

Minutes of Meeting


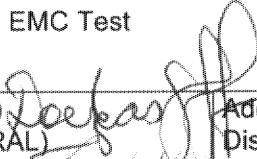




Date: 28.11.2005

Herschel

Doc.-No.: HP-2-ASED-MN-1127

Meeting place:	EADS Astrium OTN	Chairman:	S. Idler
Date/Time:	28.11.2005 / 10:00	Secretary	S. Idler
Agenda dated:	TRR Standard Agenda	Close of Meeting:	28.11.2005

Subject: TRR for SPIRE EMC Test

Participants: 	D. Griffin (RAL) 	Additional Distribution: ESA ASP
	A. Arambure (RAL)	
	F. Marliani (ESA) 	
	C. Kalde (ASED) 	
	D. Hendry (ASED)	
	S. Ilsen (ASED) 	
S. Idler (ASED) 		

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Brief-Minutes (except following sheets)

Summary of Results of Sheets 2 till

Summary and Conclusion:

Hardware and facility is ready for EMC test. EMC test can start.



Reference	Results	Remarks
	<p>TRR Agenda:</p> <ol style="list-style-type: none">1. As Built / As Designed Configuration Status / S/W Status2. Inspection / Integration Status3. NCR / RFW Status4. Open Work / Open Actions5. Test Procedure / Test Reports / Test Requirements6. Safety Hazards and Hazardous Operations7. Test Equipment / Facility and Calibration Status8. Cleanliness9. Test Personnel and Responsibilities10. Problem Areas11. AOB12. Conclusion	



Reference	Results	Remarks
	<p>1. As Built / As Designed Configuration Status / S/W Staus</p> <p>As built status of SPIRE</p> <p>Same as for the last test, the PACS SPIRE Parallel Mode IMT (HP-2-ASED-MN-1106). No change since then.</p> <p>Configuration of cryostat</p> <p>Same as for the last test, the PACS SPIRE Parallel Mode IMT (HP-2-ASED-MN-1106). No change since then with the exception of the EMC preparations as identified in the EMC TRR HP-2-ASED-MN-1062 (e.g. wrapping of cables with aluminium foil, mounting of missing SVM side panel, ...).</p> <p>Software</p> <p>See Annex 1. No SPIRE OBSW change since last test.</p> <p>tcl scripts for the SPIRE EMC test have been delivered and validated. 2 dedicated tcl scripts will be used for the EMC test : SPIRE-CCS-EMC-SWEEP.tcl and SPIRE-CCS-EMC-SPOT.tcl. Both have been already tested in the farme of the SPIRE IMT.</p> <p>Bus profile: SPIRE_prime_inst.pst.</p> <p>During the SPIRE EMC test HIFI and PACS will be in the stand-by mode.</p>	



Reference	Results	Remarks
	<p>2. Inspection / Integration Status</p> <p>Last MIP was performed prior to cryostat closure (HP-2-ASED-MN-1029).</p> <p>Inspection / integration status is the same as for the PACS SPIRE Parallel Mode IMT (HP-2-ASED-MN-1106).</p> <p>Prior to SPIRE EMC test it has been checked again that all not used feed through connectors are properly shielded and that the harness for the SPIRE mechanisms drive has been properly wrapped in aluminium foil.</p> <p>SPIRE PSU has been placed underneath the cryostat in order to avoid EMI.</p> <p>3. NCR / RFW Status</p> <p>NCR status</p> <p>The current NCR status is given in the minutes of the PTR for the PACS SPIRE Parallel Mode IMT (HP-2-ASED-MN-1112).</p> <p>No additional SPIRE related NCR's have been raised since then.</p> <p>None of the existing open NCR's blocks this EMC test.</p> <p>RFW status</p> <p>No pending EMC test relevant RFW's.</p>	



Reference	Results	Remarks
	<p>4. Open Work / Open Actions</p> <p>Status of actions identified at the combined TRR for the EMC test (HP-2-ASED-MN-1062)</p> <p><u>Instruments</u></p> <ul style="list-style-type: none"> • Completion for SPIRE and PACS IMT's also for the PACS/SPIRE parallel mode. <i>Closed.</i> • HIFI to include the up-converter and replace the ICU AVM by the ICU CFM2. HIFI to re-arrange the rack for the LSU simulator. <i>Closed.</i> • PACS to replace the DPU CFM by the DPU AVM. <i>Closed.</i> • PACS, HIFI and SPIRE to define the evaluation criteria for the test results. <i>For PACS closed. HIFI will include definition in test analysis. For SPIRE closed with SPIRE-RAL-PRC-002545.</i> • HIFI will provide a detailed procedure for the installation of B/O boxes with transformers, capacitors and LISN under powered condition. <i>Closed.</i> <p><u>Astrium:</u></p> <ul style="list-style-type: none"> • TCL files for the instruments to be validated. <i>Closed.</i> <p><u>Facility:</u></p> <ul style="list-style-type: none"> • All cables not used for the operation of the instrument during EMC tests shall be removed from the set-up. <i>Closed.</i> • All equipment not needed for the test have to be located at least 2 meters apart from the cryostat except if needed for operation of the cryostat and instruments. <i>Closed.</i> • EGSE cabling shall be routed commonly as far as possible and shielded before the tests with aluminium household foil. <i>Closed.</i> 	



Reference	Results	Remarks
	<ul style="list-style-type: none"> • Below the SPIRE avionics equipment the compartment (inside the SVM simulator module) shall be closed as possible e.g. with aluminium foil. <i>Closed.</i> • SPIRE PSU as well as PACS BOLC supply shall be equipped with isolation transformer and located below the SVM simulator. <i>Will not be done. IMT configuration as documented in grounding diagram will be used. This agreed by RAL. Grounding diagram will be annexed to the EMC test report.</i> • HIFI test rack shall be located not to disturb the EMC activities. <i>Closed.</i> • The EMC RS antennas will be mounted on a boom and will have wheels to allow simple change of the location. The foot of the antenna boon construction will have an area of about 0.5 m x 0.5 m. The clearance for location changes in the facility must be sufficient (at least 2 m from the cryostat). <i>Closed.</i> • SPIRE PSU to be supplied with isolation transformer. <i>Will not be done. IMT configuration as documented in grounding diagram will be used. This agreed by RAL. Grounding diagram will be annexed to the EMC test report.</i> <p>Status of actions identified at the SPIRE EMC test working meeting (HP-2-ASED-MN-1050)</p> <ul style="list-style-type: none"> • AI 02: Grounding diagram added to SPIRE test procedure. <i>Closed with SPIRE-RAL-PRC-002545.</i> • AI 05: SPIRE to provide dwell time. <i>Closed with SPIRE-RAL-PRC-002545.</i> • <i>All others closed (see HP-2-ASED-MN-1062).</i> <p>All open work and action items listed above are closed.</p> <p>No further open work has been identified.</p>	



Reference	Results	Remarks
	<p>5. Test Procedure / Test Reports / Test Requirements</p> <p>Procedures</p> <p>The following procedures will be used to perform the EMC test:</p> <ul style="list-style-type: none"> • PLM EQM EMC test procedure HP-2-ASED-PR-0033, issue 1, dated 05.10.2005. • EGSE Set-Up Procedure HP-2-ASED-PR-0035, issue 4. <p>For the EMC test the following variations to the EMC test procedure have been agreed:</p> <p><u>H-field:</u></p> <p>Sweep 30 Hz to 50 kHz: 10 sec dwell time, $f(n+1) = 1.05 \cdot f(n)$, amplitude modulation of injected signal with 86% duty cycle and 1 Hz repetition rate. 2 antenna positions for sweep. For spot it will be decided pending susceptibility.</p> <p>Spot: 30 frequencies will be selected based on the results of the sweep and/or based on the frequency list in the satellite frequency plan. Dwell time is 3 min per frequency and amplitude. QLA script allows near real time data evaluation (< 5 min).</p> <p><u>E-field:</u></p> <p>Review of procedure for E field will be done after completion of H-field. Potential variations will be documented as for h-FIELD.</p> <p>Procedure variations will be implemented by on-line red-marking of the PLM EQM EMC test procedure HP-2-ASED-PR-0033, issue 1.</p>	



Reference	Results	Remarks
	<p>In parallel to the SPIRE EMC test the HIFI and SPIRE instruments will be operated as non prime instruments according to the following procedures:</p> <ul style="list-style-type: none"> • HIFI EQM IST & EMC Test Procedure SRON-G/HIFI/PR/2005-101, issue 1.5, section 2 (switch on/off). • PACS-ME-TP-026, issue 1.0 with scripts sent by e-mail from H. Feuchtgruber on 31.09.2005. <p>During the EMC test RAL will perform quick look analysis; procedure incl. pass-fail criteria as per SPIRE-RAL-PRC-002545.</p> <p>RAL will record for each frequency a dedicated measurement data file which will be marked with the test step number. In addition ASED will record the CCS time for each frequency in the EMC report.</p> <p>Reports</p> <p>ASED will produce the instrument EMC test report as regards operational aspects (filled out PLM EQM EMC test procedure).</p> <p>RAL will write the report related to the EMC test data analysis.</p> <p>Requirements</p> <p>As per IID-A, issue 3.3.</p> <p>Due to limitation of facility the max. H field will be 120 dBpT instead of 140 dBpT. This is acceptable.</p> <p>For the purpose of SPIRE EMC test the following cryostat temperatures shall be adjusted, as far as possible with the existing EQM cryostat hardware constraints:</p>	



Reference	Results	Remarks
	<p>L0 < 1.8 K L1 < 5 K Cryo cover: as cold as possible (< 20 K).</p> <p>6. Safety Hazards and Hazardous Operations</p> <p>No EMC test specific hazards are identified. Field levels are low.</p> <p>7. Test Equipment / Facility and Calibration Status</p> <p>Cryostat temperatures</p> <p>The required L0 and L1 temperatures will be achieved by appropriate cryostat shield flushing and AXT heating. All these temperatures will be monitored/recorded throughout the test. Every test day ASED will distribute a log of the cryostat temperatures by e-mail.</p> <p>No AXT refill is planned during the EMC test. Pumping will be continued throughout the EMC test.</p> <p>Current cryostat temperatures (today, 08:00): SPIRE L0 = 1.74 K, SPIRE L1 = 5.4 K. Cooler recycle has started with these temperatures.</p> <p>Cryo cover flushing</p> <p>The required cryo cover temperatures will be adjusted by appropriate cryo cover flushing. The current cryo cover temperature (today, 08:00) is about 40 K (stable). For the EMC test the cryo cover temperature will be stabilised below 20 K.</p>	



Reference	Results	Remarks														
	<p>EMC test equipment</p> <p>List of EMC test equipment will be compiled and included in the PLM EQM EMC test report, section 3.2.</p> <p>All test equipment has been inspected and is calibrated and is available, either at IABG or at the ASED clean room. IABG has ensured that the facility is available at the ASED clean room as needed (no wait time).</p> <p>8. Cleanliness</p> <p>The test will be performed in clean room class 100000 conditions.</p> <p>9. Test Personnel and Responsibilities</p> <table data-bbox="362 1070 1563 1326"> <tr> <td>Test director:</td> <td>S. Idler</td> </tr> <tr> <td>CCS operator:</td> <td>S. Ilsen</td> </tr> <tr> <td>EMC engineer:</td> <td>C. Kalde</td> </tr> <tr> <td>SPIRE IEGSE operator:</td> <td>A. Aramburu</td> </tr> <tr> <td>SPIRE Engineering:</td> <td>D. Griffin / Dominique Schmitt</td> </tr> <tr> <td>PA:</td> <td>D. Hendry</td> </tr> <tr> <td>ESA / Alcatel representative:</td> <td>F. Marliani, W. Pinter-Krainer / A. Luc, G. Doubrovik</td> </tr> </table>	Test director:	S. Idler	CCS operator:	S. Ilsen	EMC engineer:	C. Kalde	SPIRE IEGSE operator:	A. Aramburu	SPIRE Engineering:	D. Griffin / Dominique Schmitt	PA:	D. Hendry	ESA / Alcatel representative:	F. Marliani, W. Pinter-Krainer / A. Luc, G. Doubrovik	
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Reference	Results	Remarks
	<p>10. Problem Areas</p> <p>None identified.</p> <p>11. AOB</p> <p>Cooler recycle has already been done. For safety cooler recycle will be repeated this evening by automatic procedure.</p> <p>Planning:</p> <p>For the EMC test the CW 48 is allocated. In case the test cannot be completed within CW 48 it shall be continued in CW 50.</p> <p>12. Conclusion</p> <p>Hardware and facility is ready for EMC test. EMC test can start.</p>	

ANNEX 1**Hardware: CCS, EGSE's and DFE's**

Item	Hardware Id	Serial No.
CCS	N/A	HPCCS 4
PLM SCOE	SE8426	03/001
CDMU DFE	SE8455	03/002
CRYO SCOE	EQM	N/A
IEGSE	N/A	N/A

Software**HIFI**

SW Ident	Issue /Version	Responsible	Comment
Inst ICU OBS	3.2.1	Inst	CFM version
Inst LCU OBS	17.0	Inst	01.10.2004

PACS

SW Ident	Issue /Version	Responsible	Comment
Inst OBS SPU	11.7	Inst	
Inst SPU boot OBSW	1.4	Inst	
Inst OBS DECMEC	5.0.25 Version for Mech control cold	Inst	V 5.0.24 Mech controller hot
Inst DECMEC boot OBSW	1.1	Inst	
Inst OBS DPU	7.65	Inst	
Inst DPU Boot OBSW	1.0	Inst	

SPIRE

SW Ident	Issue /Version	Responsible	Comment
Inst DPU OBS	2.0.A1	Inst	
Inst DRCU OBS	Boot SW June 2003	Inst	

IEGSE Configuration PACS

SW Ident	Issue /Version	Responsible	Comment
MIB on I-EGSE	7_18	Inst	

ANNEX 2

HCSS Build Version	687	Inst	
PACS Build	20050706A	Inst	

IEGSE Configuration SPIRE

SW Ident	Issue /Version	Responsible	Comment
MIB on I-EGSE	SPIRE_MIB_CQM2_2.0.A2_after_WUC_08	Inst	
HCSS Build Version	644	Inst	
SPIRE Build	159	Inst	

IEGSE Configuration HIFI

SW Ident	Issue /Version	Responsible	Comment
MIB on I-EGSE	52	Inst	
HCSS Build Version	644	Inst	
HIFI Build	249	Inst	

CCS Configuration

SW Ident	Issue /Version	Responsible	Comment
TCL Scripts HIFI	ist_cus_0.8_tcl.zip	Inst	Delivered on 11.11.2005
TCL Scripts PACS	PACS_TCL_20051109_B.zip	Inst	Delivered on 09.11.2005
TCL Scripts SPIRE	SPIRE_EQM_IMT_1_1.tar.gz	Inst	Delivered on 23.09.2005 Some scripts have been changed during IMT. SPIRE has version control.
CCS MIB Bridge files	CCS_Her_PLM__01_v1_2.zip	ASP	2005-09-08 Some dat files have been changed by ASER. All changes are included in the test reports
CCS S/W Release	2.0.637	Terma	

CDMU DFE Configuration

SW Ident	Issue /Version	Responsible	Comment
CDMU DFE CMS	2.3.0.0	SSBV	Part of CDMU DFE Workstation
CDMU DFE Pipe I/F (IPC Handler P7001)	2.4.0.0	SSBV	Part of CDMU DFE Workstation
CDMU DFE Pipe I/F (IPC Handler Pipe P7002)	1.2.1.0	SSBV	Part of CDMU DFE Workstation
CDMU archive Browser	2.2.2.72	SSBV	Part of CDMU DFE Workstation

ANNEX 2

Mil-STD-1553b BusMonitor	1.11.1.87	SSBV	Part of CDMU DFE Workstation
CDMU DFE IPC Handler object implementation	2.4.0.18	SSBV	Part of CDMU DFE Workstation
SimFE	1.5.0.0	SSBV	Part of CDMU DFE Platform
HLBC	1.07.00	SSBV	Part of CDMU DFE Platform

PLM SCOE Configuration

SW Ident	Issue /Version	Responsible	Comment
PLM SCOE CMS	1.5.0.0	SSBV	Part of PLM SCOE Workstation
PLM SCOE archive browser	2.2.1.70	SSBV	Part of PLM SCOE Workstation
PLM SCOE pipe I/F	1.3.0.0	SSBV	Part of PLM SCOE Workstation
PLM SCOE IPC Handler object implementation	2.1.0.7	SSBV	Part of PLM SCOE Workstation
PDU Controller	1.5.0.0	SSBV	Part of PLM SCOE Platform

Bus Profiles

The following bus profiles are loaded on the CDMU DFE. They are provided, checked and validated by Patrice Couzin (ASP). They were delivered by email on 01.09.2005

- PACS_prime_inst.PST
- SPIRE_prime_inst.PST
- HIFI_prime_inst.PST
- PACS_SPIRE_par.PST
- PACS_burst_mode.PST
- Inst_sdby.PST