

Note: Structure estimates: V0.11 by Berend Winter

Items	Instrument	Work-package	Responsible	Temp. K	Mass Estimate	Allocation	Difference	Contingency %	Inc Contingency
Mirrors	Photometer	OPT	LAM	4	1140	1200	60	20	1440
Mirrors	Photometer	OPT	LAM	2	511	520	9	20	624
Filters	Photometer	FILT	QMW	4	100	100	0	20	120
Filters	Photometer	FILT	QMW	2	150	150	0	20	180
Detectors	Photometer	DETP	JPL	2	1500	1500	0	20	1800
Thermal Straps	Photometer	STRC	MSSL	4	300	300	0	20	360
Thermal Straps	Photometer	STRC	MSSL	2	600	600	0	20	720
Cooler	Photometer	COOL	CEA	4	800	800	0	20	960
Cooler Straps	Photometer	STRC	MSSL	2	500	500	0	20	600
Baffles	Photometer	STRC	MSSL	4	500	500	0	20	600
Baffles	Photometer	STRC	MSSL	2	200	200	0	20	240
Calibration Source	Photometer	PCAL	GSFC	4	30	30	0	20	36
Harness	Photometer	DETP	JPL	4	500	500	0	20	600
BSM (& support)	Photometer	BSM	ATC	4	1100	1100	0	20	1320
Shutter	Photometer	SHUT	USK	4	200	200	0	20	240
RF Filters & Box	Photometer	RFFILT	JPL	4	1500	1500	0	20	1800
Cover	Photometer	STRC	MSSL	4	7430	7500	70	20	9000
Detector Box	Photometer	STRC	MSSL	2	1580	1600	20	20	1920
Mounts,clamps	Photometer	STRC	MSSL		1040	1050	10	20	1260
TOTAL	Photometer				19681	19850	169		23820

Mirrors	Spectrometer	OPT	LAM	4	1078	1100	22	20	1320
Filters	Spectrometer	FILT	QMW	4	200	200	0	20	240
Detectors	Spectrometer	DETS	JPL	2	1000	1000	0	20	1200
Baffles	Spectrometer	STRC	MSSL	4	200	200	0	20	240
Harness	Spectrometer	DETS	JPL	4	250	250	0	20	300
Mechanism	Spectrometer	FTS	LAM	4	1100	1100	0	20	1320
Cover	Spectrometer	STRC	MSSL	4	5690	5750	60	20	6900
Detector box	Spectrometer	STRC	MSSL	2	1100	1100	0	20	1320
Mounts,clamps	Spectrometer	STRC	MSSL		1060	1100	40	20	1320
Calibration Source	Spectrometer	SCAL	GSFC	4	200	200	0	20	240
TOTAL	Spectrometer				11878	12000	122		14400

Optical Bench	Common	STRC	MSSL	4	7100	7100	0	20	8520
Mounting	Common	STRC	MSSL	4	570	600	30	20	720
RF seal	Common	STRC	MSSL	4	250	250	0	20	300
Cooler I/F	Common	STRC	MSSL	4	100	100	0	20	120
Strap Baffles	Common	STRC	MSSL	4	500	500	0	20	600
TOTAL	Common				8520	8550	30		10260
TOTAL FPU					40079	40400	321		48480
Request to ESA (8/6/00)						45000		20	54000
Offer by ESA (8/6/00)						42000		20	50400
JFET Box	FTB	FSFTB	JPL	11	5300	5300	0	20	6360
JFET I/F structure	FTB	FSFTB	JPL/MSSL?	4-11	1000	1200	200	20	1440
TOTAL FTB					6300	6500	200		7800
Request to ESA (8/6/00)						6500		20	7800
Offer by ESA (8/6/00)						6500		20	7800

Allocations should be used as design targets. I will consider issuing contingency to each subsystem as designs mature, on a case by case basis. Any items added to the list will be allocated budgets which will come out of the contingency.

Common Structure

Optical Bench	7100	4
Mounting	570	4
RF seal	250	4
Total Common	7920	
	7920	

Total Hardware **39479**
With cont. 47375

JFET Modules (300 dets) 3800
JFET Box 1500
 5300
With cont 6360

What we told ESA now
including JFET Box 39300
With cont 47160

Structure Alloc.	-3979	Total cold FPU	
		no contingency	35500
		Total cold FPU	
		with	
With cont	-1715	contingency	42600

Likely
Structure+fasteners 25000

Cold FPU Likely
total **64479**

	4-K Mass		2-K Mass
Phot 4K	6140.255	Phot 2K	3460.509
Spect 4K	2478.334	Spect 2K	1300
Total HW 4K	8618.589	Total HW 2K	4760.509
Total HW + Cover	8619	Total HW +cover	4761
Total with cont.	10342		5712.611

Mass Budget SVM

V1.0

All in grammes

Custodian:

Colin Cunningham

Items	Work-package	Responsible	Mass Estimate	Allocation	Difference	Contingency %	Inc Contingency
Digital Processing Unit	DPU	IFSI	10000	10000	0	20	12000
Detector Read-out & Control Unit	DRCU	CEA	18000	18000	0	20	21600
Warm Interconnect Harness	WIH	CEA	2000	2000	0	20	2400
TOTAL			30000	30000			36000
Request to ESA (8/6/00)				30000			
Offer by ESA (8/6/00)				30000			

Thermal Loads on FOB

V1.0

Needs completion: estimates and contingency

Loads in mW

Stage	Item	Mode	Estimate	Allocation	Contingency	Inc Contingency
				Standby		
Level 2	JFET Box	Standby		33		
		OFF		0		
		PHOT		33		
		SPEC		9.4		
Level 1	Wires	Standby		1.1		
		OFF		1.1		
		PHOT		1.1		
		SPEC		1.1		
	Radiation	Standby		0.6		
		OFF		0.6		
		PHOT		0.6		
		SPEC		0.6		
	Mechanisms & calibrators	Standby		0		
		OFF		0		
		PHOT		4.1		
		SPEC		7.4		
	Structure	Standby		6		
		OFF		6		
		PHOT		6		
		SPEC		6		
	Total	Standby		7.7		
		OFF		7.7		
		PHOT		11.8		
		SPEC		15.1		
Level 0	Wires	Standby		0.1		
		OFF		0.1		
		PHOT		0.1		
		SPEC		0.1		
	Dissipation	Standby		0		
		OFF		0		
		PHOT		0		
		SPEC		0		
	Cooler (average over 48 hours)	Standby		3		
		OFF		3		
		PHOT		3		
		SPEC		3		
	Cooler Switch supports	Standby	0.8	1		
		OFF	0.8	1		
		PHOT	0.8	1		
		SPEC	0.8	1		
	Structure	Standby		1		
		OFF		1		
		PHOT		1		
		SPEC		1		
	Total	Standby		5.1		
		OFF		5.1		
		PHOT		5.1		
		SPEC		5.1		

Dissipation on SVM

V1.0

Needs completion: estimates and contingency

Dissipation in W

Unit	Item	Mode	Estimate	Allocation	Contingency	Inc Contingency
FSDRC	Detector Read-out and Control Unit			71		
FSDPU	Digital Processing Unit			10		
FSWIR	Warm Interconnect Harness			0		
TOTAL				81		