT FM 1 Test Temperatures



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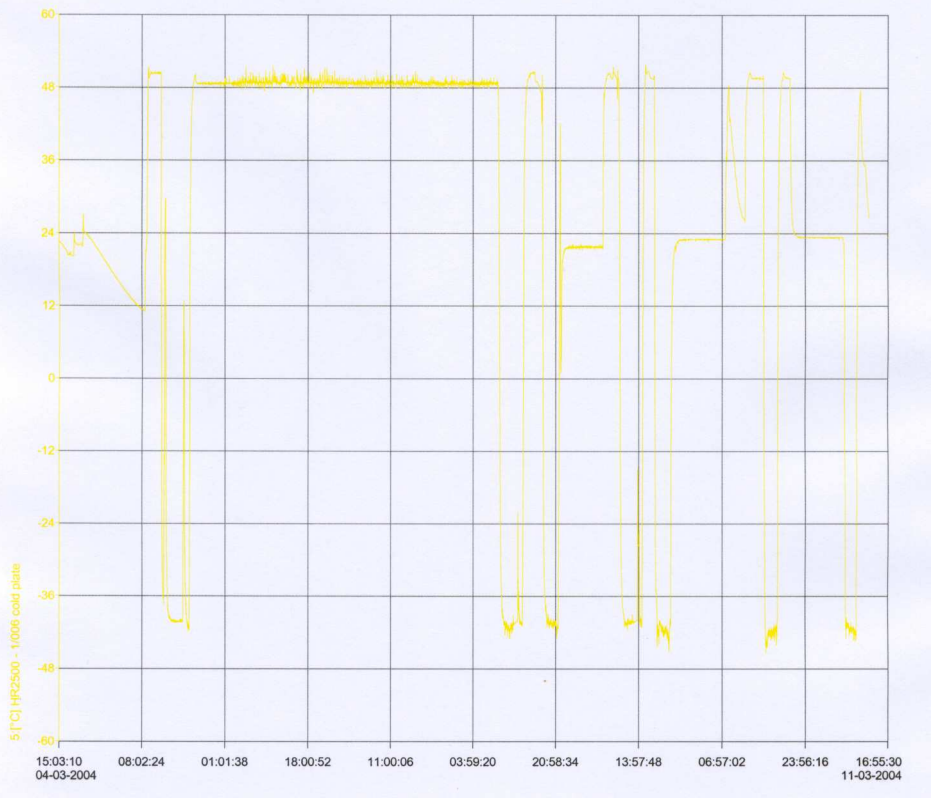
SEPT FM 1

Project: SEPT_FM1

Printout: 17-03-2004

TV Cycling Test

Cold Plate Temperature



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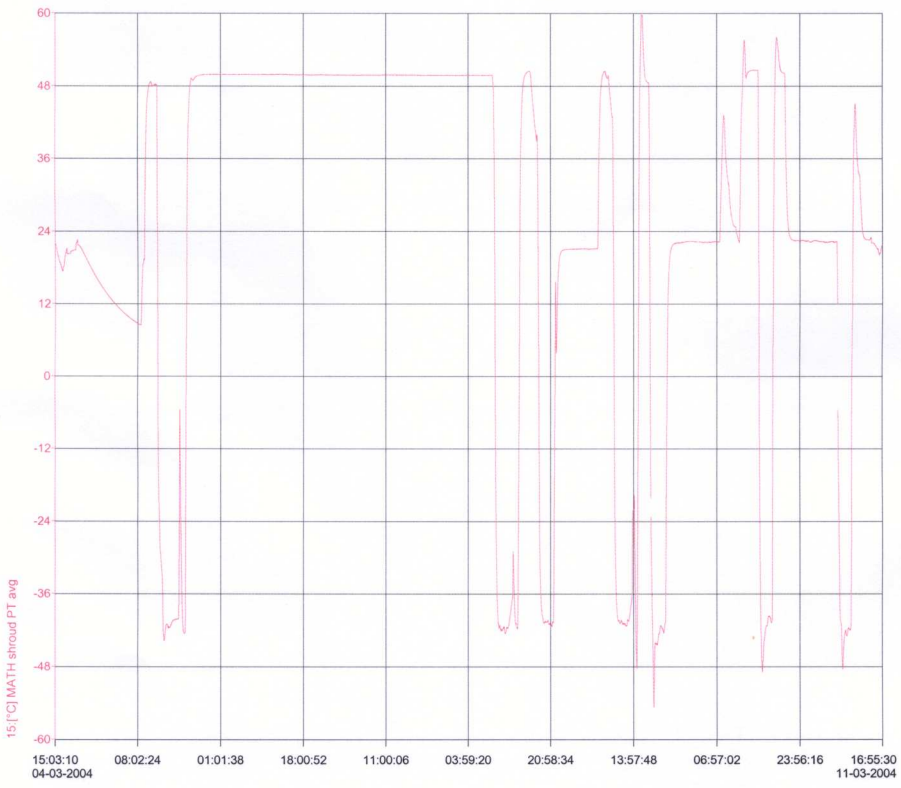
SEPT FM 1

Project: SEPT_FM1

Printout: 17-03-2004

TV Cycling Test

Average Shroud Temperature



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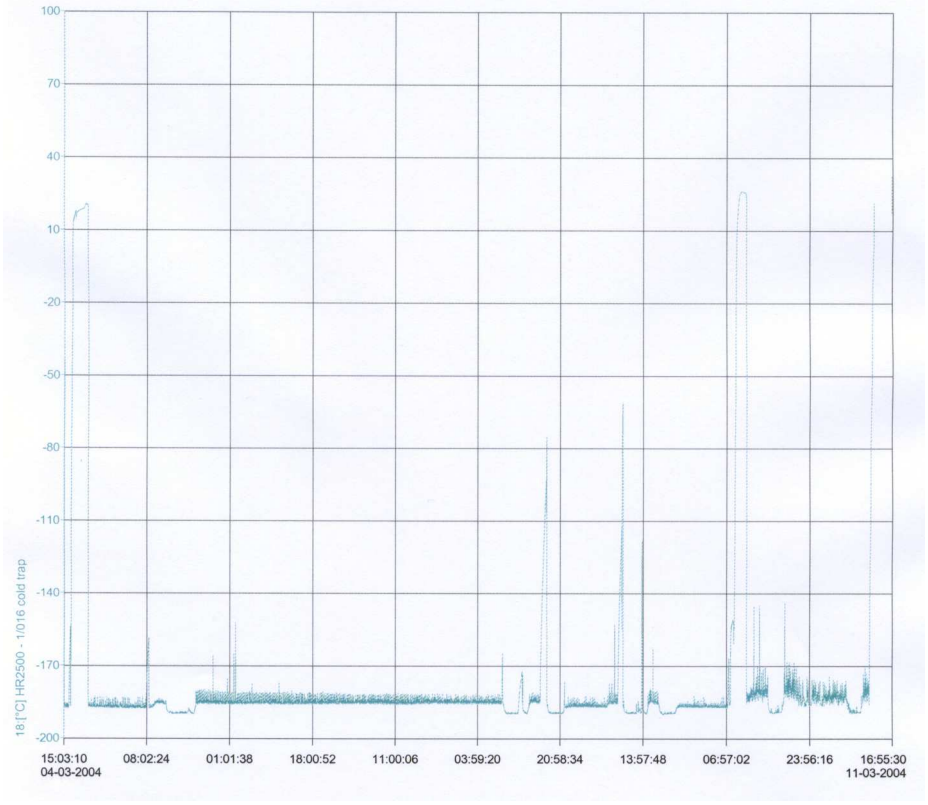
SEPT FM 1

Project: SEPT_FM1

Printout: 17-03-2004

TV Cycling Test

Cold TrapTemperature



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SEPT FM 2 - Test Readiness Review

1. Configuration status
1.1. Test specimen
SEPT Flight Model (FM) 2 consisting of SEPT-E and SEPT-NS
1.2. EGSE
Customer provided (D/SCI), model: ESTEC

2. Documentation status
2.1. Test procedure
SEPT Thermal Vacuum Test Plan, STEREO-ETKI-006, 24-FEB-2004 with amendments of FM 1 TRR (TOS-MCV/2004/2963/ln/BL, 4.03.2004)

2.2. Special documentation
not applicable

3. Pre-test results
not applicable, FM 2 test starts directly after FM 1 test

4. NCR and RfW status
none, which may have impact on the TV test

5. Facility status
5.1. Preparation
Repair of tubing of liquid Nitrogen trap was performed and the facility was verified in a dry run. Result: ok

5.2. Instrumentation
TC to be provided for SEPT, mounting locations as on FM 1

6. Test plan and schedule
March, 11th: Installation of SEPT and start of pump down
March, 12th: Start of TV cycling (1.5 cycles ending with hot plateau for bake-out phase)
March, 12th - 15th: Bake-out at 49ºC
March, 15th - 17th: TV cycling continued (5.5. cycles)
March, 17th: End of TV and recovery

7. Open work, AOB
none

8. Conclusion
All conditions to start the TV cycling test of SEPT FM 2 are fulfilled. The TV test can be conducted according to the test procedure and the amendments agreed during the TRR of FM 1.