

SPIRE

SUBJECT: SPIRE Major Milestone List

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Date: 31st January 2002

CHECKED BY:

Date:

APPROVED BY:

Date:

Distribution

Instrument Development Manager
Local Project managers

Change Record

ISSUE	DATE	
Issue 1.0	17 th July 2000	Initial Issue for Delta PDR
Issue 1.1 (Draft1)	2 nd August 2000	Includes milestones for revised model philosophy
Issue 1.2 Draft1	25 th February 2001	Updated Milestones following MSSSL delivery schedule
Issue 1.2 Draft2	12 th April 2001	Updated following consolidation of Subsystem Schedules
Issue 1.3 Draft1	31 st January 2002	Updated following Subsystem DDRs

Glossary

AVM	Avionics Model
BDA	Bolometer Detector Array(s)
BSM	Beam Steering Mirror
CQM	Cryogenic Qualification Model
DM	Development Model
DPU	Digital Processing Unit
DRCU	Detector Readout and Control Unit
EGSE	Electrical Ground Support Equipment
FS	Flight Spare (Model)
FTB	FET Box
FPU	Focal Plane Unit
MCU	Mechanisms Control Unit
OGSE	Optical Ground Support Equipment
PCAL	Photometer Calibrator
PFM	Proto-Flight Model
QM	Qualification Model
SCAL	Spectrometer Calibrator
SMEC	Spectrometer MECHANISM
SPIRE	Spectral and Photometric Imaging REceiver
STM	Structural Thermal Model
TBD	To Be Determined
WE	Warm Electronics
WIH	Warm Interconnect Harness

References

1. INTRODUCTION

This document provides a list of the Major SPIRE milestones. This includes all delivery dates to ESA, all internal review dates and all delivery dates between SPIRE Responsible Organisations.

Once agreed this document will be the controlling document for the SPIRE instrument schedule and will be updated in line with agreed changes to the schedule.

1.1 Applicable Documents

1.2 Reference Documents

- RD1 Structure Subsystem Development Plan (SPIRE-MSS-PRJ-000426) Issue 1.2
- RD2 SPIRE Mirrors and Alignment Tools Development Plan (SPIRE-LAM-PRJ-000474) Issue 3.0
- RD3 SPIRE BSM Development Plan (SPIRE-ATC-PRJ-000466) v 5.0
- RD4 Herschel-SPIRE Business agreement (SPIRE-UCF-PRJ-000822) Issue 2.0
- RD5 Filters Subsystem Development Plan (SPIRE-UCF-PRJ-000453) Issue 2.0
- RD6 Calibrators Subsystem Development Plan (SPIRE-UCF-PRJ-000467) Issue 1.0
- RD7 Spectrometer Mirror Mechanism Subsystem Development Plan (SPIRE-LAM-PRJ-000476) 16th October 2001
- RD8 SPIRE and PACS Sorption Coolers Development Plan, SBT/CT/2001-19 (SPIRE-SBT-PRJ-000468) Issue 3.1
- RD9 SPIRE Shutter Development Plan (SPIRE-USK-PRJ-000475) Draft 0.2
- RD10 DPU/ICU Subsystem Development Plan (SPIRE-IFS-PRJ-000469) Issue 1.3
- RD11 Detector Readout Control Unit and Warm Interconnect Harness Development Plan (SPIRE-SAP-PRJ-000471) Issue 2.0
- RD12 CEA Product Tree (Sap-SPIRE-JLA-xxxx-00) Issue 1.0, 14 Dec 2001
- RD13 Development Plan for the DRCU Simulator (SPIRE-STK-PRJ-000470) 21 December 00
- RD14 SPIRE AIV Facilities Development Plan (SPIRE-RAL-PRJ-000477) Issue 1.0

MILESTONES

1.3 Development programme

Milestone	Responsible	Need Date	Planned Date	Margin (days)	Comments
Detector Array Selection	SPIRE		01/02/00		Complete
Delta PDR	SPIRE		26/06/00		Complete
BSM Simulink Model Delivery to LAM	ATC	11/08/00			Complete, TBC
BSM Analogue Board Design Delivery to LAM	ATC	11/08/00			Complete, TBC
Instrument Interface Review	SPIRE		30/11/00		Complete
ISVR	ESA		30/11/00		Complete
BSM Analogue Board Detailed Design Delivery to LAM	ATC	01/01/01			Complete, TBC
IIDR	ESA		23/04/01		Complete
Cooler Detailed Design Review	SPIRE		17/05/01		Complete
Mirrors Detailed Design Review	SPIRE		10/07/01		Complete
BSM Detailed Design Review	SPIRE		30/07/01		Complete
SMEC, MCU Detailed Design Review	SPIRE		22/10/02		Complete
Structure Detailed Design Review	SPIRE		29/11/01		
DPU, OBS Detailed Design Review	SPIRE		06/12/01		
Shutter Detailed Design Review	SPIRE		TBD		PDR held on 17/07/01
BDAs, FTB Detailed Design Review	SPIRE				TBD
DRCU Detailed Design Review	SPIRE				TBD
Filters & Calibrators Detailed Design Review	SPIRE				TBD
AIV Facility Detailed Design Review	SPIRE				TBD
EGSE#1 Delivery to IFSI	RAL	01/06/01	01/05/01	1 month	Complete
DRCU Simulator#1 Delivery to IFSI	SO	09/11/01	01/06/01		
SMECm Simulator Delivery to SAp	LAM	09/07/01	21/12/01		(15/10/01) v20011015
DM PCAL Delivery to ATC	Cardiff	????????	22/04/02	5 weeks	(31/01/02) v3.0
IBDR	ESA		05/03/02		
Cold BB Delivery to RAL	Cardiff	TBD	25/06/02	TBD	(31/01/02) v3.0
AIV Filters Delivery to RAL	Cardiff	TBD	28/05/02	TBD	(31/01/02) v3.0

FTS Delivery to RAL	Cardiff	TBD			(31/01/02) v3.0- not in schedule
Reference Bolometer Delivery to RAL	Cardiff	TBD			(31/01/02) v3.0- not in schedule

1.4 STM Programme

Milestone	Responsible	Need Date	Planned Date	Margin	Comments
Test Facility Available	RAL	16/08/02	01/08/02	2 weeks	(01/10/01) Issue 3 Rev 6
CQM Structure and MGSE Delivery to RAL	MSSL	01/07/02	13/08/02		(Jan02 Progress Report)
CQM Thermal Straps Delivery to RAL	MSSL	01/07/02	13/09/02		(26/11/01)
CQM Mirrors + OGSE Delivery to RAL	LAM	01/07/02	01/07/02	3 weeks	(30/03/01) v20010330
STM Filters, Dichroics, Beamsplitters and OGSE Delivery to RAL	Cardiff	01/07/02	28/06/02	TBD	(31/01/02) v3.0
STM BSMm Delivery to RAL	ATC	01/07/02	01/07/02	4 months	(10/09/01) Jul_01g
CQM BSMm Harness Delivery to RAL	ATC	01/07/02	01/07/02	4 months	(10/09/01) Jul_01g
Optical Dummy SMECm Delivery to RAL	LAM	01/07/02	01/07/02	5.5 months	(30/03/01) v20010330 - CCA tools
HOB Simulator Available	RAL	01/07/02	05/03/02	4 months	(01/10/01) Issue 3 Rev 6 - 'Support Frame'
STM Cooler Delivery to RAL	Grenoble	01/08/02	09/12/01	6 months	(31/10/01) Dev. Plan Issue3.1
CQM Cooler Harness Delivery to RAL	SAP	01/08/02	TBD	TBD	Identified in Product Tree, but not in schedule
STM BDAs Delivery to RAL	JPL	01/08/02	01/08/02	TBD	(06/09/01) Business Agreement Issue 2.0
CQM BDAs Harness Delivery to RAL	JPL	01/08/02	01/08/02	TBD	(06/09/01) Business Agreement Issue 2.0
STM Shutter Delivery to RAL	USK	01/08/02	28/02/02	5 months	(17/07/01)
CQM Shutter Harness Delivery to RAL	USK	01/08/02	28/02/02	5 months	(17/07/01) TBC - not in schedule
STM SCAL Delivery to RAL	Cardiff	01/08/02	25/07/02	6 weeks	(31/01/02) v3.0
STM SCAL Harness Delivery to RAL	Cardiff	01/08/02	25/07/02	6 weeks	(31/01/02) v3.0 Assumes STM includes harness (TBC)
STM SMECm Delivery to RAL	LAM	01/08/02	01/08/02	1.5 months	(15/10/01) v20011015
STM SMECm Harness Delivery	LAM	01/08/02	01/08/02	1.5 months	(15/10/01) v20011015
CQM FPU RF Filter Modules Delivery	JPL	01/08/02	01/08/02	TBD	(06/09/01) Business Agreement Issue 2.0
CQM Cooler Delivery to RAL	Grenoble	01/09/02	30/04/02	4 months	(31/10/01) Dev. Plan Issue3.1

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Milestone	Responsible	Need Date	Planned Date	Margin	Comments
CQM FTB Enclosure Delivery to RAL	MSSL	01/08/02	01/02/02		(jan02 Progress Report)
STM JFET Modules Delivery to RAL	JPL	01/08/02	01/08/02	TBD	(06/09/01) Business Agreement Issue 2.0
STM FTB RF Filter Modules Delivery to RAL	JPL	01/08/02	01/08/02	TBD	(06/09/01) Business Agreement Issue 2.0
STM Interim Review			24/12/02		
Cold Vibration Campaign Starts	ESA		06/03/03		
STM Review			01/05/03		
CQM Structure and FTBs available			02/05/03		

1.5 CQM Programme

Milestone	Responsible	Need Date	Planned Date	Margin	Comments
CQM Cold Filters Delivery to JPL	Cardiff	01/02/02	01/02/02	TBD	(31/01/02) v3.0
CQM PCAL Delivery to ATC	Cardiff	22/03/02	26/07/02	TBD	(31/01/02) v3.0
CQM BSMm Delivery to LAM	ATC	30/07/02	23/08/02		(10/09/01) Jul_01g
CQM Filters Dichroics and Beamsplitters Delivery to RAL	Cardiff	11/01/03	21/02/03	TBD	(31/01/02) v3.0
CQM BDAs Delivery to RAL	JPL	11/01/03	11/01/03	TBD	(06/09/01) Business Agreement Issue 2.0
CQM SMECm Delivery to RAL	LAM	11/01/03	11/01/03	3.months	(15/10/01) v20011015
CQM SCAL Delivery to RAL	Cardiff	11/01/03	10/01/03	4 weeks	(31/01/02) v3.0
CQM Shutter Delivery to RAL	USK	11/01/03	11/10/02	3 months	(17/07/01)
CQM BSMm Delivery to RAL	LAM	11/01/03	11/01/03	3 months	(15/10/01) v20011015
CQM JFET Modules Delivered to RAL	JPL	01/02/03	11/01/03	TBD	(06/09/01) Business Agreement Issue 2.0
QM1 MCU delivery to SAp	LAM	01/09/02	30/07/02	1 month	(15/10/01) v20011015
DRCU-FPU Test Harness Delivery to SAp	RAL	12/06/02			To be purchased by SAp
AVM DPU Delivery to RAL	IFSI	01/06/02	16/04/02	1.5 months	(18/10/01)
DRCU Simulator#2 Delivery to RAL	SO	01/06/02	01/06/02	TBD	(21/12/00) SO-2000-12-21
EGSE#2 Available	RAL	01/06/02	01/06/02		
QM1 DRCU Delivery to RAL	SAp	01/12/02	03/03/03		(28/01/02) S020128
QM1 WIH Delivery to RAL	SAp	01/12/02	03/03/03		(28/01/02) S020128
FPU Simulator#1 Delivery to RAL	SAp	01/12/02	01/11/02	1 month	(10/01/01) v1.0
EGSE#3 Available	RAL	01/12/02	01/12/02		
CQM Test Readiness Review			05/06/03		
CQM Interim Review			08/07/03		
PFM BDA (SSW) Delivery to RAL	JPL	01/04/03	01/04/03	TBD	(06/09/01) Business Agreement Issue 2.0
Critical Design Review			11/09/03		
CQM Delivery to ESA	RAL	01/04/03	29/09/03		Realistic Delivery Date 1 st Dec 03

1.6 AVM Programme

Milestone	Responsible	Need Date	Planned Date	Margin	Comments
EGSE#4 Available	RAL	01/02/03	01/09/02		
DRCU Simulator#3 Delivery to RAL	SO	01/02/03	TBD	TBD	(21/12/00) SO-2000-12-21 - not in schedule
AVM Delivery to ESA	RAL	01/04/03	09/05/03		Realistic Delivery Date 1st Jul 03

1.7 QM Warm Electronics Programme

Milestone	Responsible	Required Date	Planned Date	Margin	Comments
QM2 MCU Delivery to SAp	LAM	01/11/02	27/12/02		(15/10/01) v20011015
QM DPU Delivery to RAL	IFSI	01/02/03	03/01/03	1 month	(18/10/01)
QM2 DRCU Delivery to RAL	SAP	01/06/03	05/01/04		(28/01/02) S020128
QM2 WIH Delivery to RAL	SAP	01/06/03	05/01/04		(28/01/02) S020128
FPU Simulator#2 Delivery to RAL	SAP	01/06/03			(19/01/01) v1.0 Not in plan, Date, Margin TBD
WE Critical Design Review			04/02/04		

1.8 PFM Programme

Milestone	Responsible	Need Date	Planned Date	Margin	Comments
PFM Cold Filters Delivery to JPL	Cardiff	03/02/03	03/02/03	TBD	(31/01/02) v3.0
PFM PCAL Delivery to ATC	Cardiff	14/05/03	04/09/03	TBD	(31/01/02) v3.0
PFM BSMm Delivery to LAM	ATC	15/07/03	25/08/03		(10/09/01) Jul_01g
PFM Structure Delivery to RAL	MSSL	15/07/03	10/06/03	3 weeks	(Jan02 Progress Report)
PFM Thermal Straps Delivery to RAL	MSSL	15/07/03	11/08/03	3 weeks	(26/11/01)
PFM Mirrors Delivery to RAL	LAM	15/07/03	01/08/03	3 months	(30/03/01) v20010330
PFM Filters Dichroics and Beamsplitters Delivery to RAL	Cardiff	01/08/03	22/07/03	TBD	(31/01/02) v3.0
PFM BSMm Delivery to RAL	LAM	01/10/03	01/10/03	3 weeks	(15/10/01) v20011015
PFM Cooler Delivery to RAL	Grenoble	01/08/03	31/12/02	8 months	(31/10/01) Dev. Plan Issue3.1
PFM BDAs Delivery to RAL	JPL	01/10/03	01/10/03	TBD	(06/09/01) Business Agreement Issue 2.0
PFM Shutter Delivery to RAL	USK	01/10/03	28/04/03	5 months	(17/07/01)
PFM SCAL Delivery to RAL	Cardiff	01/10/03	27/11/03	TBD	(31/01/02) v3.0
PFM SMECm Delivery to RAL	LAM	01/10/03	01/10/03	3 weeks	(15/10/01) v20011015
PFM FPU RF Filter Modules Delivery to RAL	JPL	22/10/03	22/10/03	TBD	(06/09/01) Business Agreement Issue 2.0
PFM FTB Enclosure Delivery to RAL	MSSL	22/10/03	01/10/02	12 months	(Jan02 Progress Report)
PFM JFET Modules Delivered to RAL	JPL	22/10/03	22/10/03	TBD	(06/09/01) Business Agreement Issue 2.0
PFM FTB RF Filter Modules Delivery to RAL	JPL	22/10/03	22/10/03	TBD	(06/09/01) Business Agreement Issue 2.0
PFM DPU Delivery to RAL	IFSI	01/03/04	05/03/04		(18/10/01)
PFM MCU Delivery to SAp	LAM	07/08/03	15/08/03		(15/10/01) v20011015
PFM DRCU Delivery to RAL	SAP	16/03/04	30/07/04		(28/01/02) S020128
PFM WIH Delivery to RAL	SAP	16/03/04	30/07/04		(28/01/02) S020128
Delivery of PFM FPU to Cold Vibration Facility	RAL		06/04/04		
Delivery of Cold-Vibrated PFM FPU to RAL	RAL		04/05/04		
PFM Test Readiness Review			26/02/04		
PFM Delivery to ESA	RAL	01/06/04	29/10/04		Realistic Delivery Date 31st Dec 04

1.9 FS Programme

Milestone	Responsible	Need Date	Planned Date	Margin	Comments
FS Cold Filters Delivery to JPL	Cardiff	TBD	03/02/03	TBD	(31/01/02) v3.0
FS PCAL Delivery to ATC	Cardiff	01/01/04	18/12/03	1 week	(31/01/02) v3.0
FS BSMm Delivery to LAM	ATC	22/01/04	10/11/04		(10/09/01) Jul_01g
Return of CQM from ESA	ESA	01/06/04			
FS Structure Available for Integration	MSSL	10/01/05	06/01/04	12 months	(Jan02 Progress Report)
FS Thermal Straps for Integration	MSSL	10/01/05	10/11/03	1 week	(26/11/01)
FS Mirrors Delivery to RAL	LAM	10/01/05	10/11/04	18 months	
FS BDAs Delivery to RAL	JPL	10/01/05	10/01/05	TBD	(06/09/01) Business Agreement Issue 2.0
FS Filters Dichroics and Beamsplitters Delivery to RAL	Cardiff	10/01/05	10/01/05	TBD	(31/01/02) v3.0
FS SCAL Delivery to RAL	Cardiff	10/01/05	28/09/04	8 weeks	(31/01/02) v3.0
FS SMECM Delivery to RAL	LAM	10/01/05	10/01/05	10months	(15/10/01) v20011015
FS BSMm Delivery to RAL	LAM	10/01/05	10/01/05	10 months	(15/10/01) v20011015
FS Cooler Delivery to RAL	Grenoble	10/01/05	01/09/03	16 months	(31/10/01) Dev. Plan Issue3.1 Only one cooler for SPIRE & PACS
FS Shutter Delivery to RAL	USK	10/01/05	01/11/04	2 months	(15/06/2000) Issue 0.2 D
FS FTB Enclosure Delivery to RAL	MSSL	10/01/05			(19/03/01) Issue 1.2 Not in schedule, Date TBC, Margin TBD Refurbished from CQM
FS JFET Modules Delivery to RAL	JPL	10/01/05	10/01/05	TBD	(06/09/01) Business Agreement Issue 2.0
FS MCU Delivery to SAp	LAM	TBD	16/01/04		(15/10/01) v20011015
FS DRCU Delivery to RAL	SAp	10/01/05			Date TBD
FS WIH Delivery to RAL	SAp	10/01/05			Date TBD
Delivery of FS FPU to Cold Vibration Facility	RAL		10/07/05		
Delivery of Cold-Vibrated FS FPU to RAL	RAL		10/08/05		
FS Test Readiness Review			06/06/05		
FS Available to ESA	RAL	01/07/05	29/11/05		Realistic Date 1st Jan 06