

Minutes of Meeting

Date: 28.09 05

HERSCHEL

Doc.-No.: HP-2-ASED-MN-1062

Meeting place: Astrium Ottobrunn

Chairman:

Date/Time: 28/09/05 / 10:00

Secretary

Agenda dated: 22.09.2005

Close of Meeting:

Subject: Herschel PLM EQM TRR for EMC Test

Participants:

Filippo Marliani *Filippo Marliani*
 Guy Doubrovik *guy*
 André Luc
 Dave Hendry
 Siegmund Idler *Sidler*
 Clemens Kalde
 August Knoblauch *Knoblauch*
 Michael Leininger
 Helmut Feuchtgruber
 Albert Naber (telecon)
 Doug Griffin (telecon)
~~Bernhard Jackson (telecon)~~

Additional Distribution:

Michael Leininger
Feuchtgruber

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Brief-Minutes (except following sheets)

Summary of Results of Sheets till

see Annex 1 for comments e-mails



Ref	Comment	Remark
	<p>Agenda</p> <ol style="list-style-type: none"> 1. As Built / As Designed Configuration Status / S/W Status 2. Inspection / Integration Status 3. NCR / RFW Status 4. Open Work / Open Actions 5. Test Procedure / Test Reports 6. Safety Hazards and Hazardous Operations 7. Test Equipment / Facility and Calibration Status 8. Cleanliness 9. Test Personnel and Responsibilities 10. Problem Areas 11. AOB 12. Conclusion <p>1. As Built / As Designed Configuration Status / S/W Status</p> <p>Will be also subject to separate meetings to be done per individual instrument juste before EMC test. Current status: For HIFI: as per IMT PTR (HP-2-ASED-MN-1058)). The upconverter and the ICU must still be exchanged before. For SPIRE: as per SPIRE IMT TRR (HP-2-ASED-1061). Nothing will be changed. For PACS: As per INTERIM IMT PTR (HP-2-ASED-1063). The DPU CFM nned to be exchanged by the DPU AVM. For the cryostat, refer to Agenda point 2.</p> <p>2. Inspection / Integration Status</p> <p>Cryostat now in tilt configuration for that it will remain for all EMC tests.</p>	



Ref	Comment	Remark
	<p style="text-align: center;">3. NCR / RFW Status</p> <p>General statement: The EMC test cannot start before successful IMTs.</p> <p>NCRs:</p> <p>For PACS and SPIRE major NCRs are existing which currently do not allow to start EMC testing.</p> <p>HIFI: No instrument NCR existing that would require any further work at instrument before EQM PLM EMC test. However, NCR exists on cable shielding at connector, for the EQM, which may affect the outcome of the EMC tests on EQM PLM. This shielding will be applied on PFM.</p> <p>PACS and SPIRE no instrument level NCR existing that may affect the EMC test.</p> <p>RFDs:</p> <p>RFD0029: PACS, concerning cryo harness (lead length on connector): accepted by ASPI,</p> <p>RFD0030: PACS triax cable shield capacity, measured however on QM cryoharness and in line within the requirement</p> <p>RFD0031: SPIRE line impedance specification: Accepted by SPIRE.</p> <p>All RFDs should be approved at IMT TRRs latest. ESA to process these RFDs</p> <p style="text-align: center;">4. Open Work / Open Actions</p> <p>Instruments:</p> <p>IMT completion for SPIRE and PACS IMTs also for the PACS/SPIRE parallel mode.</p> <p>HIFI to include the upconverter and replace the ICU AVM by the ICU.CFM2.</p> <p>HIFI to re-arrange the rack for the LSU simulator.</p> <p>PACS to replace the DPU CFM by the DPU AVM.</p> <p>PACS, HIFI and SPIRE to define the evaluation criterias for the test results.</p> <p>Astrium:</p> <p>TCL files for the instruments to be validated.</p>	



Ref	Comment	Remark
	<p>Facility:</p> <p>All cables not used for the operation of the instrument during EMC tests shall be removed from the set-up.</p> <p>All equipment not needed for the test have to be located at least 2 metre apart from the cryostat except if needed for operation of the cryostat and instruments.</p> <p>EGSE cabling shall be routed commonly as far as possible and shielded before the tests with aluminium household foil.</p> <p>Below the SPIRE avionics equipment the compartment (inside the SVM simulator modul) shall be closed as possible e.g. with aluminium foil.</p> <p>SPIRE PSU as well as PACS BOLC supply shall be equipped with isolation transformer and located below the SVM simulator.</p> <p>HIFI test rack shall be located not to disturb the EMC activities.</p> <p>The EMC RS antennas will be mounted on a boom and will have wheels to allow simple changements 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 .</p> <p>SPIRE PSU to be supplied with isolation transformer.</p> <p>Open Action Items:</p> <p>a) HP-2-ASED-MN-1050, 01.09.05</p> <p>AI1: ASED to check for SPIRE PSU grounding. Isolation transformer will supply the SPIRE PSU as well as in order to decouple the safety wire (dirty ground from mains supply): Closed</p> <p>AI2: Grounding Diagram to be added to the SPIRE test procedure. → Open</p> <p>AI3: TCL to be provided by SPIRE. Provided: → Closed</p> <p>AI4: Spire to provide script file for single frequency: Provided: → AI Closed</p> <p>AI5: SPIRE to provide DWELL time etc: → OPEN</p> <p>AI6: Facility measurements as per presentation to be included in ASED test procedure: → included, AI closed.</p> <p>AI7: ASED to check whether cooler recycling is possible Sunday evening: Is not in baseline planning: → AI closed.</p> <p>AI8: SPIRE to provide procedure names. Provided: → AI closed</p> <p>AI9: ASPI to provide a list of tested frequencies. Provided: → AI closed.</p> <p>AI10: Photometer mode H-field frequencies to be defined for PACS. Defined: → AI closed</p>	



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	<p>AI 11: ESA to define antenna positions for instruments. → Obsolete, cannot be defined today</p> <p>AI 12: BOLC external power supplies Grounding scheme to be provided. → Closed</p> <p>b) HP-2-ASED-MN-1051, 07.09.05</p> <p>AI1: HIFI to comment Astrium timeline. Done. → AI closed</p> <p>AI2: ASPI to clarify the availability of LISNs: Not available. → AI closed, HIFI will provide two LISNs</p> <p>AI3: CS transient figure to be provided by ASED: Provided 27.09. evening by email. → Closed</p> <p>5. Test Procedure / Test Reports</p> <p>Applicable test procedure: "PLM EQM EMC Test Procedure, HP-2-ASED-PR-0033, dated 21.09.05</p> <p>This procedure will be updated, considering the comments from</p> <ul style="list-style-type: none"> - Doug Griffin (SPIRE), ref. 2 emails from 26.09.05 - Albert Naber (HIFI), ref red mark of the procedure as provided email on 23.09.05 - Michael Leininger (PACS), ref email from 26.09.05 - Filippo Marliani, ref. 2 emails from 27.09.05 as answered with two emails from Clemens Kalde (ASED) the same day. <p>The procedure will be updated and signed CW 40.</p> <p>HIFI will provide a detailed installation procedure for the installation of B/O boxes with transformers, capacitors and LISN under powered condition. This is required for temperature stability. This will not lead to any hazard.</p> <p>6. Safety Hazards and Hazardous Operations</p> <ul style="list-style-type: none"> - no hazards, also not for human due to the low level RS levels. - access to the facility during testings is in accordance to general cleanroom regulations. 	



Ref	Comment	Remark
	<p style="text-align: center;">7. Test Equipment / Facility and Calibration Status</p> <p>1 EMC Facility:</p> <p>The calibration of the field values for the different frequencies will be done in the anechoic chamber. The application of the calibrated levels on the cryostat will be done in the clean room. A broadband probe will be placed in the vicinity of the cryostat for control that the EMC equipment is working during RS testing.</p> <p>ASED will check whether it is possible to get a reading from the broadband field probe, preferably with indication of the applicable RS test frequency. In case that the possibility is given this shall be described in the test procedure.</p> <p>ASED will include an additional column in the frequency table to note the controlled field value.</p> <p>EMC facility is ready (except for the identified open items). Visits of IABG at EADS Astrium has been performed in order to check the environment and found as acceptable.</p> <p>IABG will calibrate the power levels according to the frequency tables before test start.</p> <p>Specific foot for the long antenna boom must be manufactured. This will be ready before the test.</p> <p>For generation of the H-field (140 dBpT) a specific antenna has been manufactured to be compliant with the coil current. With this coil 120 dBpT is possible only up to about 20 kHz. At 50 kHz only 110 dBpT</p> <p>Test distance reduction to 0.5 m the minimum field is 122 dBpT at 50 kHz (140 dBpT up to about 10 kHz).</p> <p>The 110 dBpT (at antenna distance of 1 m) at about 50 kHz is accepted by ASPI/ ESA and instruments.</p> <p style="text-align: center;">8. Cleanliness</p> <p>Class 100 000 conditions apply.</p> <p style="text-align: center;">9. Test Personnel and Responsibilities</p> <p>For instruments as per test procedure. For HIFI: Tony Marston in addition. For EMC facility (IABG): Ulf Hülsenbusch Test Director: Siegmund Idler Test Conductor: Clemens Kalde CCS Operator: S. Ilsen PA: Dave Hendry ASP: André Luc, Guy Doubrovik</p>	



Ref	Comment	Remark
	<p>ESA: Filippo Marliani, Astrid Heske, Carsten Scharmberg, Walter Pinter-Krainer</p> <p>10. Problem Areas</p> <ul style="list-style-type: none"> - Cooler recycle (NCR) <p>11. AOB</p> <p>EMC facility to be asked for 1 week delay of the EMC test. Current planning: SPIRE IMT 29.09.05 – 05.10.05. PACS:IMT 06.10.05 – 12.10.05 PACS parallel mode 13.10.05 – 14.10.05 ICU exchange: 17.10.05 EMC Test HIFI, starting with CS: 18.10.05 SPIRE: 2.11 – 5.11</p> <p>12. Conclusion</p> <p>EMC test can start pending completion of the IMTs and pending on completion of open work to the above planning (TBC).</p>	



Ref	Comment	Remark

Kalde, Clemens

From: Carsten.Scharmberg@esa.int
Sent: Donnerstag, 29. September 2005 10:10
To: Kalde, Clemens
Cc: 'Astrid.Heske@esa.int'; 'Albert Naber'; 'Bernard.Collaudin@alcatelaleniasspace.com'; 'Bernard.Jackson@esa.int'; Schlosser, Christian; Kalde, Clemens; Hendry, David (external); 'Griffin, DK (Doug)'; 'Guy.Doubrovik@space.alcatel.fr'; Idler, Siegmund
Subject: RE: EMC TRR MoM

Dear Clemens,

thank you for providing the draft minutes. Please find below my comments:

- frontpage: remove "Bernhard Jackson (telecon)" from the participants list and add: Eric Sawyer (telecon - part-time) Astrid Heske (telecon) Carsten Scharmberg (telecon)
- page 2: exchange
"The upconverter and the ICU must still be exchanged before." against "The upconverter has to be integrated and the AVM ICU must still be exchanged against CFM2 ICU before start of the EMC test campaign."
- page 3: add NCR reference numbers to "For PACS and SPIRE major NCRs are existing which currently do not allow to start EMC testing."
- page 3: exchange
"However, NCR exists on cable shielding at connector, for the EQM, which may affect the outcome of the EMC tests on EQM PLM. This shielding will be applied on PFM." against "However, one subsystem NCR exists on cable shielding at connector (Ref. CESR-HRS-NC-322-392), which may affect the outcome of the EMC tests on EQM PLM. This shielding will be applied on PFM."
- page 4: exchange
"SPIRE PSU as well as PACS BOLC supply shall be equipped with isolation transformer and located below the SVM simulator." against "SPIRE PSU as well as PACS BOLC supply will be equipped with isolation transformer provided by ASED and located below the SVM simulator."
- page 4: remove "SPIRE PSU to be supplied with isolation transformer." (already covered above)
- page 7: (10 Problem Areas) add reference of the relevant NCR

Kind regards,

Carsten

Instruments Manager, HERSCHEL/PLANCK Project, ESA/ESTEC
Tel +31(0)71565 ext 5786
e-mail: carsten.scharmberg@esa.int

Kalde, Clemens

From: Astrid.Heske@esa.int
Sent: Donnerstag, 29. September 2005 10:41
To: Kalde, Clemens
Cc: 'Albert Naber'; 'Bernard.Collaudin@alcatelaleniaspace.com'; 'Bernard.Jackson@esa.int'; Carsten.Scharmberg@esa.int; Schlosser, Christian; Hendry, David (external); 'Griffin, DK (Doug)'; 'Guy.Doubrovik@space.alcatel.fr'; Idler, Siegmund
Subject: RE: EMC TRR MoM

Dear Clemens,

Thanks for the MoM!
Enclosed my comments (in addition to the ones from Carsten).

Best regards,

Astrid

under 1)

For PACS: As per INTERIM IMT PTR (HP-2-ASED-1063). The DPU CFM need to be exchanged with the repaired DPU AVM

under 4)

Exchange: "IMT completion for SPIRE and PACS IMTs also for the PACS/SPIRE parallel mode" with

"Successful completion of the SPIRE and PACS IMTs is mandatory also for the start of PACS/SPIRE parallel mode

test."

...
PACS to replace the DPU CFM by the repaired DPU AVM.

under 11)
Please add EMC dates for PACS (for completeness)

under 12) (or somewhere earlier)
Please add that prior to start of EMC test for each instrument an individual TRR will be held.

General:
Please add AIs and due dates.

Kalde, Clemens

From: Albert Naber [apnaber@wanadoo.nl]
Sent: Donnerstag, 29. September 2005 17:26
To: Kalde, Clemens; Carsten.Scharmberg@esa.int
Cc: Astrid.Heske@esa.int; 'Albert Naber'; Bernard.Collaudin@alcatelaleniasspace.com; Bernard.Jackson@esa.int; Schlosser, Christian; Hendry, David (external); 'Griffin, DK (Doug)'; Guy.Dobrovik@space.alcatel.fr; Idler, Siegmund
Subject: Re: EMC TRR MoM

Dear Clemens,
Below some remarks on the minutes.

3.
Change the sentence:
A NCR exists on HRS shielding, which may affect the outcome of the EMC test on EQM PLM. However no extra shielding will be applied on the HRS-QM, so that this test can be compared with the HRS-QM EMC test. Improvements for HRS-FM are under investigation.

4.
Include as open work:
HIFI to provide 2 LISN's, 2 break-out boxes and cabling for the CS test on power lines.

11.
A question on the planning.
EMC test HIFI 18.10.05
Do we really start with the CS tests? I thought that the H-field followed by E-field was planned before the CS tests.

Kind regards,
Albert

	Name	Dep./Comp.		Name	Dep./Comp.
	Alberti von Mathias Dr.	AOE22		Schmidt Rudolf	FAE22
	Barlage Bernhard	AED11		Schweickert Gunn	AOE22
	Bayer Thomas	AOA52		Sonn Nico	AOE51
	Brune Holger	AOA55		Steininger Eric	AED44
	Fehringer Alexander	AOE13		Stritter Rene	AED11
	Fricke Wolfgang Dr.	AED 63		Thörmer Klaus-Horst Dr.	OTN/AED65
	Geiger Hermann	AOA52		Wagner Klaus	AOE22
	Gerner Willi	AED11		Wietbrock Walter	AET12
	Grasl Andreas	OTN/AOA54		Wöhler Hans	AOE22
	Grasshoff Brigitte	AET12		Wössner Ulrich	ASE442
	Hauser Armin	AOE22			
	Hendry David	Terma Resid.			
	Hengstler Reinhold	AOA 5			
	Hinger Jürgen	AOE22		Alcatel	ASP
	Hofmann Rolf	ASE442	X	ESA/ESTEC	ESA
	Hohn Rüdiger	AED65		Instruments:	
	Huber Johann	AOA52	X	MPE (PACS)	MPE
	Hund Walter	ASE442	X	RAL (SPIRE)	RAL
X	Idler Siegmund	AED432	X	SRON (HIFI)	SRON
X	Ilsen Stijn	Terma Resid.		Subcontractors:	
	Ivány von András	FAE22		Air Liquide, Space Department	AIR
	Jahn Gerd Dr.	AOE22		Air Liquide, Space Department	AIRS
X	Kalde Clemens	APE3		Air Liquide, Orbital System	AIRT
	Kameter Rudolf	OTN/AOA54		Alcatel Bell Space	ABSP
	Kettner Bernhard	AET42		Astrium Sub-Subsyst. & Equipment	ASSE
X	Knoblauch August	AET32		Austrian Aerospace	AAE
X	Koelle Markus	AOA53		Austrian Aerospace	AAEM
X	Kroeker Jürgen	AED65		APCO Technologies S. A.	APCO
	Kunz Oliver Dr.	AOE22		Bieri Engineering B. V.	BIER
	Lamprecht Ernst	OTN/ASI21		BOC Edwards	BOCE
	Lang Jürgen	ASE442		Dutch Space Solar Arrays	DSSA
	Langenstein Rolf	AED15		EADS CASA Espacio	CASA
	Langfermann Michael	AOA51		EADS CASA Espacio	ECAS
	Mack Paul	OTN/AOA54		EADS Space Transportation	ASIP
	Müller Jörg	AOA52		Eurocopter	ECD
	Müller Ralf	FAE22		European Test Services	ETS
	Pastorino Michel	ASPI Resid.		HTS AG Zürich	HTSZ
	Peltz Heinz-Willi	AOE13		Linde	LIND
	Pietroboni Karin	AED65		Patria New Technologies Oy	PANT
	Platzer Wilhelm	AED22		Phoenix, Volkmarsen	PHOE
	Rebholz Reinhold	AOA51		Prototech AS	PROT
	Reichle Konrad	AOA52		QMC Instruments Ltd.	QMC
	Reuß Friedhelm	AED62		Rembe, Brilon	REMB
	Rühe Wolfgang	AED65		Rosemount Aerospace GmbH	ROSE
	Runge Axel	OTN/AOA54		RYMSA, Radiación y Microondas	RYM
	Sachsse Bernt	AED21		SENER Ingeniería SA	SEN
X	Schink Dietmar	AED44		Stöhr, Königsbrunn	STOE
X	Schlosser Christian	OTN/AOA54		Terma A/S, Herlev	TER