Instrument PLM EEM Level Test Report (as run procedure)

Title: **PLM EQM EMC Test Procedure**

AS – RUN - PROCDURE

CI-No:

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1 Scope

1.1 Objective

This procedure describes the activities to be carried out for the Radiated Susceptibility (RS) test of the three instruments HIFI, PACS and SPIRE on PLM EQM level as specified in the Instrument PLM EQM Level Test Procedure, AD11. In addition a CS test is planned for HIFI as far as it fits in the 5 days allocated for this instrument.

1.2 Flow

Due to the total allocated testing time of 20 working days the complete test is subdivided in 4 parts allowing each instrument to allocate 5 working days for their dedicated RS testing and performance evaluation activities, plus extra 5 days, allocated as contingency.

The test flow shall consider the offline evaluation time needed to decide whether susceptibility has been detected and the evaluation of its criticality with ASPI and ESA. This is in order to have sufficient time to decide whether additional testing is necessary at the end of the first 15 days or not.

Although Astrium baseline is to perform only RS tests, the test flow considers the wish of HIFI to add some instrument level CS tests to the nominal RS testing program as far as this allows to keep the window of 5 working days. Then, in parallel to the additional HIFI CS testing activities (ref. HIFI-CR 0128 v.1) the HIFI offline characterisation could be performed.

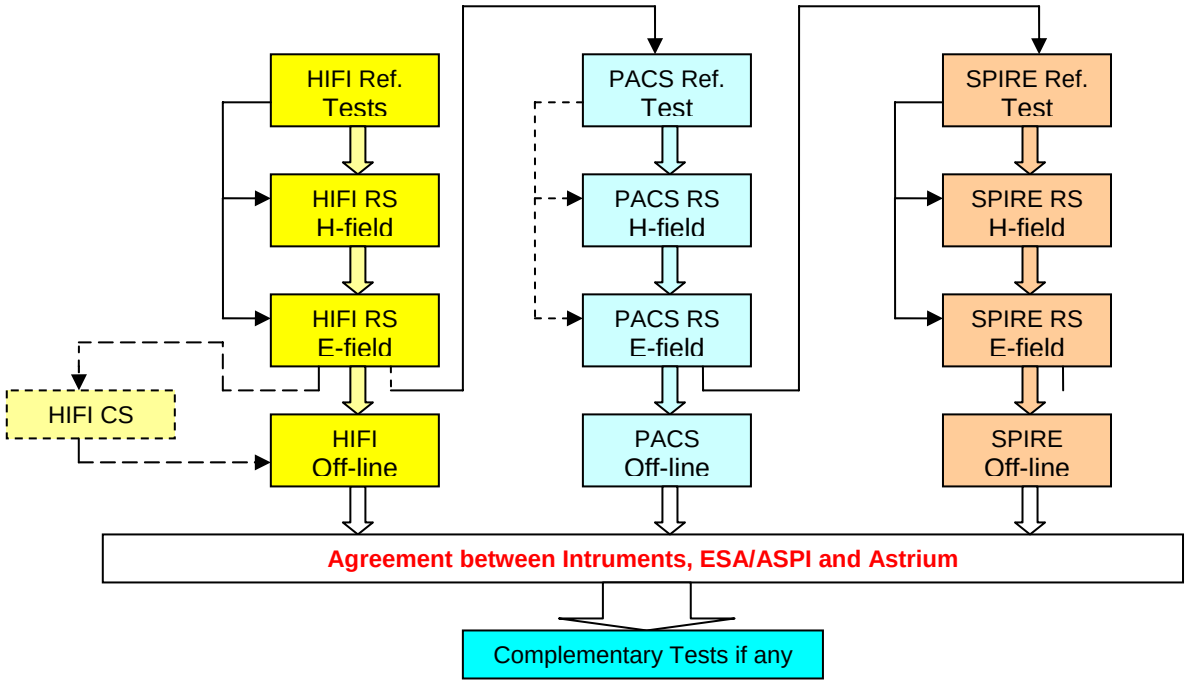


Figure 1.2-1: PLM EQM RS Test Flow

2 Documents/Drawings

2.1 Applicable Documents

The following documents in their latest issue are applicable to this procedure:

AD1	HP-2-ASED-PL-00007	Herschel PA Plan	Issue 2.1
AD2	HP-2-ASED-PL-0023	Herschel Contamination Control Plan	Issue 2
AD3	SCI-PT-IIDA-04624	Herschel/Planck Instrument Interface Document, IID Part A	Issue 3.3
AD4	SCI-PT-IIDB/HIFI-02125	Instrument Interface Control Document Part B, Instrument HIFI	Issue 3.2
AD5	SCI-PT-IIDB/SPIRE-02124	Instrument Interface Control Document Part B, Instrument SPIRE	Issue 3.3
AD6	SCI-PT-IIDB/PACS-02126	Instrument Interface Control Document Part B, Instrument PACS	Issue 3.3
AD7	HP-2-ASED-PL-0021	Herschel PLM EQM AIT Plan	Issue 2.2
AD8	HP-2-ASED-PR-0012	Herschel PLM/EQM General AIT Procedure	Issue 1
AD9	H-P-1-ASPI-SP-0037	HERSCHEL/PLANCK EMC Specification	Issue 4
AD10	H-P-1-ASPI-PL-0038	HERSCHEL/PLANCK EMC/ESD Control Plan	Issue 3
AD11	HP-2-ASED-PR-0051	Instrument PLM EQM Level Test Procedure	Issue 1.1
AD12	HP-2-ASED-PL-0037	EMC Test Plan	Issue 2

2.2 Reference Documents

In this section all documents are given which either

- could serve as reference for the PLM EQM RS test as well as for complementary tests, or
- may be referred in the test report for clarification/justification of an outcome (result) of the test.

RH1	SRON-U/HIFI/PR/2004-001	HIFI EMC Test Specification	Issue 1.3
RH2	SRON-G/HIFI/PR/2005-101	HIFI EQM IST & EMC Test Procedure	Issue 1.4
RH3	SRON-U/HIFI/SP/2005-003	HIFI EQM Grounding Configuration	Issue 1.0
RP1	PACS-ME-PL-015	PACS EMC/ ESD Control Plan and Procedure	Issue 1.2
RP2	PACS-ME-TP-021	PACS Integrated Module Test Procedure	Issue 1.2
RS1	Spire EMC Test Sequence for EQM Testing	SPIRE-RAL-NOT-002402	Issue 1.0
RS2	Spire Cooler Recycling SCOS Procedure	SPIRE –RAL-PRC-002267	Issue 1.0

3 Configuration

3.1 PLM EQM Configuration

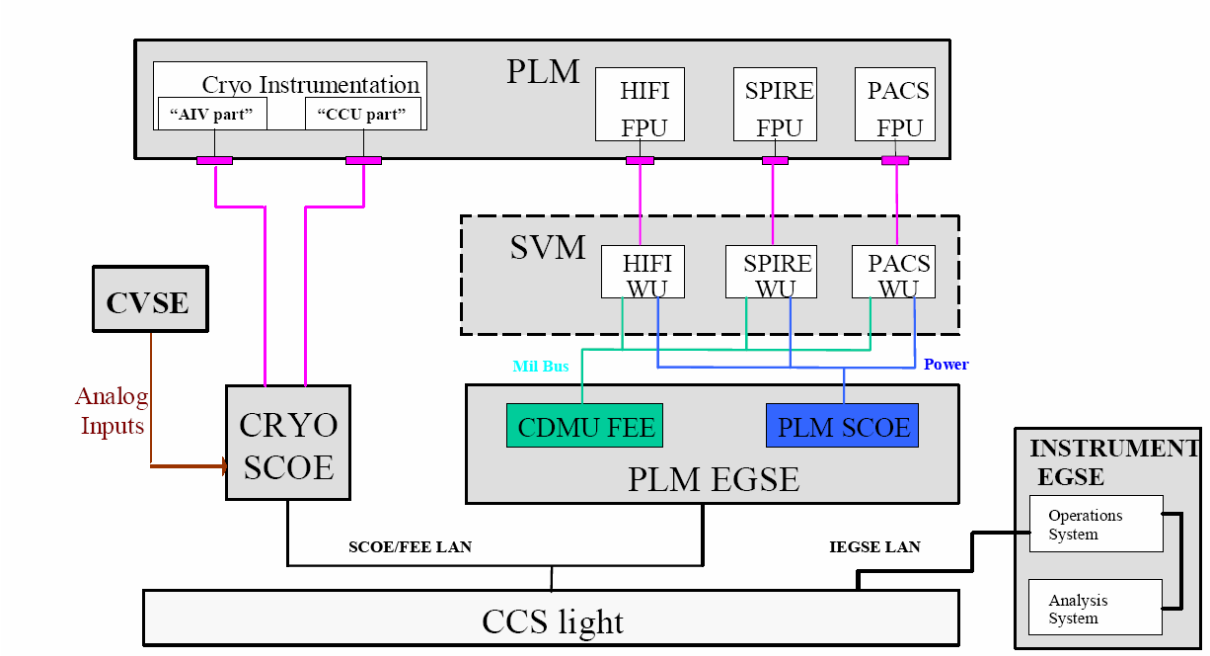


Figure 3.1-1: Principle PLM EQM Configuration

The configuration is the fully Integrated EQM Cryostat in combination with the EGSE and SCOE in accordance to the figure 3.1-1. A detailed description of the configuration can be found in the Instrument PLM EQM Level Test Procedure, AD11.

The actual hardware and software configuration of the GSE shall be validated at the TRR and reported in the test report.

3.2 GSE Configuration

A detailed description of the configuration can be found in the Instrument PLM EQM Level Test Procedure, AD11.

In addition there are some antennas cabling etc. and electrical test equipment necessary from the EMC facility in order to generate and measure the EMI levels. All test hardware shall be calibrated and shall be within the calibration period during the test time.

The test equipment list shall be completed during the test included in the test report.

Test Equipment List					
Item	**Manuf.**	**Model No.**	**SN No.**	**Invent No.**	**Next Calib.**

Table 3-1: Test Equipment List

3.3 Facility

The activities detailed in this procedure shall be carried out in the EADS Astrium clean room in Ottobrunn.

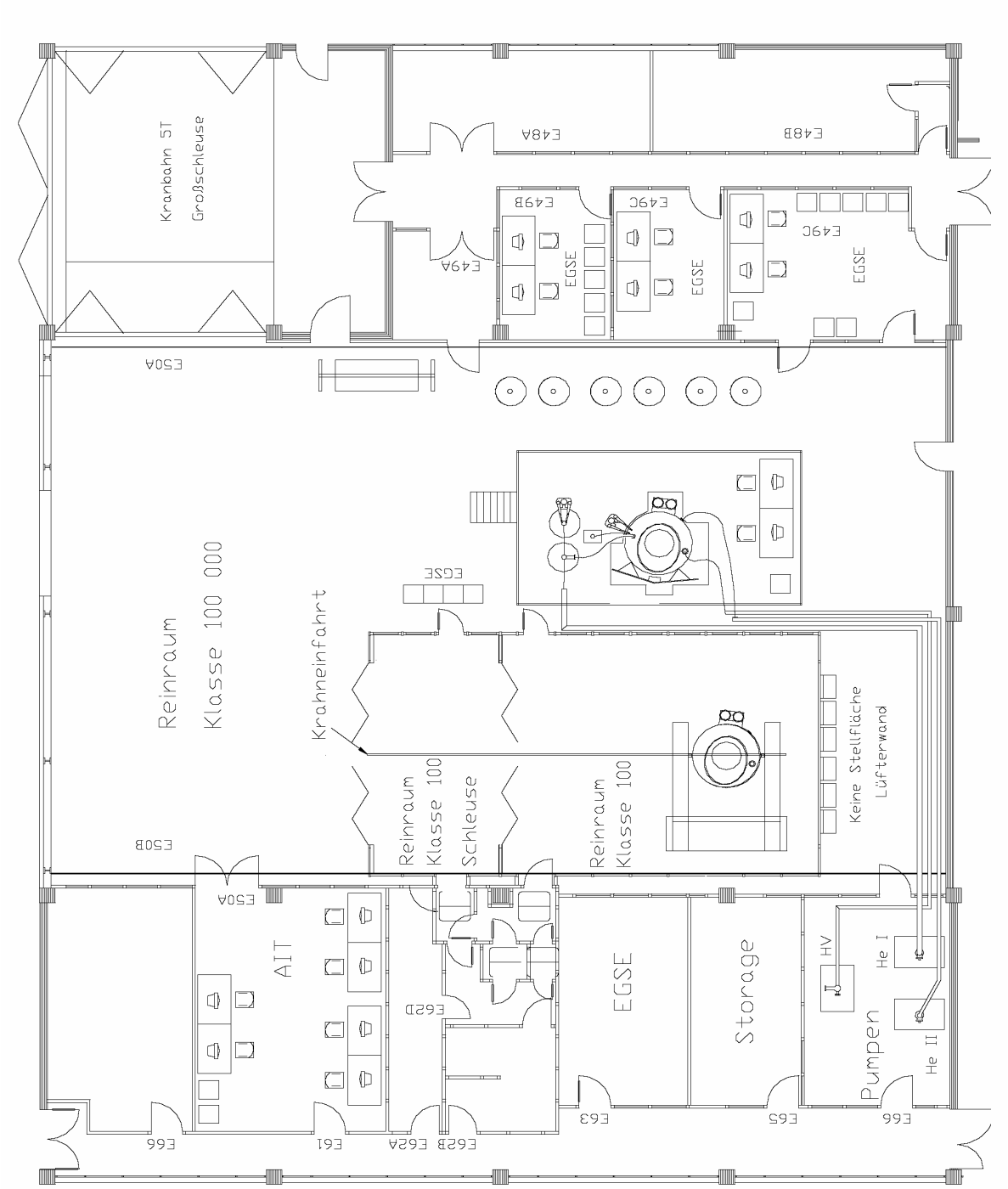


Figure 3.3-1: Set-up in Astrium Clean Room

4 Conditions

4.1 General Requirements

General instructions are given in the Herschel PLM EQM General AIT Procedure, AD8, and have to be respected accordingly.

In addition, the temperature of the lid must be stabilised before each test and set to a certain value (to be defined by the instruments before start of test). The temperature adjustment can be done by varying the He flow rate through the lid.

4.2 Environmental Conditions

All activities specified in the procedure have to be performed in a clean room class 100 000.

Temperature: 22°C +/- 3°C

Relative Humidity: 40% to 55%

The cleanliness requirements will be observed throughout the activities, and the overall contamination control requirements identified in the Herschel Contamination Control Plan, AD2, will be observed.

4.3 Measurement Accuracies

4.3.1 Receiver Accuracies

Table 4.3.1-1 gives a **guideline** for receiver measuring bandwidths. The **actual** bandwidth of the test equipment shall be provided by the facility personnel during the EMC tests.

Frequency Range	Proposed	Actual	Comment
30 Hz - 2.5 kHz	10 Hz		
2.5 kHz - 5 kHz	30 Hz		
5 kHz - 50 kHz	100 Hz		
50 kHz - 1 MHz	1 kHz		
1 MHz - 100 MHz	3 kHz		
100 MHz - 1 GHz	10 kHz		
1 GHz - 18 GHz	100 kHz		
Frequency Accuracy	± 2 %		
Amplitude Accuracy	± 2 dB		

Table 4-1: Receiver Measurement Bandwidth

4.4 General Precautions and Safety

4.4.1 General Safety Requirements

No special hazards are expected. The application of the standard technical rules for mechanical and electrical integration and test activities is sufficient.

Lower level procedures called up by this procedure may define their own safety requirement in the relevant chapters which must be respected accordingly

4.4.2 ESD constraints

In order to prevent ESD sensitive H/W from any possible damages by accidental electrostatic discharges an ESD protected area must be defined and setup during ESD sensitive activities:

- Floor and test bench of the ESD protected area has to be covered with anti-static mats
- During all handling activities (as transport, mounting, mating/de-mating of connectors, measurements with individual measurement devices, etc.) the operator has to work on anti static mats with correct clothing and personal grounding-straps
- Adequate ESD clothing is required:
  - Anti static coat
  - Anti static gloves
  - Anti static boots
- Transportation of ESD sensitive H/W will be made only in ESD protective bag or box.

4.5 Activities Management

4.5.1 Pre-Test Activities

At least the following tasks have to be successfully completed before start of integration and test activities according this procedure:

- This procedure released and accepted
- Formal release to start given by the board following review of relevant test procedures and test configurations.

4.5.2 Procedure Variation

Major activities deviating from the approved test procedure require the agreement of Project, AIV and PA responsible, and shall be documented via Activity Control Sheets (ACS). All ACS's generated in

the frame of the execution of this procedure shall be listed in the ACS Summary Sheet in section 9.1 of this procedure.

4.5.3 Criteria for Failure

If the results of any test performed using this procedure or a lower level procedure which this procedure refers to yields a value which lies outside the specified limits, it shall be considered as a non-conformance. Initial analysis of the result will be applied to establish whether the result is due to measurement error or incorrect specification limits. A NCR will then be raised to report the non-conformance. Depending on the magnitude of the non-conformance, and its impact, either a minor or a major NCR will be raised. In case of major NCR the test shall be continued only upon written or verbal authorisation of Customer (Alcatel and ESA). All NCR's raised in the frame of the execution of this procedure shall be listed in the NCR Summary Sheet in section 9.2 of this procedure.

The NCR process is described in the Herschel PA Plan, AD1.

4.5.4 Test Completion and Post-Test Activities

All data that has been recorded during the test activities specified in this procedure shall be collected and retained in a centralised reference volume, and will include:

- EQM PLM logbook
- Relevant CCS logs
- Photographs and plots
- Filled out test procedure
- Activity Control Sheets (ACS), if any
- Copies of NCR's, if any

All these test data shall be available for presentation at the Test Review Board (TRB) which will finally conclude on the test.

A test report shall be produced in accordance to the AIT Plan, AD7, whose contents shall be as follows:

- Brief summary of the test results
- PLM and instrument build standard summary
- "As-run" test procedure as an annex (this includes housekeeping data, temperature curves, etc.).
- List of NCR's raised
- List of ACS's generated.
- Relevant meeting minutes (e. g. TRR, TRB)

- Filled out Sign-off Sheet (see section 9.3 of this procedure).
- Evaluation of test results (might be in separate document)

4.6 PA Requirements

Quality Assurance shall monitor all operations (handling, transportation, disassembly, installation and test) as necessary to assure compliance with this procedure and the applicable requirements of the Herschel PA Plan, AD1.

In the course of this procedure PA shall pay particular attention to:

- the application of adequate protections to critical surfaces
- the records in the log-sheet
- the recording of the serial number of the test equipment used
- ensure that the test equipment used is within actual calibration cycle

PA has to make sure that NCR's are raised when applicable and treated by NRB procedure as defined in the Herschel PA Plan, AD1.

After the conclusion that an activity is successfully completed, this activity has to be signed by the responsible AIT- and PA engineer in the step by step procedure. Also relevant log sheets have to be filled out and signed.

4.7 Personnel

Title	Function	Name*)
Test Director	Overall responsible	Siegmund Idler
Test Conductor	EMC Test Responsibility	Clemens Kalde
EGSE Operator	Operate EGSE (CCS, PLM SCOE, CDMU DFE, Cryo SCOE)	S. Ilsen
EGSE Expert (Alcatel)	Support EGSE operator and EMC	André Luc, Guy Doubrovik
EMC Test Performance (IABG)	Responsible for the EMC facility and operations	Ulf Hülsenbusch
Mech. Operator(s)	All mech. Integration activities, handles the PLM during testing (e.g. tilting of PLM), supports instrument test team	
Cryo Operators	Operate the cryostat during testing and maintain the required temperatures	
ESA Support	Support and supervison of test activities	Filippo Marliani, Astrid Heske, Carsten Scharmberg, Walter Pinter-Krainer
HIFI Engineers	Support test activities and evaluate/analyse instrument data	Bert Joost v. Leeuwen, Nick Whyborn, Norbert Brüning, Albert Naber, Toni Marston
PACS Engineers	Support test activities and evaluate/analyse instrument data	Helmut Feuchtgruber Michael. Leininger
SPIRE Engineers	Support test activities and evaluate/analyse instrument data	Doug Griffin
PA Representative	To ensure PA requirements	Dave Hendry

*) Names to be registered prior to start of test activities

Table 4-2: Personnel

5 Test Requirements

5.1 Radiated Susceptibility H-field

The set-up and performance of the radiated H-field susceptibility.

- Frequency Range: 30 Hz to 50 kHz, IABG Loop Antenna
- 2 antenna positions for HIFI, one for SPIRE, 2 or 3 respectively for PACS (depending on mode) and different for each instrument, to be selected at start of test. Instrument harness should be illuminated. The irradiating antenna shall be placed at a test distance of 1 metre towards the satellite structure.
- Sufficient clearance of the CVV from other metallic structure has to be granted in order to avoid effects from standing waves, refer to the EMC Test Plan AD12, chapter 4.3.
- Level 120 dBpT up to 20 kHz, 110 dBpT from 20 kHz to 50 kHz. The level will be calibrated according to the frequency tables within the anechoic chamber at IABG before RS test in the cleanroom of EADS Astrium. Herewith, we have clear reference, repeatable adjustment of the right disturbance level and no impacts from satellite and EGSE structure. During the RS test at EADS Astrium, a field probe will be installed in the vicinity of the CVV for monitoring and, if possible, reporting of the field level in the frequency control tables or in annex of the test report.

➔ The particular detailed conductance of the RS test is for every instrument different defined and described in the EMC Test Plan, AD12. This is reflected in the step-by-step procedure.

If necessary, susceptibility threshold shall be predicted:

1. Adjust the frequency/frequency range at which the susceptibilities occurred.
2. Repeat the RS test manually for these frequencies and reduce the noise level until no susceptibility occurs.
3. Record the susceptibility threshold.

5.1.1 HIFI Instrument Setting

As for RS E-field tests. Please refer also to RH1. The HIFI configuration is not fully representative due to the absence of the LSU which is substituted by a LSU simulator. For the grounding configuration see RH3.

5.1.2 PACS Instrument Setting

As for RS E-field tests.

5.1.3 SPIRE Instrument Setting

As for RS E-field tests.

5.2 Radiated Susceptibility E-field

The set-up and performance of the radiated E-field susceptibility Test shall be in is accordance to the MIL Std, 461 E, RS 103.

General Frequency Range: 14 kHz to 18 GHz:

14 kHz - 30 MHz, SML-01 generator, SMX-100 amp, At-3000 antenna, V- pol

30 MHz - 1 GHz, SML-01 generator SMX-100 amp., BDLP antenna, V- and H- poll

1 GHz - 6 GHz, WILTRON generator, no ampl., RGA-180 antenna, , V- and H- pol

6 GHz - 18 GHz, WILTRON generator + 1 W amplifier, RGA 180 antenna, , V- and H- pol

8 GHz Notch (ref. Table 5-1):

8.45 - 8.5 GHz, WILTRON generator + 1 W amplifier, SGH antenna, V- and H- pol

3 antenna positions for HIFI, 2 for SPIRE, and 2 for PACS and different for each instrument, to be selected at start of test. Instrument harness needs to be illuminated. The irradiating antenna shall be placed at a test distance of 1 metre towards the satellite structure.

- Sufficient clearance of the CVV from other metallic structure has to be granted in order to avoid effects from standing waves, refer to the EMC Test Plan AD12, chapter 4.3.
- Level 2 V/m (126 dBµV/m) over the applicable frequency range except for some notches where the level shall be in accordance to the table 5-1. The level will be calibrated according to the frequency tables within the anechoic chamber at IABG before RS test in the cleanroom of EADS Astrium. Herewith, we have clear reference, repeatable adjustment of the right disturbance level and no impacts from satellite and EGSE structure. During the RS test at EADS Astrium, a field probe will be installed in the vicinity of the CVV for monitoring and, if possible, reporting of the field level in the frequency control tables or in annex of the test report.
- The E-field level shall be 30% amplitude modulated (AM) with 1 kHz square wave.

Frequency Range	RS Level	Comment
8.45 GHz to 8.5 GHz in 10 MHz steps	10 V/m	Spacecraft TM

Table 5-1: RS Notches

➔ The particular detailed conductance of the RS test is for every instrument different defined and described in the EMC Test Plan, AD12. This is reflected in the step-by-step procedure.

If necessary, susceptibility threshold shall be predicted:

1. Adjust the frequency/frequency range at which the susceptibilities occurred.
2. Repeat the RS test manually for these frequencies and reduce the RS level until no susceptibility occurs.
3. Record the susceptibility threshold.

5.2.1 HIFI Instrument Setting

The HIFI configuration is not fully representative due to the absence of the LSU which is substituted by a LSU simulator. Please refer also to RH1. The HIFI instrument setting can be found in RH2, section 11.
Susceptibility tests shall be performed with:

- The reference signal switched on.
- Continuous observation during EMI stimuli. Synchronisation by operators call.
- Instrument settings

HIFI mode: Primary
LO band: 3a
LO Frequency: 807 GHz
HRS mode: High Resolution
HRS band centre frequency: 6.6 GHz
WBS: on
Observing mode: Total Power
Integration time: 1sec.
Chopper: Cold source
For the grounding configuration see RH3.

5.2.2 PACS Instrument Setting

The mode applicable for PACS has been described in the PACS Integrated Module Test Procedure, RP2.

5.2.3 SPIRE Instrument Setting

The mode applicable for SPIRE has been described in the ''Spire EQM Test Sequence'', RS 1.

5.3 HIFI Optional CE/CS Testing

Conducted emission and susceptibility testing shall be performed on the nominal primary power lines of the HIFI LCU and ICU as well as on selected signal lines of the Cryo Harness.

FHICU Power:

Bracket DB05, J05 PIN 2 = PLUS

PIN 4 = RTN

FHLCU Power:

Bracket DB06, J01 PIN 2,7 = PLUS

PIN 4,9 = RTN

FPU Signal Lines:
FP Cryo-H location: View from -Y, Bracket 311100
FP Cryo-H bundles: SIH-IH-01, J03
SIH-IH-02, J01
SIH-IH-05, J02

LOU Signal Lines:
LO Cryo-H location: View from -Y
LO Cryo-H bundles: SIH-IH-07, Bracket 311300, J03

For the test requirements it shall be referred to RH1

The HIFI configuration is not fully representative due to the absence of the LSU which is substituted by a LSU simulator. For the grounding configuration see RH3. The HIFI instrument setting can be found in RH2, section 11.

6 Activities Flow

The following table depicts the flow of the activities described in this procedure. The Radiated Susceptibility test for the three instruments is embedded in the overall PLM EQM integration and test flow (refer to the Instrument PLM EQM Level Test Procedure, AD11).

No	Activity	Remark
1	**HIFI EMC Test**	**See para. 7.1**
1.1	Initialise LSU simulator	
1.2	Restart instrument if has been powered down	
1.3	Perform functional test	
1.4	Configure for EMC test	
1.5	Perform RS H-field test (2 positions)	
1.6	Perform RS E-field test (3 antenna positions, each with 2 polarisations)	
1.7	Perform off-line performance evaluation via QLA	
2	**HIFI ADDITIONAL TESTS (acc. to HIFI-CR 0128)**	**See para. 7.2**
2.1	Prepare for CS test	
2.2	Perform CS DM steady state on ICU power lines to 50 KHz	
2.3	Perform CS DM steady state on LCU power lines to 50 KHz	
2.4	Perform CS DM steady state on ICU power lines up to 50 MHz	
2.5	Perform CS DM steady state on LCU power lines to 50 MHz	
2.6	Perform CS CM steady state on ICU power lines to 50 MHz	
2.7	Perform CS CM steady state on LCU power lines to 50 MHz	
2.8	Perform CS DM Transients test on ICU power lines	
2.9	Perform CS DM Transients test on LCU power lines	
2.10	Perform CS CM Transients test on ICU power lines	
2.11	Perform CS CM Transients test on LCU power lines	
2.12	Perform CE/CS signal bundle test for SIH-IH-01, 02 and 05	
2.13	Perform CE/CS signal bundle test for SIH-IH-07	

No	Activity	Remark
3.	**PACS EMC Test**	**See para. 7.3**
3.1	Set-up instrument to safe mode	
3.2	Perform PACS Cooler Recycle during the night before for every testing day in photometer mode	
3.3	Perform cover flushing every morning.	
3.4	Set PACS in photometer mode and perform reference tests	
3.5	Perform RS H-field test in photometer mode (3 antenna positions). Specific threshold tests with about 30 frequencies for each antenna position are to be considered in photometer mode and shall be performed at the beginning of each an automated test session.	
3.6	Set PACS in spectrometer mode and perform reference tests	
3.7	Perform RS H-field test in spectrometer mode (2 antenna positions)	
3.8	Perform PACS Cooler Recycle during the night before for every testing day in photometer mode	
3.9	Perform cover flushing every morning.	
3.10	Set PACS in photometer mode and perform reference tests	
3.11	Perform E-field test in photometer mode (2 antenna positions x 2 polarisations)	
3.12	Set PACS in spectrometer mode and perform reference tests	
3.13	Perform E-field test in spectrometer mode (2 antenna positions x 2 polarisations)	
3.14	Perform off-line performance evaluation via QLA	
4	**SPIRE EMC Test**	**See para. 7.4**
4.1	Set-up instrument into REDY mode	
4.2	Perform Cooler Recycle in the evening before each testing day	
4.3	Facility setting, measurements and SPIRE health check every morning, before test	

No	Activity	Remark
4.4	Set SPIRE in nominal mode.	
4.5	Perform H-field test in nominal mode (1 antenna position), SWEEP case. Repeat reference as necessary.	
4.6	Perform H-field test in nominal mode (1 antenna position), SPOT case. Repeat reference as necessary.	
4.7	Perform E-field test in nominal mode (2 antenna positions each with two polarisations), SWEEP case. Repeat reference as necessary.	
4.8	Perform E-field test in nominal mode (2 antenna positions each with two polarisations), SPOT case. Repeat reference as necessary.	
5	**Pre-and Post Test Activities**	**See para. 7.5**
	Describing all activities to be done at the beginning of the day before test start prepare for CS test	
	Describing all activities to be done at the end of the test day before test switching Instruments OFF.	

Table 6-1: Test Activities Flow

7 Step by Step Procedure

7.1 HIFI EMC Test

Step-No.	Integration-Step-Description	OP / EMC	Nom Val	Tol.	Act. Val.	Comment	P	N
7.1.1	**Initialise LSU simulator for 807 GHz operation**							
7.1.1.1	Refer to RH2, para 11.4.1	OP			OK	Done previously, 14/11/05	X	
7.1.2	**Restart Instrument if has been powered down**							
7.1.2.1	Refer to RH2, para 11.4.2	OP				N/A		
7.1.3	**Perform functional test**							
7.1.3.1	Perform functional test pumped (Refer to RH2, para 11.4.4.1)	OP			OK	LO tune @ 63%, 15:11.2005	X	
7.1.3.2	Perform functional test unpumped (refer to RH2, para 11.4.4.2	OP			OK		X	
7.1.4	**Configure for EMC test**							
7.1.4.1	Configure HIFI for EMC test (refer to RH2, para. 11.4.4.3)	OP			OK	LO tune at 63 %. The HYB versions of the TCL scripts were run.	X	
7.1.5	**Perform RS H-field test in for the frequencies and antenna positions according to the frequency control tables in para. 8.**							
7.1.5.1	Prepare EMC set-up for a test session which shall not last longer than 15 minutes. Refer to RH2 para 11.4.4.4	EMC/ OP			OK		X	

Step-No.	Integration-Step-Description	OP / EMC	Nom Val	Tol.	Act. Val.	Comment	P	N
7.1.5.2	The frequencies shall be applied as ''stepwise sweep'' into two . sessions of 10 minutes (10 seconds script). - Application of one frequency: 10.0 sec - f2 = 1.1 x fprev from 30 Hz to 50 kHz	EMC			OK	Done 15.11.2005	X	
7.1.5.3	Let OP confirm application of the correct SCRIPT file (refer to RH2) (susceptibility setting), data acquisition to be started	EMC			OK		X	
7.1.5.4	After OP request start immediately the stepwise-sweep and inform OP.	EMC			OK		X	
7.1.5.5	Tell EMC the time tag for notification in the frequency control table and wait for end of the session (about 10 minutes)	OP			OK		X	
7.1.5.6	Notify the time tag provided by OP immediately in the frequency control table together with the applied frequency range (to be filled into the control table)	EMC			OK		X	
7.1.5.7	After the session (end of sweep) inform OP immediately.	EMC			OK		X	
7.1.5.8	Give to EMC the corresponding time tag to be filled in the table and store the session data with identification of - Field type (H field) - Antenna position - Polarisation - Frequency range	OP			OK		X	
7.1.5.9	Note the time tag in the frequency control table and prepare the next session until the complete frequency range, and all antenna positions/ polarisations in accordance to the frequency control table are covered.	EMC			OK	H-field test finished the morning of 15.11.2005	X	

Step-No.	Integration-Step-Description	OP / EMC	Nom Val	Tol.	Act. Val.	Comment	P	N
7.1.6	**Perform RS E-field test for the frequencies and antenna positions according to the frequency control tables in para. 8.**							
7.1.6.1	Prepare EMC set-up for a test session which shall not last longer than 15 minutes. Refer to RH2 para 11.4.4.4	EMC/ OP			OK		X	
7.1.6.2	The frequencies shall be applied as ''stepwise sweep'' over a number of test sessions - Application of one frequency: 10.0 sec - f = 1.1 x fprev from 14 kHz to 2.5 GHz - f = 1.05 x fprev from 2.5 GHz to 8.5 GHz - f = 1.1 x fprev from 8.5 GHz to 18 GHz	EMC			**NOK**	Done in accordance to the required set-ups between 15.11 ans 16.11. See frequency control table. **See NCR ''ASED-NC-1733'' (**HIFI radiated susceptibility in range 3.9 GHz to 8.1 GHz**)**		X
7.1.6.3	Let OP confirm application of the correct SCRIPT file (refer to RH2) (susceptibility setting), data acquisition to be started	EMC			OK		X	
7.1.6.4	After OP request start immediately the stepwise-sweep and inform OP.	EMC			OK		X	
7.1.6.5	Tell EMC the time tag for notification in the frequency control table and wait for end of the session (about 10 minutes)	OP			OK		X	
7.1.6.6	Notify the time tag provided by OP immediately in the frequency control table together with the applied frequency range (to be filled into the control table)	EMC			OK		X	
7.1.6.7	After the session (end of sweep) inform OP immediately.	EMC			OK		X	

Step-No.	Integration-Step-Description	OP / EMC	Nom Val	Tol.	Act. Val.	Comment	P	N
7.1.6.8	Give to EMC the corresponding time tag to be filled in the table and store the session data with identification of - Field type (E-field) - Antenna position - Polarisation - Frequency range	OP			OK		X	
7.1.6.9	Note the time tag in the frequency control table and prepare the next session until the complete frequency range, and all antenna positions/ polarisations in accordance to the frequency control table are covered.	EMC			OK		X	

7.2 HIFI ADDITIONAL EMC Test

Step-No.	Integration-Step-Description	OP / EMC	Nom Val	Tol.	Act. Val.	Comment	P	N
7.2.1	**Prepare HIFI for Conducted Susceptibility test power lines**							
7.2.1.1	Switch off HIFI RH2 procedure 11.4.5.5: Configure HIFI to standby RH2 procedure 2.4.4: Power-off HIFI	OP			OK		X	
7.2.1.2	Install power supplies and LISN's for the primary power lines FHICU, FHLCU, FHHRH and FHWEH	EMC			OK		X	
7.2.1.3	Connect break-out boxes to the nominal power lines of the ICU and the LCU, test connector: **FHICU Power:** Bracket DB05, J05 PIN 2 = PLUS PIN 4 = RTN **FHLCU Power:** Bracket DB06, J01 PIN 2,7 = PLUS PIN 4,9 = RTN				OK		X	
7.2.1.4	Install T-adapters in the Cryo harness in order to enable CE/CS measurements on the FPU signal lines: **FPU Signal Lines:** FP Cryo-H location: View from -Y, Bracket 311100 FP Cryo-H bundles: SIH-IH-01, J03 SIH-IH-02, J01 SIH-IH-05, J02				OK		X	

Step-No.	Integration-Step-Description	OP / EMC	Nom Val	Tol.	Act. Val.	Comment	P	N
7.2.1.5	Install T-adapters in the Cryo harness in order to enable CE/CS measurements on the LOU signal lines: **LOU Signal Lines:** LO Cryo-H location: View from -Y LO Cryo-H bundles: SIH-IH-07, Bracket 311300, J03				OK		X	
7.2.1.6	RH2 procedure 11.4.1: Initialise LSU simulator for 807 GHz	OP			OK		X	
7.2.1.7	Switch-on ICU power and inform OP Check voltage and current	EMC			OK		X	
7.2.1.8	RH2 procedure 2.4.2.1: Power on ICU RH2 procedure 2.4.2.2: Check ICU HK RH2 procedure 2.4.2.3: Check FCU HK	OP			OK	PDU power switching to be omitted	X	
7.2.1.9	Switch-on HRH power and inform OP Check voltage and current	EMC			OK		X	
7.2.1.10	RH2 procedure 2.4.2.4: Power-on HRH	OP			OK	PDU power switching to be omitted	X	
7.2.1.11	Switch-on WEH power and inform OP Check voltage and current	EMC			OK		X	
7.2.1.12	RH2 procedure 2.4.2.5: Power-on WEH	OP			OK	PDU power switching to be omitted	X	
7.2.1.13	Switch-on LCU power and inform OP Check voltage and current	EMC			OK		X	
7.2.1.14	RH2 procedure 2.4.2.6: Power-on LCU	OP			OK	PDU power switching to be omitted	X	
7.2.1.15	RH2 procedure 11.4.1: Initialise LSU simulator	OP			OK		X	
7.2.1.16	RH2 procedure 11.4.2: Restart HIFI	OP			OK		X	

Step-No.	Integration-Step-Description	OP / EMC	Nom Val	Tol.	Act. Val.	Comment	P	N
7.2.1.17	RH2 procedure 11.4.3.1: Perform Functional test pumped	OP			OK		X	
7.2.1.18	RH2 procedure 11.4.3.2: Perform Functional test unpumped	OP			OK		X	
7.2.1.19	RH2 procedure 11.4.3.3: Configure HIFI for EMC test	OP			OK		X	
7.2.2	**Perform CS Power Lines test for the ICU, DM, Steady State, Frequency range 30 Hz to 50 kHz**							
7.2.2.1	Install the test set-up for the ICU primary power lines, according to RH1, section 5.4.1.2.1	EMC			OK		X	
7.2.2.2	Prepare EMC set-up The frequencies shall be applied as ''step-wise-sweep'' over two sessions of 10 minutes (10 seconds script). - Application of one frequency: 10.0 sec - f2 = 1.1 x f1 f3 = 1.1 x f2 Frequency range 30 Hz to 50 kHz	EMC			OK	Total 79 steps	X	
7.2.2.3	RH2 procedure 11.4.3.4: EMC susceptibility test for the 10 minutes script file	OP			OK		X	
7.2.2.4	One minute after start of script in previous step: Inform EMC to start EMC source sweep	OP			OK		X	
7.2.2.5	Start the stepwise-sweep and inform OP.	EMC			OK		X	
7.2.2.6	Tell EMC the time tag for notification in the frequency control table and wait for end of the session	OP			OK		X	

Step-No.	Integration-Step-Description	OP / EMC	Nom Val	Tol.	Act. Val.	Comment	P	N
7.2.2.7	Notify the time tag provided by OP immediately in the frequency control table together with the applied frequency range (to be filled into the control table)	EMC			OK		X	
7.2.2.8	After the session (end of sweep) inform OP immediately.	EMC			OK		X	
7.2.2.9	Give to EMC the corresponding time tag to be filled in the table and store the session data with identification of - CS Power Lines DM - Frequency range	OP			OK		X	
7.2.2.10	Note the time tag in the frequency control table.	EMC			OK		X	
7.2.3	**Perform CS Power Lines test for the LCU, DM, Steady State, Frequency range 30 Hz to 50 kHz**							
7.2.3.1	Install the test set-up for the LCU primary power lines, according to RH1, section 5.4.1.2.1	EMC			OK		X	
7.2.3.2	Remaining test procedure as above				OK		X	
7.2.4	**Perform CS Power Lines test for the ICU, DM, Steady, Frequency range 50 kHz to 50 MHz**							
7.2.4.1	Install the test set-up for the ICU primary power lines, according to RH1, section 5.4.1.2.2	EMC			OK		X	

Step-No.	Integration-Step-Description	OP / EMC	Nom Val	Tol.	Act. Val.	Comment	P	N
7.2.4.2	Prepare EMC set-up according to RH1, section 5.4.1.2.2 The frequencies shall be applied as ''step-wise-sweep'' over two sessions of 10 minutes (10 seconds script). - Application of one frequency: 10.0 sec - f2 = 1.1 x f1 f3 = 1.1 x f2	EMC			OK	Total 12 steps	X	
7.2.4.3	RH2 procedure 11.4.3.4: EMC susceptibility test for 10 minutes	OP			OK		X	
7.2.4.4	One minute after start of script in previous step: Inform EMC to start EMC source sweep	OP			OK		X	
7.2.4.5	Start the stepwise-sweep and inform OP.	EMC			OK		X	
7.2.4.6	Tell EMC the time tag for notification in the frequency control table and wait for end of the session (about 10 minutes)	OP			OK		X	
7.2.4.7	Notify the time tag provided by OP immediately in the frequency control table together with the applied frequency range (to be filled into the control table)	EMC			OK		X	
7.2.4.8	After the session (end of sweep) inform OP immediately.	EMC			OK		X	
7.2.4.9	Give to EMC the corresponding time tag to be filled in the table and store the session data with identification of - CS Power Lines DM ICU - Frequency range	OP			OK		X	
7.2.4.10	Note the time tag in the frequency control table. Prepare the next session according to RH1, section 5.4.1.2.2. Continue from step 7.2.4.3.	EMC			OK		X	
7.2.4.11	Deleted	EMC				Total 8 steps		
7.2.4.12	Deleted	OP						

Step-No.	Integration-Step-Description	OP / EMC	Nom Val	Tol.	Act. Val.	Comment	P	N
7.2.4.13	Deleted	EMC/OP						
7.2.4.14	Deleted	EMC				Total 55 steps		
7.2.4.15	Deleted	OP						
	Repeat steps 7.2.4.4 to 7.2.4.10	EMC/ OP			OK		X	
7.2.5	**Perform CS Power Lines test for the LCU, DM, Steady State, Frequency range 50 kHz to 50 MHz**							
7.2.5.1	Install the test set-up for the LCU primary power lines, according to RH1, section 5.4.1.2.2	EMC			OK		X	
7.2.5.2	Remaining test procedure as above				OK		X	
7.2.6	**Perform CS Power Lines test for the ICU, CM, Steady State, Frequency range 10 kHz to 50 MHz**							
7.2.6.1	Install the test set-up for the ICU primary power lines, according to RH1, section 5.4.2.2	EMC			OK		X	
7.2.6.2	Prepare EMC set-up, according to RH1, section 5.4.2.2 The frequencies shall be applied as ''step-wise-sweep'' over a session of 5 minutes (5 minutes script) and two sessionsof 10 minutes (10 seconds script). - Application of one frequency: 10.0 sec - f2 = 1.1 x f1 f3 = 1.1 x f2	EMC			OK	Total 79 steps	X	
7.2.6.3	RH2 procedure 11.4.3.4: EMC susceptibility test.	OP			OK		X	
7.2.6.4	One minute after start of script in previous step: Inform EMC to start EMC source sweep	OP			OK		X	

Step-No.	Integration-Step-Description	OP / EMC	Nom Val	Tol.	Act. Val.	Comment	P	N
7.2.6.5	Start the stepwise-sweep and inform OP.	EMC			OK		X	
7.2.6.6	Tell EMC the time tag for notification in the frequency control table and wait for end of the session	OP			OK		X	
7.2.6.7	Notify the time tag provided by OP immediately in the frequency control table together with the applied frequency range (to be filled into the control table)	EMC			OK		X	
7.2.6.8	After the session (end of sweep) inform OP immediately.	EMC			OK		X	
7.2.6.9	Give to EMC the corresponding time tag to be filled in the table and store the session data with identification of - CS Power Lines CM - Frequency range	OP			OK		X	
7.2.6.10	Note the time tag in the frequency control table. Prepare the next session according to RH1 section 5.4.2.2 Continue from step 7.2.6.3	EMC			OK		X	
7.2.7	**Perform CS Power Lines test for the LCU, CM, Steady State, Frequency range 10 kHz to 50 MHz**							
7.2.7.1	Install the test set-up for the LCU primary power lines, according to RH1, section 5.4.2.2	EMC			OK		X	
7.2.7.2	Remaining test procedure as above				OK		X	
7.2.8	**Perform CS Power Lines test for the ICU, DM, Transients**							

Step-No.	Integration-Step-Description	OP / EMC	Nom Val	Tol.	Act. Val.	Comment	P	N
7.2.8.1	Install the test set-up for the ICU primary power lines, according to RH1, section 5.4.3	EMC			OK		X	
7.2.8.2	Prepare EMC set-up, according to RH1, section 5.4.3	EMC			OK		X	
7.2.8.3	RH2 procedure 11.4.3.4: EMC susceptibility test for 5 minutes	OP			OK		X	
7.2.8.4	One minute after start of script in previous step: Inform EMC to start EMC injection	OP			OK		X	
7.2.8.5	Start the EMC injection and inform OP	EMC			OK		X	
7.2.8.6	After the session inform OP immediately.	EMC			OK		X	
7.2.8.7	Give to EMC the corresponding time tag to be filled in the table and store the session data with identification of - CS Power Lines DM Transients	OP			OK		X	
7.2.9	**Perform CS Power Lines test for the LCU, DM, Transients**							
7.2.9.1	Install the test set-up for the LCU primary power lines, according to RH1, section 5.4.3	EMC			OK		X	
7.2.9.2	Remaining test procedure as above				OK		X	
7.2.10	**Perform CS Power Lines test for the ICU, CM, Transients**							
7.2.10.1	Install the test set-up for the ICU primary power lines, according to RH1, section 5.4.4	EMC			OK		X	

Step-No.	Integration-Step-Description	OP / EMC	Nom Val	Tol.	Act. Val.	Comment	P	N
7.2.10.2	Prepare EMC set-up, according to RH1, section 5.4.4	EMC			OK		X	
7.2.10.3	RH2 procedure 11.4.3.4: EMC susceptibility test for 5 minutes	OP			OK		X	
7.2.10.4	One minute after start of script in previous step: Inform EMC to start EMC injection	OP			OK		X	
7.2.10.5	Start the EMC injection and inform OP	EMC			OK		X	
7.2.10.6	After the session inform OP immediately.	EMC			OK		X	
7.2.10.7	Give to EMC the corresponding time tag to be filled in the table and store the session data with identification of - CS Power Lines CM Transients	OP			OK		X	
7.2.11	**Perform CS Power Lines test for the LCU, CM, Transients**							
7.2.11.1	Install the test set-up for the LCU primary power lines, according to RH1 section 5.4.4	EMC			OK		X	
7.2.11.2	Remaining test procedure as above				OK		X	
						CE/CS Steps not performed due to time schedule constraints		**X**
7.2.12.3		EMC OP				**EMC test source may remain on, as it will not influence the emission test.**		

Step-No.	Integration-Step-Description	OP / EMC	Nom Val	Tol.	Act. Val.	Comment	P	N
7.2.12.4		OP						
7.2.12.5		EMC						
7.2.12.6		EMC						
7.2.12.7		EMC				Only for frequencies and levels found in previous step, otherwise skip steps		
7.2.12.8		OP						
7.2.12.9		OP						
7.2.12.10		EMC						
7.2.12.11		EMC						
7.2.12.12								
7.2.12.13		EMC/ OP						
7.2.12.14		OP						
7.2.12.15		EMC/ OP				**CE/CS Steps not performed due to time schedule constraints**		**X**
		EMC						

7.3 PACS EMC Test

It follows the step by step procedure for the PACS EMC test. Because the test will last more that oneday after the testing day the procedure shall be started from the beginning every start of the testing day in order to continue with the EMC test where it was interrupted the day before. The frequency control tables as shown in para. 8 shall be filled in during the test and will provide the correlation between the testing time and the achieved progress of the EMC test

Step-No.	Integration-Step-Description	OP / EMC	Nom Val	Tol.	Act. Val.	Comment	P	N
7.3.1	**At the beginning of the day start up instrument and set-up PACS instrument into safe mode**							
7.3.1.1	Command ''PACS_Switch_On_CCS.tcl''	OP	SAFE		OK	Refer to RP2	X	
7.3.2	**Perform PACS Cooler Recycle (required every day provided that the instrument has to be set in photometer mode)**							
7.3.2.1	Refer to RP2	OP	SAFE		OK	Refer to RP2	X	
7.3.3	**Perform flushing every morning**							
7.3.4	**Set PACS in photometer mode and perform reference tests**							
7.3.4.1	Command ''PHOT_setup_OBS_shell.tcl''	OP	PHOT		OK	Refer to RP2	X	
	Command ''Chop_mov_abs_obs_shell.tcl''	OP	PHOT		OK	Refer to RP2. Check that science packets are generated and being displayed on QLA grating position 500000 and chopper target =25000.	X	

Step-No.	Integration-Step-Description	OP / EMC	Nom Val	Tol.	Act. Val.	Comment	P	N
7.3.5	**Perform RS H-field test in photometer mode for the frequencies and antenna positions according to the frequency control tables in para. 8.**							
7.3.5.1	Prepare EMC set-up	OP / EMC			OK		X	
7.3.5.2	Let OP confirm photometer mode	EMC			OK		X	
7.3.5.3	Perform threshold measurements on a predefined set of frequencies directly before set-up change in accordance to the normal frequency list from the frequency control table.	EMC			OK		X	
7.3.5.4	Apply the calibrated frequency according to frequency control table, switch it ON, note the CCS time and inform OP.	EMC			OK		X	
7.3.5.5	START DATA ACQUISITION and tell EMC the time tag for notification in the frequency control table and wait 50 sec. (DWELL time).	OP			OK		X	
						DELETED		
7.3.5.7	After the about 50 sec (DWELL time) STOP DATA	OP			OK		X	
7.3.5.8	Store data and give emc the corresponding file name.	EMC			OK		X	
7.3.5.9	Switch RS frequency OFF, note the stop time and set to the next frequency step	EMC			OK		X	
7.3.5.10	Apply the next frequency according to frequency control table and repeat the above steps until the complete H-field is tested (3 antenna positions). A reference test shall be included in between as far as necessary (about every 90 min.).	OP/ EMC			OK		X	

Step-No.	Integration-Step-Description	OP / EMC	Nom Val	Tol.	Act. Val.	Comment	P	N
7.3.5.11	Return to SAFE mode by commanding ''ENTER_SAFE_Model_Shell.tcl''	OP	SAFE		OK		X	
7.3.6	**Set PACS in spectrometer mode and perform reference tests**							
7.3.6.1	Command ''SetupSpectroscopyEQMIMT_Shell.tcl'''	OP	SPEC		OK	Refer to RP2	X	
	Command ''SPEC_Prepare_EMC_Shell.tcl''	OP	PHOT		OK	Refer to RP2. Check that science packets are generated and being displayed on QLA grating position 500000 and chopper target =25000.	X	
7.3.7	**Perform RS H-field test in spectrometer mode for the frequencies and antenna positions according to the frequency control tables in para. 8.**							
7.3.7.1	Prepare EMC set-up	OP / EMC			OK		X	
7.3.7.2	Let OP confirm spectrometer mode	EMC			OK		X	
7.3.7.3	Apply the calibrated frequency according to frequency control table, switch it ON, note the CCS time and inform OP.	EMC			OK		X	
7.3.7.4	START DATA ACQUISITION and tell EMC the time tag for notification in the frequency control table and wait 50 sec. (DWELL time).	OP			OK		X	
7.3.7.6	After the about 50 sec (DWELL time) STOP DATA acquisition.	OP			OK	DELETED	X	
7.3.7.7	Store data and give emc the corresponding file name.	EMC			OK		X	

Step-No.	Integration-Step-Description	OP / EMC	Nom Val	Tol.	Act. Val.	Comment	P	N
7.3.7.8	Switch RS frequency OFF, note the corresponding CCS time and set to the next frequency step	EMC			OK		X	
7.3.7.9	Apply the next frequency according to frequency control table and repeat the above steps until the complete H-field is tested (2 antenna positions). A reference test shall be included in between as far as necessary (abput every 90 min.).	OP/ EMC			OK	The H-field RS tests in spectrometer mode have been performed 22.11.05.	X	
7.3.7.10	Return to SAFE mode by commanding ''ENTER_SAFE_Model_Shell.tcl''	OP	SAFE		OK		X	
7.3.8	**Perform PACS Cooler Recycle (required every day provided that the instrument has to be set in photometer mode)**							
7.3.8.1	Refer to RP2	OP	SAFE		OK	Refer to RP2. Cooler recycle performed at the end of day 22.11.05.	X	
7.3.9	**Perform flushing every morning**							
7.3.10	**Set PACS in photometer mode and perform reference tests**							
7.3.10.1	Command ''PHOT_setup_OBS_shell.tcl''	OP	PHOT		OK	Refer to RP2	X	
7.3.10.2	Command ''Chop_mov_abs_obs_shell.tcl''	OP	PHOT		OK	Refer to RP2. Check that science packets are generated and being displayed on QLA grating position 500000 and chopper target =25000.	X	
7.3.11	**Perform RS E-field test in photometer mode for the frequencies and antenna positions according to the frequency control tables in para. 8.**							

Step-No.	Integration-Step-Description	OP / EMC	Nom Val	Tol.	Act. Val.	Comment	P	N
7.3.11.1	Prepare EMC set-up	OP / EMC			OK		X	
7.3.11.2	Let OP confirm photometer mode	EMC			OK		X	
7.3.11.3	Apply the calibrated frequency according to frequency control table, note the CCS time and switch it ON and inform OP.	EMC			OK		X	
7.3.11.4	START DATA ACQUISITION and tell EMC the time tag for notification in the frequency control table and wait 50 sec. (DWELL time).	OP			OK		X	
						DELETED		
7.3.11.6	After the about 50 sec (DWELL time) STOP DATA AQUISITION.	OP			OK		X	
7.3.11.7	Store data and give emc the corresponding file name.	EMC			OK		X	
7.3.11.8	Switch RS frequency OFF, note the CCS time and set to the next frequency step	EMC			OK		X	
7.3.11.9	Apply the next frequency according to frequency control table and repeat the above steps until the complete E-field is tested (2 antenna positions). A reference test shall be included in between as far as necessary (about every 90 min.).	OP/ EMC			OK		X	
7.3.11.10	Return to SAFE mode by commanding ''ENTER_SAFE_Model_Shell.tcl''	OP	SAFE		OK		X	
7.3.12	**Set PACS in spectrometer mode and perform reference tests**							
7.3.12.1	Command ''SetupSpectroscopyEQMIMT_Shell.tcl'''	OP	SPEC		OK	Refer to RP2	X	

Step-No.	Integration-Step-Description	OP / EMC	Nom Val	Tol.	Act. Val.	Comment	P	N
	Command ''SPEC_Prepare_EMC_Shell.tcl''	OP	PHOT		OK	Refer to RP2. Check that science packets are generated and being displayed on QLA grating position 500000 and chopper target =25000.		
7.3.13	**Perform RS E-field test in spectrometer mode for the frequencies and antenna positions according to the frequency control tables in para. 8.**							
7.3.13.1	Prepare EMC set-up	OP / EMC			OK		X	
7.3.13.2	Let OP confirm spectrometer mode	EMC			OK		X	
7.3.13.3	Apply the calibrated frequency according to frequency control table,switch it ON, note the CCS time and inform OP.	EMC			OK		X	
7.3.13.4	START DATA ACQUISITION and tell EMC the time tag for notification in the frequency control table and wait 50 sec. (DWELL time).	OP			OK		X	
						DELETED		
7.3.13.6	After the about 50 sec (DWELL time) STOP DATA AQUISITION.	OP			OK		X	
7.3.13.7	Store data and give emc the corresponding file name.	EMC			OK		X	
7.3.13.8	Switch RS frequency OFF, note the CCS time and set to the next frequency step	EMC			OK		X	
7.3.13.9	Apply the next frequency according to frequency control table and repeat the above steps until the complete E-field is tested (2 antenna positions). A reference test shall be included in between as far as necessary (every 90 min. TBC).	OP/ EMC			OK		X	

Step-No.	Integration-Step-Description	OP / EMC	Nom Val	Tol.	Act. Val.	Comment	P	N
7.3.13.10	Return to SAFE mode by commanding ''ENTER_SAFE_Model_Shell.tcl''	OP	SAFE		OK		X	
7.3.14	**Perform offline evaluation.**	**OP**						

7.4 SPIRE EMC Test

It follows the step by step procedure for the SPIRE RS test. Because the test will last more that one day, after a testing day the procedure shall be started from the beginning every start of the testing day in order to continue with the EMC test where it was interrupted the day before. The frequency control tables as shown in para. 8 shall be filled in during the test and will provide the correlation between the testing time and the achieved progress of the EMC test.

Step-No.	Integration-Step-Description	OP / EMC	Nom Val	Tol.	Act. Val.	Comment	P	N
7.4.1	**Start up SPIRE and set-up instrument into REDY mode**							
7.4.1.1	Refer to RS2	OP	REDY		REDY		X	
7.4.2	**Perform cooler recycle at the evening of each testing day**							
7.4.2.1	Refer to RS2	OP			OK		X	
7.4.3	**Perform facility measurements and SPIRE health check and the beginning of each testing day**							
7.4.3.1	Refer to RS2	OP			OK		X	
7.4.4	**Set SPIRE into nominal mode**							
7.4.4.1	Refer to RS2	OP OP			OK OK		X X	

Step-No.	Integration-Step-Description	OP / EMC	Nom Val	Tol.	Act. Val.	Comment	P	N
7.4.5	**Perform H-field test in nominal mode SWEEP**							
7.4.5.1	Perform SPIRE REFERENCE TEST (necessary about every 90 min on OP request), refer to RS2.	OP			OK		X	
7.4.5.2	Prepare RS H-field set-up with calibrated EMI values. Use the frequency tables for the definition of the respective sweep start and end frequency. The sweep shall be a step-wise sweep in accordance to the law: f = fprev. x 1.05 (i.e. 5 %) The sweep shall be 100 % amplitude modulated with 140 ms OFF and 800 ms ON time, i.e. with a repetition frequency of 1 second.DWELL time shall be 10 seconds. The particular single frequencies of each sweep subset will be presented by the facility personnel at test.	EMC			OK		X	
7.4.5.3	Start SWEEP SCRIPT file for the sweep SPIRE-CCS-EMC-SWEEP.tcl and the same time the EMC sweep and note the corresponding CCS time in the frequency table, both EMC and OP.	OP/ EMC			OK		X	
7.4.5.4	Stop SWEEP SCRIPT file simultaneously with the end of the EMC sweep and 1. Note the corresponding CCS time, both OP and EMC. 2. Note the STEP Number of the SWEEP, both OP and EMC.	EMC/ OP			OK		X	
7.4.5.5	Generate ASCI file with the QLA routines	OP			OK		X	

Step-No.	Integration-Step-Description	OP / EMC	Nom Val	Tol.	Act. Val.	Comment	P	N
7.4.5.6	After a certain number of SWEEPs a reference test in accordance to RS 2 have to be performed. If all sweeps from the frequency table are performed go to the next step below.	OP/ EMC			OK		X	
7.4.6	**Perform H-field test in nominal mode, SPOT**							
7.4.6.1	The frequency table shall be completed by OP in order to show maximum 30 SPOTS as result of this sweep test analysis.	OP			OK		X	
7.4.6.2	Perform SPIRE REFERENCE TEST in accordance to RS2.	EMC			OK		X	
7.4.6.4	Start SPOT SCRIPT file for the SPOT SPIRE-CCS-EMC-SPOT.tcl simultaneously with the start of the EMC SPOT application and note the corresponding CCS time in the frequency table, both OP and EMC. The H-field shall be 100 % amplitude modulated with 140 ms OFF and 800 ms ON time duration.	OP			OK		X	
7.4.6.5	Stop SPOT SCRIPT file simultaneously with the EMC SPOT after 3 minutes and 1. Note the corresponding CCS time, both OP and EMC 2. Note the STEP Number of the SPOT, both OP and EMC.	OP/ EMC			OK		X	
7.4.6.6	Generate ASCI file with the QLA	OP			OK		X	
7.4.6.7	After a certain number of SPOTs a reference test in accordance to RS 2 have to be performed. If all SPOTs from the frequency table are performed go to the next step below.	EMC / OP			OK		X	

Step-No.	Integration-Step-Description	OP / EMC	Nom Val	Tol.	Act. Val.	Comment	P	N
7.4.6.8	If all applicable EMC set-ups have been performed the test is completed, otherwise go back to step 7.4.5 for a sweep with the other EMC set-up, in accordance to the frequency table in chapter 8.	EMC/ OP			OK		X	
7.4.7	**Perform E-field test in nominal mode, SWEEP**							
7.4.7.1	Perform SPIRE REFERENCE TEST (necessary about every 90 min on OP request), refer to RS2.	EMC			OK		X	
7.4.7.2	Prepare RS E-field set-up for this antenna position with calibrated EMI values. Use the frequency tables for the definition of the respective sweep start and end frequency. The sweep shall be a step-wise sweep wih the parameters defined in the frequency control tables (annexed). In addition to the standard modulation the E-field shall be 100% amplitude modulated (ON – OFF), as reported in the frequency control sheets. The particular single frequencies of each sweep subset will be presented by the facility personnel at test.	OP			OK		X	
7.4.7.3	Start SWEEP SCRIPT file for the sweep SPIRE-CCS-EMC-SWEEP.tcl simultaneously with the EMC sweep and note the corresponding CCS time in the frequency table, both EMC and OP.	OP/ EMC			OK		X	
7.4.7.4	Stop SWEEP SCRIPT file simultaneously with the end of the EMC sweep and 1. Note the corresponding CCS time, both OP and EMC. 2. Note the STEP Number of the SWEEP, both OP and EMC.	EMC/ OP			OK		X	

Step-No.	Integration-Step-Description	OP / EMC	Nom Val	Tol.	Act. Val.	Comment	P	N
7.4.7.5	Generate ASCI file with the QLA				OK		X	
7.4.7.6	After a certain number of SWEEPs a reference test in accordance to RS 2 have to be performed. If all sweeps from the frequency table for a given EMC set-up are performed go to the next step below.	OP/ EMC			OK		X	
7.4.8	**Perform E-field test in nominal mode, SPOT**							
7.4.8.1	The frequency table shall be completed by OP in order to show maximum 30 SPOTS as result of this sweep test analysis.	OP			OK		X	
7.4.8.2	Perform SPIRE REFERENCE TEST in accordance to RS2.	EMC			OK		X	
7.4.8.3	Start SPOT SCRIPT file for the SPOT SPIRE-CCS-EMC-SPOT.tcl simultaneously with the start of the EMC SPOT application and note the corresponding CCS time in the frequency table, both OP and EMC. In addition to the standard modulation the E-field shall be 100% amplitude modulated (ON – OFF), as reported in the frequency control sheets.	OP			OK		X	
7.4.8.4	Stop SPOT SCRIPT file simultaneously after 3 minutes and 1. Note the corresponding CCS time, both OP and EMC. 2. Note the STEP Number of the SPOT, both OP and EMC	OP			OK		X	
7.4.8.5	Generate ASCI file with the QLA routines	OP			OK		X	

Step-No.	Integration-Step-Description	OP / EMC	Nom Val	Tol.	Act. Val.	Comment	P	N
7.4.8.6	After a certain number of SPOTs a reference test in accordance to RS 2 have to be performed. If all SPOTs from the frequency table are performed go to the next step below.	EMC / OP			OK		X	
7.4.8.7	If all antenna positions with the applicable EMC set-up or polarisation have been performed the test is completed, otherwise go back to step 7.4.7 for a sweep with the other EMC set-up or antenna position/polarisation, in accordance to the frequency table in chapter 8.	EMC/ OP			OK		X	

7.5 Pre- and Post Test Activities

Step-No.	Integration-Step-Description	OP / EMC	Nom Val	Tol.	Act. Val.	Comment	P	N
7.5.1	**Pre- Test activities**							
7.5.1.1	Confirm that every instrument is switched OFF.	OP / EMC			OK	Only for fist start up, else instruments are already in standby	X	
7.5.1.2	Switch all instruments into Standby mode.	OP / EMC			OK	dito	X	
7.5.1.3	Hold Pointer meeting in order to clarify the steps to be performed this day (max. 30 min)	OP / EMC			OK		X	
7.5.2	**Post- Test activities**							
7.5.2.1	Confirm operational mode for the instrument under test.	OP / EMC			OK		X	
7.5.2.2	Confirm Standby mode for the instruments not under test.	OP / EMC			OK		X	
7.5.2.3	Confirm that all tests data are available and well stored, respectively available as paper copy or photo.	OP / EMC			OK		X	
7.5.2.4	Switch all instruments into standby	OP / EMC			OK		X	
7.5.2.5	Switch-all instruments OFF except if cooler recycling is required. In this case the recycled instrument shall be left in standby or safe mode respectively.	OP / EMC			OK		X	
7.5.2.6	Hold wash-up meeting (max 60 min): 1. status 2. tasks to be done next day in parallel to the normal test activities.	OP / EMC			OK		X	

8 RS Frequency Control Tables

8.1 HIFI Frequency Control Tables H-field

HIFI RS H-Field, Antenna Position 1								
i	**Frequency Range**	**Date**	**CCS Sweep Start Time**	**CCS Sweep Stop Time**	**Script File**	**Session Name OBS ID**	**Sensor**	**Observations**
1	30 Hz – 1.23 kHz (< 7 min)	15.11.05	8:59:27	9:6:31	10 min	19378		See (1)
2	1.23 kHz - 50 kHz (< 7 min)	15.11.05	9:12:05	9:19:08	10 min	19379		See (1)
3	Reference Measurement	15.11.05	8:51	8:52	10 min	19377		Reference Measurement

Table 8.1-1: HIFI @ Susceptibility Mode // H-field // 1st Antenna Position (1)

(1): Antenna position is in front of the LOU, illumenating the middle of the cryostat

~~HIFI RS H-Field, Antenna Position 2~~								
~~**i**~~	~~**Frequency Range**~~	~~**Date**~~	~~**CCS Start Time**~~	~~**CCS Stop Time**~~	~~**Script File**~~	~~**Session Name**~~	~~**Sensor**~~	~~**Observations**~~
~~1~~	~~30 Hz – 1.23 kHz (< 7 min)~~							
~~2~~	~~1.23 kHz - 50 kHz (< 7 min)~~							

~~**Table 8.1-2: HIFI @ Susceptibility Mode // H-field // 2nd Antenna Position**~~

8.2 HIFI Frequency Control Tables E-field

HIFI RS E-Field, Antenna Position 1 (High), Horizontal Polarization								
i	**Frequency Range**	**Date**	**CCS Sweep Start Time**	**CCS Sweep Stop Time**	**Script File**	**Session Name OBS ID**	**Sensor [V/m]**	**Observations**
1	30 MHz – 1 GHz (< 7 min)	15.11.05	14:28:22	14:36:47	10 min	19393	2.2	Antenna position as fig. 8.2-1 (High)
2	1 GHz – 6 GHz (< 5 min)	15.11.05	17:58:00	18:04:15	10 min	19401	2.9 – 3.4	Antenna position as fig. 8.2-4 (High)
3	6 GHz – 18 GHz (< 3 min)	16.11.05	13:03:03	13:06:30	5 min	19453	1.6 – 0.7	Antenna position as fig. 8.2-4 (High)
4	8.45 GHz – 8.5 GHz (in steps of 10 MHz)	16.11.05	14:21:56	14:23:16	5 min	19465		Antenna position as fig. 8.2-4 (High)
3a	6.05 GHz – 18 GHz	16.11.05	13:13:50	13:17:09	5 min	19454	1.8 – 2.3	Antenna position as fig. 8.2-4 (High) Offset 2.5 %

Table 8.2-1: HIFI @ Susceptibility Mode // E-field // 1st Antenna Position, Horizontal Polarization

HIFI RS E-Field, Antenna Position 1 (High/Low), Vertical Polarization								
i	**Frequency Range**	**Date**	**CCS Start Time**	**CCS Stop Time**	**Script File**	**Session Name OBS ID**	**Sensor [V/m]**	**Observations**
1	14 kHz – 600 kHz (< 8 min)	15.11.05	10:27:11	10:35:56	10 min	19381	8 - 4	Antenna position as fig. 8.2-1, (High)
2	600 kHz – 30 MHz (< 7 min)	Dito	10:56:63	10:05:23	15 min	19383	4 - 2	Antenna position as fig. 8.2-1, (High)
3	30 MHz – 1 GHz (< 7 min)	Dito	14:13:35	14:21:50	10 min	19392	1.6 -	Antenna position as fig. 8.2-1, (High)
4	1 GHz – 6 GHz (< 5 min)	Dito	17:47:09	17:53:29	10 min	19400	3.3 – 1.9	Antenna position as fig. 8.2-3, (Low)
5	6 GHz – 18 GHz (< 3 min)	16.11.05	12:56:??	12:59:42	5 min	19452	3.1 -	Antenna position as fig. 8.2-3, (Low)
6	8.45 GHz – 8.5 GHz (in steps of 10 MHz)	Dito	14;49:30	14:5051	5 min	19467		
1a	14 kHz – 600 kHz	Dito	10:40:36	10:49:27	15 min	19382		Repetition of step 1

Table 8.2-2: HIFI @ Susceptibility Mode // E-field // 1st Antenna Position, Vertical Polarization

HIFI RS E-Field, Antenna Position 2 (Low), Horizontal Polarization								
i	**Frequency Range**	**Date**	**CCS Start Time**	**CCS Stop Time**	**Script File**	**Session Name OBS ID**	**Sensor**	**Observations**
1	30 MHz – 1 GHz (< 7 min)	15.11.05	15:41:54	15:50:05	10 min	19395	2.4 – 6.0	Antenna position as fig. 8.2-2 (Low)
2	1 GHz – 6 GHz (< 5 min)	Dito	17:33:33	17:39:55	10 min	19399	2.3 – 1.8	Antenna position as fig. 8.2-4 (Low)
3	6 GHz – 18 GHz (< 3 min)	16.11.05	12:48:50	12:52:09	5 min	19451	0.9 – 1.5	Antenna position as fig. 8.2-4 (Low)
4	8.45 GHz – 8.5 GHz (in steps of 10 MHz)	Dito	14:16:16	14:17:34	5 min	19464		

Table 8.2-3: HIFI @ Susceptibility Mode // E-field // 2nd Antenna Position, Horizontal Polarization

HIFI RS E-Field, Antenna Position 2 (Low), Vertical Polarization								
i	**Frequency Range**	**Date**	**CCS Start Time**	**CCS Stop Time**	**Script File**	**Session Name OBS ID**	**Sensor [V/m]**	**Observations**
1	14 kHz – 600 kHz (< 8 min	15.11.05	13:08:50	13:17:27	15 min	19388	2.4 – 2.3	Antenna position as fig. 8.2-2 (Low)
2	600 kHz – 30 MHz (< 7 min)	Dito	13:25:12	13:34:24	15 min	19389	2.5 – 2.9	Antenna position as fig. 8.2-2 (Low)
3	30 MHz – 1 GHz (< 7 min)	Dito	15:27:33	15:35:58	10 min	19394	2.0 – 5.5	Antenna position as fig. 8.2-2 (Low)
4	1 GHz – 6 GHz (< 5 min)	Dito	17:22:54	17:29:15	10 min	19398	3.5 – 1.4	Antenna position as fig. 8.2-4 (Low) (Session 19397 aborted, wrong stepsize)
5	6 GHz – 18 GHz (< 3 min)	16.11.05	12:41:03	12:44:32	5 min	19450	0.8 – 2.5	Antenna position as fig. 8.2-4 (Low)
6	8.45 GHz – 8.5 GHz (in steps of 10 MHz)	Dito	14:43:40	14:44:56	5 min	19466		

Table 8.2-4: HIFI @ Susceptibility Mode // E-field // 2nd Antenna Position, Vertical Polarization

~~HIFI RS E-Field, Antenna Position 3 Horizontal Polarization~~								
~~i~~	~~Frequency Range~~	~~Date~~	~~CCS Start Time~~	~~CCS Stop Time~~	~~Script File~~	~~Session Name~~	~~Sensor~~	~~Observations~~
~~1~~	~~30 MHz – 1 GHz (< 7 min)~~							
~~2~~	~~1 GHz – 6 GHz (< 5 min)~~							
~~3~~	~~6 GHz – 18 GHz (< 3 min)~~							
~~4~~	~~8.45 GHz – 8.5 GHz (in steps of 10 MHz)~~							

~~**Table 8.2-5: HIFI @ Susceptibility Mode // E-field // 3rd Antenna Position, Horizontal Polarization**~~

HIFI RS E-Field, Antenna Position 3 (SVM internal), Vertical Polarization								
i	Frequency Range	Date	CCS Start Time	CCS Stop Time	Script File	Session Name OBS ID	Sensor	Observations
~~1~~	~~14 kHz – 600 kHz (< 8 min)~~							
~~2~~	~~600 kHz – 30 MHz (< 7 min)~~							
~~3~~	~~30 MHz – 1 GHz (< 7 min)~~							
4	1 GHz – 6 GHz (< 5 min)	16.11.05	11:03:04	11:09:29	10 min	19448		Antenna position according to fig. 8.2-5 (SVM)
5	6 GHz – 18 GHz (< 3 min)	Dito	11:25:51	11:28:50	10 min	19449		Antenna position according to fig. 8.2-5 (SVM)

Table 8.2-6: HIFI @ Susceptibility Mode // E-field // 3rd Antenna Position, Vertical Polarization

HIFI RS E-Field, Susceptibility Analysis								
i	**Frequency**	**Date**	**CCS Start Time**	**CCS Stop Time**	**Antenna Position**	**Session Name**	**E_field**	**Comments**
1	5.253 GHz	16.11.05	8:30:30		High (fig. 8.2-4); Hor.	19413	2 V/m	
2		16.11.05	8:33:20		High (fig. 8.2-4); Hor.	19414	500 mV/m	
3		16.11.05	8:36:15		High (fig. 8.2-4); Hor.	19415	1000 nV/m	
4		16.11.05	8:37:50		High (fig. 8.2-4); Hor.	19416	250 mV/m	
5		16.11.05	8:42:10		High (fig. 8.2-4); Hor.		150 mV/m	No observation
6		16.11.05	8:44:20		High (fig. 8.2-4); Hor.	19417	50 mV/m	
7		16.11.05	8:45:50		High (fig. 8.2-4); Hor.	19418	100 mV/m	
8		16.11.05		8:45:50	High (fig. 8.2-4); Hor.	19419	100 mV/m	5 min scan, OFF at ½ scan
9	4.765 GHz	16.11.05	9:00:40		High (fig. 8.2-4); Hor.	19420	2 V/m	
10		16.11.05		9:09:15	High (fig. 8.2-4); Hor.	19421	2 V/m	5 min scan, OFF at ½ scan
11		16.11.05	9:10:10		High (fig. 8.2-4); Hor.	19422	0	LO RF OFF, EMC OFF
12		16.11.05	9:12:50		High (fig. 8.2-4); Hor.	19423	0	LO ON, EMC OFF
13		16.11.05	9:15:50	9:19:27	High (fig. 8.2-4); Hor.	19424	500 mV/s	40 se. scan, OFF at 1/ scan
14		16.11.05	9:20:00		High (fig. 8.2-4); Hor.	19425	250 mV/m	As above
15		16.11.05	9:24:00	9:25:00	High (fig. 8.2-4); Hor.	19426	100 mV/m	As above
16		16.11.05	9:26:00		High (fig. 8.2-4); Hor.	19427	50 mV/m	As above
17	5.560 GHz	16.11.05	9:31		High (fig. 8.2-4); Hor.	19428	2 V/m	As above
18		16.11.05	9:33		High (fig. 8.2-4); Hor.	19429	500 mV/m	As above
19		16.11.05	9:37		High (fig. 8.2-4); Hor.	19430	250 mV/m	As above
20		16.11.05	9:39		High (fig. 8.2-4); Hor.	19431	100 mV/m	As above
21	3.920 GHt	16.11.05	9:45		Low (fig. 8.2-3), Vertical	19432	2 V/m	As above
22		16.11.05			Low (fig. 8.2-3), Vertical	19433	500 mV/m	As above
23		16.11.05	9:52		Low (fig. 8.2-3), Vertical	19434	2 V/m	40 se. scan, OFF at ½ scan
24	4.765 GHz	16.11.05	10:03		Low (fig. 8.2-3), Vertical	19435	2 V/m	as above
25		16.11.05	10:05		Low (fig. 8.2-3), Vertical	19436	500 mV/m	as above
26		16.11.05	10:09		Low (fig. 8.2-3), Vertical	19437	250 mV/m	as above
27		16.11.05	10:12		Low (fig. 8.2-3), Vertical	1438	100 mV/m	as above
28		16.11.05	10:23		Low (fig. 8.2-3), Vertical	1439	500 mV/m	as above

HIFI RS E-Field, Susceptibility Analysis								
i	**Frequency**	**Date**	**CCS Start Time**	**CCS Stop Time**	**Antenna Position**	**Session Name**	**E_field**	**Comments**
29		16.11.05	--		Low (fig. 8.2-3), Vertical	19440	500 mV/m	short scan
30		16.11.05	10:32		Low (fig. 8.2-3), Vertical	19441	2 V/m	40 sec. scan
31		16.11.05	--		Low (fig. 8.2-3), Vertical	19442	2 V/m	40 sec. scan LO RF OFF at ½ scan
32		16.11.05	1038		Low (fig. 8.2-3), Vertical	19444	2 V/m	40 sec. scan LO RF ON, Band 0
33		16.11.05	13:24		High (fig. 8.2-4); Ver.	I19455	500 mV/m	40 sec. scan, LO RF OFF at ½ scan
34		16.11.05	13:27		High (fig. 8.2-4); Ver.	19456	100 mV/m	40 sec. scan, LO RF OFF at ½ scan
35		16.11.05	13:35		High (fig. 8.2-4); Ver.	19457	25 mV/m	40 sec. scan, LO RF OFF at ½ scan
37		16.11.05	13:39		High (fig. 8.2-4); Ver.	19458	500 mV/m	40 sec. scan, LO RF OFF at ½ scan

Table 8.2-7: Susceptibility Analysis Table

Fig. 8.2-1: Antenna Upper Position in Front of the LOU for < 1 GHz

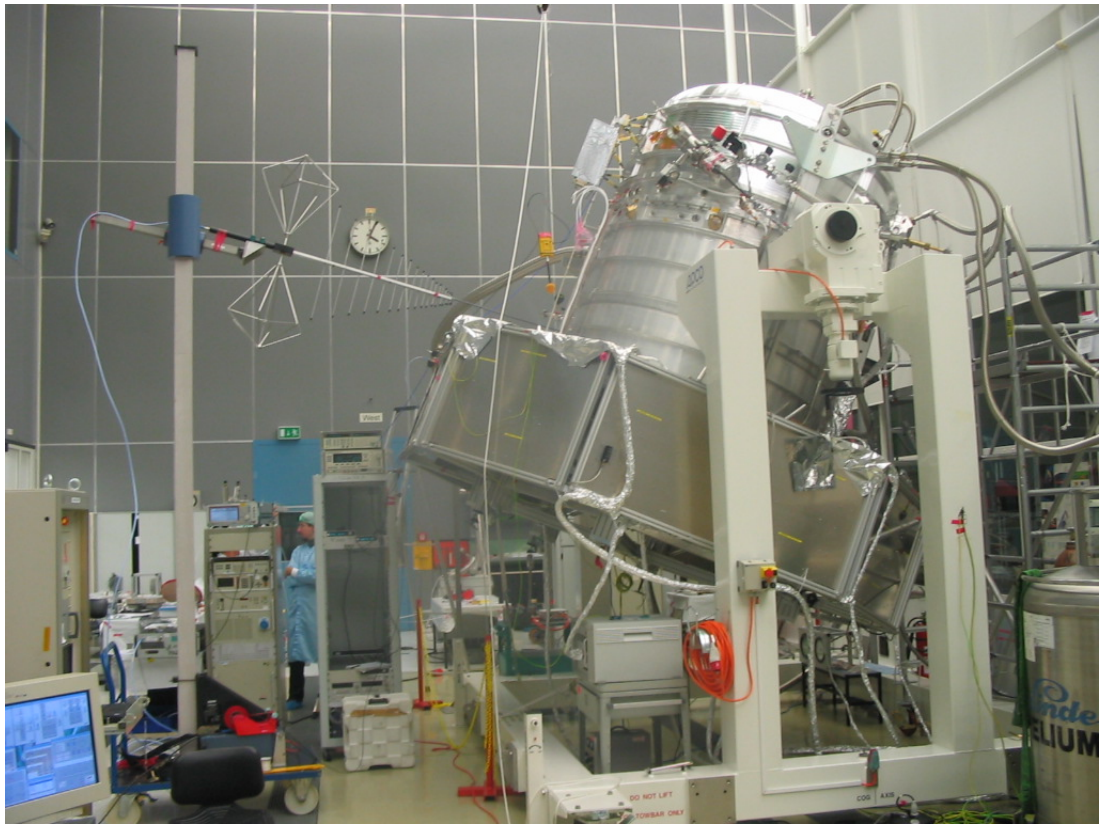


Fig. 8.2-2: Antenna Lower Position in Front of the LOU for < 1 GHz

Fig. 8.2-3: Antenna Lower Position for HIFI Biasing Harness

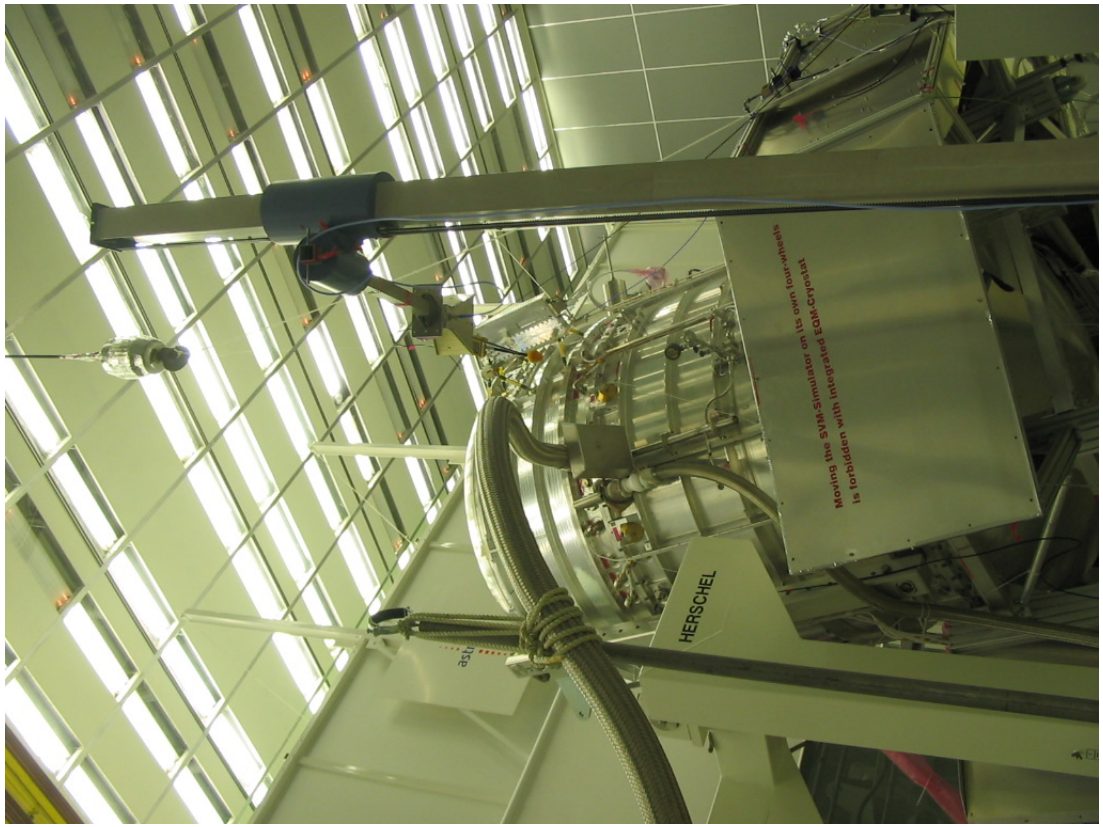


Fig. 8.2-4: Antenna Higher Position for HIFI Biasing Harness and Optical Window

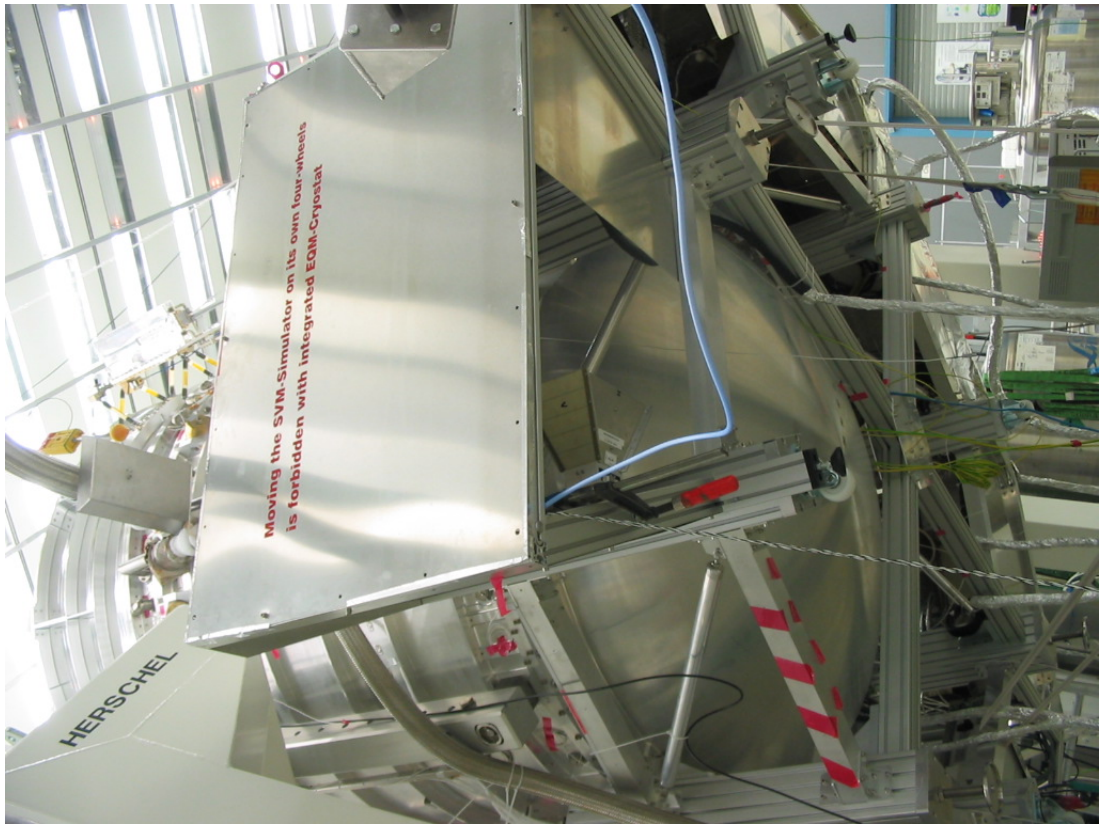


Fig. 8.2-5: Antenna Position for SVM Internal Illumination of HIFI Warm Electronics

8.3 HIFI Control Tables Conducted Susceptibility Power Lines

HIFI CS Test ICU Power Lines								
i	**Frequency Range**	**Date**	**CCS Start Time**	**CCS Stop Time**	**Script File**	**Session Name OBS ID**	**Sensor**	**Observations**
1	30 Hz – 50 kHz, DM	17:11:05	07:55:44	08:30:00		2415919488		
2	50 kHz – 50 MHz, DM	Dito	09:52:10	10:13:38		19493		
3	10 kHz – 50 MHz, DM	Dito	11:05:30	11:11:23		19495		Wrong steps. Wait 10 secf at low value
4	50 kHz – 50 MHz, DM	Dito	13:53:49	13:59:00		19497		Abortet. calibration from 2 was too low
5	50 kHz – 50 MHz, DM	Dito	14:06:23	14:19:16		19500		Calibration from 2 is used, increased with V2 correction.
6	CS CM Transient ‘’+’’	Dito	14:49:00	16:54:10		19510		Pulse level adjusted in pre-run
7	CS CM Transient ‘’-’’	Dito	16:57:00	17:03:10		19511		Pulse level adjusted in pre-run
8	CS DM Transient ‘’+’’	18.11:00	10:48:32	10:53:23		19522		
9	CS DM Transient ‘’-’’	Dito	10:37:00	10:41:40		19520		30 seconds reference at the end

Table 8.3-1: HIFI @ Susceptibility Mode // CS ICU Power Lines

HIFI CS Test LCU Power Lines								
i	**Frequency Range**	**Date**	**CCS Start Time**	**CCS Stop Time**	**Script File**	**Session Name OBS ID**	**Sensor**	**Observations**
1	30 Hz – 50 kHz, DM	17:11:05	09:36:00	09:05:26		19489		
2	50 kHz – 50 MHz, DM	Dito	10:29:54	10:50:04		19494		
3	10 kHz – 50 MHz, DM	Dito	13:18:13	13:23:19		19496		
4	50 kHz – 50 MHz, DM	Dito	14:29:06	14:42:39		19501		Calibration from 2 is used with correction
5	10 kHz – 50 MHz, CM	Dito	15:05:50			19502		Calibration run before actual measurement. Measurement abortet.
6	10 kHz – 50 MHz, CM	Dito	15:11:31	15:27:25		19502		Re-run of 5
7	CS CM Transient ‘’+’’	Dito	17:08:00	17:13:10		19512		Pulse level adjusted during previous measurement
8	CS CM Transient ‘’-’’	Dito	17:14:10	17:19:20		19513		Pulse level adjusted in pre-run
9	CS DM Transient ‘’+’’	18.11:00	11:00:10	11:05:12		19523		
10	CS DM Transient ‘’-’’	Dito	11:08:38	11:13:10		19524		

Table 8.3-2: HIFI @ Susceptibility Mode // CS LCU Power Lines

8.4 HIFI Control Tables Conducted Susceptibility on Instrument Cryo Harness Bundles

Corresponding tables and figures to be prepared during the test because they would be specific (the CS value has to be adjusted 6 dB above the value measured at every particular frequency at given instrument Cryo Harness bundle).

8.5 PACS Frequency Control Tables H-field

PACS RS H-field Photometer Mode 1st Position								
i	**Frequency**	**Date**	**CCS Step Start Time**	**CCS Step Stop Time**	**Data file imt_emc20051121_h1_**	**Level [dBpT)**	**Sensor**	**Comments**
1	30 Hz	22.11.05	12:06:34	12:08:34	30H0	120		
2	40 Hz	Dito	12:09:42	12:10:50	40H0	120		
3	50 Hz	Dito	12:11:22	12:14:06	50H0	120		
4	64 Hz	Dito	12:15:02	1216:10	64H0	120		
5	80 Hz	Dito	12:16:22	12:17:41	80H0	120		
6	100 Hz	Dito	12:18:03	12:19:10	100H0	120		
7	125 Hz	Dito	12:19:20	12:20:32	125H0	120		
8	256 Hz	Dito	12:20:410	12:21:50	256H0	120		
9	350 Hz	Dito	12:22:04	12:23:14	350H0	120		
10	500 Hz	Dito	12:23:14	12:25:03	500H0	120		
11	750 Hz	Dito	12:25:20	12:26:25	750H0	120		
12	1 kHz	Dito	12:26:30	12:29:04	1K0	120		
13	1.5 kHz	Dito	12:29:23	12:30:37	1K5	120		
14	2 kHz	Dito	12:30:45	12:32:14	2K0	120		
	---	---	---	---	---	---		Waiting time to recover stability
15	2.5 kHz	Dito	12:37:08	12:38:59	2K5	120		
16	3 kHz	Dito	12:39:08	12:40:20	3K0	120		
17	3.5 kHz	Dito	12:40:32	12:41:47	3K5	120		
18	4 kHz	Dito	12:41:52	12:43:52	4K0	120		
19	4.5 kHz	Dito	12:44:09	12:45:50	4K5	120		
20	5 kHz	Dito	12:45:58	12:47:47	5K0	120		
21	5.5 kHz	Dito	12:47:57	12:49:17	5K5	120		
22	6 kHz	Dito	12:49:25	12:50:43	6K0	120		
23	6.5 kHz	Dito	12:50:55	12:52:11	6K5	120		
24	7 kHz	Dito	12:52:20	12:53:30	7K0	120		
25	7.5 kHz	Dito	12:53:36	12:54:53	7K5	120		
26	8 kHz	Dito	12:55:00	12:56:16	8K0	120		
27	8.5 kHz	Dito	12:56:22	12:57:40	8K5	120		

PACS RS H-field Photometer Mode 1st Position								
i	Frequency	Date	CCS Step Start Time	CCS Step Stop Time	Data file imt_emc20051121_h1_	Level [dBpT)	Sensor	Comments
28	9 kHz	Dito	12:57:40	12:58:59	9K0	120		
29	9.5 kHz	Dito	12:59:08	13:00:12	9K5	120		
31	10 kHz	Dito	13:00:22	13:01:48	10K0	120		
31	11.47 Khz		13:06:50	13:09:47	11K47	120	1.5 mT	
32	15.6 kHz	Dito	13:10:18	13:11:24	15K6	120	1.2 mT	Probe measurement in addition
33	17.0 kHz	Dito	13:11:42	13:12:52	17K0	120		
34	20.0 kHz	Dito	13:13:03	13:14:14	20K0	110		
35	25.0 kHz	Dito	13:14:20	13:15:32	25K0	110		
36	30 kHz	Dito	13:15:40	13:16:55	30K0	110		
37	35 kHz	Dito	13:17:00	13:18:15	35K0	110		
38	40 kHz	Dito	13:18:22	13:19:29	40K0	110		
39	45.8 kHz	Dito	13:19:34	13:20:47	48K8	110		
40	50 kHz	Dito	13:20:52	13:22:05	50K0	110		
12-1	1 kHz	Dito	14:19:17	14:20:46	th_1K0_1_m0	120		Threshold prediction
12-2	1 kHz	Dito	14:23:07	14:26:41	th_1K0_2_m0	120		Threshold prediction
12-3	1 kHz	Dito	14:27:55	14:36:33	th_1K0_20_m20	120-20 dB		Threshold prediction
13-1	1.5 kHz	Dito	14:37:25	14:40:41	th_1K5_10_m10	120-10 dB		Threshold prediction
13-2	1.5 kHz	Dito	14:41:00	14:54:02	th_1K5_2_m20	120-20 dB		Threshold prediction
13-3	1.5 kHz	Dito	14:45:19	14:54:02	th_1K5_3_m30	120-30 dB		Threshold prediction
14-1	2 kHz	Dito	14:47:45	14:50:53	th_2K0_1_m10	120-10 dB		Threshold prediction
14-2	2 kHz	Dito	14:51:10	14:54:15	th_2K0_2_m20	120-20 dB		Threshold prediction
---	---	--	14:54 …	15:58	---	---		Reference measurement with EMC amps OFF
14-3	2 kHz	Dito	14:58:42	15:02:45	th_2K0_3_m30	120-30 dB		Threshold prediction
15-1	2.5 kHz	Dito	15:03:10	15:04:42	th_2K5_1_m10	120-10 dB		Threshold prediction
15-2	2.5 kHz	Dito	15:05:03	15:07:13	th_2K5_2_m20	120-20 dB		Threshold prediction
15-3	2.5 kHz	Dito	15:07:24	15:09:18	th_2K5_3_m30	120-30 dB		Threshold prediction
16-1	3 kHz	Dito	15:09:27	15:12:18	th_3K0_1_m10	120-10 dB		Threshold prediction
16-2	3 kHz	Dito	15:12:18	15:14:54	th_3K0_2_m20	120-20 dB		Threshold prediction
16-3	3 kHz	Dito	15:14:54	15:16:56	th_3K0_3_30	120-30 dB		Threshold prediction
18-1	4 kHz	Dito	15:17:30	15:19:31	th_4K0_1_10	120-10 dB		Threshold prediction
18-2	4 kHz	Dito	15:19:31	15:21:57	th_4K0_2_m20	120-20 dB		Threshold prediction
20-1	5 kHz	Dito	15:22:18	15:24:03	th_5K0_1_m10	120-10 dB		Threshold prediction
20-2	5 kHz	Dito	15:24:03	15:26:30	th_5K0_2_m20	120-20 dB		Threshold prediction
31-1	11.57 kHz	Dito	15:27:25	15:29:25	th_11K57_1_m0	120		Threshold prediction

PACS RS H-field Photometer Mode 1st Position								
i	**Frequency**	**Date**	**CCS Step Start Time**	**CCS Step Stop Time**	**Data file imt_emc20051121_h1_**	**Level [dBpT)**	**Sensor**	**Comments**
31-2	12.00 kHz	Dito	15:29:46	15:31:32	th_12K00_1_m0	120		Threshold prediction
31-2	12.00 kHz	Dito	15:31:32	15:33:17	th_12K00_2_m10	120-10 dB		Threshold prediction
31-3	12.00 kHz	Dito	15:33:17	15:35:08	th_12K00_3_m20	120-20 dB		Threshold prediction
31-4	12.00 kHz	Dito	15:35:08	15:38:19	th_12K00_4_m30	120-30 dB		Threshold prediction
34-1	20.0 kHz	Dito	15:41:20	15:43:10	th_20K0_1_m10	110-10dB		Threshold prediction
34-2	20.0 kHz	Dito	15:43:10	15:46:12	th_20K0_2_m20	110-20dB		Threshold prediction
34-3	20.0 kHz	Dito	15:46:12	15:48:03	th_20K0_3_m30	110-30dB		Threshold prediction
39-1	45.8 kHz	Dito	15:48:15	15:50:21	th_48K8_1_m10	110-10dB		Threshold prediction
39-2	45.8 kHz	Dito	15:50:21	14:51:51	th_48K8_2_m20	110-20dB		Threshold prediction
39-2	45.8 kHz	Dito	14:51:51	15:55:29	th_48K8_3_m30	110-30dB		Threshold prediction
~~41~~	~~40 Hz~~	~~Dito~~						. Replaced, see above thresholds
~~42~~	~~100 Hz~~	~~Dito~~						Replaced, see above thresholds
~~43~~	~~350 Hz~~	~~Dito~~						Replaced, see above thresholds
~~44~~	~~1 kHz~~	~~Dito~~						Replaced, see above thresholds
~~45~~	~~2.5 kHz~~	~~Dito~~						Replaced, see above thresholds
~~46~~	~~3.5 kHz~~	~~Dito~~						Replaced, see above thresholds
~~47~~	~~6 kHz~~	~~Dito~~						Replaced, see above thresholds
~~48~~	~~8 kHz~~	~~Dito~~						Replaced, see above thresholds
~~49~~	~~20 kHz~~	~~Dito~~						Replaced, see above thresholds
~~50~~	~~30 kHz~~	~~Dito~~						Replaced, see above thresholds

Table 8.5-1: PACS @ Photometer Mode // H-field // 1st Antenna Position (upper part of cryostat in order to illuminate the detectors)

PACS RS H-field Photometer Mode 2nd Position								
I	Frequency	Date	CCS Step Start Time	CCS Step Stop Time	Data file imt_emc200511*DAY*_h2_	Level [dBpT)	Sensor	Observations
1	30 Hz	21.11.05	16:37:50	*16:39:20*	30H0	120		
2	40 Hz	Dito	*16:39:29*	*16:40:51*	40H0	120		
3	50 Hz	Dito	*16:41:09*	16:42:35	50H0	120		
4	64 Hz	Dito	16:42:41	16:44:08	64H0	120		
5	80 Hz	Dito	16:44:12	16:45:35	80H0	120		
6	100 Hz	Dito	16:45:35	16:47:01	100H0	120		
7	125 Hz	Dito	16:47:01	16:49:16	125H0	120		
8	256 Hz	Dito	16:49:16	16:50:35	256H0	120		
9	350 Hz	Dito	16:50:35	16:51:58	350H0	120		
	---	---	---	---	---	---	---	Reference test
10	500 Hz	Dito	16:53:39	16:54:55	500H0	120		
11	750 Hz	Dito	16:54:55	16:56:22	750H0	120		
	---	---	---	---	---	---	---	Reference test
12	1 kHz	Dito	16:59:21	17:00:58	1K0	120		
13	1.5 kHz	Dito	17:00:58	17:02:21	1K5	120		
14	2 kHz	Dito	17:02:21	17:03:40	2K0	120		
15	2.5 kHz	Dito	17:03:40	17:05:06	2K5	120		
16	3 kHz	Dito	17:05:06	17:06:25	3K0	120		
17	3.5 kHz	Dito	17:06:25	17:07:45	3K5	120		
18	4 kHz	Dito	17:07:45	17:09:07	4K0	120		
19	4.5 kHz	Dito	17:09:07	17:10:20	4K5	120		
20	5 kHz	Dito	17:10:20	17:11:44	5K0	120		
21	5.5 kHz	Dito	17:11:44	17:13:22	5K5	120		
22	6 kHz	Dito	17:13:22	17:14:39	6K0	120		
23	6.5 kHz	Dito	17:14:39	17:15:47	6K5	120		
24	7 kHz	Dito	17:15:47	17:17:02	7K0	120		
25	7.5 kHz	Dito	17:17:02	17:18:12	7K5	120		
26	8 kHz	Dito	17:18:12	17:19:38	8K0	120		
27	8.5 kHz	Dito	17:19:38	17:20:50	8K5	120		
28	9 kHz	Dito	17:20:50	17:22:03	9K0	120		
29	9.5 kHz	Dito	17:22:03	17:23:14	9K5	120		
31	10 kHz	Dito	17:23:14	17:24:30	10K0	120		

PACS RS H-field Photometer Mode 2nd Position								
I	**Frequency**	**Date**	**CCS Step Start Time**	**CCS Step Stop Time**	**Data file imt_emc200511*DAY*_h2_**	**Level [dBpT)**	**Sensor**	**Observations**
31	11.47 kHz	Dito	17:24:30	17:25:55	11K47	120		
32	15.6 kHz	Dito	17:25:55	17:27:08	*15K6*	120		
33	17.0 kHz	Dito	17:27:08	17:28:25	*17K0*	120		
34	20.0 kHz	Dito	17:31:10	17:32:29	*20K0*	110		
35	25.0 kHz	Dito	17:29:37	17:30:47	*25K0*	110		
36	30 kHz	Dito	17:32:38	17:34:02	*30K0*	110		
37	35 kHz	Dito	17:34:02	17:35:21	*35K0*	110		
38	40 kHz	Dito	17:35:21	17:36:32	*40K0*	110		
39	45.8 kHz	Dito	17:36:32	17:37:45	*48K8*	110		
40	50 kHz	Dito	17:37:45	17:38:56	*50K0*	110		
	---	---	---	---	---	---	---	Reference test
12-1	1 kHz	22.11.05	08:16:20	08:17:46	th_1k0_1_m0	120		Threshold measurement
12-2	1 kHz	Dito	08:17:46	08:19:04	th_1k0_2_m10	120-10 dB		Threshold measurement
12-3	1 kHz	Dito	08:19:04	08:20:32	th_1k0_3_m20	120-20 dB		Threshold measurement
12-4	1 kHz	Dito	08:20:32	08:22_18	th_1k0_4_m30	120-30 dB		Threshold measurement
13-1	1.5 kHz	Dito	08:22_18	08:23:41	th_1k5_1_m0	120		Threshold measurement
13-2	1.5 kHz	Dito			th_1k5_2_m10	120.10 dB		Threshold measurement
13-3	1.5 kHz	Dito		08:26:51	th_2k0_3_m20	120-20 dB		Threshold measurement
13-4	1.5 kHz	Dito	08:26:51	08:28:16	th_2k0_4_m30	120-30 dB		Threshold measurement
14-1	2 kHz	Dito	08:28:16	08:29:32	th_2k0_1_m0	120		Threshold measurement
14-2	2 kHz	Dito	08:29:32	08:30:58	th_2k0_2_m10	120-10 dB		Threshold measurement
14-3	2 kHz	Dito	08:30:58	08:32:21	th_2k5_3_m20	120-20 dB		Threshold measurement
14-4	2 kHz	Dito	08:32:21	08:33:43	th_2k5_4_m30	120-30 dB		Threshold measurement
15-1	2.5 kHz	Dito	08:33:43	08:35:01	th_2k5_1_m0	120		Threshold measurement
15-2	2.5 kHz	Dito	08:35:01	08:36:22	th_2k5_2_m10	120-10 dB		Threshold measurement
15-3	2.5 kHz	Dito	08:36:22	08:37:40	th_2k5_3_m20	120-20 dB		Threshold measurement
15-4	2.5 kHz	Dito	08:37:40	08:38:57	th_2k5_4_m30	120-30 dB		Threshold measurement
16-1	3 kHz	Dito	08:38:57	08:40:48	th_3k0_1_m0	120		Threshold measurement
16-2	3 kHz	Dito	08:40:48	08:42:06	th_3k0_2_m10	120-10 dB		Threshold measurement
16-3	3 kHz	Dito	08:42:06	08:43:23	th_3k0_3_m20	120-20 dB		Threshold measurement
16-4	3 kHz	Dito	08:43:23	08:44:57	th_3k0_4_m30	120-30 dB		Threshold measurement
18-1	4 kHz	Dito	08:44:57	08:46:25	th_4k0_1_m0	120		Threshold measurement
18-2	4 kHz	Dito	08:46:25	08:47:40	th_4k0_2_m10	120-10 dB		Threshold measurement
18-3	4 kHz	Dito	08:47:40	08:48:55	th_4k0_3_m20	120-20 dB		Threshold measurement
18-4	4 kHz	Dito	08:48:55	08:50:27	th_4k0_3_m30	120-30 dB		Threshold measurement
20-1	5 kHz	Dito	08:50:27	08:51:40	th_5k0_1_m0	120		Threshold measurement

PACS RS H-field Photometer Mode 2nd Position								
I	**Frequency**	**Date**	**CCS Step Start Time**	**CCS Step Stop Time**	**Data file imt_emc200511*DAY*_h2_**	**Level [dBpT)**	**Sensor**	**Observations**
20-2	5 kHz	Dito	08:51:40	08:52:52	th_5k0_2_m10	120-10 dB		Threshold measurement
20-3	5 kHz	Dito	08:52:52	08.54:06	th_5k0_2_m20	120-20 dB		Threshold measurement
20-4	5 kHz	Dito	08.54:06	08:56:00	th_5k0_2_m30	120-30 dB		Threshold measurement
31-1	11.57 kHz	Dito	08:56:43	08:58:08	th_11k57_1_m0	120		Threshold measurement
31-2	12.00 kHz	Dito	08:58:36	08:59:53	th_12k0_2_m0	120		Threshold measurement
31-2	12.00 kHz	Dito	08:59:53	09:01:15	th_12k0_3_m10	120-10 dB		Threshold measurement
31-3	12.00 kHz	Dito	09:01:15	09:02:35	th_12k0_4_m20	120-20 dB		Threshold measurement
31-4	12.00 kHz	Dito	09:02:35	09:04:07	th_12k0_5_m30	120-30 dB		Threshold measurement
34-1	20.0 kHz	Dito	09:04:07	09:06:01	th_20k0_1_m0	110		Threshold measurement
34-2	20.0 kHz	Dito	09:06:01	09:07:27	th_20k0_2_m10	110-10 dB		Threshold measurement
34-3	20.0 kHz	Dito	09:07:27	09:08:48	th_20k0_3_m20	110-20 dB		Threshold measurement
34-4	20.0 kHz	Dito	09:08:48	09:10:04	th_20k0_4_m30	110-30 dB		Threshold measurement
34-5	20.0 kHz	Dito	09:10:04	09:11:41	th_20k0_5_m0	110		Threshold measurement
39-2	45.8 kHz	Dito	09:13:10	09:14:29	th_45k8_2_m10	110-10 dB		Threshold measurement
39-3	45.8 kHz	Dito	09:14:29	09:15:48	th_45k8_3_m20	110-20 dB		Threshold measurement
39-4	45.8 kHz	Dito	09:15:48	09:17:03	th_45k8_3_m30	110-30 dB		Threshold measurement
~~*41*~~	~~*40 Hz*~~	~~*Dito*~~						*Replaced by thresholds measurements above*
~~*42*~~	~~*100 Hz*~~	~~*Dito*~~						*Replaced by thresholds measurements above*
~~*43*~~	~~*350 Hz*~~	~~*Dito*~~						*Replaced by thresholds measurements above*
~~*44*~~	~~*1 kHz*~~	~~*Dito*~~						*Replaced by thresholds measurements above*
~~*45*~~	~~*2.5 kHz*~~	~~*Dito*~~						*Replaced by thresholds measurements above*
~~*46*~~	~~*3.5 kHz*~~	~~*Dito*~~						*Replaced by thresholds measurements above*
~~*47*~~	~~*6 kHz*~~	~~*Dito*~~						*Replaced by thresholds measurements above*
~~*48*~~	~~*8 kHz*~~	~~*Dito*~~						*Replaced by thresholds measurements above*
~~*49*~~	~~*20 kHz*~~	~~*Dito*~~						*Replaced by thresholds measurements above*
~~*50*~~	~~*30 kHz*~~	~~*Dito*~~						*Replaced by thresholds measurements above*

Table 8.5-2: PACS @ Photometer Mode // H-field // 2nd Antenna Position

PACS RS H-field Photometer Mode 3rd Position								
i	Frequency	Date	CCS Step Start Time	CCS Step Stop Time	Data file imt_emc20051122_h3_	Level [dBpT]	Sensor	Observations
~~1~~	~~20 Hz~~							Not performed
~~2~~	~~40 Hz~~							Not performed
~~3~~	~~50 Hz~~							Not performed
~~4~~	~~64 Hz~~							Not performed
~~5~~	~~80 Hz~~							Not performed
~~6~~	~~100 Hz~~							Not performed
~~7~~	~~125 Hz~~							Not performed
~~8~~	~~256 Hz~~							Not performed
~~9~~	~~350 Hz~~							Not performed
~~10~~	~~500 Hz~~							Not performed
~~11~~	~~750 Hz~~							Not performed
~~12~~	~~1 kHz~~							Not performed
~~13~~	~~1.5 kHz~~							Not performed
~~14~~	~~2 kHz~~							Not performed
~~15~~	~~2.5 kHz~~							Not performed
~~16~~	~~3 kHz~~							Not performed
~~17~~	~~3.5 kHz~~							Not performed
~~18~~	~~4 kHz~~							Not performed
~~19~~	~~4.5 kHz~~							Not performed
~~20~~	~~5 kHz~~							Not performed
~~21~~	~~5.5 kHz~~							Not performed
~~22~~	~~6 kHz~~							Not performed
~~23~~	~~6.5 kHz~~							Not performed
~~24~~	~~7 kHz~~							Not performed
~~25~~	~~7.5 kHz~~							Not performed
~~26~~	~~8 kHz~~							Not performed
~~27~~	~~8.5 kHz~~							Not performed
~~28~~	~~9 kHz~~							Not performed
~~29~~	~~9.5 kHz~~							Not performed
~~31~~	~~10 kHz~~							Not performed
~~31~~	~~11.47 kHz~~							Not performed
~~32~~	~~15.6 kHz~~							Not performed

PACS RS H-field Photometer Mode 3rd Position								
i	Frequency	Date	CCS Step Start Time	CCS Step Stop Time	Data file imt_emc20051122_h3_	Level [dBpT]	Sensor	Observations
~~33~~	~~17.0 kHz~~							Not performed
~~34~~	~~20.0 kHz~~							Not performed
~~35~~	~~25.0 kHz~~							Not performed
~~36~~	~~30 kHz~~							Not performed
~~37~~	~~35 kHz~~							Not performed
~~38~~	~~40 kHz~~							Not performed
~~39~~	~~45.8 kHz~~							Not performed
~~40~~	~~50 kHz~~							Not performed
51-1	3.5 kHz	22.11.05	9:45:00	9:56:11	3K0_1_m0	120		Threshold measurements
51-2	3.5 kHz	Dito	9:56:11	9:57:32	3K0_2_m10	120-10 dB		Threshold measurements
51-3	3.5 kHz	Dito	9:57:32	9:57:40	3K0_3_m20	120-20 dB		Threshold measurements
51-4	3.5 kHz	Dito	9:57:40	10:00:10	3K0_3_m30	120-30 dB		Threshold measurements
52-1	4.5 kHz	Dito	10:00:10	10:01:27	4K5_1_m0	120		Threshold measurements
51-2	4.5 kHz	Dito	10:01:27	10:02:50	4K5_2_m10	120-10 dB		Threshold measurements
52-3	4.5 kHz	Dito	10:02:50	10:04:11	4K5_3_m20	120-20 dB		Threshold measurements
52-4	4.5 kHz	Dito	10:04:11	10:05:34	4K5_4_m30	120-30 dB		Threshold measurements
53-2	6.0 kHz	Dito	10:08:08	10:09:18	6K0_2_m10	120-10 dB		Threshold measurements
53-3	6.0 kHz	Dito	10:09:18	10:10:36	6K0_3_m20	120-20 dB		Threshold measurements
53-4	6.0 kHz	Dito	10:10:36	10:12:07	6K0_4_m30	120-30 dB		Threshold measurements
54-1	7.0 kHz	Dito	10:12:18	10:13:32	7K0_1_m0	120		Threshold measurements
54-2	7.0 kHz	Dito	10:13:32	10:15:10	7K0_2_m10	120-10 dB		Threshold measurements
54-3	7.0 kHz	Dito	10:15:10	10:16:32	7K0_3_m20	120-20 dB		Threshold measurements
54-4	7.0 kHz	Dito	10:16:40	10:17:57	7K0_4_m30	120-30 dB		Threshold measurements
55-1	8.0 kHz	Dito	10:18:04	10:19:15	8K0_1_m0	120		Threshold measurements
55-2	8.0 kHz	Dito	10:19:15	10:19:20	8K0_2_m10	120-10 dB		Threshold measurements
55-3	8.0 kHz	Dito	10:19:20	10:21:53	8K0_3_m20	120-20 dB		Threshold measurements
55-4	8.0 kHz	Dito	10:21:53	10:23:10	8K0_4_m30	120-30 dB		Threshold measurements
56-1	9.0 kHz	Dito	10:23:10	10:24:34	9K0_1_m0	120		Threshold measurements
56-2	9.0 kHz	Dito	10:24:34	10:25:35	9K0_2_m10	120-10 dB		Threshold measurements
56-3	9.0 kHz	Dito	10:25:35	10:27:08	9K0_3_m20	120-20 dB		Threshold measurements
56-4	9.0 kHz	Dito	10:27:08	10:28:40	9K0_4_m30	120-30 dB		Threshold measurements
57-1	10.0 kHz	Dito	10:28:40	10:30:07	10K0_1_m0	120		Threshold measurements
57-2	10.0 kHz	Dito	10:30:07	10:31:19	10K0_2_m10	120-10 dB		Threshold measurements
57-3	10.0 kHz	Dito	10:31:19	10:32:38	10K0_3_m20	120-20 dB		Threshold measurements

PACS RS H-field Photometer Mode 3rd Position								
i	**Frequency**	**Date**	**CCS Step Start Time**	**CCS Step Stop Time**	**Data file imt_emc20051122_h3_**	**Level [dBpT]**	**Sensor**	**Observations**
57-4	10.0 kHz	Dito	10:32:38	10:33:58	10K0_4_m30	120-30 dB		Threshold measurements
58-1	30.0 kHz	Dito	10:34:05	10:38:05	30K0_1_m0	110		Threshold measurements
59-1	40.0 kHz	Dito	10:38:05	10:41:02	40K0_1_m0	110		Threshold measurements
59-2	40.0 kHz	Dito	10:41:15	10:43:31	40K0_2_m10	110-10 dB		Threshold measurements
59-3	40.0 kHz	Dito	10:43:31	10:44:45	40K0_3_m20	110-20 dB		Threshold measurements
60-1	50.0 kHz	Dito	10:44:55	10:45:28	50K0_1_m0	110		Threshold measurements
60-2	50.0 kHz	Dito	10:45:28	10:47:47	50K0_2_m10	110-10 dB		Threshold measurements
60-3	50.0 kHz	Dito	10:47:47	10:49:49	50K0_3_m20	110-20 dB		Threshold measurements
60-4	50.0 kHz	Dito	10:49:49	10:51:19	50K0_4_m30	110-30 dB		
61-1	25 kHz	Dito	10:52:00	10:53:14	25K0_1_m0	110		Threshold measurements
62-1	20.0 kHz	Dito	10:53:45	10:55:04	20K0_1_m0	120		Threshold measurements
62-2	20.0 kHz	Dito	10:55:20	10:56:44	20K0_2_m10	120-10 dB		Threshold measurements
62-3	20.0 kHz	Dito	10:56:44	10:48:13	20K0_3_m20	120-20 dB		Threshold measurements
62-4	20.0 kHz	Dito	10:58:20	11:00:02	20K0_4_m10	120-10 dB		Threshold measurements
63-1	45.8 kHz	Dito	11:01:08	11:01:36	45K8_1_m0	110		Threshold measurements
63-2	45.8 kHz	Dito	11:01:36	11:02:55	45K8_2_m10	110-10 dB		Threshold measurements
63-3	45.8 kHz	Dito	11:02:55	11:04:35	45K8_3_m20	110-20 dB		Threshold measurements
~~41~~	~~40 Hz~~	~~Dito~~						*Replaced by thresholds measurements above*
~~42~~	~~100 Hz~~	~~Dito~~						*Replaced by thresholds measurements above*
~~43~~	~~350 Hz~~	~~Dito~~						*Replaced by thresholds measurements above*
~~44~~	~~1 kHz~~	~~Dito~~						*Replaced by thresholds measurements above*
~~45~~	~~2.5 kHz~~	~~Dito~~						*Replaced by thresholds measurements above*
~~46~~	~~3.5 kHz~~	~~Dito~~						*Replaced by thresholds measurements above*
~~47~~	~~6 kHz~~	~~Dito~~						*Replaced by thresholds measurements above*
~~48~~	~~8 kHz~~	~~Dito~~						*Replaced by thresholds measurements above*
~~49~~	~~20 kHz~~	~~Dito~~						*Replaced by thresholds measurements above*
~~50~~	~~30 kHz~~	~~Dito~~						*Replaced by thresholds measurements above*

Table 8.5-3: PACS @ Photometer Mode // H-field // 3rd^{t} Antenna Position

PACS RS H-field Spectrometer Mode 1st Position								
i	**Frequency**	**Date**	**CCS Step Start Time**	**CCS Step Stop Time**	**Data file imt_emc20051122_s_h1_**	**Level [dBpT]**	**Sensor**	**Observations**
1	30 Hz	21.11.05	12:49:53	12:51:04	30H0	120		
2	40 Hz	Dito	12:51:04	12:52:14	40H0	120		
3	50 Hz	Dito	12:52:14	12:53:30	50H0	120		
4	64 Hz	Dito	12:53:30	12:54:40	64H0	120		
5	80 Hz	Dito	12:54:40	12:56:00	80H0	120		
6	100 Hz	Dito	12:56:00	12:57:20	100H0	120		
7	125 Hz	Dito	12:57:20	12:58:36	125H0	120		
8	256 Hz	Dito	12:58:36	12:59:58	256H0	120		
9	350 Hz	Dito	12:59:58	13:01:09	350H0	120		
10	500 Hz	Dito	13:01:09	13:02:37	500H0	120		
11	750 Hz	Dito	13:02:37	13:03:49	750H0	120		
12	1 kHz	Dito	13:03:49	13:05:05	1K0	120		
13	1.5 kHz	Dito	13:05:05	13:06:23	1K5	120		
14	2 kHz	Dito	13:06:23	13:07:36	2K0	120		
15	2.5 kHz	Dito	13:07:36	13:11:12	2K5	120		
16	3 kHz	Dito	13:11:12	13:12:22	3K0	120		
17	3.5 kHz	Dito	13:12:22	13:13:37	3K5	120		
18	4 kHz	Dito	13:13:37	13:14:55	4K0	120		
19	4.5 kHz	Dito	13:14:55	13:16:09	4K5	120		
20	5 kHz	Dito	13:16:09	13:17:25	5K0	120		
21	5.5 kHz	Dito	13:17:25	13:18:36	5K5	120		
22	6 kHz	Dito	13:18:36	13:19:52	6K0	120		
23	6.5 kHz	Dito	13:19:52	13:20:55	6K5	120		
24	7 kHz	Dito	13:20:55	13:22:02	7K0	120		
25	7.5 kHz	Dito	13:22:02	13:23:13	7K5	120		
26	8 kHz	Dito	13:23:13	13:24:28	8K0	120		
27	8.5 kHz	Dito	13:24:28	13:25:41	8K5	120		
28	9 kHz	Dito	13:25:41	13:27:00	9K0	120		
29	9.5 kHz	Dito	13:27:00	13:28:48	9K5	120		
31	10 kHz	Dito	13:28:48	13:30:00	10K0	120		
31	11.47 kHz	Dito	13:30:00	13:31:32	11K47	120		
32	15.6 kHz	Dito	13:31:32	13:32:41	15K6	120		

PACS RS H-field Spectrometer Mode 1st Position								
i	**Frequency**	**Date**	**CCS Step Start Time**	**CCS Step Stop Time**	**Data file imt_emc20051122_s_h1_**	**Level [dBpT]**	**Sensor**	**Observations**
33	17.0 kHz	Dito	13:32:41	13:33:56	17K0	120		
34	20.0 kHz	Dito	13:33:56	13:35:17	20K0	120		
35	25.0 kHz	Dito	13:35:17	13:36:28	25K0	110		
36	30 kHz	Dito	13:36:28	13:37:42	30K0	110		
37	35 kHz	Dito	13:37:42	13:39:00	35K0	110		
38	40 kHz	Dito	13:39:00	13:40:18	40K0	110		
39	45.8 kHz	Dito	13:40:18	13:41:35	45K8	110		
40	50 kHz	Dito	13:41:35	13:43:04	50K0	110		

Table 8.5-1: PACS @ Spectrometer Mode // H-field // 1st Antenna Position

PACS RS H-field Spectrometer Mode 2nd Position								
i	**Frequency**	**Date**	**CCS Step Start Time**	**CCS Step Stop Time**	**Data file imt_emc20051122_s_h2_**	**Level [dBpT]**	**Sensor**	**Observations**
1	30 Hz	21.11.05	14:05:35	14:06:48	30H0	120		
2	40 Hz	Dito	14:06:48	14:08:01	40H0	120		
3	50 Hz	Dito	14:08:01	14:09:17	50H0	120		
4	64 Hz	Dito	14:09:17	14:10:38	64H0	120		
5	80 Hz	Dito	14:10:38	14:11:47	80H0	120		
6	100 Hz	Dito	14:11:47	14:13:00	100H0	120		
7	125 Hz	Dito	14:13:00	14:14:30	125H0	120		
8	256 Hz	Dito	14:14:30	14:15:43	256H0	120		
9	350 Hz	Dito	14:15:43	14:16:55	350H0	120		
10	500 Hz	Dito	14:16:55	14:18:08	500H0	120		
11	750 Hz	Dito	14:18:08	14:19:22	750H0	120		
12	1 kHz	Dito	14:19:22	14:20:38	1K0	120		
13	1.5 kHz	Dito	14:20:38	14:21:52	1K5	120		
14	2 kHz	Dito	14:21:52	14:23:04	2K0	120		
15	2.5 kHz	Dito	14:23:04	14:24:21	2K5	120		
16	3 kHz	Dito	14:24:21	14:25:29	3K0	120		
17	3.5 kHz	Dito	14:25:29	14:26:40	3K5	120		
18	4 kHz	Dito	14:26:40	14:27:52	4K0	120		
19	4.5 kHz	Dito	14:27:52	14:29:00	4K5	120		

PACS RS H-field Spectrometer Mode 2nd Position								
i	**Frequency**	**Date**	**CCS Step Start Time**	**CCS Step Stop Time**	**Data file imt_emc20051122_s_h2_**	**Level [dBpT]**	**Sensor**	**Observations**
20	5 kHz	Dito	14:29:00	14:30:14	5K0	120		
21	5.5 kHz	Dito	14:30:14	14:31:25	5K5	120		
22	6 kHz	Dito	14:31:25	14:32:32	6K0	120		
23	6.5 kHz	Dito	14:32:32	14:33:42	6K5	120		
24	7 kHz	Dito	14:33:42	14:34:56	7K0	120		
25	7.5 kHz	Dito	14:34:56	14:36:06	7K5	120		
26	8 kHz	Dito	14:36:06	14:37:19	8K0	120		
27	8.5 kHz	Dito	14:37:19	14:39:00	8K5	120		
28	9 kHz	Dito	14:39:00	14:40:20	9K0	120		
29	9.5 kHz	Dito	14:40:20	14:41:33	9K5	120		
31	10 kHz	Dito	14:41:33	14:42:36	10K0	120		
31	11.47 kHz	Dito	14:42:36	14:43:58	11K47	120		
32	15.6 kHz	Dito	14:43:58	14:45:05	15K6	120		
33	17.0 kHz	Dito	14:45:05	14:46:21	17K0	120		
34	20.0 kHz	Dito	14:46:21	14:47:31	20K0	120		
35	25.0 kHz	Dito	14:47:31	14:48:49	25K0	110		
36	30 kHz	Dito	14:48:49	14:50:16	30K0	110		
37	35 kHz	Dito	14:50:16	14:51:21	35K0	110		
38	40 kHz	Dito	14:51:21	14:52:37	40K0	110		
39	45.8 kHz	Dito	14:52:37	14:53:48	45K8	110		
40	50 kHz	Dito	14:53:48	14:55:09	50K0	110		

Table 8.5-2: PACS @ Spectrometer Mode // H-field // 2nd Antenna Position

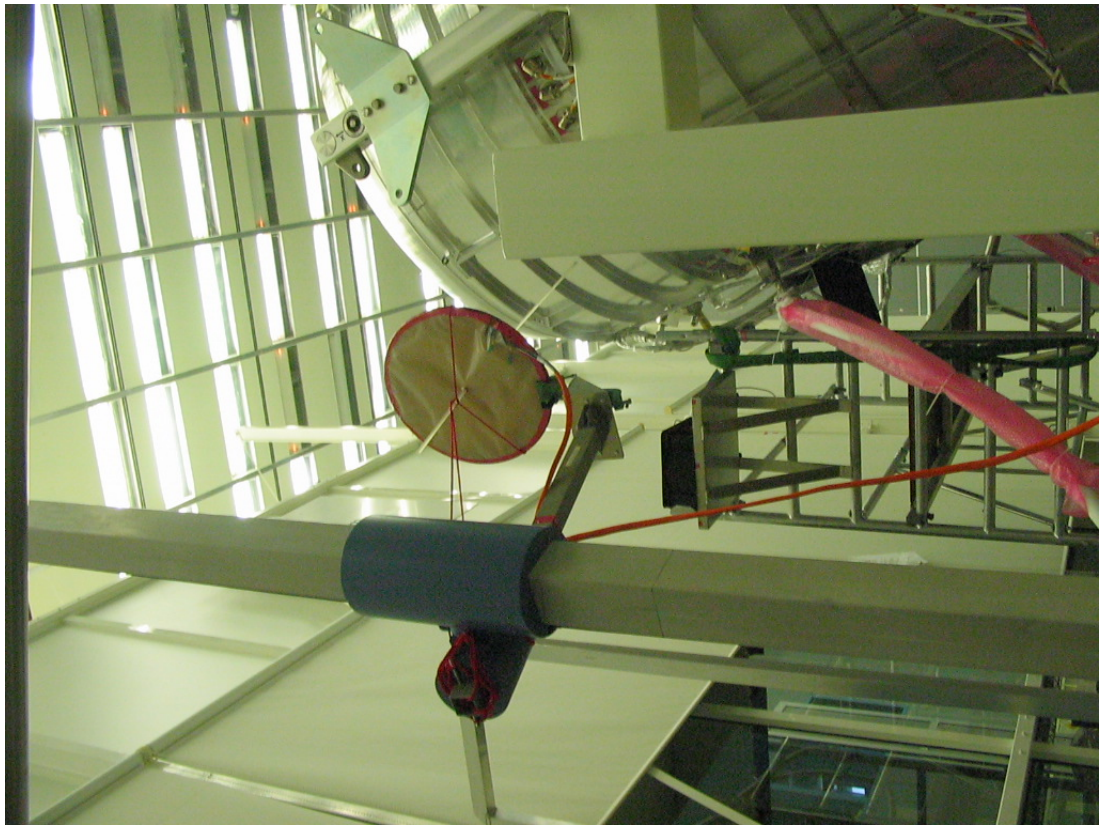


Figure 8.5-1: First Antenna Position *for the H-field (direction optical bench and feedthrough connectors for signal cable bundles*)

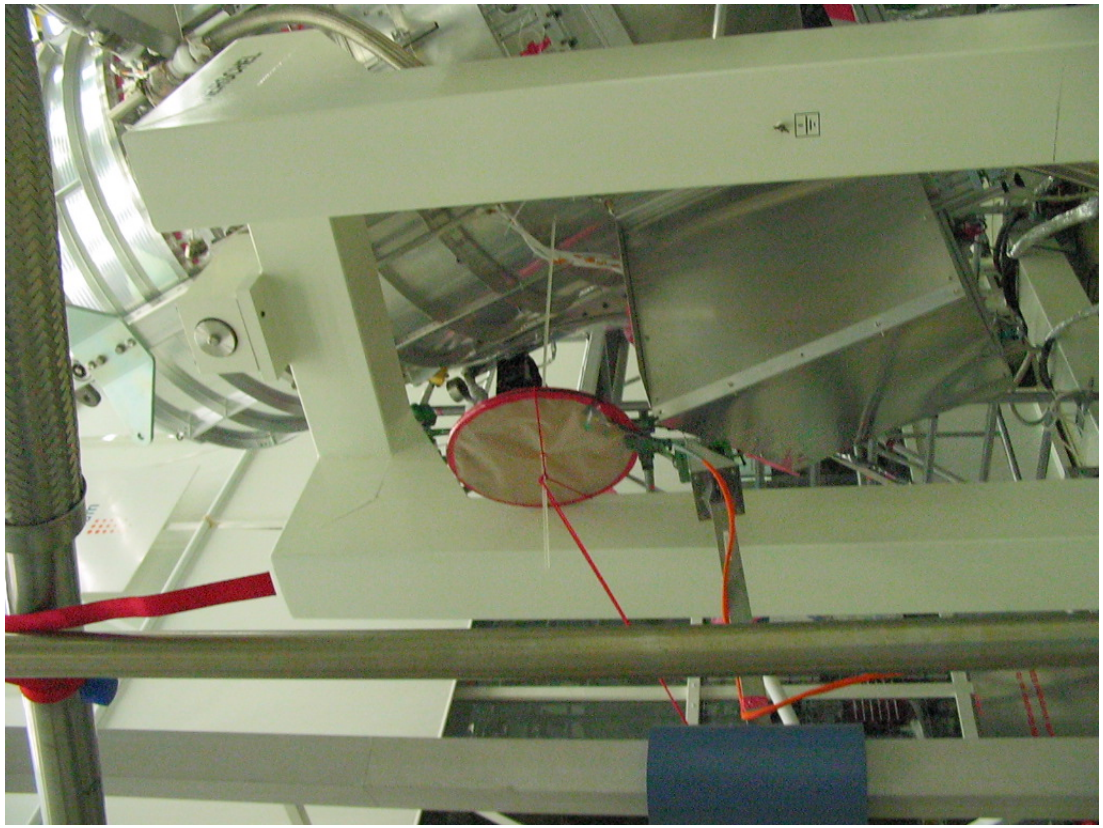


Figure 8.5-2: Second Antenna Position *for the H-field* (direction bias harness biggest loop areas)

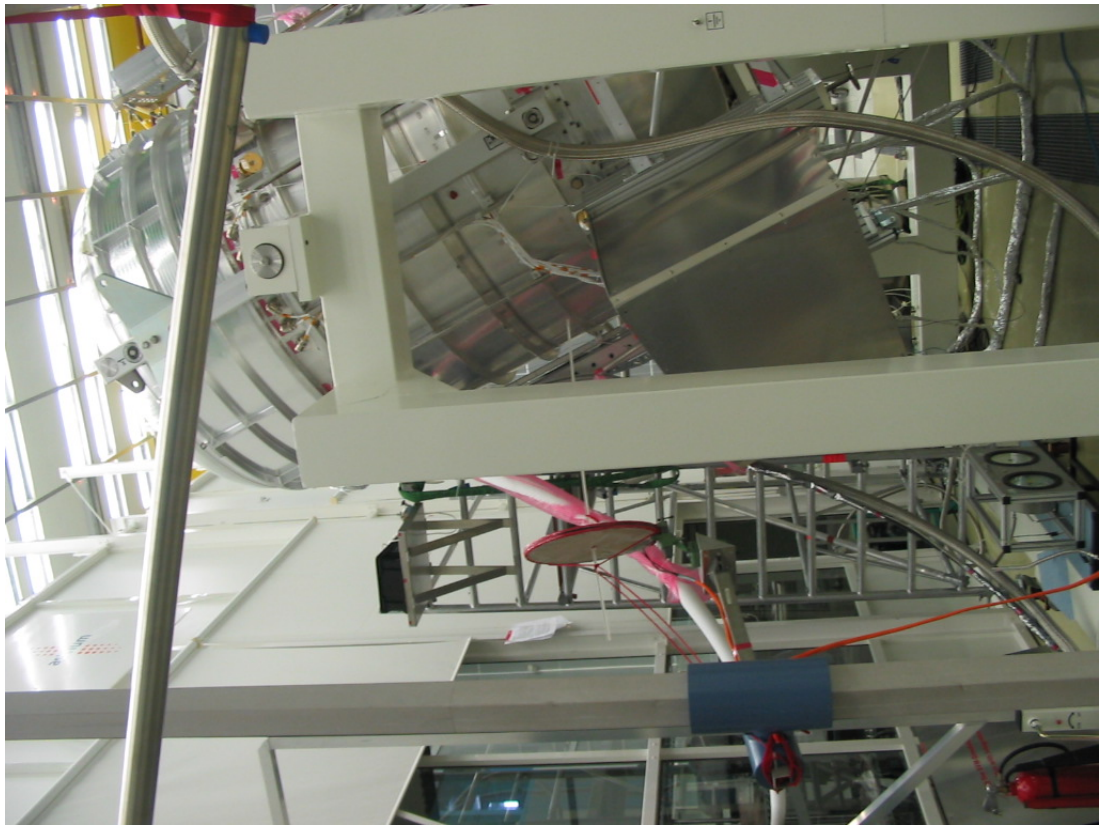


Figure 8.5-3: Third Antenna Position for *the H-field* (*l*ower than 1st antenna position to illuminate especially PACS signal cables)

8.6 PACS Frequency Control Tables E-field

PACS Photometer Mode // E-field // 1st Antenna Position									
I	**Frequency**	**Pol.**	**Date**	**CCS Step Time Start**	**CCS Step Time Stop**	**Data file imt_emc200511DAY_e1 _**	**Level [V/m]**	**Sensor**	**Comment**
1	0.1 MHz	V	23:11.05	08:51:25	08:52:43	V_0M1			See fig.8.6-1 for antenna position on the crane
2	0.131 MHz	V	Dito	08:52:43	08:53:51	V_0M131			
3	0.18 MHz	V	Dito	08:53:51	08:55:17	V_0M18			
4	0.2 MHz	V	Dito	08:55:17	08.56:32	V_0M2			
4a	dito	dito	Dito	09:04:29	08:05:38	V_0M2_2			
5	0.22 MHz	V	Dito	08:05:38	08:06:58	V_0M22			
6	0.312 MHz	V	Dito	08:06:58	08:08:17	V_0M312			
6a	Dito	V	Dito	08:10:03	9:11:23	V_0M312_2			
7	0.5 MHz	V	Dito	9:11:23	09:12:14	V_0M5			
8	1 MHz	V	Dito	09:12:14	09:13:59	V_1M5			
9	2 MHz	V	Dito	09:13:59	09:15:17	V_2M0			
10	4 MHz	V	Dito	09:15:17	09:16:32	V_4M0			
11	6.88 MHz	V	Dito	09:16:32	09:17:45	V_6M88			
12	9.623 MHz	V	Dito	09:17:45	09:19:03	V_10M623			
13	10 MHz	V	Dito	09:19:03	09:20:15	V_10M0			
14	12 MHz	V	Dito	09:20:15	09:21:38	V_12M0			
15	12.8 MHz	V	Dito	09:24:07	09:25:25	V_12M8			
16z	14 MHz	V	Dito	09:25:25	09:26:51	V_14M0			
17	16 MHz	V	Dito	09:26:51	09:27:59	V_16M0			
18	17.28 MHz	V	Dito	09:27:59	09:29:24	V_17M28			
18a	Dito	V	Dito	09:30:30	09:32:42	V_17M28_2			
19	19.246 MHz	V	Dito	09:32:42	09:34:07	V_19M246			
19a	Dito	V	Dito	09:37:05	09:38:20	V_19M246_2			
20	20 MHz	V	Dito	09:38:20	09:39:37	V_20M0			
21	20.6478 MHz	V	Dito	09:39:37	09:41:11	V_20M6478			
	CHANGE								**SETUP CHANGE**
22	36 MHz	V	23.11.05	14:24:03	14:25:38	V_36M0			
22a	Dito	V	Dito	14:26:57	14:29:24	V_36M0_2			
23	38.49 MHz	V	Dito	14:29:24	14:30:44	V_38M49			

PACS Photometer Mode // E-field // 1st Antenna Position									
I	Frequency	Pol.	Date	CCS Step Time Start	CCS Step Time Stop	Data file imt_emc200511DAY_e1 _	Level [V/m]	Sensor	Comment
24	40 MHz	V	Dito	14:30:44	14:32:35	V_40M0			
24a	Dito	V	Dito	14:34:10	14:35:20	V_40M0_2			
25	48 MHz	V	Dito	14:35:20	14:36:38	V_48M0			
25a	Dito	V	Dito	14:38:11	14:39:41	V_48M0_2			
26	60 MHz	V	Dito	14:39:41	14:40:55	V_60M0			
27	80 MHz	V	Dito	14:40:55	14:42:14	V_80M0			
28	100 MHz	V	Dito	14:42:14	14:43:56	V_100M0			
29	200 Mhz	V	Dito	14:43:56	14:45:07	V_200M0			
30	300 MHz	V	Dito	14:45:28	14:46:40	V_30M0			
31	384.93 MHz	V	Dito	14:46:40	14:47:57	V_384M93			
32	481 MHz	V	Dito	14:47:57	14:49:22	V_481M0			
33	550 MHz	V	Dito	14:49:22	14:50:40	V_550M0			
34	577.38 MHz	V	Dito	14:50:40	14:52:00	V_577M38			
35	673.61 MHz	V	Dito	14:52:00	14:53:20	V_673M61			
36	769.86 MHz	V	Dito	14:53:20	14:54:39	V_769M86			
	CHANGE								SETUP CHANGE
37	1.1 GHz	V	24.11.05	16:17:06	16:18:28	V_1G1			
38	1.25 GHz	V	Dito	16:18:28	16:20:02	V_1G25			
38b	Dito	V	Dito	16:21:23	16:22:58	V_1G25_2			
39	2.30959 GHz	V	Dito	16:22:58	16:24:59	V_2G30956			
40	4 GHz	V	Dito	16:24:59	16:26:42	V_4G			
40a	Dito	V	Dito	16:28:12	16:29:26	V_4G_2			
41	5 GHz	V	Dito	16:29:26	16:30:44	V_5G			
42	6.15891 GHz	V	Dito	16:30:44	16:32:14	V_6G15891			
42a	Dito	V	Dito	16:33:49	16:35:10	V_6G15891_2			
	CHANGE								SETUP CHANGE
43	6.600 GHz	V	24.11.05	15:49:48	15:51:20	V_6G6			
44	7.600 GHz	V	Dito	15:51:20	15:52:37	V_7G6			
45	8.4685 GHz	V	Dito	15:52:37	15:58:30	V_8G4685			
45a	Dito	V	Dito	16:00:09	16:01:36	V_8G4685_2			
46	8.600 GHz	V	Dito	16:01:36	16:03:00	V_8G6			
47	9.600 GHz	V	Dito	16:03:00	16:04:20	V_9G6			
48	10.36375 GHz	V	Dito	16:04:20	16:05:45	V_10G36375			
49	15.173565 GHz	V	Dito	16:05:45	16:07:11	V_15G173565			

PACS Photometer Mode // E-field // 1st Antenna Position									
I	**Frequency**	**Pol.**	**Date**	**CCS Step Time Start**	**CCS Step Time Stop**	**Data file imt_emc200511DAY_e1 _**	**Level [V/m]**	**Sensor**	**Comment**
50	16.690921 GHz	V	Dito	16:07:11	16:08:30	V_16G690921			
	CHANGE								**SETUP CHANGE**
51	**8.45 GHz**	**V**	24:1:04	**17:50:16**	**17:51:18**	**V_8G45**			**TX Notch**
52	**8.475 GHz**	**V**	Dito	**17:51:18**	**17:52:36**	**V_8G475**			**TX Notch**
53	**8.5 GHz**	**V**	Dito	**17:52:36**	**17:53:59**	**V_8G5**			**TX Notch**
1	36 MHz	H	23:11:05	16:11:01	16:12:17	H_36M0			
2	38.49 MHz	H	Dito	16:12:17	16:13:25	H_38M49			
3	40 MHz	H	Dito	16:13:25	16:14:52	H_40M0			
4	48 MHz	H	Dito	16:14:52	16:16:03	H_48M0			
5	60 MHz	H	Dito	16:16:03	16:17:25	H_60M0			
6	80 MHz	H	Dito	16:17:25	16:18:36	H_80M0			
7	100 MHz	H	Dito	16:18:36	16:19:43	H_100M0			
8	200 Mhz	H	Dito	16:19:43	16:20:53	H_200M0			
9	300 MHz	H	Dito	16:21:06	16:22:19	H_30M0			
10	384.93 MHz	H	Dito	16:22:19	16:23:36	H_384M93			
11	481 MHz	H	Dito	16:23:36	16:24:49	H_481M0			
12	550 MHz	H	Dito	16:24:49	16:26:06	H_550M0			
13	577.38 MHz	H	Dito	16:26:06	16:27:31	H_577M38			
14	673.61 MHz	H	Dito	16:27:31	16:28:27	H_673M61			
15	769.86 MHz	H	Dito	16:28:27	16:29:45	H_769M86			
	CHANGE								**SETUP CHANGE**
16	1.1 GHz	H	24.11.05	16:38:52	16:40:08	H_1G1			
17	1.25 GHz	H	Dito	16:40:08	16:41:26	H_1G25			
18	2.30959 GHz	H	Dito	16:41:26	16:42:51	H_2G30956			
19	4 GHz	H	Dito	16:42:51	16:44:10	H_4G			
19a	Dito	H	Dito	16:45:44	16:47:16	H_4G-2			
20	5 GHz	H	Dito	16:47:16	16:48:39	H_5G			
21	6.15891 GHz	H	Dito	16:48:39	16:50:00	H_6G15891		0.84 v/m	
	CHANGE								**SETUP CHANGE**
22	6.600 GHz	H	24.11.05	15:31:20	15:32:42	H_6G6			
23	7.600 GHz	H	Dito	15:32:42	15:34:12	H_7G6			
24	8.4685 GHz	H	Dito	15:34:12	15:35:37	H_8G4685			

PACS Photometer Mode // E-field // 1st Antenna Position									
I	**Frequency**	**Pol.**	**Date**	**CCS Step Time Start**	**CCS Step Time Stop**	**Data file imt_emc200511DAY_e1 _**	**Level [V/m]**	**Sensor**	**Comment**
24a	Dito	H	Dito	15:37:05	15:38:28	H_8G4685_2			
25	8.600 GHz	H	Dito	15:38:28	15:39:46	H_8G6			
26	9.600 GHz	H	Dito	15:39:46	15:41:07	H_9G6			
27	10.36375 GHz	H	Dito	15:41:07	15:42:30	H_10G36375			
28	15.173565 GHz	H	Dito	15:42:30	15:44:01	H_15G173565			
29	16.690921 GHz	H	Dito	15:44:01	15:45:20	H_16G690921			
	CHANGE								**SETUP CHANGE**
30	**8.45 GHz**	**H**	24.11.05	**18:12:39**	**18:14:00**	**H_8G45**			**TX Notch**
31	**8.475 GHz**	**H**	Dito	**18:14:00**	**18:15:31**	**H_8G475**			**TX Notch**
32	**8.5 GHz**	**H**	Dito	**18:15:31**	**18:17:05**	**H_8G5**			**TX Notch**

Table 8.6-1 : PACS @ Photometer Mode// E-field // 1st Antenna Position

PACS Photometer Mode // E-field // 2nd Antenna Position									
i	**Frequency**	**Pol.**	**Date**	**CCS Step Time Start**	**CCS Step Time Stop**	**Data file imt_emc200511DAY_e2_**	**Level [V/m]**	**Sensor**	**Comment**
1	0.1 MHz	V	23.11.05	09:58:46	10:00:00	V_0M1			See fig.8.6-2 for antenna position on the crane
2	0.131 MHz	V	Dito	10:00:00	10:01:29	V_0M131			
3	0.18 MHz	V	Dito	10:05:09	10:06:30	V_0M18			
4	0.2 MHz	V	Dito	10:08:10	10:09:24	V_0M2			
5	0.22 MHz	V	Dito	10:09:24	10:11:04	V_0M22			
6	0.312 MHz	V	Dito	10:11:04	10:12:21	V_0M312			
7	0.5 MHz	V	Dito	10:12:21	10:13:37	V_0M5			
8	1 MHz	V	Dito	10:13:37	10:14:58	V_1M0			
9	2 MHz	V	Dito	10:14:58	10:16:18	V_2M0			
9a	Dito	V	Dito	10:22:22	10:25:17	V_2M0_2			
10	4 MHz	V	Dito	10:25:17	10:28:40	V_4M0			
11	6.88 MHz	V	Dito	10:28:40	10:27:50	V_6M88			
11a	Dito	V	Dito	10:30:35	10:32:00	V_6M88_2			
12	9.623 MHz	V	Dito	10:32:00	10:33:27	V_10M623			
12a	Dito	V	Dito	10:34:56	10:39:22	V_10M623_2			
13	10 MHz	V	Dito	10:39:22	10:41:10	V_10M0			
14	12 MHz	V	Dito	10:41:10	10:42:24	V_12M0			
14a	Dito	V	Dito	10:39:55	10:40	V_12M0_2			
15	12.8 MHz	V	Dito	10:44:54	10:46:21	V_12M8			
16z	14 MHz	V	Dito	10:46:21	18:47:55	V_14M0			
17	16 MHz	V	Dito	18:47:55	10:48:56	V_16M0			
18	17.28 MHz	V	Dito	10:48:56	10:50:11	V_17M28			
18a	Dito	V	Dito	10:51:38	10:52:58	V_17M28_2			
19	19.246 MHz	V	Dito	10:52:58	10:54:17	V_19M246			
20	20 MHz	V	Dito	10:54:17	10:55:41	V_20M0			
21	20.6478 MHz	V	Dito	10:55:41	10:56:55	V_20M6478			
21a	Dito	V	Dito	10:58:30	10:59:39	V_20M6478_2			
	CHANGE								**SETUP CHANGE**
22	36 MHz	V	23.11.05	15:02:03	15:03:39	V_36M0			
23	38.49 MHz	V	Dito	15:03:39	15:04:50	V_38M49			
24	40 MHz	V	Dito	15:04:50	15:06:08	V_40M0			
24a	Dito	V	Dito	15:07:36	15:08:40	V_40M0_2			

PACS Photometer Mode // E-field // 2nd Antenna Position									
i	**Frequency**	**Pol.**	**Date**	**CCS Step Time Start**	**CCS Step Time Stop**	**Data file imt_emc200511DAY_e2_**	**Level [V/m]**	**Sensor**	**Comment**
25	48 MHz	V	Dito	15:08:40	15:10:00	V_48M0			
26	60 MHz	V	Dito	15:10:00	15:11:14	V_60M0			
27	80 MHz	V	Dito	15:11:14	15:12:24	V_80M0			
28	100 MHz	V	Dito	15:12:24	15:13:44	V_100M0			
29	200 Mhz	V	Dito	15:13:44	15:14:58	V_200M0			
30	300 MHz	V	Dito	15:15:18	15:16:37	V_30M0			
30a	Dito	V	Dito	15:17:50	15:19:21	V_30M0_2			
31	384.93 MHz	V	Dito	15:19:21	15:20:45	V_384M93			
32	481 MHz	V	Dito	15:20:45	15:22:17	V_481M0			
33	550 MHz	V	Dito	15:22:17	15:23:34	V_550M0			
34	577.38 MHz	V	Dito	15:23:34	15:24:56	V_577M38		1.3 V/m	
35	673.61 MHz	V	Dito	15:24:56	15:26:11	V_673M61			
35a	Dito	V	Dito	15:27:48	15:29:04	V_673M61_2			
36	769.86 MHz	V	Dito	15:29:04	15:31:10	V_769M86			
	CHANGE								**SETUP CHANGE**
37	1.1 GHz	V	24.11.05	17:15:33	17:16:55	V_1G1			
38	1.25 GHz	V	Dito	17:16:55	17:18:16	V_1G25			
39	2.30959 GHz	V	Dito	17:18:16	17:19:41	V_2G30956			
39a	Dito	V	Dito	17:21:14	17:22:26	V_2G30956_2			
40	4 GHz	V	Dito	17:22:26	17:24:20	V_4G			
41	5 GHz	V	Dito	17:24:20	17:25:45	V_5G			
42	6.15891 GHz	V	Dito	17:25:45	17:27:10	V_6G15891			
	CHANGE								**SETUP CHANGE**
43	6.600 GHz	V	24.11.05	14:50:35	14:52:02	V_6G6			
44	7.600 GHz	V	Dito	14:52:02	14:53:19	V_7G6			
45	8.4685 GHz	V	Dito	14:53:19	14:54:59	V_8G4685			
46	8.600 GHz	V	Dito	14:54:59	14:56:23	V_8G6			
46a	Dito	V	Dito	14:57:57	14:59:18	V_8G6_2			
47	9.600 GHz	V	Dito	15:00:48	15:03:10	V_9G6			
48	10.36375 GHz	V	Dito	15:03:10	15:04:30	V_10G36375			
49	15.173565 GHz	V	Dito	15:04:30	15:05:57	V_15G173565			
50	16.690921 GHz	V	Dito	15:05:57	15:07:45	V_16G690921			
	CHANGE								**SETUP CHANGE**
51	**8.45 GHz**	**V**	24.11.05	17:37:45	17:39:12	**V_8G45**			**TX Notch**

PACS Photometer Mode // E-field // 2nd Antenna Position									
i	**Frequency**	**Pol.**	**Date**	**CCS Step Time Start**	**CCS Step Time Stop**	**Data file imt_emc200511DAY_e2_**	**Level [V/m]**	**Sensor**	**Comment**
52	**8.475 GHz**	**V**	Dito	17:39:15	17:40:50	**V_8G475**			**TX Notch**
52a	**Dito**	**V**	Dito	17:42:12	17:43:28	**V_8G475_2**			**TX Notch**
53	**8.5 GHz**	**V**	Dito	17:43:28	17:44:13	**V_8G5**			**TX Notch**
1	36 MHz	H	23.11.05	15:43:42	15:47:17	H_36M0			
2	38.49 MHz	H	Dito	15:47:17	15:48:40	H_38M49			
3	40 MHz	H	Dito	15:48:40	15:49:57	H_40M0			
4	48 MHz	H	Dito	15:49:57	15:51:12	H_48M0			
5	60 MHz	H	Dito	15:51:12	15:52:36	H_60M0			
6	80 MHz	H	Dito	15:52:36	15:54:01	H_80M0			
7	100 MHz	H	Dito	15:54:01	15:55:11	H_100M0			
8	200 Mhz	H	Dito	15:55:11	15:56:35	H_200M0			
9	300 MHz	H	Dito	15:56:35	15:57:57	H_30M0			
10	384.93 MHz	H	Dito	15:57:57	15:59:14	H_384M93			
11	481 MHz	H	Dito	15:59:14	16:00:40	H_481M0			
12	550 MHz	H	Dito	16:00:40	16:01:49	H_550M0			
13	577.38 MHz	H	Dito	16:01:49	15:03:07	H_577M38			
14	673.61 MHz	H	Dito	15:03:07	15:04:27	H_673M61			
15	769.86 MHz	H	Dito	15:04:27	15:05:46	H_769M86			
	CHANGE								**SETUP CHANGE**
16	1.1 GHz	H	24.11.05	16:56:54	16:58:02	H_1G1			
16a	Dito	H	Dito	16:59:30	17:00:43	H_1G1_2			
17	1.25 GHz	H	Dito	17:00:43	17:02:15	H_1G25			
18	2.30959 GHz	H	Dito	17:02:15	17:03:44	H_2G30956		3.5 V/m	
18a	Dito	H	Dito	17:06:44	17:08:07	H_2G30956_2			
19	4 GHz	H	Dito	17:08:07	17:09:40	H_4G			
20	5 GHz	H	Dito	17:09:40	17:11:09	H_5G			
21	6.15891 GHz	H	Dito	17:11:09	17:12:21	H_6G15891			
	CHANGE								**SETUP CHANGE**
22	6.600 GHz	H	24.11.05	15:13:55	15:15:24	H_6G6			
23	7.600 GHz	H	Dito	15:15:24	15:16:50	H_7G6			
24	8.4685 GHz	H	Dito	15:16:50	15:18:14	H_8G4685			
25	8.600 GHz	H	Dito	15:18:14	15:19:40	H_8G6			

PACS Photometer Mode // E-field // 2nd Antenna Position									
i	**Frequency**	**Pol.**	**Date**	**CCS Step Time Start**	**CCS Step Time Stop**	**Data file imt_emc200511DAY_e2_**	**Level [V/m]**	**Sensor**	**Comment**
26	9.600 GHz	H	Dito	15:19:40	15:21:01	H_9G6			
27	10.36375 GHz	H	Dito	15:21:01	15:22:26	H_10G36375			
28	15.173565 GHz	H	Dito	15:22:26	15:23:50	H_15G173565			
29	16.690921 GHz	H	Dito	15:23:50	15:25:10	H_16G690921			
	CHANGE								**SETUP CHANGE**
30	**8.45 GHz**	**H**	**24.11:05**	**17:58:40**	**18:00:00**	**H_8G45**			**TX Notch**
30a	**Dito**	**H**	**Dito**	**18:01:24**	**18:02:50**	**H_8G452**			**TX Notch**
31	**8.475 GHz**	**H**	**Dito**	**18:02:50**	**18:04:09**	**H_8G475**			**TX Notch**
32	**8.5 GHz**	**H**	**Dito**	**18:04:09**	**18:05:20**	**H_8G5**			**TX Notch**

Table 8.6-2 : PACS @ Photometer Mode// E-field // 2nd Antenna Position

PACS Spectrometer Mode // E-field // 1st Antenna Position									
i	Frequency	Pol.	Date	CCS Step Time Start	CCS Step Time Stop	Data file imt_emc200511_s_DAY_e1_	Level [V/m]	Sensor	Comment
1	0.1 MHz	V	23.11.05	13:18:37	13:19:55	V_0M1			
2	0.131 MHz	V	Dito	13:19:55	13:21:54	V_0M131			
3	0.18 MHz	V	Dito	13:21:54	13:23:35	V_0M18			
4	0.2 MHz	V	Dito	13:23:35	13:24:47	V_0M2			
5	0.22 MHz	V	Dito	13:24:47	13:26:00	V_0M22			
6	0.312 MHz	V	Dito	13:26:00	13:27:23	V_0M312			
7	0.5 MHz	V	Dito	13:27:23	13:28:31	V_0M5			
8	1 MHz	V	Dito	13:28:31	13:29:40	V_1M0			
9	2 MHz	V	Dito	13:29:40	13:30:55	V_2M0			
10	4 MHz	V	Dito	13:30:55	13:32:10	V_4M0			
11	6.88 MHz	V	Dito	13:32:10	13:33:25	V_6M88			
12	9.623 MHz	V	Dito	13:33:25	13:34:39	V_10M623			
13	10 MHz	V	Dito	13:34:39	13:35:50	V_10M0			
14	12 MHz	V	Dito	13:35:50	13:37:08	V_12M0			
15	12.8 MHz	V	Dito	13:37:08	13:38:22	V_12M8			
16z	14 MHz	V	Dito	13:38:22	13:39:33	V_14M0			
17	16 MHz	V	Dito	13:39:33	13:40:50	V_16M0			
18	17.28 MHz	V	Dito	13:40:50	13:42:09	V_17M28			
19	19.246 MHz	V	Dito	13:42:09	13:43:07	V_19M246			
20	20 MHz		Dito	13:43:07	13:44:24	V_20M0			
21	20.6478 MHz	V	Dito	13:44:24	13:45:42	V_20M6478			
	CHANGE								SETUP CHANGE
22	36 MHz	V	24.11.05	08:45:50	08:51:55	V_36M0			
23	38.49 MHz	V	Dito	08:51:55	08:53:25	V_38M49			
24	40 MHz	V	Dito	08:53:25	08:54:58	V_40M0			
25	48 MHz	V	Dito	08:54:58	08:56:38	V_48M0			
26	60 MHz	V	Dito	08:56:38	08:57:08	V_60M0			
27	80 MHz	V	Dito	08:57:08	08:59:29	V_80M0			
28	100 MHz	V	Dito	08:59:29	09:00:50	V_100M0			
29	200 Mhz	V	Dito	09:00:50	09:02:27	V_200M0			
30	300 MHz	V	Dito	09:02:27	09:03:51	V_30M0			
31	384.93 MHz	V	Dito	09:03:51	09:05:34	V_384M93			

PACS Spectrometer Mode // E-field // 1st Antenna Position									
i	Frequency	Pol.	Date	CCS Step Time Start	CCS Step Time Stop	Data file imt_emc200511_s_DAY_e1_	Level [V/m]	Sensor	Comment
32	481 MHz	V	Dito	09:05:34	09:06:54	V_481M0			
33	550 MHz	V	Dito	09:06:54	09:08:15	V_550M0			
34	577.38 MHz	V	Dito	09:08:15	09:09:44	V_577M38			
35	673.61 MHz	V	Dito	09:09:44	09:11:11	V_673M61			
36	769.86 MHz	V	Dito	09:11:11	09:12:40	V_769M86			
	CHANGE								SETUP CHANGE
37	1.1 GHz	V	24.11.05	10:34:40	10:35:57	V_1G1			
38	1.25 GHz	V	Dito	10:35:57	10:37:20	V_1G25			
39	2.30959 GHz	V	Dito	10:37:20	10:38:38	V_2G30956			
40	4 GHz	V	Dito	10:38:38	10:39:58	V_4G			
41	5 GHz	V	Dito	10:39:58	10:41:10	V_5G			
42	6.15891 GHz	V	Dito	10:41:10	16:42:36	V_6G15891			
	CHANGE								SETUP CHANGE
43	6.600 GHz	V	24.11.01	10:51:29	10:52:50	V_6G6			
44	7.600 GHz	V	Dito	10:52:50	10:54:18	V_7G6			
45	8.4685 GHz	V	Dito	10:54:18	10:55:51	V_8G4685			
46	8.600 GHz	V	Dito	10:55:51	10:57:08	V_8G6			
47	9.600 GHz	V	Dito	10:57:08	10:58:25	V_9G6			
48	10.36375 GHz	V	Dito	10:58:25	11:00:00	V_10G36375			
49	15.173565 GHz	V	Dito	11:00:00	11:01:31	V_15G173565			
50	16.690921 GHz	V	Dito	11:01:31	11:02:52	V_16G690921			
	CHANGE								SETUP CHANGE
51	**8.45 GHz**	**V**	25-11-05	**08:58:38**	**08:59:55**	**V_8G45**			**TX Notch**
52	**8.475 GHz**	**V**	Dito	**09:00:25**	**09:01:35**	**V_8G475**			**TX Notch**
53	**8.5 GHz**	**V**	Dito	**09:01:35**	**09:02:48**	**V_8G5**			**TX Notch**
			Dito						
1	36 MHz	H	23.11.05	16:48:10	16:49:46	H_36M0			
2	38.49 MHz	H	Dito	16:49:46	16:50:50	H_38M49			
3	40 MHz	H	Dito	16:50:50	16:52:09	H_40M0			
4	48 MHz	H	Dito	16:52:09	16:53:28	H_48M0			
5	60 MHz	H	Dito	16:53:28	16:54:36	H_60M0			
6	80 MHz	H	Dito	16:54:36	16:56:01	H_80M0			
7	100 MHz	H	Dito	16:56:01	16:57:10	H_100M0			

PACS Spectrometer Mode // E-field // 1st Antenna Position									
i	**Frequency**	**Pol.**	**Date**	**CCS Step Time Start**	**CCS Step Time Stop**	**Data file imt_emc200511_s_DAY _e1_**	**Level [V/m]**	**Sensor**	**Comment**
8	200 Mhz	H	Dito	16:57:10	16:58:22	H_200M0			
9	300 MHz	H	Dito	16:58:28	16:59:37	H_30M0			
10	384.93 MHz	H	Dito	16:59:37	17:00:50	H_384M93			
11	481 MHz	H	Dito	17:00:50	17:02:04	H_481M0			
12	550 MHz	H	Dito	17:02:04	17:03:20	H_550M0			
13	577.38 MHz	H	Dito	17:03:20	17:04:32	H_577M38			
14	673.61 MHz	H	Dito	17:04:32	17:05:47	H_673M61			
15	769.86 MHz	H	Dito	17:05:47	17:07:00	H_769M86			
	CHANGE								**SETUP CHANGE**
16	1.1 GHz	H	24.11.05	10:23:01	10:24:30	H_1G1			
17	1.25 GHz	H	Dito	10:24:30	10:25:50	H_1G25			
18	2.30959 GHz	H	Dito	10:25:50	10:27:16	H_2G30956			
19	4 GHz	H	Dito	10:27:16	10:28:32	H_4G			
20	5 GHz	H	Dito	10:28:32	10:29:48	H_5G			
21	6.15891 GHz	H	Dito	10:29:48	10:31:10	H_6G15891			
	CHANGE								**SETUP CHANGE**
22	6.600 GHz	H	24.11.05	11:06:37	11:07:59	H_6G6			
23	7.600 GHz	H	Dito	11:07:59	11:09:09	H_7G6			
24	8.4685 GHz	H	Dito	11:09:09	11:10:47	H_8G4685			
25	8.600 GHz	H	Dito	11:10:47	11:12:22	H_8G6			
26	9.600 GHz	H	Dito	11:12:22	11:14:00	H_9G6			
27	10.36375 GHz	H	Dito	11:14:00	11:15:16	H_10G36375			
28	15.173565 GHz	H	Dito	11:15:16	11:16:39	H_15G173565			
29	16.690921 GHz	H	Dito	11:16:39	11:17:59	H_16G690921			
29a	Dito	H	Dito	11:19:24	11:20:40	H_16G690921_2			
	CHANGE								**SETUP CHANGE**
30	**8.45 GHz**	**H**	**25.11.05**	**08:37:10**	**08:38:32**	**H_8G45**			**TX Notch**
31	**8.475 GHz**	**H**	**Dito**	**08:38:32**	**08:39:58**	**H_8G475**			**TX Notch**
32	**8.5 GHz**	**H**	**Dito**	**08:39:58**	**08:41:08**	**H_8G5**			**TX Notch**
32a	**Dito**	**H**	**Dito**	**08:42:30**	**08:43**	**H_8G5_2**			

Table 8.6-3 : PACS @ Spectrometer Mode // E-field // 1st Antenna Position

PACS @ Spectrometer Mode // E-field // 2nd Antenna Position									
i	Frequency	Pol.	Date	CCS Step Time Start	CCS Step Time Stop	Data file imt_emc200511_s_DAY_e2_	Level [V/m]	Sensor	Comment
1	0.1 MHz	V	23:11:05	12:39:20	12:40:29	V_0M1			See figure 8.6-1 for antenna position
2	0.131 MHz	V	Dito	12:40:29	12:41:43	V_0M131			
3	0.18 MHz	V	Dito	12:41:43	12:43:30	V_0M18			
4	0.2 MHz	V	Dito	12:43:30	12:44:44	V_0M2			
5	0.22 MHz	V	Dito	12:44:44	12:46:05	V_0M22			
6	0.312 MHz	V	Dito	12:46:05	12:47:23	V_0M312			
7	0.5 MHz	V	Dito	12:47:23	12:48:40	V_0M5			
8	1 MHz	V	Dito	12:48:40	12:49:57	V_1M0			
9	2 MHz	V	Dito	12:49:57	12:51:06	V_2M0			
10	4 MHz	V	Dito	12:51:06	12:52:23	V_4M0			
11	6.88 MHz	V	Dito	12:52:23	12:53:40	V_6M88			
12	9.623 MHz	V	Dito	12:53:40	12:54:54	V_10M623			
13	10 MHz	V	Dito	12:54:54	12:56:04	V_10M0			
14	12 MHz	V	Dito	12:56:04	12:57:20	V_12M0			
15	12.8 MHz	V	Dito	12:57:20	12:58:35	V_12M8			
16z	14 MHz	V	Dito	12:58:35	12:59:54	V_14M0			
17	16 MHz	V	Dito	12:59:54	13:01:08	V_16M0			
18	17.28 MHz	V	Dito	13:01:08	13:02:28	V_17M28			
19	19.246 MHz	V	Dito	13:02:28	13:03:50	V_19M246			
20	20 MHz	V	Dito	13:03:50	13:04:59	V_20M0			
21	20.6478 MHz	V	Dito	13:04:59	13:06:25	V_20M6478			
	CHANGE								SETUP CHANGE
22	36 MHz	V	25.11.04	08:10:02	08:12:25:	V_36M0			
23	38.49 MHz	V	Dito	08:12:25:	08:13:50	V_38M49			
24	40 MHz	V	Dito	08:13:50	08:15:21	V_40M0			
25	48 MHz	V	Dito	08:15:21	08:16:40	V_48M0			
26	60 MHz	V	Dito	08:16:40	08:17:59	V_60M0			
27	80 MHz	V	Dito	08:17:59	08:19:25	V_80M0			
28	100 MHz	V	Dito	08:19:25	08:20:45	V_100M0			
29	200 Mhz	V	Dito	08:20:45	08:22:02	V_200M0			
30	300 MHz	V	Dito	08:22:02	08:23:24	V_30M0			
31	384.93 MHz	V	Dito	08:23:24	08:24:55	V_384M93			
32	481 MHz	V	Dito	08:24:55	08:26:39	V_481M0			

PACS @ Spectrometer Mode // E-field // 2nd Antenna Position									
i	Frequency	Pol.	Date	CCS Step Time Start	CCS Step Time Stop	Data file imt_emc200511_s_DAY_e2_	Level [V/m]	Sensor	Comment
33	550 MHz	V	Dito	08:26:39	08:27:57	V_550M0			
34	577.38 MHz	V	Dito	08:27:57	08:29:28	V_577M38			
35	673.61 MHz	V	Dito	08:29:28	08:30:55	V_673M61			
36	769.86 MHz	V	Dito	08:30:55	08:32:19	V_769M86			
	CHANGE								SETUP CHANGE
37	1.1 GHz	V	24.11.05	??	done	V_1G1			
38	1.25 GHz	V	Dito	??	done	V_1G25			
39	2.30959 GHz	V	Dito	??	done	V_2G30956			
40	4 GHz	V	Dito	??	done	V_4G			
41	5 GHz	V	Dito	??	done	V_5G			
42	6.15891 GHz	V	Dito	??	done	V_6G15891			
	CHANGE			??					SETUP CHANGE
43	6.600 GHz	V	24:11.05	11:42:14	11:43:24	V_6G6			
44	7.600 GHz	V	Dito	11:43:24	11:45:08	V_7G6			
44a	Dito	V		11:46:45	11:48:00	V_7G6_2			
45	8.4685 GHz	V	Dito	11:48:00	11:49:25	V_8G4685			
46	8.600 GHz	V	Dito	11:49:25	11:50:54	V_8G6			
47	9.600 GHz	V	Dito	11:50:54	11:52:08	V_9G6			
48	10.36375 GHz	V	Dito	11:52:08	11:53:41	V_10G36375			
48a	Dito	V	Dito	11:55:03	11:56:18	V_10G36375_2			
49	15.173565 GHz	V	Dito	11:56:18	11:57:45	V_15G173565			
50	16.690921 GHz	V	Dito	11:57:45	11:59:10	V_16G690921			
	CHANGE								SETUP CHANGE
51	**8.45 GHz**	**V**	**25.11.04**	**08:47:12**	**08:48:20**	**V_8G45**			**TX Notch**
52	**8.475 GHz**	**V**	**Dito**	**08:48:20**	**08:49:30**	**V_8G475**			**TX Notch**
52a	**Dito**	**V**	**Dito**	**08:51:00**	**08:52:10**	**V_8G475_2**			**TX Notch**
53	**8.5 GHz**	**V**	**Dito**	**08:52:10**	**08:53:34**	**V_8G5**			**TX Notch**
53a	**D**	**V**	**Dito**	**08:54:50**	**08:55:**	**V_8G5_2**			**TX Notch**
1	36 MHz	H	23.11.2005	17:17:37	17:18:56	H_36M0			
2	38.49 MHz	H	Dito	17:18:56	17:20:07	H_38M49			
3	40 MHz	H	Dito	17:20:07	17:21:21	H_40M0			
4	48 MHz	H	Dito	17:21:21	17:22:27	H_48M0			
5	60 MHz	H	Dito	17:22:27	17:23:38	H_60M0			

PACS @ Spectrometer Mode // E-field // 2nd Antenna Position									
i	**Frequency**	**Pol.**	**Date**	**CCS Step Time Start**	**CCS Step Time Stop**	**Data file imt_emc200511_s_DAY_e2_**	**Level [V/m]**	**Sensor**	**Comment**
6	80 MHz	H	Dito	17:23:38	17:24:48	H_80M0			
7	100 MHz	H	Dito	17:24:48	17:25:58	H_100M0			
8	200 Mhz	H	Dito	17:25:58	17:27:11	H_200M0			
9	300 MHz	H	Dito	17:27:18	17:28:20	H_30M0			
10	384.93 MHz	H	Dito	17:28:20	17:29:38	H_384M93			
11	481 MHz	H	Dito	17:29:38	17:30:49	H_481M0			
12	550 MHz	H	Dito	17:30:49	17:31:57	H_550M0			
13	577.38 MHz	H	Dito	17:31:57	17:33:11	H_577M38			
14	673.61 MHz	H	Dito	17:33:11	17:34:58	H_673M61			
15	769.86 MHz	H	Dito	??	??	H_769M86			
	CHANGE								**SETUP CHANGE**
16	1.1 GHz	H	Dito	09:42:07	09:43:46	H_1G1			
17	1.25 GHz	H	Dito	09:43:46	09:45:12	H_1G125			
18	2.30959 GHz	H	Dito	09:45:12	09:47:08	H_2G30959			
19	4 GHz	H	Dito	09:47:08	09:10:58	H_4G0			
20	5 GHz	H	Dito	09:10:58	09:12:40	H_5G0			
21	6.15891 GHz	H	Dito	09:12:40	9:13:59	H_6G15891			
	CHANGE								**SETUP CHANGE**
22	6.600 GHz	H	24.11.05	11:23:50	11:25:40	H_6G6			
22a	Dito	H	Dito	11:26:56	11:28:20	H_6G6_2			
23	7.600 GHz	H	Dito	11:28:20	11:29:41	H_7G6			
24	8.4685 GHz	H	Dito	11:29:41	11:31:03	H_8G4685			
25	8.600 GHz	H	Dito	11:31:03	11:32:20	H_8G6			
26	9.600 GHz	H	Dito	11:32:20	11:33:39	H_9G6			
27	10.36375 GHz	H	Dito	11:33:39	11:35:28	H_10G36375			
28	15.173565 GHz	H	Dito	11:35:28	11:36:40	H_15G173565			
29	16.690921 GHz	H	Dito	11:36:40	11:37:54	H_16G6909			
	CHANGE								**SETUP CHANGE**
30	**8.45 GHz**	**H**	**25.11.05**	**08:30:32**	**08:31:40**	H_8G45			**TX Notch**
31	**8.475 GHz**	**H**		**08:31:40**	**08:33:02**	H_8G475			**TX Notch**
32	**8.5 GHz**	**H**		**08:33:02**	**08:34:18**	H_8G5			**TX Notch**

Table 8.6-4 : PACS @ Spectrometer Mode // E-field // 2nd Antenna Position

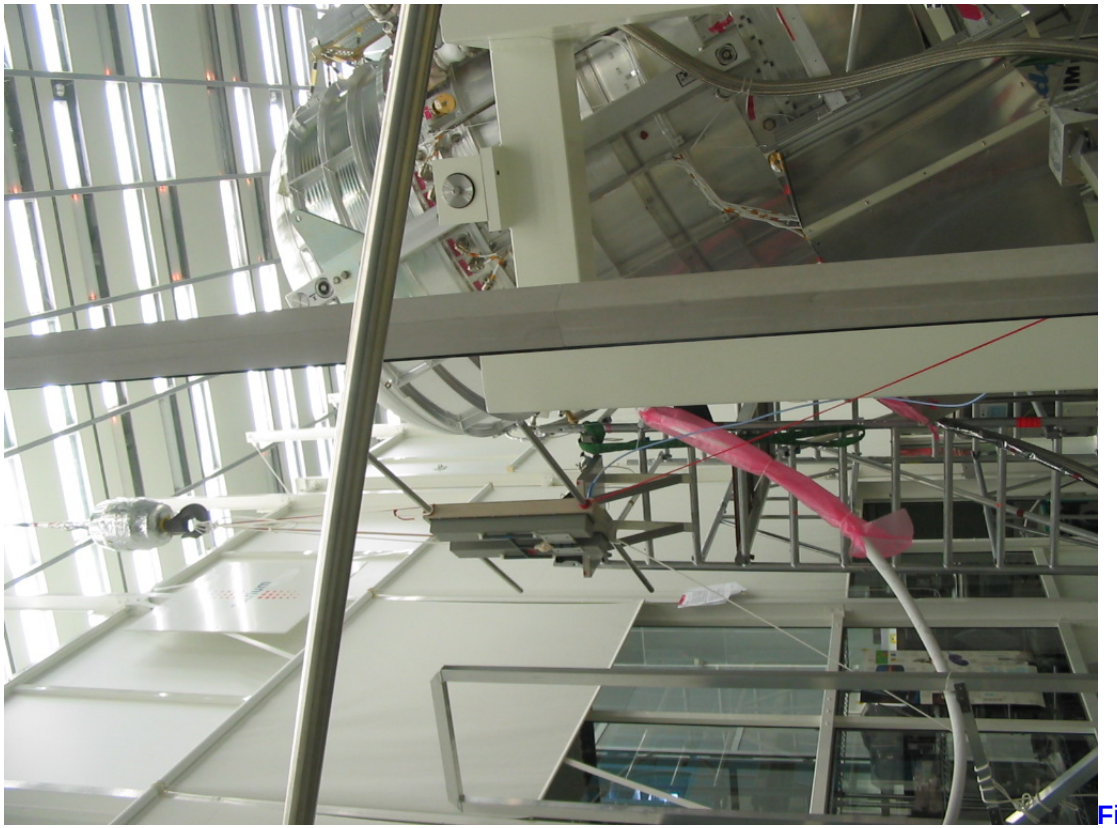


Figure 8.6-1: Antenna on the Crane for RS E-field, 1st Position, Vertical Pol., Range up to 30 MHz (direction for feed-through connectors and signal cables)

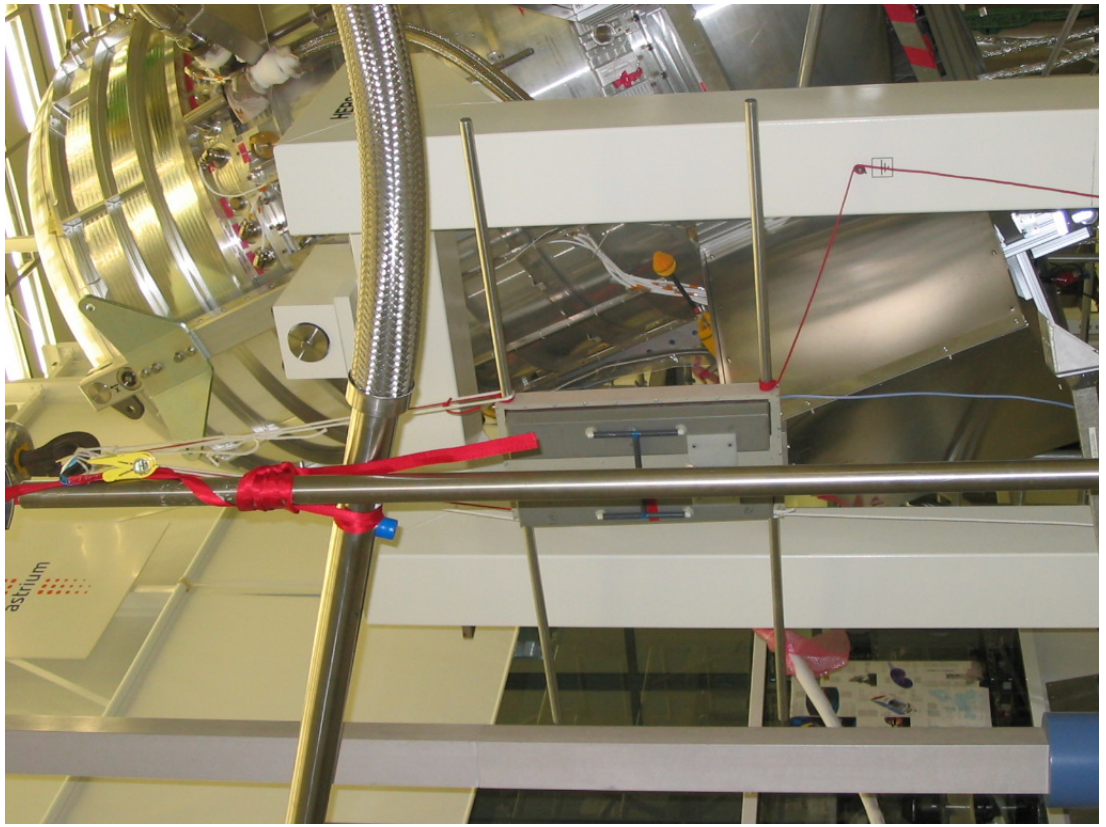


Figure 8.6-2: Antenna on the Crane for RS E-field 2st Position, Vertical Pol., Range up to *30* MHz (direction PACS bias cables)

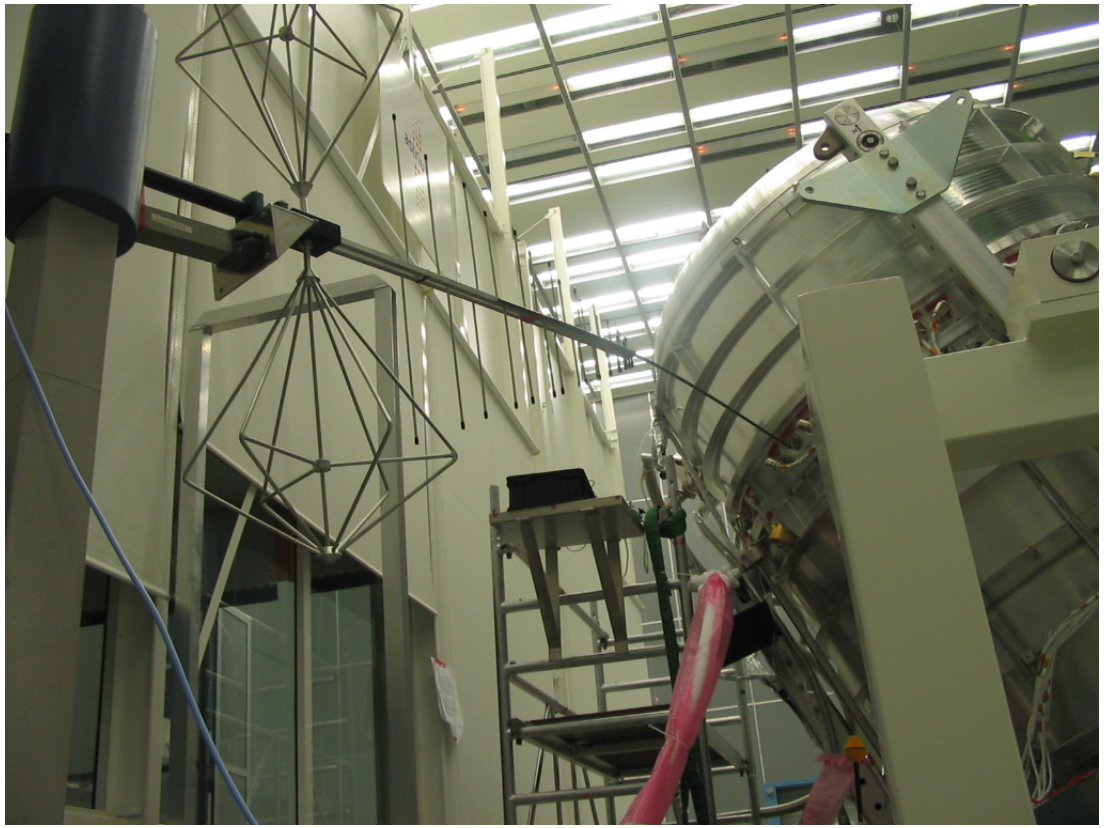


Figure 8.6-3: First Antenna Position for Frequencies > 30 MHz (direction feedthrough connectors and signal cable bundles)

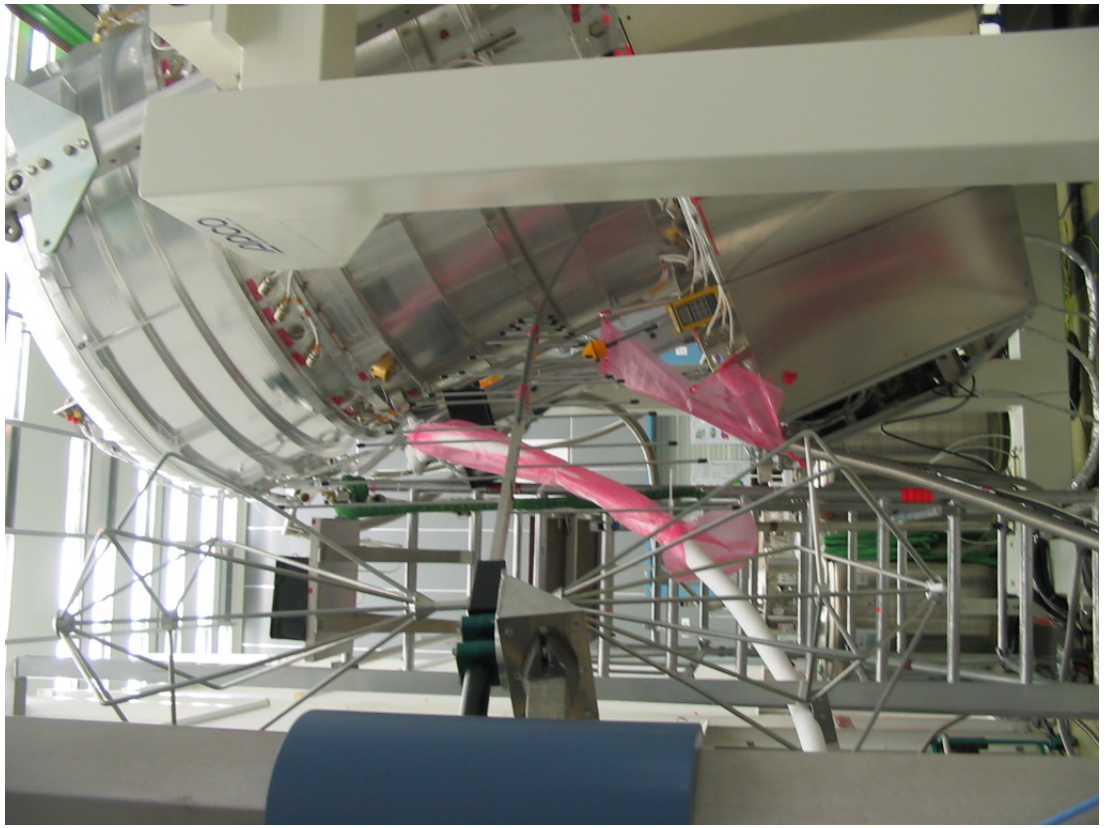


Figure 8.6-4: Second Antenna Position for Frequen*cies* > 30 MHz to 1 GHz (direction PACS biasing harness in general)

8.7 SPIRE Frequency Control Tables H-field

SPIRE RS H-field, File: SPIRE-EQM-EMC-''QLA / STEP''.txt								
i	**Frequency**	**Date**	**CCS Start Time**	**CCS Stop Time**	**Script**	**QLA / STEP**	**Sensor**	**Observations**
1	30 Hz – 50 kHz	28.11.05	16:00:20	16:26:52		N/A		5 % Sweep, 10 sec DWELL time, 100% AM with 140 ms OFF, 800 ms ON
3	30 Hz – 50 kHz	29.11.05	09:15:14	09:41:46		N/A		Dito
4	247.96 Hz	Dito	??			SPOTB000002F_8764_2		100% AM with 140 ms OFF, 800 ms ON
6	273.38 Hz	Dito	??			SPOTB000002F_8764_4		Dito
7	348.91 Hz	Dito	10:41:59			SPOTB000002F_8764_5		Dito
8	366.36 Hz	Dito	10:45:11			SPOTB000002F_8764_6		Dito
9	384.67 Hz	Dito	10:48:25			SPOTB000002F_8764_7		Dito
10	445.31 Hz	Dito	10:51:40			SPOTB000002F_8764_8		Dito
11	467.57 Hz	Dito	10:55:00			SPOTB000002F_8764_9		Dito
12	490.95 Hz	Dito	10:48:00	11:02:19		SPOTB000002F_8764_10		Dito
13	1.020 kHz	Dito	11:06:30			SPOTB000002F_8764_12		Dito
14	1.071 kHz	Dito	11:09:58			SPOTB000002F_8764_13		Dito
15	1.125 kHz	Dito	11:13:30			SPOTB000002F_8764_14		Dito
16	1.368 kHz	Dito	11:16:50			SPOTB000002F_8764_15		Dito
17	1.437 kHz	Dito	11:20:05			SPOTB000002F_8764_16		Dito
18	1.508 kHz	Dito	11:23:33			SPOTB000002F_8764_17		Dito
19	2.020 kHz	Dito	11:27:12			SPOTB000002F_8764_18		Dito
20	2.985 kHz	Dito	11:30:30			SPOTB000002F_8764_19		Dito
21	4.632 kHz	Dito	11:34:01			SPOTB000002F_8764_20		Dito
22	4.863 kHz	Dito	11:37:16			SPOTB000002F_8764_21		Dito
23	5.107 kHz	Dito	11:40:29	11:43:46		SPOTB000002F_8764_22		Dito
24	19.065 kHz	Dito	11:47:05			SPOTB000002F_8764_24		Dito
25	20.018 kHz	Dito	11:50:50			SPOTB000002F_8764_25		Dito
26	21.019 kHz	Dito	11:54:20			SPOTB000002F_8764_26		Dito
27	45.882 kHz	Dito	11:58:00			SPOTB000002F_8764_27		Dito
28	48.176 kHz	Dito	12:01:01			SPOTB000002F_8764_28		Dito
29	50.000 kHz	Dito	12:04:20			SPOTB000002F_8764_29		Dito

SPIRE RS H-field, File: SPIRE-EQM-EMC-''QLA / STEP''.txt								
i	**Frequency**	**Date**	**CCS Start Time**	**CCS Stop Time**	**Script**	**QLA / STEP**	**Sensor**	**Observations**
27a	45.882 kHz	Dito	12:08:10	12:11:20		SPOTB000002F_8764_30		Dito
30	657.9 kHz	Dito	12:14:35			SPOTB000002F_8764_32		Dito
31	690.8 Hz	Dito	12:17:39	12:20:50		SPOTB000002F_8764_33		Dito

Table 8.7-1: SPIRE RS H-field

SPIRE RS H-field Thresholds, File: SPIRE-EQM-EMC-''QLA / STEP''.txt								
i	**Frequency**	**Date**	**CCS Start Time**	**CCS Stop Time**	**Script**	**QLA / STEP**	**Sensor**	**Observations**
1	260 Hz high level	29.11.05	12:47:30			SPOTB0000035_8764_1		100% AM with 140 ms OFF, 800 ms ON
	260 Hz -10 dB	Dito				SPOTB0000035_8764_2		Dito
	384 Hz, high level	Dito	12:59:43			SPOTB0000035_8764_3		Dito
	384 Hz -10 dB	Dito	13:06:40			SPOTB0000035_8764_5		Dito
	1.436 kHz, high level	Dito	13:10:10			SPOTB0000035_8764_6		Dito
	1.436 kHz – 10 dB	Dito	13:14:00			SPOTB0000035_8764_8		Dito
	657 Hz, high level	Dito	13:17:28			SPOTB0000035_8764_9		Dito
	657 Hz – 10 dB	Dito	13:21:00			SPOTB0000035_8764_10		Dito
	1.986 kHz, high level	Dito	13:24:34			SPOTB0000035_8764_11		Dito
	1.986 kHz – 10 dB	Dito	13:28:00			SPOTB0000035_8764_12		Dito
	48.176 kHz, high level	Dito	13:31:33			SPOTB0000035_8764_13		Dito
	48.176 kHz – 10 dB	Dito	13:36:00			SPOTB0000035_8764_14		Dito
	50 kHz, high level	Dito	13:29:35			SPOTB0000035_8764_15		Dito
	50 kHz – 10 dB	Dito	13:42:52	13:46:10		SPOTB0000035_8764_16		Dito
	260 Hz high level	Dito	14:00:48	14:12:00		SPOTB0000035_8764_18		Dito
	384 Hz high level	Dito	14:06:50			SPOTB0000035_8764_19		Dito
	657, high level	Dito	14:10.20			SPOTB0000035_8764_20		Dito
	1.436 kHz, high level	Dito	14:13:55			SPOTB0000035_8764_21		Dito
	2.986 k	Dito	14:17:27			SPOTB0000035_8764_22		Dito
	48.1 kHz, high level	Dito	14:21:00			SPOTB0000035_8764_23		Dito
	50 kHz, high level	Dito	14:24:06			SPOTB0000035_8764_24		Dito

Table 8.7-2: SPIRE RS H-field, Threshold Measurements

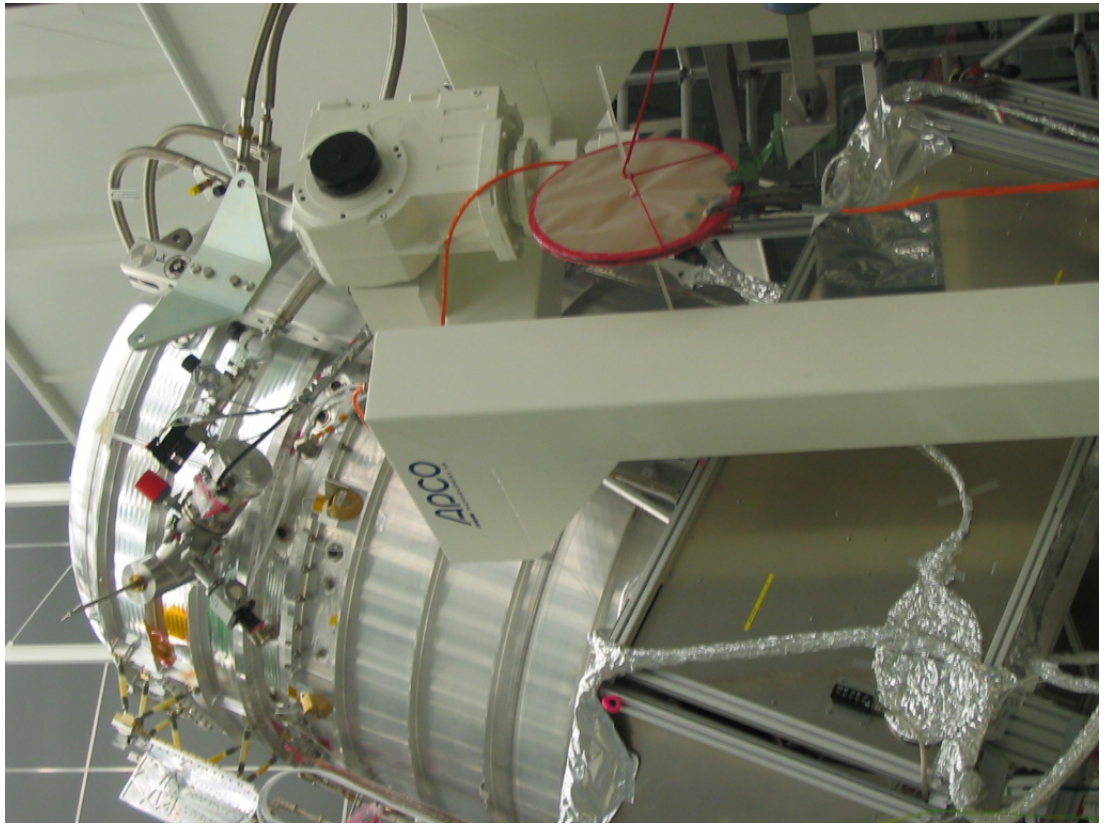


Fig. 8.7-1: Antenna Position for theSPIRE H-field RS Test

8.8 SPIRE Frequency Control Tables E-field

SPIRE RS E-Field, Antenna Position 1 Horizontal Polarization, File: SPIRE-EQM-EMC-''QLA/STEP''.txt								
i	**Frequency**	**Date**	**CCS Start Time**	**CCS Stop Time**	**Script**	**QLA/STEP**	**Sensor**	**Observations**
1	30 MHz – 1 GHz	29.11.05	15:45:49	16:34:20		N/A		30% AM +: 10 sec. DWELL, 10 % step, 200 ms OFF 800 ms ON
1a	30 MHz – 40 MHz,	30.11.05	14:17:32:40	15:04:41		SWEEPB0000057_8764_2		30% AM +: 30 sec. DWELL, 0.5 % step, 200 ms OFF 800 ms ON
1b	200 MHz – 400 MHz	Dito	16:23:51	16:28:00		SPOTB000005E_8764_13 **ABORTED-**		30% AM +: 30 sec. DWELL, 10 % step, 200 ms OFF 800 ms ON
1c	200 MHz – 600 MHz	Dito	16:30:34	16:53:01		SPOTB000005E_8764_14		30% AM +:30 sec. DWELL, 10 % step, 200 ms OFF 800 ms ON
2	1 GHz – 6 GHz	12.12.05	12:54:40	13:29:10		SWEEPB0000BE_8764_2		30% AM +: 20 sec. DWELL, 2 % step, 140 ms OFF 800 ms ON
3	6 GHz – 18 GHz	13.12.05	09:28:06	09:42:47		SWEEPB0000F7_8764_2		30% AM +: 20 sec. DWELL, 3 % step, 140 ms OFF 800 ms ON
	8.475 GHz – 25 MHz	13.12.05	11:48:25	11:53:29		SPOTB0000FB_8764_18		
	8.475 GHz – 12.5 MHz	Dito	11:53:29			SPOTB0000FB_8764_19		
	8.475 GHz	Dito		11:58:40		SPOTB0000FB_8764_20		
	8.475 GHz + 12.5 MHz	Dito	11:58:40	12:03:58		SPOTB0000FB_8764_21		
	8.475 GHz + 25 MHz	Dito	12:03:58	12:09:17		SPOTB0000FB_8764_23		

Table 8.8-1: SPIRE @ RS E-field // Antenna Position 1, Horizontal Polarization

SPIRE RS E-Field, Antenna Position 1, Vertical Polarization, File: ‘’SPIRE-EQM-EMC-QLA/STEP’’.txt								
I	**Frequency**	**Date**	**CCS Start Time**	**CCS Stop Time**	**Script**	**QLA/STEP**	**Sensor**	**Observations**
1	14 kHz – 30 MHz	02.12.05	07:36:32	08:48:01		SWEEP0000099_8764_3		30% AM +: 10 sec. DWELL, 2 % step, 200 ms OFF 800 ms ON
3	30 MHz – 1 GHz	29.11.05	17:06::05	17:51:27		N/A		30% AM +: 20 sec. DWELL, 0.5 % step, 200 ms OFF 800 ms ON
3a	30 MHz – 40 MHz	30.11.05	17:06:09	17:28:08		SWEEP0000062_8764_2		30% AM +: 20 sec. DWELL, 0.5 % step, 200 ms OFF 800 ms ON
4	1 GHz – 6 GHz	12.12.05	11:10:23	11:45:42		SWEEPB0000B7_8764_2		30% AM +: 20 sec. DWELL, 2 % step, 140 ms OFF 800 ms ON
5	6 GHz – 18 GHz	13.12.05	08:23:36	08:38:22		SWEEPB0000EF_8764_2		30% AM +: 20 sec. DWELL, 3 % step, 140 ms OFF 800 ms ON
	8.475 GHz – 25 MHz	Dito	10:06:48	10:13:05		SPOTB0000FB_8764_3		
	8.475 GHz – 12.5 MHz	Dito	10:13:05	10:19:30		SPOTB0000FB_8764_4		
	8.475 GHz	Dito	10:19:30	10:24:18		SPOTB0000FB_8764_5		
	8.475 GHz + 12.5 MHz	Dito	10:24:18	10:30:47		SPOTB0000FB_8764_6		
	8.475 GHz + 25 MHz	Dito	10:30:47	10:36:20		SPOTB0000FB_8764_7		

Table 8.8-2: SPIRE @ RS E-field // Antenna Position 1, Vertical Polarization

SPIRE RS E-Field, Antenna Position 2 Horizontal Polarization, File: ''SPIRE-EQM-EMC-QLA/STEP''.txt								
i	**Frequency**	**Date**	**CCS Start Time**	**CCS Stop Time**	**Script**	**QLA/STEP**	**Sensor**	**Observations**
2	1 GHz – 6 GHz	12.12:05	13:38:36	14:13:00		SWEEPB0000C2_8764_2		30% AM +: 20 sec. DWELL, 2 % step, 140 ms OFF 800 ms ON
3	6 GHz – 18 GHz	Dito	16:51:39	17:05:00		SWEEPB0000D2_8764_2		30% AM +: 20 sec. DWELL, 3 % step, 140 ms OFF 800 ms ON

Table 8.8-3: SPIRE @ RS E-field // Antenna Position 2, Horizontal Polarization

SPIRE RS E-Field, Antenna Position 2, Vertical Polarization, File: ''SPIRE-EQM-EMC-QLA/STEP''.txt								
I	**Frequency Range**	**Date**	**CCS Start Time**	**CCS Stop Time**	**Script**	**QLA/STEP**	**Sensor**	**Observations**
4	1 GHz – 6 GHz	12.12.05	15:21:03	15:55:18		SWEEPB0000CA_8764_2		30% AM +: 20 sec. DWELL, 2 % step, 140 ms OFF 800 ms ON
5	6 GHz – 18 GHz	Dito	16:27:48	16:42:30		SWEEPB0000CE_8764_3		30% AM +: 20 sec. DWELL, 3 % step, 140 ms OFF 800 ms ON
	8.475 GHz – 25 MHz	13:12:05	10:39:30	10:45:30		SPOTB0000FB_8764_8		
	8.475 GHz – 12.5 MHz	Dito	10:45:30			SPOTB0000FB_8764_9		
	8.475 GHz	Dito	10:57:20			SPOTB0000FB_8764_10		
	8.475 GHz + 12.5 MHz	Dito		11:03:37		SPOTB0000FB_8764_11		
	8.475 GHz + 25 MHz	Dito	11:03:37			SPOTB0000FB_8764_12		

Table 8.8-4: SPIRE @ RS E-field // Antenna Position 2, Vertical Polarization

SPIRE RS E-field Thresholds, 30 MHz – 1 GHz, Horizontal, File: SPIRE-EQM-EMC-"QLA/STEP''.txt								
I	Frequency	Date	CCS Start Time	CCS Stop Time	Script	QLA/ STEP	Sensor	Observations
1	34.2 MHz, high level	30.11.05	08:55:56	08:58:15		SPOTB0000051_8764_2		
1a	34.2 MHz, 0.5 V/m	Dito	08:49:15	09:02:18		SPOTB0000051_8764_3		
1b	34.2 MHz, 0.1 V/m	Dito	09:06:52	09:10:21		SPOTB0000051_8764_4		
1c	34.2 MHz, 0.2 V/m	Dito	09:10:21	09:15:10		SPOTB0000051_8764_5	0.6 V/m	
2	34.5 MHz, high level	Dito	09:15:10			SPOTB0000051_8764_6		
2a	34.5 MHz, 1 V/m	Dito	09:17:00			SPOTB0000051_8764_7		
2b	34.5 MHz, 0.5 V/m	Dito	09:18:16			SPOTB0000051_8764_8		
2c	34.5 MHz, 0.2 V/m	Dito	09:19:50			SPOTB0000051_8764_9		
2e	34.5 MHz, 0.1 V/m	Dito	09:45:42			SPOTB0000051_8764_11	0.3 V/m	
2f	34.5 MHz, 0.5 V/m	Dito	10:00:00	10:03:50		SPOTB0000051_8764_12		
2g	34.5 MHz, 0.25 V/m	Dito	10:06:52			SPOTB0000051_8764_13		
2h	34.5 MHz, 1 V/m	Dito	10:10:43	10:15:15		SPOTB0000051_8764_14		
2i	34.5 MHz, 0.05 V/m	Dito	10:29:01			SPOTB0000051_8764_16		
3	30 MHz, 0.5 V/m	Dito	10:43:50			SPOTB0000051_8764_17		
3a	30 MHz, 1 V/m	Dito	10:48:00			SPOTB0000051_8764_18		
3b	30 MHz, 0.2 V/m	Dito	10:51:50			SPOTB0000051_8764_19		
3c	30 MHz, 0.1 V/m	Dito	10:56:06			SPOTB0000051_8764_20		
4	30.35 MHz, 0.1 V/m	Dito	11:01:05			SPOTB0000051_8764_21		
4a	30.35 MHz, 0.2 V/m	Dito	11:04:43			SPOTB0000051_8764_22		
4b	30.35 MHz, 0.5 V/m	Dito	11:03:03			SPOTB0000051_8764_23		
5	30.65 MHz, 0.5 V/m	Dito	11:11:48			SPOTB0000051_8764_24		
5a	30.65 MHz, 0.2 V/m	Dito	11:15:35			SPOTB0000051_8764_25		
5b	30.65 MHz, 0.1 V/m	Dito	11:19:21			SPOTB0000051_8764_26		
6	30.96 MHz, 0.1 V/m	Dito	11:23:21			SPOTB0000051_8764_27		
6a	30.96 MHz, 0.2 V/m	Dito	11:26:55			SPOTB0000051_8764_8		
6b	30.96 MHz, 0.5 V/m	Dito	11:30:25			SPOTB0000051_8764_29		
7	31.58 MHz, 0.5 V/m	Dito	11:34:34			SPOTB0000051_8764_30		
7a	31.58 MHz, 0.2 V/m	Dito	11:38:00			SPOTB0000051_8764_31		
7b	31.58 MHz, 0.1 V/m	Dito	11:41:39	11:44:58		SPOTB0000051_8764_32		
8	32.22 MHz, 0.1 V/m	Dito	12:52:56			SPOTB0000053_8764_2		
8a	32.22 MHz, 0.2 V/m	Dito	12:56:27			SPOTB0000053_8764_3		
8b	32.22 MHz, 0.5 V/m	Dito	13:00:02			SPOTB0000053_8764_4		
9	32.87 MHz, 0.5 V/m	Dito	13:03:48			SPOTB0000053_8764_5		
9a	32.87 MHz, 0.2 V/m	Dito	13:07:12			SPOTB0000053_8764_6		
9b	32.87 MHz, 0.1 V/m	Dito	13:10:41			SPOTB0000053_8764_7		
10	33.53 MHz, 0.1 V/m	Dito	13:14:05			SPOTB0000053_8764_8		
10a	33.53 MHz, 0.2 V/m	Dito	13:18:01			SPOTB0000053_8764_9		

SPIRE RS E-field Thresholds, 30 MHz – 1 GHz, Horizontal, File: SPIRE-EQM-EMC-"QLA/STEP''.txt								
I	Frequency	Date	CCS Start Time	CCS Stop Time	Script	QLA/ STEP	Sensor	Observations
10b	33.53 MHz, 0.5 V/m	Dito	13:21:20			SPOTB0000053_8764_10		
11	35.24 MHz, 0.5 V/m	Dito	13:24:59			SPOTB0000053_8764_11		
11a	35.24 MHz, 0.2 V/m	Dito	13:28:22			SPOTB0000053_8764_12		
11b	35.24 MHz, 0.1 V/m	Dito	13:31:48			SPOTB0000053_8764_13		
12	35.94 MHz, 0.1 V/m	Dito	13:36:12			SPOTB0000053_8764_14		
13	36.67 MHz, 0.5 V/m	Dito	13:47:09			SPOTB0000053_8764_17		
13a	36.67 MHz, 0.2 V/m	Dito	13:50:51			SPOTB0000053_8764_18		
13b	36.67 MHz, 0.1 V/m	Dito	13:54:14	13:57:20		SPOTB0000053_8764_19		
14	37.4 MHz, 0.1 V/m	Dito	14:01:40			SPOTB0000053_8764_21		
14a	37.4 MHz, 0.2 V/m	Dito	14:05:01			SPOTB0000053_8764_22		
14b	37.4 MHz, 0.5 V/m	Dito	14:08:27			SPOTB0000053_8764_23		
15	38.17 MHz, 0.5 V/m	Dito	14:11:57			SPOTB0000053_8764_24		
15a	38.17 MHz, 0.2 V/m	Dito	14:15:24			SPOTB0000053_8764_25		
15b	38.17 MHz, 0.1 V/m	Dito	14:18:30	14:22:50		SPOTB0000053_8764_26		
16	502.17 MHz	Dito	15:35:40			SPOTB000005E_8764_2		
17	507.20 MHz	Dito	15:39:10			SPOTB000005E_8764_3		
18	512.27 MHz	Dito	15:42:30			SPOTB000005E_8764_4		
19	517.39 MHz	Dito	15:45:36			SPOTB000005E_8764_5		
20	522.56 MHz	Dito	15:49:10			SPOTB000005E_8764_6		
21	527.79 MHz	Dito	15:53:08			SPOTB000005E_8764_7		
22	600.68 MHz	Dito	16:06:20			SPOTB000005E_8764_9		
23	704.34	Dito	16:10:00			SPOTB000005E_8764_10		
24	903.27	Dito	16:13:17			SPOTB000005E_8764_11		
25	1 GHz	Dito	16:16:37	16:19:00		SPOTB000005E_8764_12		

Table 8.8-5: SPIRE RS E-field, Threshold Measurements 30 MHz – 1 GHz, Horizontal Polarisation

SPIRE RS E-Field Thresholds, 14 kHz - 30 MHz, Vertical, File SPIRE-EQM-EMC-''QLA/STEP''.txt								
I	**Frequency**	**Date**	**CCS Start Time**	**CCS Stop Time**	**Script**	**QLA/ STEP**	**Sensor**	**Observations**
2	*15.99 MHz, 0.1 V/m*	*02.12.05*	*09:23:25*			*SPOTB000009D_8764_2*		
2	*15.99 MHz, 0.2 V/m*	*Dito*	*09:27:05*			*SPOTB000009D_8764_3*		
3	*15.99 MHz, 0.05 V/m*	*Dito*	*09:30:39*			*SPOTB000009D_8764_4*		
4	*15.99 MHz, 1 V/m*	*Dito*	*09:34:50*	*09:45:56*		*SPOTB000009D_8764_5*		

Table 8.8-6: SPIRE RS E-field, Threshold Measurements 14 kHz - 30 MHz, Vertical Polarisation

SPIRE RS E-Field Thresholds, 30 MHz – 1 GHz, *Vertical,* File: SPIRE-EQM-EMC-''QLA/STEP''.txt								
I	**Frequency**	**Date**	**CCS Start Time**	**CCS Stop Time**	**Script**	**QLA/ STEP**	**Sensor**	**Observations**
1	*20 MHz – 40 MHz, high level* *31.38 MHz* *31.7 MHz* *32.01 MHz* *32.34 MHz* *32.66 MHz* *32.66 MHz* *32.99 MHz* *33.32 MHz* *33.64 MHz* *33.99 MHz* *34.33 MHz* *34.67 MHz* *35.02 MHz* *35.37 MHz*	*30.11.05*	*17:38:26*	*17:43:14*		*SWEEPB0000066_8764_2*		30% AM +: 20 sec. DWELL, 0.5 % step, 200 ms OFF 800 ms ON *Measurement to identify the frequencies of main interest for the threshold measurement.*
1a	*20 MHz – 40 MHz (steps as above), 0.1 V/m*	01.12.05	10:13:35	10:18:08		*SPOTB0000073_8764_1*		30% AM +: 20 sec. DWELL, 0.5 % step, 200 ms OFF 800 ms ON
1b	*20 MHz – 40 MHz (steps as above), 0.2 V/m*	Dito	10:18:55	10:23:41		*SPOTB0000073_8764_2*		*Dito*
1c	*20 MHz – 40 MHz (steps as above), 0.5 V/m*	Dito	10:24:12	10:28:52		*SPOTB0000073_8764_3*		*Dito*
1d	*20 MHz – 40 MHz (steps as above), 1 V/m*	Dito	10:30:12	10:34:47		*SPOTB0000073_8764_4*		*Dito*

SPIRE RS E-Field Thresholds, 30 MHz – 1 GHz, *Vertical,* File: SPIRE-EQM-EMC-''QLA/STEP''.txt								
I	**Frequency**	**Date**	**CCS Start Time**	**CCS Stop Time**	**Script**	**QLA/ STEP**	**Sensor**	**Observations**
2	33.32 MHz, 0.025 V/m	Dito	12:16:56			*SPOTB0000077_8764_2*		
2a	33.32 MHz, 0.1 V/m	Dito	12:20:20	12:23:42		*SPOTB0000077_8764_3*		
2b	33.32 MHz, 0.05 V/m	Dito	12:24:04			*SPOTB0000077_8764_4*		
2c	33.32 MHz, 0.2 V/m	Dito	12:28:21			*SPOTB0000077_8764_5*		
3	33.64 MHz, 0.025 V/m	Dito	12:49:11			*SPOTB0000077_8764_8*		
3a	33.64 MHz, 0.05 V/m	Dito	12:52:44			*SPOTB0000077_8764_9*		
3b	33.64 MHz, 0.1 V/m	Dito	12:56:25			*SPOTB0000077_8764_10*		
3c	33.64 MHz, 0.2 V/m	Dito	13:00:00			*SPOTB0000077_8764_11*		
4	32.99 MHz, 0.025 V/m	Dito	13:04:09			*SPOTB0000077_8764_12*		
4a	repetition	Dito				*SPOTB0000077_8764_13*		
4b	32.99 MHz, 0.05 V/m	Dito	13:10:29	13:13:38		*SPOTB0000077_8764_14*		
4c	32.99 MHz, 0.1 V/m	Dito	13:50:30			*SPOTB0000077_8764_15*		
4d	32.99 MHz, 0.2 V/m	Dito	13:54:06			*SPOTB0000077_8764_16*		
4e	33.99 MHz, 0.025 V/m	Dito	13:57:55			*SPOTB0000077_8764_17*		
4f	33.99 MHz, 0.05 V/m	Dito	14:01:20			*SPOTB0000077_8764_18*		
4g	33.99 MHz, 0.1 V/m	Dito	14:01:20			*SPOTB0000077_8764_19*		
4h	33.99 MHz, 0.2 V/m	Dito	14:08:34			*SPOTB0000077_8764_20*		
5	32.66 MHz, 0.025 V/m	Dito	14:12:20			*SPOTB0000077_8764_21*		
5a	32.66 MHz, 0.05 V/m	Dito	14:16:10			*SPOTB0000077_8764_22*		
5b	32.66 MHz, 0.1 V/m	Dito	14:19:36			*SPOTB0000077_8764_23*		
5c	repetition	Dito	15:23:03			*SPOTB0000077_8764_24*		
6	60 MHz - 90 MHz, high level	Dito	15:31:27			*SPOTB0000077_8764_25*		30% AM +: 20 sec. DWELL, 0.5 % step, 200 ms OFF 800 ms ON

Table 8.8-7: SPIRE RS E-field, Threshold Measurements 30 MHz – 1 GHz, Vertical Polarisation

SPIRE RS E-Field Thresholds, 1 GHz - 18 MHz, 1st Position, File: SPIRE-EQM-EMC-''QLA/STEP''.txt								
I	**Frequency**	**Date**	**CCS Start Time**	**CCS Stop Time**	**Script**	**QLA/ STEP**	**Sensor**	**Observations**
1	*Reference*	*12.12.2005*	*11:50:56*	*11:56:20*		*SPOTB00000BA_8764_1*		30% AM +: 20 sec. DWELL, 0.5 % step, 140 ms OFF 800 ms ON
2	*Missed test*	*Dito*				*SPOTB00000BA_8764_2*		*Missed test*
3	*1.25 GHz, vertical*	*Dito*	*12:01:48*	*12:06:*		*SPOTB00000BA_8764_3*	*2V/m*	30% AM +: 20 sec. DWELL, 0.5 % step, 140 ms OFF 800 ms ON
4	*2.309 GHz, vertical*	*Dito*	*12:08:50*	*12:13:53*		*SPOTB00000BA_8764_4*	*2V/m*	*Dito*
5	*6.158 GHz, vertical*	*Dito*	*12:15:00*	*12:20:06*		*SPOTB00000BA_8764_5*	*2V/m*	*Ditp*
6	*1.25 GHz, horizontal*	*Dito*	*12:23:52*	*12:28:28*		*SPOTB00000BA_8764_6*	*2V/m*	*Dio*
7	*2.309 GHz, horizontal*	*Dito*	*12:29:27*	*12:35:15*		*SPOTB00000BA_8764_7*	*2V/m*	*Dito*
8	*6.158 GHz, horizontal*	*Dito*	*12:35:32*	12:40:48		*SPOTB00000BA_8764_8*	*2V/m*	*Dito*
9	*7.6 GHz, vertical*	13:12:2005	08:50:38	08:56:22		*SPOTB00000F3_8764_2*		
10	*15.17 GHz, vertical*	*Dito*	08:56:32	09:03:03		*SPOTB00000F3_8764_3*		
11	*15.17 GHz, horizontal*	*Dito*	09:05:00	09:11:02		*SPOTB00000F3_8764_4*		
12	*7.6 GHz, horizontal*	*Dito*	09:11:02	09:16:50		*SPOTB00000F3_8764_5*		

Table 8.8-8: SPIRE RS E-field, Threshold Measurements 1 GHz - 18 GHz, First Antenna Position

SPIRE RS E-Field Thresholds, 1 GHz - 18 MHz, 2nd Position, File: SPIRE-EQM-EMC-''QLA/STEP''.txt								
I	**Frequency**	**Date**	**CCS Start Time**	**CCS Stop Time**	**Script**	**QLA/ STEP**	**Sensor**	**Observations**
1	*1.25 GHz, horizontal*	*12.12.2005*	*14:29:52*	*14:36:52*		*SPOTB00000C6_8764_2*		30% AM +: 20 sec. DWELL, 0.5 % step, 140 ms OFF 800 ms ON
2	*2.309 GHz, horizontal*	*Dito*	*14:37:22*	*14:44:18*		*SPOTB00000C6_8764_3*		*Dito*
3	*6.158 GHz, horizontal*	*Dito*	*14:44:30*	*14:51:00*		*SPOTB00000C6_8764_4*		*Dito*
4	*6.158 GHz, vertical*	*Dito*	*14:52:04*	*14:57:42*		*SPOTB00000C6_8764_5*		*Dito*
5	*2.309 GHz, vertical*	*Dito*	*14:57:57*	*15:03:25*		*SPOTB00000C6_8764_6*		*Dito*
6	*1.25 GHz, vertical*	*Dito*	*15:03:36*	*15:9:44*		*SPOTB00000C6_8764_7*		*Dito*
7	*7.6 GHz, horizontal*	*13.12.2005*	*07:46:32*	*07:52:12*		*SPOTB00000EB_8764_2*		*Dito*
8	*15.17 GHz, horizontal*	*Dito*	*07:52:45*	*07:58:16*		*SPOTB00000EB_8764_3*		*Dito*
9	*15.17 GHz, vertical*	*Dito*	*08:00:04*	08:04:55		*SPOTB00000EB_8764_4*		Dito
10	*7.6 GHz, vertical*	*Dito*	08:05:16	08:12:06		*SPOTB00000EB_8764_5*		Dito

Table 8.8-9: SPIRE RS E-field, Threshold Measurements 1 GHz - 18 GHz, Second Antenna Position

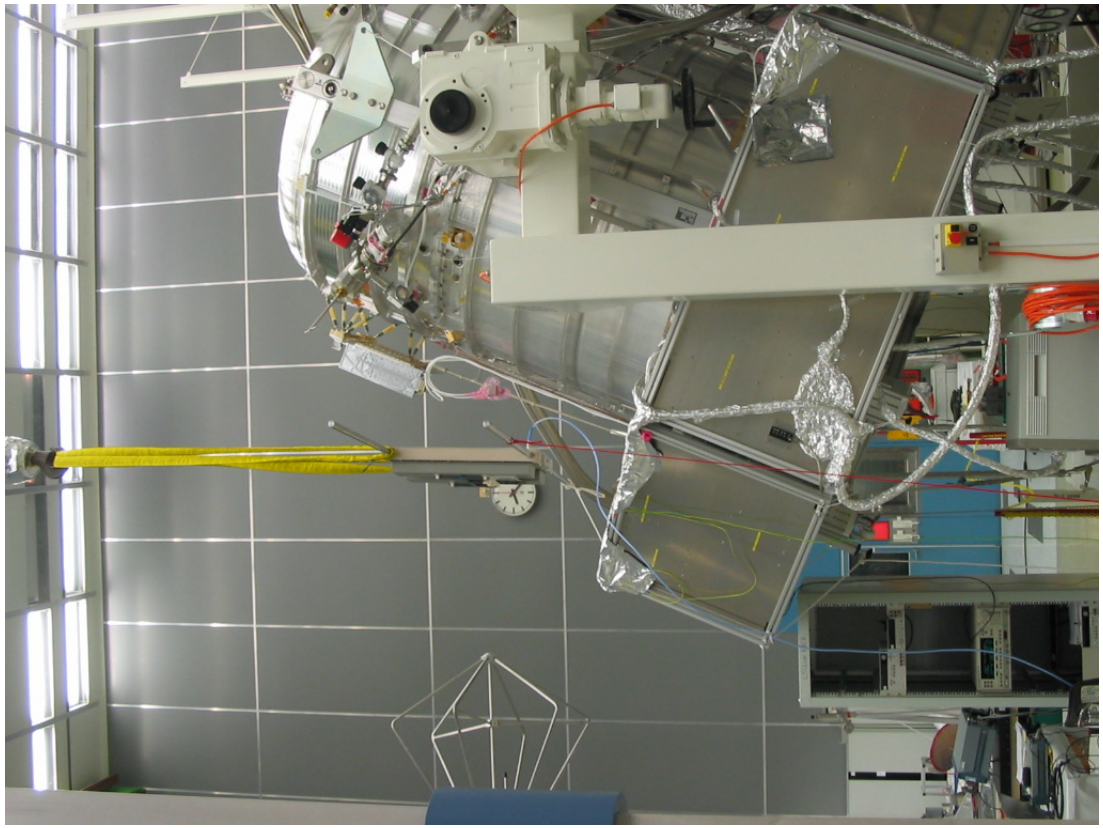


Fig. 8.8-1: Antenna Position for the SPIRE E-field RS Test, 14 kHz to 30 MHz

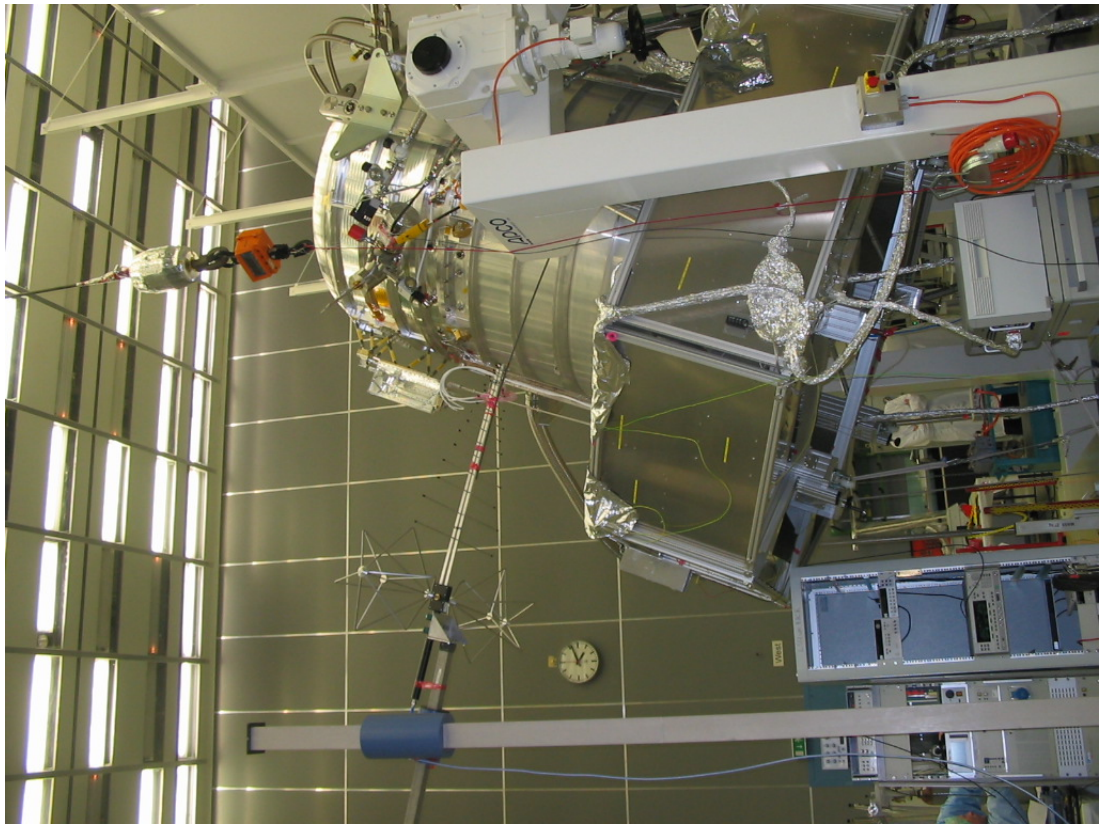


Fig. 8.8-2: Antenna Position for the SPIRE E-field RS Test, 30 MHz to 1 GHz

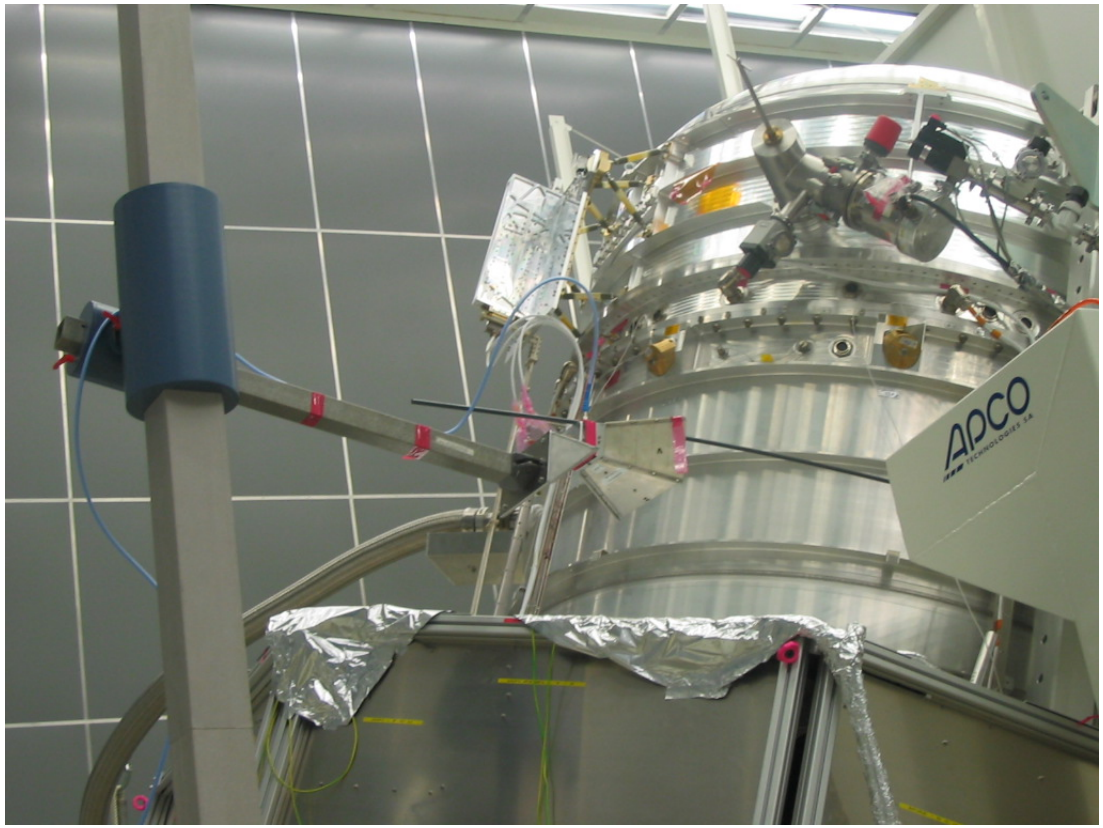


Fig. 8.8-3: First Antenna Position for the SPIRE E-field RS Test, 1 GHz to 18 GHz

Fig. 8.8-4: Second Antenna Position for the SPIRE E-field RS Test, 1 GHz to 18 GHz

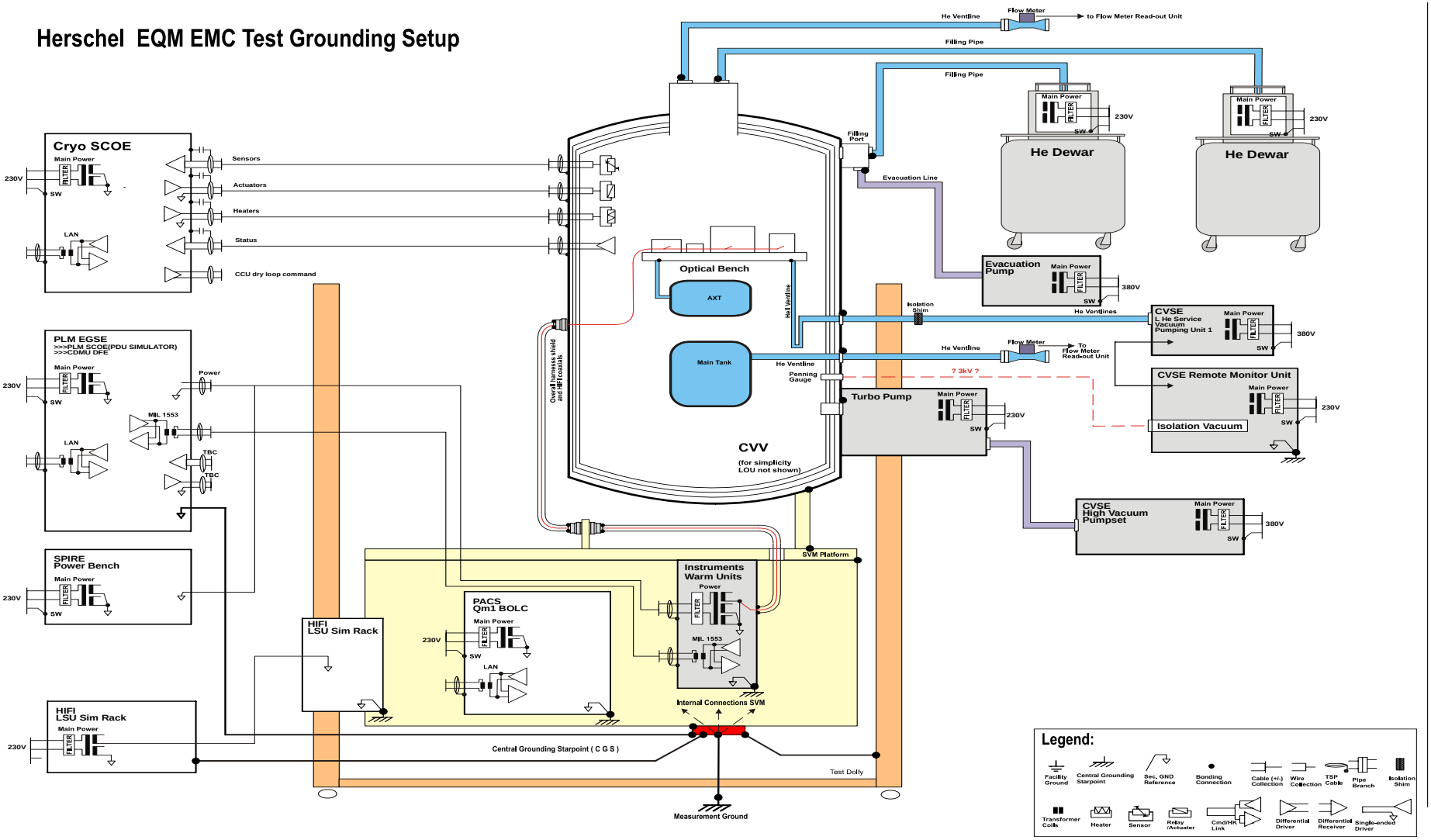
9 Facility Report

9.1 Calibration Data

To be included

9.2 Grounding Diagram of EQM Test

Herschel EQM EMC Test Grounding Setup



file: EMC As Built Setup

10 Summary Sheets

10.1 Procedure Variation Summary

	Test Change	Curr. No.: Date: 15.12.2005 Page 1 of 1	
Test designation Herschel PLM EQM EMC Test	Test Procedure HP-2-ASED-PR-0033	Issue 1, dated 05.10.05	Rev.
Test step changed 7.2.12	Reason for Change No CE/CS tests on Signal Cable Bundles as this is covered already by RS tests		
Test step changed 7.3.5 & 7.3.7	Reason for Change Some precisements necessary for PACS RS H-field test (see red-lined as-run procedure)		
Test step changed 7.3.11 & 7.3.13	Reason for Change Some precisements necessary for PACS RS E-field test (see red-lined as-run procedure)		
Test step changed 7.4.5 - 7.4.8	Reason for Change Precisements and modifications for stepsize, modulation, DWELL time, synchronisation EMC/OP (see red-lined as-run procedure).		
Prepared by: Clemens Kalde	Resp. Test Leader	Project Engineer	
PA/QA	Prime	Customer	

Table 10-1: Procedure Variation Sheet

10.2 Non Conformance Report (NCR) Summary

NCR - No.	NCR - Title	Date	Open Closed	PA sig.

Table 10-2: Non-Conformance Record Sheet

10.3 Sign-off Sheet

	Date	Signature
Test Manager		
Operator		
PA Responsible		
ESA Representative		

	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	AED32
	Fehringer Alexander	AOE13	x	Stritter Rene	AED11
	Fricke Wolfgang Dr.	AED 65		Thörmer Klaus-Horst Dr.	OTN/AED65
	Geiger Hermann	AOA52		Wagner Klaus	AOE22
	Gerner Willi	AED11	x	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	x	Alcatel	ASP
	Hinger Jürgen	AOE22	x	ESA/ESTEC	ESA
	Hofmann Rolf	ASE442		**Instruments:**	
	Hohn Rüdiger	AED65	x	MPE (PACS)	MPE
	Huber Johann	AOA52	x	RAL (SPIRE)	RAL
	Hund Walter	ASE442	x	SRON (HIFI)	SRON
x	Idler Siegmund	AED312		**Subcontractors:**	
x	Ilsen Stijn	Terma Resid.		Air Liquide, Space Department	AIR
	Ivády von András	FAE22		Air Liquide, Space Department	AIRS
	Jahn Gerd Dr.	AOE22		Air Liquide, Orbital System	AIRT
x	Kalde Clemens	APE3		Alcatel Bell Space	ABSP
x	Kameter Rudolf	OTN/AOA54		Astrium Sub-Subsyst. & Equipment	ASSE
	Kettner Bernhard	AET42		Austrian Aerospace	AAE
x	Knoblauch August	AET32		Austrian Aerospace	AAEM
	Koelle Markus	AOA53		APCO Technologies S. A.	APCO
x	Kroeker Jürgen	AED65		Bieri Engineering B. V.	BIER
	Kunz Oliver Dr.	AOE22		BOC Edwards	BOCE
	Lamprecht Ernst	OTN/ASI21		Dutch Space Solar Arrays	DSSA
	Lang Jürgen	ASE442		EADS CASA Espacio	CASA
	Langenstein Rolf	AED15		EADS CASA Espacio	ECAS
	Langfermann Michael	AOA51		EADS Space Transportation	ASIP
	Mack Paul	OTN/AOA54		Eurocopter	ECD
	Müller Jörg	AOA52		European Test Services	ETS
	Müller Martin	AOA53		HTS AG Zürich	HTSZ
	Müller Ralf	FAE22		Linde	LIND
	Peltz Heinz-Willi	AOE13		Patria New Technologies Oy	PANT
	Pietroboni Karin	AED65		Phoenix, Volkmarsen	PHOE
	Platzer Wilhelm	AED22		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 Ingenieria SA	SEN
x	Schink Dietmar	AED44		Stöhr, Königsbrunn	STOE
x	Schlosser Christian	OTN/AOA54		Terma A/S, Herlev	TER