

# SPIRE

**SUBJECT: SPIRE Major Milestone List**

**PREPARED BY: K.J. King**

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## Distribution

Instrument Development Manager  
Local Project managers

## Change Record

ISSUE	DATE	
Issue 1.0	17 <sup>th</sup> July 2000	Initial Issue for Delta PDR
Issue 1.1 (Draft1)	2 <sup>nd</sup> August 2000	Includes milestones for revised model philosophy
Issue 1.2 Draft1	25 <sup>th</sup> February 2001	Updated Milestones following MSSL delivery schedule
Issue 1.2 Draft 2	12 <sup>th</sup> April 2001	Updated following consolidation of Subsystem Schedules
Issue 1.3	31 <sup>st</sup> January 2002	Updated following Subsystem DDRs
Issue 1.4	2 <sup>nd</sup> June 2003	Updated for IHDR

## 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 (LAM.PJT.SPI.not.20000603 IND 3)
RD3	SPIRE BSM Development Plan (SPIRE-ATC-PRJ-003) v 4.0
RD4	JPL Receivables/Deliverables List 23/02/01
RD5	Filters Subsystem Development Plan (SPIRE-UCF-PRJ-000453) 11 Jan 2001
RD6	Calibrators Subsystem Development Plan (SPIRE-UCF-PRJ-000453) 12 Jan 2001
RD7	Spectrometer Mirror Mechanism Subsystem Development Plan (LAM.PJT.SPI.NOT.200001 IND 10, 16 <sup>th</sup> 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-DOC-000001) Draft 0.2
RD10	DPU/ICU Subsystem Development Plan (IFSI/ICU/PL/2000-001) Issue 1.2
RD11	Detector Readout Control Unit and Warm Interconnect Harness Development Plan (Sap-SPIRE-JLA-xxxx-00) Issue 2.0, 15 Dec 2001
RD12	CEA Product Tree (Sap-SPIRE-JLA-xxxx-00) Issue 1.0, 14 Dec 2001
RD13	Development Plan for the DRCU Simulator (SO-2000-12-21)
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
<b>Detector Array Selection</b>	<b>SPIRE</b>		<b>01/02/00</b>		<b>Complete</b>
<b>Delta PDR</b>	<b>SPIRE</b>		<b>26/06/00</b>		<b>Complete</b>
BSM Simulink Model Delivery to LAM	ATC	11/08/00			Complete
BSM Analogue Board Design Delivery to LAM	ATC	11/08/00			Complete
<b>Instrument Interface Review</b>	<b>SPIRE</b>		<b>30/11/00</b>		<b>Complete</b>
<b>ISVR</b>	<b>ESA</b>		<b>30/11/00</b>		<b>Complete</b>
BSM Analogue Board Detailed Design Delivery to LAM	ATC	01/01/01			Complete
<b>IHDR</b>	<b>ESA</b>		<b>23/04/01</b>		<b>Complete</b>
<b>Cooler Detailed Design Review</b>	<b>SPIRE</b>		<b>17/05/01</b>		<b>Complete</b>
<b>Mirrors Detailed Design Review</b>	<b>SPIRE</b>		<b>10/07/01</b>		<b>Complete</b>
<b>BSM Detailed Design Review</b>	<b>SPIRE</b>		<b>30/07/01</b>		<b>Complete</b>
<b>SMEC, MCU Detailed Design Review</b>	<b>SPIRE</b>		<b>22/10/02</b>		<b>Complete</b>
<b>Structure Detailed Design Review</b>	<b>SPIRE</b>		<b>29/11/01</b>		<b>Complete</b>
<b>DPU, OBS Detailed Design Review</b>	<b>SPIRE</b>		<b>06/12/01</b>		<b>Complete</b>
<b>Shutter Detailed Design Review</b>	<b>SPIRE</b>		<b>TBD</b>		<b>Deleted</b>
<b>BDAs, FTB Detailed Design Review</b>	<b>SPIRE</b>				<b>Complete</b>
<b>DRCU Detailed Design Review</b>	<b>SPIRE</b>				<b>Complete</b>
<b>Filters &amp; Calibrators Detailed Design Review</b>	<b>SPIRE</b>				<b>Complete</b>
<b>AIV Facility Detailed Design Review</b>	<b>SPIRE</b>				<b>Complete</b>
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
<b>IBDR</b>	<b>ESA</b>		<b>04/03/02</b>		<b>Complete</b>
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 SM Programme

Milestone	Responsible	Need Date	Planned Date	Margin	Comments
Test Facility Available	RAL	16/08/02	01/08/02	2 weeks	<b>Complete</b>
CQM Structure and MGSE Delivery to RAL	MSSL	01/07/02	13/08/02		<b>Complete</b> 26/03/03
CQM Mirrors + OGSE Delivery to RAL	LAM	01/07/02	01/07/02	3 weeks	Complete 25/4/03
STM Filters, Dichroics, Beamsplitters and OGSE Delivery to RAL	Cardiff	01/07/02	28/06/02	TBD	Complete 25/4/03
STM BSMm Delivery to RAL	ATC	01/07/02	01/07/02	4 months	Complete 7/11/02
Optical Dummy SMECM Delivery to RAL	LAM	01/07/02	01/07/02	5.5 months	Complete 25/4/03
HOB Simulator Available	RAL	01/07/02	05/03/02	4 months	Complete 26/3/03
STM Cooler Delivery to RAL	Grenoble	01/08/02	09/12/01	6 months	Complete 9/12/02
STM BDAs Delivery to RAL	JPL	01/08/02	01/08/02	TBD	Complete 4/4/03
STM SCAL Delivery to RAL	Cardiff	01/08/02	25/07/02	6 weeks	Complete 25/4/03
STM SMECM Delivery to RAL	LAM	01/08/02	01/08/02	1.5 months	Complete 25/4/03

<b>Warm Vibration Campaign Starts</b>	<b>RAL</b>		<b>28/11/02</b>		<b>Complete</b>
STM Review					





## 1.6 CQM Programme

Milestone	Responsible	Need Date	Planned Date	Margin	Comments
CQM Cold Filters Delivery to JPL	Cardiff	1/6/03	12/9/02		Complete
CQM PCAL Delivery to ATC	Cardiff	8/7/03	11/7/03		
CQM BSMm Delivery to LAM	ATC	30/07/02	23/08/02		complete
CQM Filters Dichroics and Beamsplitters Delivery to RAL	Cardiff	15/7/03	29/8/03		
CQM BDAs Delivery to RAL	JPL	8/7/03	30/7/03		
CQM SMECM Delivery to RAL	LAM	1/10/03	30/11/03		
CQM SCAL Delivery to RAL	Cardiff	8/7/03	10/01/03		complete
CQM Shutter Delivery to RAL	USK				deleted
STM BSMm Delivery to RAL	ATC	8/7/03	7/11/02		Complete
CQM JFET Modules Delivered to RAL	JPL	18/6/03	30/7/03		
QM1 MCU delivery to SAp	LAM	01/09/02	30/07/02		complete
DRCU-FPU Test Harness Delivery to SAp		12/06/02			complete
AVM DPU Delivery to RAL	IFSI	01/06/02	16/04/02		Complete
DRCU Simulator#2 Delivery to RAL	SO	01/06/02	01/06/02		Complete 15/4/03
EGSE#2 Available	RAL	01/06/02	01/06/02		Complete 15/4/03
QM1 DRCU Delivery to RAL	SAP	30/6/03	8/8/03		
QM1 WIH Delivery to RAL	SAP	30/6/03	8/8/03		
FPU Simulator#1 Delivery to RAL	SAP	30/6/03	8/8/03		
EGSE#3 Available	RAL	1/8/03	1/8/03		
<b>CQM Test Readiness Review</b>			<b>11/8/03</b>		
<b>Critical Design Review</b>			<b>10/12/03</b>		
<b>CQM Delivery to ESA</b>	<b>RAL</b>		<b>22/1/04</b>		<b>Realistic Delivery Date mid Feb 04</b>

### 1.7 AVM Programme

Milestone	Responsible	Need Date	Planned Date	Margin	Comments
EGSE#4 Available	RAL	1/8/03	1/8/03		
DRCU Simulator#3 Delivery to RAL	SO	1/10/03	1/10/03		
<b>AVM Delivery to ESA</b>	<b>RAL</b>	<b>01/04/03</b>	<b>25/03/03</b>		<b>Realistic Delivery Date 1<sup>st</sup> Feb 03</b>

### 1.8 QM Warm Electronics Programme

Milestone	Responsible	Required Date	Planned Date	Margin	Comments
QM2 MCU Delivery to SAp	LAM	10/11/03	1/2/04		
QM DPU Delivery to RAL	IFSI	10/11/03	10/11/03		
QM2 DRCU Delivery to RAL	SAP	1/11/03	1/7/04		
QM2 WIH Delivery to RAL	SAP	1/11/03	1/7/04		
FPU Simulator#2 Delivery to RAL	SAP	01/06/03			Not required at RAL
<b>WE Critical Design Review</b>			<b>19/12/03</b>		

## 1.9 PFM Programme

Milestone	Responsible	Need Date	Planned Date	Margin	Comments
PFM Cold Filters Delivery to JPL	Cardiff	1/8/03	14/11/03		
PFM PCAL Delivery to ATC	Cardiff	14/9/03	14/9/03		
PFM BSMm Delivery to LAM	ATC	14/10/03	14/10/03		
PFM Structure Delivery to RAL	MSSL	15/9/03	10/06/03		
PFM Thermal Straps Delivery to RAL	MSSL	15/9/03	11/08/03		
PFM Mirrors Delivery to RAL	LAM	1/10/03	01/08/03		
PFM Filters Dichroics and Beamsplitters Delivery to RAL	Cardiff	01/11/03	22/10/03		
PFM BSMm Delivery to RAL	LAM	01/11/03	01/11/03		
PFM Cooler Delivery to RAL	Grenoble	01/10/03	1/10/03		
PFM BDAs Delivery to RAL - Spectrometer	JPL	01/10/03	01/10/03		
PFM BDAs Delivery to RAL - Photometer	JPL	9/2/04			
PFM SCAL Delivery to RAL	Cardiff	01/10/03	24/10/03		
PFM SMECm Delivery to RAL	LAM	01/10/03	01/10/03		
PFM FPU RF Filter Modules Delivery to RAL	JPL	1/10/03	22/10/03		
PFM FTB Enclosure Delivery to RAL	RAL	22/10/03	01/10/02		Available
PFM JFET Modules Delivered to RAL—Spectrometer	JPL	1/10/03			
PFM JFET Modules Delivered to RAL - Photometer	JPL	9/2/04	22/10/03		
PFM DPU Delivery to RAL	IFSI	2/8/04	05/03/04		
PFM MCU Delivery to SAp	LAM	2/5/04	15/08/03		
PFM DRCU Delivery to RAL	SAp	2/8/04	1/2/05		
PFM WIH Delivery to RAL	SAp	22/9/03	30/07/04		
<b>Delivery of PFM FPU to Cold Vibration Facility</b>	<b>RAL</b>		<b>26/5/04</b>		
<b>Delivery of Cold-Vibrated PFM FPU to RAL</b>	<b>RAL</b>		<b>30/6/04</b>		
<b>PFM Test Readiness Review</b>	<b>RAL</b>		<b>19/4/04</b>		
<b>PFM Delivery to ESA</b>	<b>RAL</b>		<b>22/2/05</b>		

#### 1.10 FS Programme - Planning incomplete for FS

Milestone	Responsible	Need Date	Planned Date	Margin	Comments
FS Cold Filters Delivery to JPL	Cardiff	TBD	27/2/04		
FS PCAL Delivery to ATC	Cardiff	01/01/04	5/2/04		
FS BSMm Delivery to LAM	ATC	22/01/04			
<b>Return of CQM from ESA</b>	<b>ESA</b>		<b>22/10/04</b>		<b>9 months after delivery to ESA</b>
FS Structure Available for Integration	MSSL	22/12/04			
FS Thermal Straps for Integration	MSSL	22/12/04			
FS Mirrors Delivery to RAL	LAM	22/12/04			
FS BDAs Delivery to RAL	JPL	22/12/04			
FS Filters Dichroics and Beamsplitters Delivery to RAL	Cardiff	22/12/04			
FS SCAL Delivery to RAL	Cardiff	22/12/04			
FS SMECm Delivery to RAL	LAM	22/12/04			
FS BSMm Delivery to RAL	LAM	22/12/04			
FS Cooler Delivery to RAL	Grenoble	22/12/04			
FS FTB Enclosure Delivery to RAL	RAL	22/12/04			
FS JFET Modules Delivery to RAL	JPL	22/12/04			
FS MCU Delivery to SAp	LAM	22/12/04			
FS DRCU Delivery to RAL	SAP	22/12/04			
FS WIH Delivery to RAL	SAP	22/12/04			
<b>Delivery of FS FPU to Cold Vibration Facility</b>	<b>RAL</b>				
<b>Delivery of Cold-Vibrated FS FPU to RAL</b>	<b>RAL</b>				
<b>FS Test Readiness Review</b>					
<b>FS Available to ESA</b>	<b>RAL</b>	<b>01/07/05</b>	<b>22/12/05</b>		<b>Realistic Date 1<sup>st</sup> Jan 06</b>