



**Solar B EIS**  
Mullard Space Science Laboratory  
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## **EIS FM build procedure**

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EIS Science  
EIS Tech  
EIS Soft


## Change Record

ISSUE	DATE	PAGES CHANGED	COMMENTS

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### Scope

This document provides the build specification for the MTM/TTM models of the Solar-B EIS instrument. It also shows the detailed build plan and procedures which are required to achieve the cleanliness requirements, these match as closely as possible those that will be followed during the FM build programme. With this in mind the FM procedures as they are understood at present are also shown here.

### Applicable Documents

- |                           |                                      |
|---------------------------|--------------------------------------|
| [1] MSSL/SLB-EIS/SP011    | EIS System Definition                |
| [2] MSSL/SLB-EIS/PA003.01 | Cleanliness Control Plan             |
| [3] MSSL/SLB-EIS/PA002.01 | Solar B – EIS Product Assurance Plan |
| [4] MSSL/SLB-EIS/SP008.01 | Model Philosophy and Test Plan       |
- (this document needs a full revision based on Saad/Swales analysis and recommendations)
- [5] Test Plan: High Intensity Testing (Acoustic), Issue 1, 26 March 2001 by Saad Mahmoud.
- [6] Test Plan: Modal Survey Test and FE Model Correlation, Issue 1, 23 March 2001, Saad Mahmoud

## FM model description

The following is a list of components that will be included in the FM. This list is taken from the 'EIS system definition' document [1] (this document will be updated to include minor changes which are introduced here):

Component of EIS	Acronym	Notes	Responsible
Enclosure	ENC		BU
Baffles	BFn		BU
Launch Lock	LOK		BU
Clamshell	CLM		BU
HOPs	HOPn	HOP0, HOP1 (note 1)	BU
Front Filter Assembly	FFA		NRL
Mirror Assembly	MIR		NRL
Slit Assembly	SLA		NRL
Focal Plane Filter Assembly	FPF	Also referred to as Spectrometer Entrance Filter (SEF)	MSSL
Shutter Assembly	SHT		NRL
Grating Assembly	GRA		NRL
Alignment Cube	CUB		NRL
CCDs (long $\lambda$ (A) and short $\lambda$ (B))	CCD	CCDA & CCDB	MSSL
Focal Plane Assembly	FPA		MSSL
Readout Electronics	ROE		MSSL
Quartz Crystal Monitors	QCMn	QCM1 (spectrometer) and QCM2 (baffle)	RAL
Mechs. & Heater Controller	MHC		MSSL
Instrument Wiring Harness	WIR		MSSL
Instrument Purge Harness	PUR		BU
Multilayer Insulation	MLI		BU
Operational Heaters	OPHn	12	BU
Survival Heaters	SUHn	5 (ENC) <sup>5</sup>	BU
Bakeout Heaters	BKHn	2 (ENC on CCDs)	MSSL
EIS Thermal Sensors	ETSn	24(ENC) + 8(MHC) <sup>4</sup>	MSSL
S/C Thermal Sensors	STSn	7 (ENC) + 2 (ICU)	MSSL
Survival Thermal Sensors	SUSn	3 (ENC)	MSSL
CCD Temperature Sensors	CTSn	2 (ENC on CCDs) <sup>6</sup>	MSSL
<b>Additional items</b>			
Witness Plates	WIPn	4 (1 & 2 at grating, 3 & 4 at mirror)	RAL

1. There are 4 HOP circuits in the MHC, only 2 of which are baselined for use on FM.

HOP 0 is that on the front (+z side) of the clamshell (i.e. outside telescope enclosure)

HOP 1 is that on the rear (-z side) of the clamshell (i.e. inside telescope enclosure)

HOP 2 is that for the launch lock (which is currently NOT baseline)

HOP 3 spare circuit

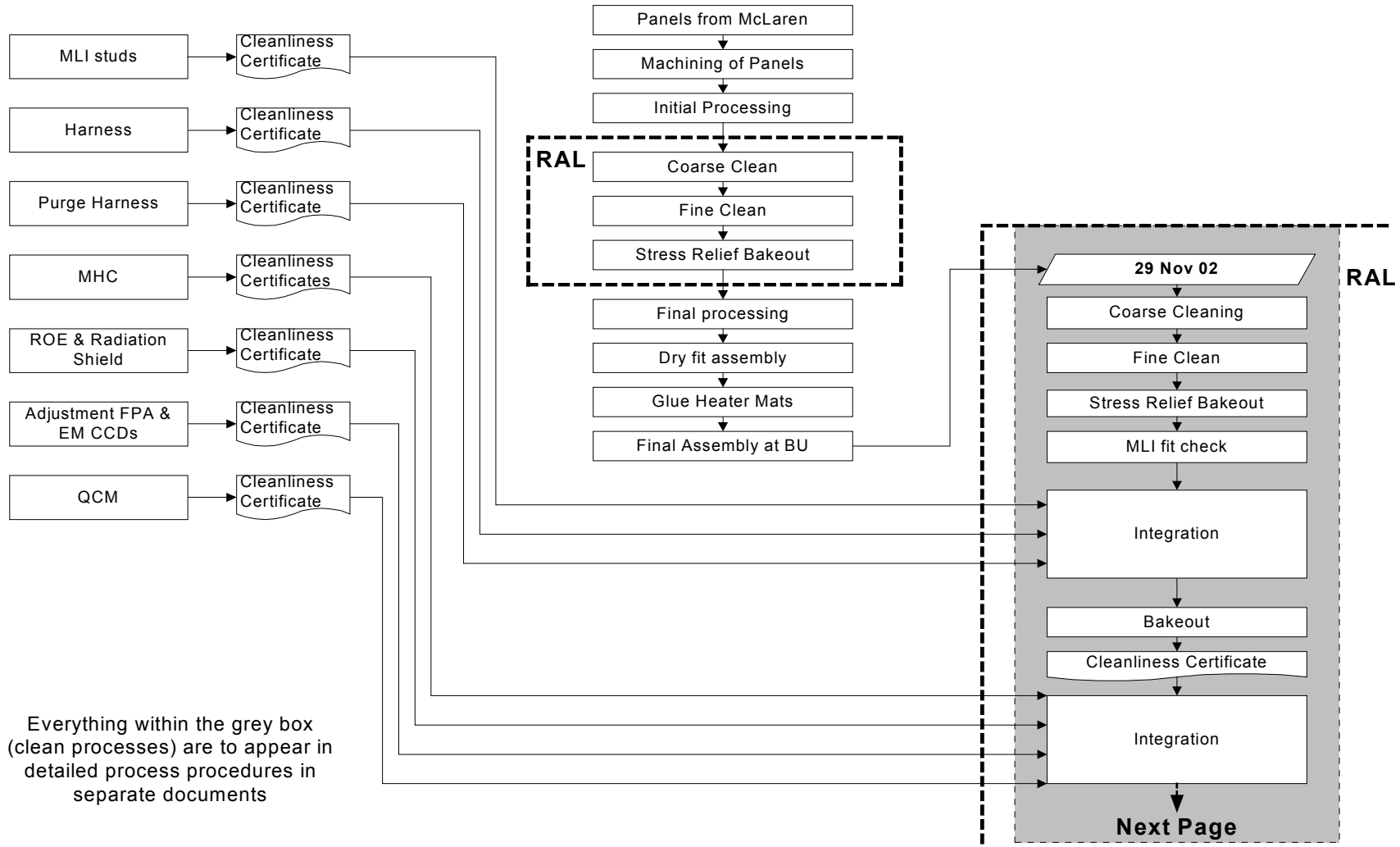
The optical encoders are similarly defined i.e. the encoder circuit 0 is associated with HOP 0 etc.

## Build Procedures

In the following 2 diagrams the procedures for the FM build are outlined. Also shown is where delivered items will be considered clean and should have documentation to show this. To avoid unnecessary bureaucracy on the part of the providers it is hoped that the 'cleanliness working group' will be able to oversee this aspect and provide the necessary documentation for external agencies. In both of these diagrams I have concentrated on the EIS instrument itself. It is expected that the facilities, tools, test equipment etc. will all be adequately inspected for cleanliness and safety prior to commencement of activities. Where extra effort is needed in terms of facilities this will be highlighted in the more detailed test procedures. In light of this it should be explicitly said that it is expected that a TQCM will be available during all thermal vacuum tests.

At present there is no explicit links between this document and other documents pertaining FM build schedules, i.e. the handling plan, the cleanliness control plan, etc. I hope that this will come out of the comments received.

# FM build and integration procedure (part 1)



# FM build and integration procedure (part 2)

