

SPIRE

SUBJECT: SPIRE Product Tree

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Glossary

DAPSAS	Data Analysis and Science Analysis Software
ESA	European Space Agency
FIRST	Far Infra-Red Space Telescope
FSC	FIRST Science Centre
ICC	Instrument Control Centre
MOC	Mission Operations Centre
PI	Principle Investigator
SPIRE	Spectral and Photometric Imaging REceiver

1. SCOPE

This Product Tree is produced as part of the response to the FIRST/PLANCK Instrument Interface Document Part A (AD1) as part of the SPIRE Management Plan (AD2). It covers all items to be produced during the instrument design and manufacturing phases, plus those produced during the ICC Development phase.

The intention is to identify ALL items that shall be delivered from one institute in the SPIRE consortium, to another institute or to ESA.

2. DOCUMENTS

2.1 Applicable Documents

- AD1 FIRST/PLANCK Instrument Interface Document, Part A (PT-IID-A-04624)
- AD2 FIRST Science Management Plan (ESA/SPC(97)22)

2.2 Reference Documents

3. PRODUCT TREE

3.1 Instrument Items

ID	Product Item	No. Units	AVM	CQM	PFM	FS	Description
AA	Cold FPU (SPIRE1)						
AA0_11	Structure			x	x	TBC	'15K', '4K' and '2K' boxes; Structure Thermistors; MGSE required to mount the structure on the satellite and AIV facilities; Transport Container
AA0_21	Optics			x	x	TBC	Photometer mirrors and their mounts; Spectrometer mirrors and their mounts; MGSE to install mirrors onto the structure
AA0_22	Photometer Filters			x	x	TBC	Passband filters; Fore-optics filters; Dichroics; Filter and Dichroics mounts (excluding detector filters); MGSE to install Filters and Dichroics
AA0_23	Spectrometer Filters			x	x	TBC	Passband Filters Dichroics; Polarising Grids; Filter, Grids and Dichroics mounts (excluding detector filters); MGSE to install Filters, Grids and Dichroics
AA0_31	Photometer Baffling			x	x	TBC	Photometer optical baffling Fore-optics baffling Baffle mounts MGSE to install Baffles
AA0_32	Spectrometer Baffling			x	x	TBC	Spectrometer optical baffling Fore-optics baffling Baffle mounts MGSE to install Baffles
AA0_41	Photometer Arrays			x	x	x	Photometer Bolometer arrays (3); Feed Optics; Cold readout electronics; Focal plane structure (including filter mounts);

ID	Product Item	No. Units	AVM	CQM	PFM	FS	Description
							Cold harness and connector(s); MGSE to install Arrays; EGSE to test Arrays
AA0_42	Spectrometer Arrays			x	x	x	Spectrometer Bolometer arrays (2); Feed Optics; Cold readout electronics; Focal plane structure (including filter mounts); Cold harness and connector(s); MGSE to install Arrays; EGSE to test Arrays
AA0_51	Cooler			x	x	x	³ He Cooler Unit; Cooler cold harness and connectors; Mechanical interface structure; Cold finger interface structure; MGSE to install Cooler; EGSE to test Cooler
AA0_61	Chopper			x	x	x	Chopper unit; Mechanical interface structure; Cold harness and connector; MGSE to install Chopper EGSE to test Chopper
AA0_71	Spectrometer			x	x	x	Moving mirror support structure; Spectrometer motor; Mirror movement measurement system; Mechanical interface structure; Cold harness and connector; MGSE to install Spectrometer; EGSE to test Spectrometer
AA0_81	Photometer calibration source			x	x	x	Temperature controlled radiation source; Mechanical interface structure; Cold harness and connector; MGSE to install Calibration Source EGSE to test Calibration Source
AA0_82	Spectrometer calibration source			x	x	x	Temperature controlled radiation source; Mechanical interface structure; Cold harness and connector; MGSE to install Calibration Source; EGSE to test Calibration Source
AA0_91	JFET Module			x	x	x	JFETs and associated

ID	Product Item	No. Units	AVM	CQM	PFM	FS	Description
							components; RF Filters and associated components; Box and mechanical interface structure; Cold harness and connectors; MGSE to install JFET Module EGSE to test JFET Module
AB0_10	Buffer Amplifier Unit (SPIRE2)			x	x	x	Buffer Amplifier Unit; Savers; MGSE to install BAU; EGSE to test BAU
AC0_10	Detector Read-out and Control Unit (SPIRE3)			x	x	Parts	Detector Read-out and Control Unit; Savers;
BA0_10	Digital Processing Unit (SPIRE5)		x	x	x	Parts	Digital Processing Unit (including Power Supply); Savers;
CA0_10	Signal Processing Unit (SPIRE4)		x	x	x	Parts	Signal Processing Unit; Savers;
DA0_10	Warm Interconnect Harness (SPIRE6)		x	x	x	x	DPU to SPU harness; SPU to DRCU harness; DRCU to BAU harness; Savers; Breakout Box(es)
EA0_10	SPU On Board Software		x	x	x	x	SPU On Board Software
EB0_10	DPU On Board Software		x	x	x	x	DPU On Board Software

3.2 Support Items

ID	Product Item	No. Units	AVM	CQM	PFM	FS	Description
	EGSE	4					Simulates S/C interface to allow testing of DPU; includes: S/C Interface Hardware; EGSE Software;
	Digital Instrument Simulator	3					Simulates SPIRE 1, 2, 3 and 4 for testing operation of DPU; includes: DIS Hardware; DIS Software;
	Analogue Instrument Simulator	3					Simulates SPIRE 1, 2 and 3 for testing operation of SPU; includes: AIS Hardware; AIS Software;

ID	Product Item	No. Units	AVM	CQM	PFM	FS	Description
	FPU Simulator	3					Simulates SPIRE 1 and 2 for testing operation of DRCU; includes: FPUS Hardware; FPUS Software;
	AIV Facility	1					Instrument Cryostat; Facility Electronics; Clean Room; Infrastructure;
	Test Harness	1					Test Harness
	Calibration Facility	1					Calibration Optics; Calibration Sources; Facility Electronics
	Thermal Vacuum Facility	1					
	EMC Test Facility	1					
	Cold Vibration Facility	1					
	Warm Vibration Facility	1					

3.3 ICC Items

ID	Product Item	No. Units	AVM	CQM	PFM	FS	Description
	SPU On Board Software Maintenance System	1					SPU Software Maintenance Software; SPU Software Maintenance Hardware; Documentation
	DPU On Board Software Maintenance System	1					DPU Software Maintenance Software; DPU Software Maintenance Hardware; Documentation
	Instrument Simulator	2					Instrument Simulation Software; Instrument Simulator Hardware; Documentation
	Quick Look Facility	3					QLF Hardware; RTA/QLA Software; Documentation
	Instrument Users Manual	1					
	Instrument Database		x	x	x	x	
	Calibration Database				x	x	
	Instrument Time Estimator	2					
	Instrument Command Translator	1					

ID	Product Item	No. Units	AVM	CQM	PFM	FS	Description
	Trend Analysis Software	1					
	Calibration Analysis Software	1					
	Interactive Analysis	1					
	Science Processing Software	1					
	Science Analysis Software	1					
	Diagnostic Tools	1					
	ICC Operations Centre	1					Infrastructure; Computing Hardware
	DAPSAS (UK) Centre	1					Infrastructure; Computing Hardware
	DAPSAS (Fr) Centre	1					Infrastructure; Computing Hardware