



MINUTES OF MEETING

Herschel/Planck Project

date	9 January 2004	reference	SCI-PT-22994	page	1
meeting date	07/01/2004	meeting place	Telecon		
chairman	C. Scharmberg				
participants	Horst Faas	ASED		copy	Participants +
	Guy Doubrovik	ALCATEL			Thomas Passvogel
	Eric Sawyer	RAL			Gerald Crone
	Ken King	RAL			Goeran Pilbratt
	Matt Griffin	Cardiff			Sarah Leeks
	Carsten Scharmberg	ESA			
	Peter Oldeman	ESA			
	Thijs van der Laan	ESA (partly)			

subject **SPIRE Progress Telecon #4**

Agenda

1. Action status of previous SPIRE telecons (MoM: SCI-PT-20403 & SCI-PT-21435 & SCI-PT-22418)
2. CQM/PFM status report.
3. Changes (if any) of SPIRE detailed planning w.r.t. previous schedule
4. Status of preparation for Cryo vibration test at CSL
 - Confirmation of Campaign starting date (29/01/04) at CSL
 - Mechanical Analysis (Relation between suspended masses and location of accelerometer)
 - Test Specification/Procedure (Including notching approach)
 - Accelerometer needed by SPIRE (to be mounted on SPIRE FPU CQM prior the test campaign)
5. Open Interface Issues (if any)
6. IHDR RID/Recommendations closure progress
7. AOB

1. Action status of previous SPIRE telecons (MoM: SCI-PT-21435 & SCI-PT-22418)

SPIRE Progress Telecon #2 (MoM: SCI-PT-21435 - 29/10/03)

AI#2 SPIRE will assess the scenario of the availability of warm units for FPU checkout after delivery to Astrium prior to cryostat enclosure. In addition SPIRE will issue a top-level document, that will contain:

- *FPU/JFET integration procedure on the optical bench*
- *Description of EGSE and/or WU needed for checkout.*
- *Warm functional Tests to be performed prior cryostat enclosure.*
- *Cold functional tests.*

A comprehensive data package was provided by SPIRE on 19th December 2003, to Astrium and ESA and to be sent to ASP within 1 week.

The 5 documents are:

- SPIRE EQM Test Plan (Master document
 - SPIRE Functional Test Specification
 - SPIRE DRCU Integration Test Specification
 - Operating the SPIRE Instrument
 - CQM build table to update the tables in PL-0021
- CLOSED -**

AI#3 SPIRE to issue the Harness Definition Document version 1.2, which will reflect HDD 1.1 plus update according annex 5 of SPIRE IID-B version 3.0 "SPIRE HDD 1.1 Deltas"

SPIRE will update the relevant document "with low priority", because the relevant information is already available within:

- SPIRE HDD1.1 and
- SPIRE HDD 1.1 Deltas (SPIRE-RAL-NOT-001819)

And will be included in the next IID-B issue.

- REMAINS OPEN -

SPIRE Progress Telecon #3 (MoM: SCI-PT-22418 - 01/12/03)

AI#1: SPIRE to investigate the option of sharing FM PSU between QM2 DRCU and FM DRCU. (No due date given, cause it was not clear, when CEA can confirm PSU delivery date. SPIRE promised to get it solved asap).

Cause the PSU is a separate box, a potential exchange could be done easily (SPIRE said: "plug and play"). Currently the FM PSU will be delivered in August 2004 to CEA, and thus could be made available for integration on QM2 DRCU prior to PFM system level tests.

- CLOSED -

AI#2: ESA to check availability of ESA representative for SPIRE CQM FPU TRR (~15th December 2004) (Due date: 4th December 2004)

Closed by email from C. Scharmberg to E.Sawyer on 4th December 2003.

- CLOSED -

2. CQM/PFM status report.

The status of AVM, CQM, Warm electronics, PFM, AIV and schedule was presented by Eric in a power point file provided two days prior to the telecon to all participants (Annex 1).

AVM:

IFSI has sent a DRCU simulator software update prior to Christmas. The software update has not yet been fully verified at RAL.

CQM:

SPIRE declares that the start of the ILT is delayed by two weeks, due to an anomaly with the test cryo harness. The test harness contains an unwanted electrical connection between different grounding references. It was detected just prior the Christmas period. The relevant test harness has been returned to the manufacturing company TECDATA for refurbishment, and it is expected back at RAL by 14th January 2004. A delta Test Readiness review is foreseen for the same day, in order to start FPU pump down on 16th January. ESA agreed to participate at least by telecon to the TRR. As a result, SPIRE will be delayed by at least two weeks for the CSL cold vibration, which was originally scheduled for early February.

SPIRE reports an additional potential schedule problem related to late availability of thermal straps: The thermal straps for the L0 and L1 interfaces, manufactured under MSSSL responsibility, will most likely not be available until end of March. These straps are shall be to present during FPU cold vibration at CSL. SPIRE is investigating a back-up solutions (prototype straps, manufactured of different copper, with worst thermal properties, but similar mechanical properties.)

Warm Electronics:

SPIRE reported that long term tests (> 40 hours) with a refurbished DPU have been successfully performed at IFSI. The 21 hours problem seems to be solved.

Implementation of these refurbishment into the existing AVM DPU will be done by exchange of one PCB (provided by IFSI) at RAL during January.

PFM:

SPIRE PI reported that the SSW- and SLW- BDA's that are currently in assembly at JPL, showed very good performances (much higher efficiency than the PLW inside FPU CQM).

Investigations at JPL are still ongoing to explain the decreased PLW efficiency of the CQM BDA. Preliminary explained reason could be: Imperfect metallisation of the bolometers.

The new CFRP supports (SPIRE feet) shall be available in April 2004. There will be one extra set, that could be used with the MTDs, available. SPIRE wishes also to benefit from the warm vibration test planned with the MTDs.

AI#1: Astrium to check if April availability of the CFRP supports complies with the need dates of Prototech, in order to exchange them against the already existing SST supports for the MTD programme. (Due date: 16th January 2004)

3. Changes (if any) of SPIRE detailed planning w.r.t. previous schedule

SPIRE has provided their updated schedule prior to the telecon to industry and ESA (Annex 2).

Again the delivery dates for the SPIRE instruments had significantly slipped during last month:

CQM FPU: slipped **by 33 days !!!** from 07 May 04 to 09 Jun 04

Full CQM: slipped by 8 days from 21 Sep 04 to 29 Sep 04
PFM FPU: slipped by 20 days from 28 Jun 05 to 18 Jul 05

During each month in between the last 4 SPIRE Progress Telecons the hardware delivery dates have been announced by SPIRE to be delayed by 2 weeks at average, mainly caused by hardware problems occurred during the AIV campaign.

ESA is concerned about the SPIRE schedule stability, taking into account **2 weeks additional delay per month**.

It is obvious that during the current phase, where more and more hardware exist, more and more technical problems will occur.

However, ESA stated that major technical problems, which may causes delays in the order of weeks, shall be announced as soon as possible to ESA, in order to find a practical solution.

It is appreciated by ESA, that SPIRE propose to implement weekly brief status reports by email in between two Progress Telecons being send to ESA.

4. Status of preparation for Cryo vibration test at CSL

- **Confirmation of Campaign starting date (29/01/04) at CSL**

Due to earlier reported test harness grounding anomalies, SPIRE will not be compliant with the planned cryo vibration schedule. In addition the unavailability of L0 & L1 straps in time will cause problems to maintain the date.

AI#2: SPIRE to investigate L0 & L1 strap availability (or prototypes), and announce SPIRE CQM FPU readiness date for the cold vibration test at CSL. (Due date: 12th Jan 2004)

AI#3: ESA to check CSL facility availability in Feb/Mar 2004 time frame (Due date: 12th Jan 2004)

It is agreed that SPIRE and ESA will finally clarify the date by beginning of next week via telecon.

- **Mechanical Analysis (Relation between suspended masses and location of accelerometer)**
- **Test Specification/Procedure (Including notching approach)**

Both, Mechanical Analysis and Cold Vibration Test Specifications are currently prepared at MSSL. Shall be issued by end beginning of next week. All technical details concerning the cold vibration test, and in particular the notching scheme will be agreed directly between Berend Winter (MSSL) and Thijs van der Laan (ESA).

- **Accelerometer needed by SPIRE (to be mounted on SPIRE FPU CQM prior the test campaign)**

As already agreed with CSL, CSL will provide the instrument teams with a limited set of accelerometers, to be used during the planned cold vibration test.

SPIRE will directly contact CSL (ESA in copy) to get the relevant instrumentation, that have to be installed on/inside SPIRE FPU prior to the planned test campaign.

5. Open Interface Issues (if any)

Industry reported, that there are no major open technical interface issues. Quite all details, needed for manufacturing are known (particularly thermal strap IF for ASSED), but FCU FM real surface contact shape is urgently needed by Alcatel for MTD manufacturing. However, the documentation is not yet up to date. SPIRE ICDs still have to be updated to reflect recent agreements. Particularly the AVM ICDs (If different from PFM ICDs) are urgently needed by Astrium for proper EQM test preparation. Astrium stated, that COG and MOI of the SPIRE FPU in recent ICD data package has been changed w.r.t. previous one. This change may impact the Cold MTD contract with Prototech.

6. IHDR RID/Recommendations closure progress

SPIRE and ESA agreed to receive answers to all open RIDs of the SPIRE IHDR until end of January 2004

AI#4: SPIRE to answer to open IHDR RIDs (Due date: 31st January 2004).

The relevant board recommendations will be addressed until end of February 2004. Parts of the recommendations may not be finally closed by SPIRE, but it is the approach to follow as much as possible during the envisaged time frame.

7. AOB

Alcatel reported that an internal SPIRE IID-B CCB was held during the morning of 7th Jan 2004, resulting in few little modifications (on 6 pages) w.r.t. to the earlier distributed version 3.1. The relevant pages will be distributed a.s.a.p. to ESA and SPIRE. Once the ESA CCB (with Alcatel presence) will be done, version 3.1 will be updated accordingly for signature.

SPIRE reported that the OBSW recovery plan as proposed by ESA by fax (Ref. SCI-PT-22744), has been discussed inside the team, and is generally appreciated. However, SPIRE would like to converge with IFSI before answering. SPIRE will formally reply during next week.

For completeness Alcatel distributed a list with all open actions of recent I/F-, AIV-, Progress-Meetings (Annex 3). These actions have not been discussed in detail in the frame of these telecon, but some of them have already been closed in the mean time.

Next Progress Telecon on Thursday, 29th January 2004 @15:00 CET (14:00 GMT)



Progress/Status

Eric Sawyer

SPIRE

AVM

Consists of:

- AVM DPU
- DRCU simulator (simulates DRCU and FPU)
- Progress on AVM effectively on hold as the DRCU simulator has been replaced by the DRCU QM1
- We are now using the CQM set up for testing
- There is a software update planned on the DRCU simulator
- DPU software will be updated, Version 1.2 received
- Formal acceptance planned during cold vibration.
- Testing of OBS and EGSE software continuing

CQM

Cold Qualification model

- CQM assembly is complete.
- Cooler returned from SBT after restringing, problems with heat switches resolved for this model, further investigation/design changes will be required for FM.
- All instrument harness now available.
- Problem with grounding on test cryoharness has caused a delay. Modifications being discussed with manufacturer.
- Current likely start date (pump down) 16/1/04
- Functional tests start 23/1/04
- Ready for cold vibration tests mid Feb - TBC

Warm electronics

- QM1 DRCU delivered 15/9/03
- Nothing new to report
- CEA awaiting test results from CQM programme.

PFM

- Structure mostly manufactured
- Cooler – Review held, release for parts manufacture given.
- DRCU waiting for PFM release, following ILT in Jan.
- SMEC – CQM in manufacture, delivery in February
- Mirrors –manufactured, some problems with quality, due for delivery 15/1/04
- BDA - SSW and SLW in assembly
- DPU funding issues, Discussions on reduced testing held. A solution looks closer, but schedule time has been lost.
- Calibrators, filters – in manufacture
- BSM – Built, in test
- PFM FPU Preparation/integration to start on receipt of structure.
- First activities are bakeout and metrology.
- Realistic start is Jan due to staff availability.

AIV

- Ready for cold test when the harness problems are resolved.

schedule

Milestones.

- CQM build complete 5/12/03 Complete
- CQM cold verification 1 start 23/01/04
- Cold vibration start 15/02/04
- CQM Ready for delivery June with DRCU QM1 (temp)
- DRCU (QM1) and cooler required for FM programme.
- FM delivery July 05 with QM2 electronics

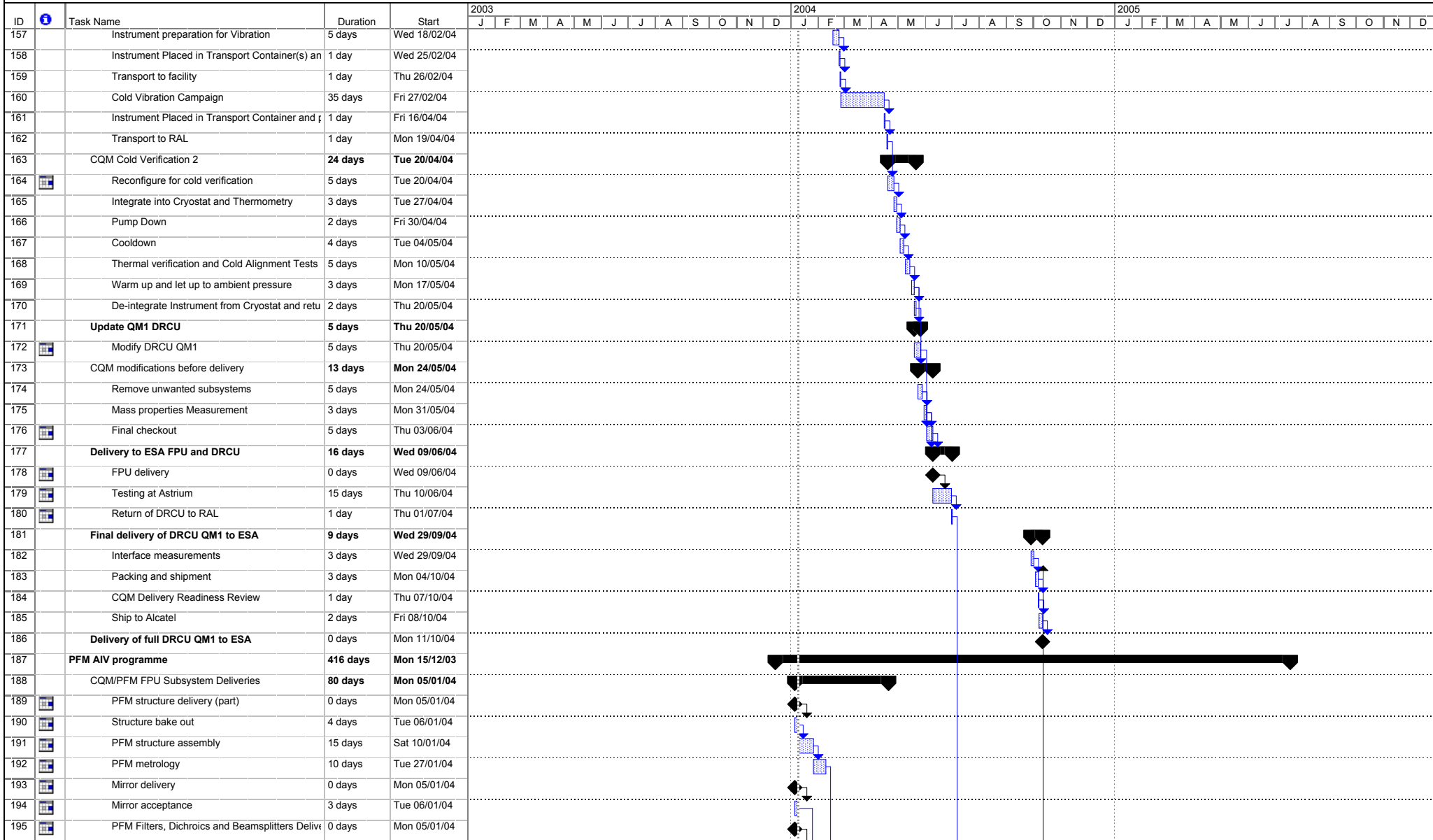
ID	Task Name	Duration	Start	2004												2005												2006		
				N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J
1	SM AIV programme	199 days	Wed 26/03/03	▶																										
53	✓ AM programme	64.5 days	Fri 02/05/03	▶																										
89	✓ AVM programme	15 days	Mon 28/04/03	▶																										
91	✓ Warm electronics programme	10 days	Mon 08/09/03	▶																										
95	CQM programme	340 days	Tue 24/06/03	▶												▶														
96	✓ STM/CQM FTB Subsystem Deliveries	76 days	Tue 24/06/03	▶																										
102	Preparation of CQM	113.5 days	Mon 04/08/03	▶																										
139	CQM Cold Verification 1	46 days	Mon 15/12/03	▶																										
155	CQM Cold Vibration	45 days	Tue 17/02/04	▶																										
163	CQM Cold Verification 2	24 days	Tue 20/04/04	▶																										
171	Update QM1 DRCU	5 days	Thu 20/05/04	▶																										
173	CQM modifications before delivery	13 days	Mon 24/05/04	▶																										
177	Delivery to ESA FPU and DRCU	16 days	Wed 09/06/04	▶																										
181	Final delivery of DRCU QM1 to ESA	9 days	Wed 29/09/04	▶																										
186	Delivery of full DRCU QM1 to ESA	0 days	Mon 11/10/04	▶												▶														
187	PFM AIV programme	416 days	Mon 15/12/03	▶												▶														
188	CQM/PFM FPU Subsystem Deliveries	80 days	Mon 05/01/04	▶																										
209	PFM FTB Subsystem Deliveries	15 days	Mon 15/12/03	▶																										
214	PFM FTB Integration	8 days	Fri 09/01/04	▶																										
218	FPU integration phase 1	69 days	Mon 26/01/04	▶																										
231	Warm electronics Deliveries	5 days	Mon 24/05/04	▶																										
234	QM1 Warm Electronics re Integration	15 days	Fri 02/07/04	▶																										
237	Instrument integration and test phase 1	108 days	Fri 30/04/04	▶																										
253	QM1 DRCU available for CQM delivery	0 days	Tue 28/09/04	▶												▶														
255	FPUintegration phase 2	48 days	Wed 29/09/04	▶																										
263	Delivery of DRCU QM2	0 days	Mon 01/11/04	▶												▶														
265	Delivery of FM DPU	5 days	Mon 01/11/04	▶												▶														
267	Instrument integration and test phase 2	20 days	Mon 06/12/04	▶																										
270	PFM Verification	141 days	Mon 03/01/05	▶												▶														
305	Delivery of PFM to ESA	0 days	Mon 18/07/05	▶												▶														
306	📅 Delivery of warm electronics to ESA	0 days	Wed 30/11/05	▶												▶												▶		

ID	Task Name	Duration	Start	2003												2004												2005											
				J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
1	SM AIV programme	199 days	Wed 26/03/03																																				
2	SM FPU Subsystem deliveries	178 days	Fri 25/04/03																																				
3	✓ CQM Mirrors and OGSE Delivery	0 days	Fri 25/04/03																																				
4	✓ CQM Mirrors Acceptance	3 days	Mon 28/04/03																																				
5	✓ STM Filters, Dichroics, Beamsplitters and OGS	0 days	Fri 25/04/03																																				
6	✓ STM Filters, Dichroics, Beamsplitters Acceptan	3 days	Mon 28/04/03																																				
7	✓ STM BSMm Delivery	0 days	Fri 25/04/03																																				
8	✓ STM BSMm Acceptance	3 days	Mon 28/04/03																																				
9	☰ CQM BSM Harness Delivery	0 days	Mon 05/01/04																																				
10	☰ CQM BSM Harness Acceptance	3 days	Tue 06/01/04																																				
11	✓ Optical Dummy SMECm Delivery	0 days	Fri 25/04/03																																				
12	✓ Optical Dummy SMECm Acceptance	3 days	Mon 28/04/03																																				
13	☰ CQM Thermal Straps Delivery	0 days	Mon 05/01/04																																				
14	☰ CQM Thermal Straps Acceptance	3 days	Tue 06/01/04																																				
15	✓ STM Cooler Delivery	0 days	Fri 25/04/03																																				
16	✓ STM Cooler Acceptance	3 days	Mon 28/04/03																																				
17	☰ CQM Cooler Harness Delivery	0 days	Mon 05/01/04																																				
18	☰ CQM Cooler Harness Acceptance	3 days	Tue 06/01/04																																				
19	✓ STM BDAs Delivery	0 days	Fri 25/04/03																																				
20	✓ STM BDAs Acceptance	1 day	Mon 28/04/03																																				
21	☰ CQM BDAs Harness Delivery	0 days	Mon 05/01/04																																				
22	☰ CQM BDAs Harness Acceptance	3 days	Tue 06/01/04																																				
23	✓ STM SCAL Delivery	0 days	Fri 25/04/03																																				
24	✓ STM SCAL Acceptance	1 day	Mon 28/04/03																																				
25	☰ STM SCAL Harness Delivery	0 days	Mon 05/01/04																																				
26	☰ STM SCAL Harness Acceptance	3 days	Tue 06/01/04																																				
27	✓ STM SMECm Delivery	0 days	Fri 25/04/03																																				
28	✓ STM SMECm Acceptance	1 day	Mon 28/04/03																																				
29	☰ STM SMECm Harness Delivery	0 days	Mon 05/01/04																																				
30	☰ STM SMECm Harness Acceptance	3 days	Tue 06/01/04																																				
31	☰ CQM FPU RF Filter Modules Delivery	0 days	Mon 05/01/04																																				
32	☰ CQM FPU RF Filter Modules Acceptance	1 day	Tue 06/01/04																																				
33	✓ STM/CQM 300mK strap delivery	0 days	Fri 25/04/03																																				
34	✓ STM/CQM 300mK strap acceptance	3 days	Mon 28/04/03																																				
35	☰ CQM Cooler Delivery	0 days	Mon 05/01/04																																				
36	☰ CQM Cooler Acceptance	3 days	Tue 06/01/04																																				
37	✓ SM Structure Integration	17 days	Wed 26/03/03																																				
38	✓ SM Structure Parts Delivery to RAL	2 days	Wed 26/03/03																																				
39	✓ Clean	1 day	Fri 28/03/03																																				

Project: SPIRE 3_10_03
Date: Fri 09/01/04

Task		Milestone		Rolled Up Critical Task		Split		Group By Summary	
Critical Task		Summary		Rolled Up Milestone		External Tasks			
Progress		Rolled Up Task		Rolled Up Progress		Project Summary			

Annex #2



Project: SPIRE 3_10_03
 Date: Fri 09/01/04

Task		Milestone		Rolled Up Critical Task		Split		Group By Summary	
Critical Task		Summary		Rolled Up Milestone		External Tasks			
Progress		Rolled Up Task		Rolled Up Progress		Project Summary			

SPIRE OPEN Actions Status

From last SPIRE IF Meeting 18-11-03 , H-P-ASP-MN-3961

N°	ACTION DESCRIPTION H-P-ASP-MN-3961 SPIRE IF Meeting 18-11-03	DUE DATE	Firm / person	ACTION STATUS
2	Alcatel ask SPIRE to prepare a list of expected interface changes wrt current IID-B 3.0 baseline definition, to be discussed during next interface meetings	30/11	SPIRE	Open
3	Astrium will evaluate how the termination of the cryoharness can be done in compliance with EMC test objectives (for instance terminating the unused cryoharness at the SVM bracket.	15/12	ASED	Open
4	DCU/FCU Update of the QM unit drawings will be delivered with indication of the changes & non conformances (position of connectors, ...)	30/11	SPIRE	Open Partially closed by QM1 DCU&FCU redlined drawing included in ICD pack issue 8
7	Astrium will check if the use of these SPIRE FPU feet can be undertaken.	15/12	ASED	Open
9	SPIRE/MSSL will provide MGSE ICD by mid 01/04	15/01/04	SPIRE/MSSL	Open
10	SPIRE will deliver updated Thermal Mathematical model	30/01/04	SPIRE	Open
11	SPIRE will confirm that this available harness is compliant with the SVM (AVM) configuration.	30/11	SPIRE/ASED	Closed for SPIRE Concerns WIH, confirmed during Progress Telecon#3 SCI-PT-22418. But Astrium to solve out reduction of connector on SPIRE side: Still open.
12	Alcatel will check the type of EMC testing the AVM.	30/11	ASP	Open

SPIRE OPEN Actions Status : from SPIRE Progress Telecon's**From SPIRE Progress Telecon #3_ 01-12-03 , SCI-PT-22418**

N°	ACTION DESCRIPTION SCI-PT-22418 SPIRE Progress Telecon #3_ 01-12-03	DUE DATE	Firm / person	ACTION STATUS
1	SPIRE to investigate the option of sharing FM PSU between Q2 and FM DRCU. (No due date given, cause it was not clear, when CEA can confirm PSU delivery date. SPIRE promised to get it solved asap).	-	SPIRE	Open
2	ESA to check availability of ESA representative for SPIRE CQM FPU TRR	15/12	ESA	Open

From SPIRE Progress Telecon #2_ 29-10-03 , SCI-PT-21435

N°	ACTION DESCRIPTION SCI-PT-21435 SPIRE Progress Telecon #2_ 29-10-03	DUE DATE	Firm / person	ACTION STATUS
2	SPIRE will assess the scenario of the availability of warm units for FPU checkout after delivery to Astrium prior to cryostat enclosure. In addition SPIRE will issue a top-level document: - FPU/JFET integration procedure on the optical bench - Description of EGSE and/or WU needed for checkout. - Warm functional Tests to be performed prior cryostat enclosure. - Cold functional tests.	15/12	SPIRE	Open New date: 15/12 Rescheduled 15/12 in SPIRE TN 982 "SPIRE EQM test program definition"
3	SPIRE to issue the Harness Definition Document version 1.2, which will reflect HDD1.1 plus update according annex 5 of SPIRE IID-B version 3.0 "SPIRE HDD 1.1 Deltas"	30/11	SPIRE	Open Problem of availability. Patches in IID-B are equivalent (HDD 1.1 + patch v.3 (tech not v3.0 should be replaced in IID-B). Keep open.

SPIRE OPEN Actions Status
From SPIRE IF&IIDB Meeting 4-09-03 , H-P-ASP-MN-3513

N°	ACTION DESCRIPTION H-P-ASP-MN-3513 SPIRE IF&IIDB Meeting_4-09-03	DUE DATE	Firm / person	ACTION STATUS
1	SPIRE to issue an update of the FCU ICD, according to latest RFD (CR's) with readable sizes	30/11	SPIRE J.D.	Open postponed end Nov. Alenia has been instructed to proceed with M5 screws instead of M4.
4	SPIRE to add AVM ICD's (in case they are different from FM's) in the next IID annex pack	30/11	SPIRE J.D.	Open New date end Novembre
9	SPIRE to check that all AD/RD documents are on livelink.	15/12	SPIRE JD	Open New date 15/12
10	SPIRE to provide TN with definition of safing plugs that are needed	30/9	SPIRE JD	Open New date 15/12
11	Astrium will make a detail evaluation of the conduction / Dissipation (discriminate between both) of the SPIRE cryoharness to the FPU. (this could mean using electrical resistance at operating temperature).	15/12	Astrium A.H	Open New date 15/12 (Results expected by mid decembre)

Previous Meetings SPIRE OPEN Actions Status

N°	ACTION DESCRIPTION	Resp	DUE date	Status
	From HP-2-ASED-MN-0387. AIV meeting.			
5	Thermal environment during IST-IMT	SPIRE	12/11/03	Still Open – Answer of SPIRE is that Instrument cannot be tested with proposed temperature environment (7K on level 1). No Cooler recycling possible. SPIRE will run the model and provide a feed-back.
8	most sensitive noises mode. Will be Identified in test sheet.	SPIRE	15/12/03	Still Open – Will be included in SPIRE TN 982 "SPIRE EQM test program definition" to be updated by 15/12 New due date 15/12/03
11	Define power lines to be tested	SPIRE	15/12/03	Still Open – Idem Al 8