



**Herschel SPIRE**  
**ASSEMBLY INTEGRATION AND TEST RECORD**



<b>Main Activity</b>	<b>EQM Cryoharness Integration Report</b> <b>SPIRE-RAL-REP-002423</b>	<b>Location</b>	<b>EADS Ottobrunn</b>
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**Reference Documents**

- RD 1 SPIRE FPU Handling and Integration Procedure, SPIRE-RAL-PRC-001923, Issue 4, 08/07/2005.  
 RD 2 SPIRE Warm Functional Test Procedures for the CCS, SPIRE-RAL-PRC-002422, Issue 1.4, 15/07/05

<b>Date</b>	<b>11-Jul-2005</b>
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<b>Time UT</b>	<b>Cryoharness Integration Activities</b>	<b>Signature</b>
	Measure bonding of Warm Units to the SVM Simulator according to RD 1, §7.3.6  DCU to SVM = 1.53mOhm DPU to SVM = 0.44mOhm FCU to SVM <= 2.9mOhm	
	Verify correct harness grounding (isolation of FPU Faraday Shield from S/C Chassis) according to RD 1 §7.3.4.2  Removed FPU FS bonding lugs from SIH-SS-10 and SIH-SS-11 D-Sub Backshells and isolation >20MOhm Removed FPU FS bonding lugs from SIH-SS-01 and measured isolation. P27, P28, P31 and P32 > 20 MOhm – OK Removed FPU FS bonding lugs from SIH-SS-03 and measured isolation. P29 and P30 Pin, Harness Side = 0.8Ohm <b>Short</b> Socket Harness Side = 0.8Ohm <b>Short</b> Removed FPU FS bonding lugs from SIH-SS-06 and measured isolation. P14, P15 and P16 11.6Ohm Short	
	Disconnected SIH-SS-03 and SIH-SS-06 from SVM-CB Measured isolation of FPU Faraday Shield from S/C Chassis via FPU Connector backshells Discovered intermittent short in SIH-IS-03 and SIH-IS-06 near the SVM-CB Raised NCR (ASED-NC-1246) Tested ground isolation in SIH-SS-01, SIH-SS-03 and SIH-SS-06 when they were disconnected at the SVM-CB and are OK DKG returned to UK while harnesses were re-worked	



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Main Activity	EQM Cryoharness Integration Report SPIRE-RAL-REP-002423	Location	EADS Ottobrunn
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Date	18-Jul-2005
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Time UT	Cryoharness Integration Activities	Signature																																				
	<p>Did not recheck Warm Unit ground bonding as no work has been carried out on the units</p> <p>Verify correct harness grounding (isolation of FPU Faraday Shield from S/C Chassis) according to RD 1 §7.3.4.2</p> <p>Note: SIH-SS-01 and SIH-SS-03 were not unmated from the SVM-CB as the FPU FS bonding lugs have been correctly implemented</p> <p>The following isolation was measured</p> <table border="1" data-bbox="779 754 1617 1225"> <thead> <tr> <th>Connector</th> <th>Measurement</th> </tr> </thead> <tbody> <tr><td>DCU P14</td><td>Isol. &gt;= 20 MOhm</td></tr> <tr><td>DCU P15</td><td>Isol. &gt;= 20 MOhm</td></tr> <tr><td>DCU P16</td><td>Isol. &gt;= 20 MOhm</td></tr> <tr><td>DCU P27</td><td>Isol. &gt;= 20 MOhm</td></tr> <tr><td>DCU P28</td><td>Isol. &gt;= 20 MOhm</td></tr> <tr><td>DCU P29</td><td>Isol. &gt;= 20 MOhm</td></tr> <tr><td>DCU P30</td><td>Isol. &gt;= 20 MOhm</td></tr> <tr><td>DCU P31</td><td>Isol. &gt;= 20 MOhm</td></tr> <tr><td>DCU P32</td><td>Isol. &gt;= 20 MOhm</td></tr> <tr><td>FCU P11</td><td>Isol. &gt;= 20 MOhm</td></tr> <tr><td>FCU P13</td><td>Isol. &gt;= 20 MOhm</td></tr> <tr><td>FCU P17</td><td>Isol. &gt;= 20 MOhm</td></tr> <tr><td>FCU P19</td><td>Isol. &gt;= 20 MOhm</td></tr> <tr><td>FCU P21</td><td>Isol. &gt;= 20 MOhm</td></tr> <tr><td>FCU P23</td><td>Isol. &gt;= 20 MOhm</td></tr> <tr><td>FCU P25</td><td>Isol. &gt;= 20 MOhm</td></tr> <tr><td>FCU P29</td><td>Isol. &gt;= 20 MOhm</td></tr> </tbody> </table> <p>Successful, so can now proceed with the mating of the cryoharness to FPU and Warm Units</p>	Connector	Measurement	DCU P14	Isol. >= 20 MOhm	DCU P15	Isol. >= 20 MOhm	DCU P16	Isol. >= 20 MOhm	DCU P27	Isol. >= 20 MOhm	DCU P28	Isol. >= 20 MOhm	DCU P29	Isol. >= 20 MOhm	DCU P30	Isol. >= 20 MOhm	DCU P31	Isol. >= 20 MOhm	DCU P32	Isol. >= 20 MOhm	FCU P11	Isol. >= 20 MOhm	FCU P13	Isol. >= 20 MOhm	FCU P17	Isol. >= 20 MOhm	FCU P19	Isol. >= 20 MOhm	FCU P21	Isol. >= 20 MOhm	FCU P23	Isol. >= 20 MOhm	FCU P25	Isol. >= 20 MOhm	FCU P29	Isol. >= 20 MOhm	
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	<p>Mated cryoharness to DRCU and FPU/JFS/JFP according to RD 1 §7.3.7.3</p> <p>Notes: EMI backshells loose when the Jackscrews tightened on the Cold Units. ASED to raise an NCR</p> <p>DCU J27 and DCU J28 covered with copper tape which needed to be removed prior to integration of harnesses</p> <p>Step missing from procedure (mating of FPU P19, P21, P23, P25, P27 and P29)</p> <p>EMI blanking covers for un-used FPU connectors did not mate with MDM connector. Added aluminium tape to the blanking cover to create an EMI gasket. <b>Does this form a trapped volume ?</b></p> <p>EMI blanking covers not supplied for the JFP P01, P02, P03, P04, P05, P06, P07, P08, P09, P10, P11, P12, P17, P18, P19, P20, P21, P22, P23, P24. Open work RAL to send EADS Copper tape with conductive adhesive. Kapton tape to be applied to MDM connectors to isolate the contacts from the Copper Tape. Copper tape to cover Kapton and form a 360° conductive seal over the connectors. Tape to be pricked to form a vent hole.</p> <p>JFP L3 strap very close to touching the OBA !</p>	
	Removed the FPU grounding strap according to RD 1 §7.3.7.3	
	Mated Mechanism external power supply harness to FCU J20 and stowed outside SVM. Bagged exposed banana plugs in a "lumealloy" bag	
	Transported DRCU bench power supply into class 100 room and mated J33 and J03 to bench power supply	
	Switched all DCU external switches to the OFF position.	
	Booted DPU and then switched on bench power supply	
	Asier zeroed all bias voltages	
	Switched all external switches to the ON position	
	Started WFT	



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	Shut down DRCU and DPU for the night	
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<b>Date</b>	<b>19-Jul-2005</b>
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<b>Time UT</b>	<b>Cryoharness Integration Activities</b>	<b>Signature</b>
After lunch	Started the covering of the exposed connectors on the JFS by covering the exposed contacts with Kapton and then with Copper Tape  Removed EMI covers from HSFPU 121100 J20, J22, J24, J26, J28, J30 and cut a vent notch to remove the potential trapped volume  Removed the Alignment Cube (Red tag item)  Removed the Aperture Cover (Red tag item)	