

Herschel/SPIRE

MULLARD SPACE SCIENCE LABORATORY
 UNIVERSITY COLLEGE LONDON Author: C Brockley-Blatt

SPIRE – STRUCTURE DECLARED PROCESSES LIST

Document Number: MSSL/SPIRE/PA004.05 June 2004

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CEA Herschel Project	L Duband	<input type="checkbox"/>
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Author:  Date: 8 July 2004
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Change Record

ISSUE	DATE	
0.1	September 2001	New document
2	22 November 2002	Issued
3	January 2003	Updated with Silver Soldering
4	March 2003	Updated to remove processes not used
5	June 2004	Updated to include new processes, 6 – 10.

Table of Contents

1. Scope of Document
2. Applicable and Reference Documents
3. Declared Processes List

Glossary

All terms are listed in the CIDL.

1 Scope of Document

This document presents all the processes to be used all along the design, development and manufacture of the structure for SPIRE.

2. Applicable and Reference Documents

All documents are listed in Figure 3.2 of the CIDL.

3 Declared Processes List

The Structure Declared Processes List, which consists of multiple arrays of 10 columns which shall be completed as indicated in AD04, is presented here below:

Processes should be grouped in the table below:

<i>Group Type</i>	<i>Used</i>
1. Adhesive Bonding	✓
2. Composite Manufacturing	✓
3. Encapsulation/Molding	N/A
4. Painting/Coating	✓
5. Cleaning	✓
6. Welding/Brazing	✓
7. Crimping/Stripping/Wire Wrapping	✓
8. Soldering	N/A
9. Surface Treatment	N/A
10. Plating (Allo-chroming)	✓
11. Machining	✓
12. Forming	✓
13. Heat Treatment	✓
14. Special Fabrication	N/A
15. Marking	✓
16. Miscellaneous Processes	N/A
17. Inspection Procedure	✓

Issue No 5		<u>DECLARED PROCESSES LIST</u>									
PROJECT:		HERSCHEL									
EXPERIMENT:		SPIRE									
EXPERIMENTERS:		MULLARD SPACE SCIENCE LABORATORY (MSSL)									
PREPARED BY:		C Brockley-Blatt									
Itm No	Process	Specification	Description/identification	Use and location	User code	Associated DML items	Criticality of process	Approval Status	Project Sign Off	ESA Sign Off	ESA Comments
1.	Stycast 2850 FT Black	Commercial 2 part epoxy adhesive for cryogenics		Internal and external wiring harness supports	MSSL	10-02	Non-critical				
2.	Crimp connections	ECSS-Q-70-26	Fabrication of wiring harnesses	Internal and external wiring harnesses	MSSL	19-01	Non-critical				
3.	Alocrom 1200	MOD 03-18	Chromating - Commercial process	Various	MSSL	01-01,02, 01-03	Non-critical				
4.	Heat Treatment T 73	Mil-H-6088-F	Thermal treatment	Treatment for aluminium	SNL	01-01	Non-critical				
5	Silver Soldering	MSSL In-House Procedure	Brazing using a 55% silver solder (rest is zinc, copper and Tin)	Thermal joints on the thermal bus bar	MSSL	07-01	Non-critical				

Issue No 5		<u>DECLARED PROCESSES LIST</u>									
<u>PROJECT:</u>		HERSCHEL									
<u>EXPERIMENT:</u>		SPIRE									
<u>EXPERIMENTERS:</u>		MULLARD SPACE SCIENCE LABORATORY (MSSL)									
PREPARED BY:		C Brockley-Blatt									
Itm No	Process	Specification	Description/identification	Use and location	User code	Associated DML items	Criticality of process	Approval Status	Project Sign Off	ESA Sign Off	ESA Comments
6.	Goldplating	British Telecom spec. M468A and MIL spec G45204B type 1C		Thermal Straps and 300mK busbar	Walton Plating, Woking	10-02	Non-critical				
7.	Composite Manufacture	In-house Procedure	Fabrication of FPU and detector box mounts	FPU and detector box mounts	B3 Technologies Shalford	15-01, 15-02	Non-critical				
8.	Compression welding	In-House Procedure	Welding under pressure and heat (nominally 900 deg C)	Level 0 Thermal Straps	EMS, Germany	02-01, 02-02	Non-Critical				
9.	Electron Beam Welding	In House Procedure	Stake welds at 1mm wide by 13.5mm	Level 0 Thermal straps	EBP, Woking	02-01, 02-02	Non-critical				
10.	Glue Joint Isolation	In house-procedure - MSSL-MEG-PRC-2003-01.	Electrical isolation	Thermal Straps	MSSL	02-01, 02-02 10-01	Non-critical				