



Minutes of Meeting

SPIRE-AST-MOM-003059

Date:	19.09.07	Herschel	
Doc.-No.:	HP-2-ASED-MN-1405		
Meeting place:	FN	Chairman:	B. Collaudin
Date/Time:		Secretary	R. Stritter
Agenda dated:	Agenda on pg. 2	Close of Meeting:	

Subject: **TRR for SPIRE FM WFT**

Participants:	A. Koppe, ASED S. Idler, ASED R. Stritter, ASED B. Collaudin, TAS-F G. Doubrovik, TAS-F by tel. S. Sidher, SPIRE B. Swinyard, SPIRE by tel. D. Griffin, SPIRE by tel.	Participants:	K. Goodey, ESA C. Scharnberg, ESA Additional ESA Distribution: TAS-F
---------------	--	---------------	---

Page: 1 of Page(s)

<input type="checkbox"/> Brief-Minutes (except following sheets)	<input type="checkbox"/> Summary of Results of Sheets 2 till
--	--

Summary and Conclusion :

The WFT can proceed as planned, assuming successful completion of OW identified in para 4.



Reference	Results	Remarks
	<p data-bbox="394 427 607 459">TRR Agenda :</p> <ol data-bbox="488 501 1402 1139" style="list-style-type: none"><li data-bbox="488 501 1263 539">1. Configuration status of H/W and S/W (Test Article)<li data-bbox="488 555 981 593">2. Inspection / Integration Status<li data-bbox="488 609 797 647">3. NCR / RFW Status<li data-bbox="488 663 927 702">4. Open Work / Open Actions<li data-bbox="488 718 1088 756">5. Test Procedure (available / approved)<li data-bbox="488 772 658 810">6. Test S/W<li data-bbox="488 826 1151 865">7. Safety hazards and hazardous operations<li data-bbox="488 880 1402 919">8. Cleanliness (facility cleanliness, cleanliness req. of item,...)<li data-bbox="488 935 1057 973">9. Test personnel and responsibilities<li data-bbox="488 989 766 1027">10. Problem Areas<li data-bbox="488 1043 609 1082">11. AOB<li data-bbox="488 1098 712 1136">12. Conclusion	



Reference	Results	Remarks
	<p>Introduction:</p> <p>This TRR covers the SPIRE WFT iaw. the TP HP-2-ASED-TP-0167</p> <p>The IRR for SPIRE FM Electrical mating (PLM to SVM) was held on 12.09.07 ref HP-2-ASED-MN-1399. The corresponding electrical mating TR is HP-2-ASED-TR-0213.</p> <hr/> <p><u>PTR for mating and integration of SPIRE :</u></p> <ol style="list-style-type: none"> 1. Configuration : missing harness → non flight configuration, PTC flight harness connected to non flight connection (BoB) – NCR to be raised for tracking the test configuration. Missing harness part is 312100 J1A and J1B (tbc). For ESD causes this harness exchange will be done when a dedicated PR will be available from SPIRE. The harness itself is available. 2. LPU connectors mechanically not connected to CB (312300 J01 and J02), for LPU final integration the cryoharness has to be modified. Thermal instrumentation will be completed during LPU modification phase. 3. DCU 02 frames to be checked during WFT. 4. Problem observed when switching on the DPU – NCR will be raised (tbc - missing 5,1 event packets from boot S/W). No impact to WFT. <hr/>	<p>OW</p>



Reference	Results	Remarks
	<p>1. Configuration Status of H/W, S/W and EGSE</p> <p><u>Current SVM H/W configuration :</u></p> <p>Ref. SVM ABCL (at delivery)</p> <ul style="list-style-type: none"> • H-P-LI-AI-0023 • Iss 7 • 15/11/06 <p>Changes implemented by ASED subsequent to delivery see ASED SVM ISL HP-2-ASED-LI-0033. LPU is not installed !</p> <p><u>Current PLM H/W configuration :</u></p> <p>Ref. PLM ISL HP-2-ASED-LI-0032. (ASED to check if missing cable is noted !!)</p> <p>Cryostat is presently not evacuated – no problem for the WFT.</p> <p><u>SPIRE FM unit configuration :</u></p> <p>Ref. SPIRE FM Instrument EIDP, HP-2-RAL-DP-0004, Iss. 2.0 plus delta documents provided with EIDP iss 2.1.</p> <p>and to SPIRE FM ABCIDL SPIRE-RAL-DOC-002840, Iss. 2.0</p> <p><u>SPIRE OBSW and MIB configuration (at delivery):</u></p> <p>SPIRE S/W CIDL : SPIRE-RAL-NOT-002873, Iss. 1.0</p>	



Reference	Results	Remarks						
	<p>SPIRE MIB version : SPIRE_MIB_FM_2.2G5_PR_2 provided by SPIRE and integrated into the HPSDB iss 14.</p> <p><u>HPSDB configuration :</u></p> <table border="1" data-bbox="398 612 1480 767"> <tr> <td>Central Site HPSDB v.</td> <td>3.3.1.22 "Hamster"</td> </tr> <tr> <td>Data Base</td> <td>W TM_HERSCH_FM4_C_708301228</td> </tr> <tr> <td>Release Note</td> <td>H-P-2-ASP-LI-1361 issue 14 draft 05/09/2007</td> </tr> </table> <p><u>EGSE S/W configuration :</u></p> <p>Refer to Annex 1</p> <p>2. Inspection / Integration Status</p> <p>Presently the SPIRE SVM panel is closed, re-opening will be necessary for the final LPU integration activities. Before final closure a MIP will be performed.</p> <p>A KIP was performed after SPIRE FPU integration to OBA. Before final closure of cryostat a MIP will be performed.</p> <p>SPIRE FPU was finally connected to SPIRE WU, refer to ASED electrical mating TR.</p>	Central Site HPSDB v.	3.3.1.22 "Hamster"	Data Base	W TM_HERSCH_FM4_C_708301228	Release Note	H-P-2-ASP-LI-1361 issue 14 draft 05/09/2007	<p>Annex 1</p>
Central Site HPSDB v.	3.3.1.22 "Hamster"							
Data Base	W TM_HERSCH_FM4_C_708301228							
Release Note	H-P-2-ASP-LI-1361 issue 14 draft 05/09/2007							



Reference	Results	Remarks
	<p>3. NCR/RFW status:-</p> <p>The following NCR reviews have been held.</p> <p>Step 1:-HP-2-ASED-MN-1392 dated 29.08.07 SVM H/W related Step 2:-HP-2-ASED-MN-1393 dated 03.09.07 PLM H/W related Step 3:-HP-2-ASED-MN-1394 dated 05.09.07 TASI H/W related Step 4:-H-P-TASF-MN-9517 dated 06.09.07 RMS Functional</p> <p>SPIRE NCR Review HP-2-ASED-MN-1398 dated 10.09.07</p> <p>None of the open SPIRE related NCRs identified therein are blocking or affecting the WFT.</p> <p>NC-3276 - this NCR is not blocking but could led to significant longer test time. TAS-F response to AI from ASED-MN-1398 is shown in mail from GD, see Annex 2.</p> <p>NCR to be raised for missing harness – non flight configuration, PTC flight harness connected to non flight connection (BoB) –for tracking the test configuration.</p> <p>NCR to be raised for problem observed when switching on the DPU – NCR will be raised (tbc - missing 5,1 event packets from boot S/W).</p> <p>4. Open Work / Open Actions</p> <p>The following OW to be performed prior to start of WFT has been identified:</p> <p>Check of SPIRE MIB on IEGSE to be noted in the as-run.</p> <p>Request from SPIRE : Switch on SPIRE DPU nom and red., an ACS will be raised for this</p>	<p>Annex 2</p>



Reference	Results	Remarks
	<p>procedure variation. - done</p> <p>Update of the TP according to para 5. below.</p> <p>W.r.t. ESD constraints the open connectors of the BoB shall be protected by ESD foil.</p> <p>DCU 02 frames to be checked during WFT.</p> <p>5. Test Procedure</p> <p>Leading procedure HP-2-ASED-TP-0167 based on SPIRE WFT procedure SPIRE-RAL-PRC-002422_2.3 plus comments from TAS-F (e-mail BC).</p> <p>The following points have been identified and need to be updated to iss 1 according to the received mails. Steps which will be actually performed are shown in Annex 3. <i>implemented in ASED-TP-0167</i></p> <p>The updated ASED TP as-run will be released by SPIRE test engineer and TAS-F test director before start of the WFT.</p> <p>6. Test S/W</p> <p>IEGSE set up PR is PICC-ME-TN-021 Iss 1 dated 03.07.07, SPIRE specific set-up PR is SPIRE-RAL-DOC-002841 Iss 2.0</p> <p>IEGSE S/W version: HCSS build # 1207 and SPIRE build 555</p> <p>IEGSE MIB version: SPIRE_MIB_FM_2.2G6_PR</p>	<p>Annex 3, see ASED-TP-0167</p>



Reference	Results	Remarks
	<p>SPIRE WFT test S/W (TCL scripts release notes from 14.09.07) is given in Annex 4.</p> <p>7. Safety Hazards/operations and ESD Constraints</p> <p>General Herschel ESD rules for PLM and S/C integration activities, HP-2-ASED-PR-0062, shall be considered.</p> <p>W.r.t. ESD constraints the open connectors of the BoB shall be protected by ESD foil.</p> <p>8. Cleanliness (facilities and test item)</p> <p>FPU is mounted on OB inside provisionally closed cryostat, as such protected against environmental contamination.</p> <p>Facility is CL 100,000 for WUs</p> <p>9. Test Personnel and responsibilities</p> <p>SPIRE Instrument Responsible : Sunil Sidher, A.Dowell TASF Test Director : B.Collaudin ASED Instrument I/F : S.Idler ASED Operator : S.Hamer ASED Test Conductor : A. Koppe ASED PA : R. Stritter ESA : K.Goodey/ C.Scharmberg</p>	<p>Annex 4</p> <p>OW</p>



Reference	Results	Remarks
	<p data-bbox="398 437 672 469">10. Problem areas</p> <p data-bbox="398 510 613 542">None identified</p> <p data-bbox="398 622 515 654">11 AOB</p> <p data-bbox="398 695 672 727">Planning/schedule:</p> <p data-bbox="398 727 1532 759">Test is planned 07-00 to 19-00 Thursday 20.09.07 (Sat switch-on starts at 06-00)</p> <p data-bbox="398 759 810 791">Contingency : CW 39 (TBC)</p> <p data-bbox="398 839 591 871">PTR : CW 39</p> <p data-bbox="398 951 627 983">12. Conclusion</p> <p data-bbox="398 1024 1724 1056">The WFT can proceed as planned, assuming successful completion of OW identified in para 4.</p>	

Meeting: ASED-MN-1405

Title:

Date: 19.09.07

Action Item List

Herschel

No.:	Description:	Due Date	Originator Comp./Pers.	Actionee Comp./Pers.	Source	Completion

Annex A

Herschel EGSE SW Configuration

14-September-2007

CCS - Set 2	
hpccs	2.0-1098
Installation date	23. Aug 07
Note	

MOIS	
Version	05:03:15
Installation date	May 2007
Note	

ACMS SCOE	
asim - acmssim-Systemtest	1.5-1
Installation date	
Note	
asim - acmssim-acms	2.11-1
Installation date	20.06.2007
Note	
atsup - acmstsup-v0plus-newdb	1.0-1
Installation date	
Note	
atsup - acmsisup-scoesystem	3.4-10
Installation date	20.06.2007
Note	
atsup - acmstsup-tutorial	1.0-1
Installation date	
Note	
atsup - acmstools	0.4-1
Installation date	
Note	
atsup - hpccs	2.0-637
Installation date	
Note	
atsup - hpccs-demo	0.0-748
Installation date	
Note	
atsup - hpccs-plotter	0.0-471
Installation date	
Note	

TM/TC DFE - Set 3	
EIU	01.01.00
Installation date	
Note	
System Controller	2.11.4.423
Installation date	23. Jan 07
Note	
CMS GUI	2.11.04
Installation date	23. Jan 07
Note	
TM/TC Config tool	1.1.4.0
Installation date	21. Jun 06
Note	
TM/TC Remote Interface (PIPE)	1.4.1.0
Installation date	28. Sep 06
Note	
Generic SLNGT NDIU Lite I/F	v1.2.1.34
Installation date	28. Jul 06
Note	
FIRMWARE	0616 issue3 rev4
Installation date	09. Mrz 07
Note	
BHC Baseband hardware controller	1.5.0.76
Installation date	09. Mrz 07
Note	

CDMU SCOE - Set 3	
SSBV SW version - CMS	2.2.1.0
Installation date	
Note	
PIPE INTERFACE	2.1.0.0
Installation date	
Note	
Archive Browser	2.2.2.72
Installation date	
Note	
IPC handler object implementation	2.4.0.18
Installation date	
Note	

BUS MONITOR	
SSBV SW version	1.11.1.87
Installation date	31. Mai 05
Note	Please refer to H-P-IR-BM-0224
REMOTE INTERFACE - PIPE I/F	1.2.1.0
Installation date	31. Mai 05
Note	Please refer to H-P-IR-BM-0224
TT&C	
Siemens SW Version	1.21 r 0
Installation date	04. Mrz 05
Note	
Tcl/Tk	8.4/8.4
Installation date	
Note	
SAS - Set 3	
Siemens SW Version	1v9 r5
Installation date	01. Dez 06
Note	
CDMIF	1,3
Installation date	15. Jan 05
Note	
Tcl/Tk	8.4/8.4
Installation date	
Note	
HPIB	2,5
Installation date	
Note	
TclUtil	1,05
Installation date	
Note	
DAQ	1,35
Installation date	
Note	
ELGAR	3.02.010
Installation date	11. Okt 06
Note	

BS - Set 3	
Siemens SW Version	1v9 r 3
Installation date	28. Apr 06
Note	
CDMIF	1,4
Installation date	05. Okt 04
Note	
Tcl/Tk	8.4/8.4
Installation date	
Note	
HPIB	2,5
Installation date	02. Sep 04
Note	
TclUtil	1,05
Installation date	
Note	
DAQ	1,26
Installation date	
Note	

BCE - Set 3	
Siemens SW Version	1v6 r2
Installation date	29. Apr 06
Note	
CDMIF	1,1
Installation date	11. Aug 04
Note	
Tcl/Tk	8.4/8.4
Installation date	
Note	
HPIB	2,5
Installation date	
Note	
TclUtil	1,05
Installation date	
Note	
DAQ	1,32
Installation date	
Note	

by LA

CRYO PFM SCOE	
TAS-A H/W version	ABSp-HW-1801-AAAA-0001

NOTE	the VSMD drawer currently mounted on the PFM rack belongs to the RPFM rack and vice versa!
TAS-A SW Version of CRYO PFM	1.1.2
Installation date	2006
Note	
TAS-A SW Version of CRYO RPFM	1.0.4
Installation date	2006
Note	
NI Version LabVIEW	7.0
Installation date	2006
Note	

by VLG

14. Sep 07

Amor ?

Idler, Siegmund

Von: guy.dobrovik@thalesalieniaspace.com
Gesendet: Dienstag, 18. September 2007 17:13
An: Astrid.Heske@esa.int; Helmut Feuchtgruber HERSCHEL-PACS @ MPE; Carsten.Scharmberg@esa.int; Hendry, David (external); Idler, Siegmund; Simon Hamer 'sih@terma.com'; sih_by@blueyonder.co.uk; Hamer, Simon (external); Gageur Ulrich (ulrich.gageur@esa.int); D.K.Griffin@rl.ac.uk; S.D.Sidher@rl.ac.uk; Swinyard, BM (Bruce) ; nicjknight@aol.com; bernard.collaudin@thalesalieniaspace.com; Koppe, Axel
Cc: g_beaufils@altran-tech.net; patrice.couzin@thalesalieniaspace.com; benoit.gobillot@thalesalieniaspace.com
Betreff: AI#1 of HP-2-ASED-MN-1400, NC3276

Answer to AI concerning HP-130000-ASEDNC-3276 (HPCCS Appears to Receive TM Packets in Bursts)

according :
AI#1 of HP-2-ASED-MN-1400, PTR FOR PACS FM UFT 2, 13/09/07 AI#x of HP-2-ASED-MN-1398, SPIRE NCR Review 10.09.07

AI: TASF will clarify the status of the ongoing off line investigations prior to the WFT
Please find here after status and explanation mail from Gilles Beaufils.

It shows that this "Packets sent in Burst" is the nominal functioning of S/C CDMU.
Maybe more direct discussion between experts (Gilles, Simon, Instruments) is needed, particularly to take it into account for instruments testing with the CCS (optimising the scripts if needed)

Regards

----- Réacheminé par Guy Dobrovik/ALCATEL-SPACE le 18/09/2007 16:47 -----

g_beaufils@altran-tech.net
<guy.dobrovik@thalesalieniaspace.com>
18/09/2007 15:33
Pour : "Guy DOUBROVIK"
cc :
Objet : [Fwd: Tr : SPIRE NC 3276 & 3211]

Hi Guy

I have checked the NCR. The NCR do not give enough information to be sure that this may be the cause of the problem. There is specifically no indication of the observed timings.

But to some scale, the S/C Hk SHALL appear to arrive in burst.

This is linked to the TM encoder (hardware) setting, which itself is linked to several compromises.

The observable behaviour, is (shall be) that the S/C Hk data is downlinked in big packets of packets (a VCO frame for specialists) according what looks like a "random walk" whose mean frequency is never far better than 2s when the S/C is fully configured.

In fact the downlink delay is not random, but depends on the conjunction of the Hk period of the different on board units, as well as the "asynchronous" traffic : but in practice this denies any simple rule.

For information, with the S/C in "minimum" configuration with only the CDMS ON (which is the background of some AIT test), you can observe downlink delays between two "arrival" up 12s.

Of course this delay does not exist if you operate an instrument or the CCU from its 1553 interface. Whenever you adapt script from unit level testing, this shall be properly managed. If not : this can be the cause of the reported troubles.

For who want a more detailed explanation :

The TM (hardware) encoder is set for VC0, for waiting up to "1024 polls" before allowing itself to complement a "VC0 frame" with dummy packets to downlink it.

In practice, this ensures that, even considering the most minimum TM traffic, the TM encoder never downlinks a VC0 frame that is not full with usefull data.

For what i was told, this is set to ensure a proper TM bandwidth usage at the reduced TM rate of 5kbps and 500bps (launch, contingency).

This means in turn that the TM encoder waits to have at least 1099 bytes of data in its buffer before sending down those data.

Considering that the VC0 traffic shall be by construction, lower than 4928bps at TM packet level (i.e. "5kbps" at "frame level"), in no case the TM encoder will downlink data a mean rate better than a frame every $1s78\ 1099 \times 8 / 4928$. As the traffic is (shall be) never saturated : consider indeed about 2s mean delay better case.

Exact timing depends of the size and time of arrival of the packets. If all the on board units that generate TM are not ON, the frame are filled more slowly and the transmission delay between frames (so TM packet transmission delay) increases. This can be tricky for a script too accurate on timing, run in changing background configuration !

The minimum background is defined by the CDMS essential "high rate" packets, emitted every 4s. A few more than 3 (3.04) of those packets is necessary to fill a frame. So if there is no more traffic, no frame can be downlinked before the 4th of this packet is generated on board : $4 \times 4s = 16s$. This extreme case needs a rare boundary coincidence between packets and frames. A 12s delay between frames in minimum configuration is in turn recurrent.

I do not know if the above explanation answers the rproblem, but may-be not bad to recall this anyway.

Best regards
Gilles BEAUFILS

Guy DOUBROVIK

Herschel-Plank Project , Cannes -- Herschel Instruments Tel : 33 (0)4 92 92 69 27
Mobile: NA / Fax : 33 (0)4 92 92 30 10 Porte : Y04-113 / E-Mail :
guy.doubrovik@thalesaleniaspace.com

Annex 4

SPIRE FM WFTs Release Note: SPIRE_FM_WFTs_14Sep2007.release_note

=====
Date of Release : 14th Sept 2007
WFT Scripts Archive: SPIRE_FM_WFT_Scripts_14Sep2007.zip
Author: Sunil D. Sidher

Description:

=====
Procedures and scripts for the SPIRE Warm Functional Tests at EADS Astrium, Friedrichshafen. Tests are to be performed in the presence of SPIRE I-EGSE staff.

Procedure:

=====
SPIRE-RAL-PRC-002422, Issue 2.3, 10th Sept. 2007

Test Scripts:

=====
Number of scripts in WFT Scripts Archive: 98

Contents of WFT Scripts Archive:

SPIRE-FM-WFT-BSM-INIT-P.tcl:#\$Id: SPIRE-FM-WFT-BSM-INIT-P.tcl,v 1.1 2007/09/14 14:09:51 ssidher Exp \$
SPIRE-FM-WFT-BSM-INIT-R.tcl:#\$Id: SPIRE-FM-WFT-BSM-INIT-R.tcl,v 1.1 2007/09/14 14:09:51 ssidher Exp \$
SPIRE-FM-WFT-BSM-OFF-P.tcl:#\$Id: SPIRE-FM-WFT-BSM-OFF-P.tcl,v 1.1 2007/09/14 14:09:51 ssidher Exp \$
SPIRE-FM-WFT-BSM-OFF-R.tcl:#\$Id: SPIRE-FM-WFT-BSM-OFF-R.tcl,v 1.1 2007/09/14 14:09:51 ssidher Exp \$
SPIRE-FM-WFT-DPU-START-P-SP.tcl:#\$Id: SPIRE-FM-WFT-DPU-START-P-SP.tcl,v 1.1 2007/09/14 14:09:51 ssidher Exp \$
SPIRE-FM-WFT-DPU-START-R-PP.tcl:#\$Id: SPIRE-FM-WFT-DPU-START-R-PP.tcl,v 1.1 2007/09/14 14:09:51 ssidher Exp \$
SPIRE-FM-WFT-DRCU-OFF-P.tcl:#\$Id: SPIRE-FM-WFT-DRCU-OFF-P.tcl,v 1.1 2007/09/14 14:09:52 ssidher Exp \$
SPIRE-FM-WFT-DRCU-OFF-R.tcl:#\$Id: SPIRE-FM-WFT-DRCU-OFF-R.tcl,v 1.1 2007/09/14 14:09:52 ssidher Exp \$
SPIRE-FM-WFT-DRCU-START-P-STEP1.tcl:#\$Id: SPIRE-FM-WFT-DRCU-START-P-STEP1.tcl,v 1.1 2007/09/14 14:09:52 ssidher Exp \$
SPIRE-FM-WFT-DRCU-START-P-STEP2.tcl:#\$Id: SPIRE-FM-WFT-DRCU-START-P-STEP2.tcl,v 1.1 2007/09/14 14:09:52 ssidher Exp \$
SPIRE-FM-WFT-DRCU-START-R-STEP1.tcl:#\$Id: SPIRE-FM-WFT-DRCU-START-R-STEP1.tcl,v 1.1 2007/09/14 14:09:52 ssidher Exp \$
SPIRE-FM-WFT-DRCU-START-R-STEP2.tcl:#\$Id: SPIRE-FM-WFT-DRCU-START-R-STEP2.tcl,v 1.1 2007/09/14 14:09:52 ssidher Exp \$
SPIRE-FM-WFT-FUNC-BSM-01-P.tcl:#\$Id: SPIRE-FM-WFT-FUNC-BSM-01-P.tcl,v 1.1 2007/09/14 14:09:52 ssidher Exp \$
SPIRE-FM-WFT-FUNC-BSM-01-R.tcl:#\$Id: SPIRE-FM-WFT-FUNC-BSM-01-R.tcl,v 1.1 2007/09/14 14:09:52 ssidher Exp \$
SPIRE-FM-WFT-FUNC-BSM-02C-P.tcl:#\$Id: SPIRE-FM-WFT-FUNC-BSM-02C-P.tcl,v 1.1 2007/09/14 14:09:52 ssidher Exp \$
SPIRE-FM-WFT-FUNC-BSM-02C-R.tcl:#\$Id: SPIRE-FM-WFT-FUNC-BSM-02C-R.tcl,v 1.1 2007/09/14 14:09:52 ssidher Exp \$
SPIRE-FM-WFT-FUNC-BSM-02J-P.tcl:#\$Id: SPIRE-FM-WFT-FUNC-BSM-02J-P.tcl,v 1.1 2007/09/14 14:09:52 ssidher Exp \$
SPIRE-FM-WFT-FUNC-BSM-02J-R.tcl:#\$Id: SPIRE-FM-WFT-FUNC-BSM-02J-R.tcl,v 1.1 2007/09/14 14:09:52 ssidher Exp \$
SPIRE-FM-WFT-FUNC-BSM-03-P.tcl:#\$Id: SPIRE-FM-WFT-FUNC-BSM-03-P.tcl,v 1.1 2007/09/14 14:09:52 ssidher Exp \$
SPIRE-FM-WFT-FUNC-BSM-03-R.tcl:#\$Id: SPIRE-FM-WFT-FUNC-BSM-03-R.tcl,v 1.1 2007/09/14 14:09:52 ssidher Exp \$

SPIRE-FM-WFT-FUNC-SMEC-07-P.tcl:##\$Id: SPIRE-FM-WFT-FUNC-SMEC-07-P.tcl,v 1.1
2007/09/14 14:09:57 ssidher Exp \$
SPIRE-FM-WFT-FUNC-SMEC-07-R.tcl:##\$Id: SPIRE-FM-WFT-FUNC-SMEC-07-R.tcl,v 1.1
2007/09/14 14:09:57 ssidher Exp \$
SPIRE-FM-WFT-FUNC-SMEC-09-P.tcl:##\$Id: SPIRE-FM-WFT-FUNC-SMEC-09-P.tcl,v 1.1
2007/09/14 14:09:57 ssidher Exp \$
SPIRE-FM-WFT-FUNC-SMEC-09-R.tcl:##\$Id: SPIRE-FM-WFT-FUNC-SMEC-09-R.tcl,v 1.1
2007/09/14 14:09:57 ssidher Exp \$
SPIRE-FM-WFT-MCU-OFF-P.tcl:##\$Id: SPIRE-FM-WFT-MCU-OFF-P.tcl,v 1.1 2007/09/14
14:09:57 ssidher Exp \$
SPIRE-FM-WFT-MCU-OFF-R.tcl:##\$Id: SPIRE-FM-WFT-MCU-OFF-R.tcl,v 1.1 2007/09/14
14:09:57 ssidher Exp \$
SPIRE-FM-WFT-PDET-OFF-P.tcl:##\$Id: SPIRE-FM-WFT-PDET-OFF-P.tcl,v 1.1 2007/09/14
14:09:57 ssidher Exp \$
SPIRE-FM-WFT-PDET-OFF-R.tcl:##\$Id: SPIRE-FM-WFT-PDET-OFF-R.tcl,v 1.1 2007/09/14
14:09:57 ssidher Exp \$
SPIRE-FM-WFT-SCU-OFF-P.tcl:##\$Id: SPIRE-FM-WFT-SCU-OFF-P.tcl,v 1.1 2007/09/14
14:09:58 ssidher Exp \$
SPIRE-FM-WFT-SCU-OFF-R.tcl:##\$Id: SPIRE-FM-WFT-SCU-OFF-R.tcl,v 1.1 2007/09/14
14:09:58 ssidher Exp \$
SPIRE-FM-WFT-SDET-OFF-P.tcl:##\$Id: SPIRE-FM-WFT-SDET-OFF-P.tcl,v 1.1 2007/09/14
14:09:58 ssidher Exp \$
SPIRE-FM-WFT-SDET-OFF-R.tcl:##\$Id: SPIRE-FM-WFT-SDET-OFF-R.tcl,v 1.1 2007/09/14
14:09:58 ssidher Exp \$
SPIRE-FM-WFT-SMEC-INIT-P.tcl:##\$Id: SPIRE-FM-WFT-SMEC-INIT-P.tcl,v 1.1 2007/09/14
14:09:58 ssidher Exp \$
SPIRE-FM-WFT-SMEC-INIT-R.tcl:##\$Id: SPIRE-FM-WFT-SMEC-INIT-R.tcl,v 1.1 2007/09/14
14:09:58 ssidher Exp \$
SPIRE-FM-WFT-SMEC-OFF-P.tcl:##\$Id: SPIRE-FM-WFT-SMEC-OFF-P.tcl,v 1.1 2007/09/14
14:09:58 ssidher Exp \$
SPIRE-FM-WFT-SMEC-OFF-R.tcl:##\$Id: SPIRE-FM-WFT-SMEC-OFF-R.tcl,v 1.1 2007/09/14
14:09:58 ssidher Exp \$

Versions of scripts are as indicated above.
All scripts are tagged SPIRE_WFT_PROC_V2_3 in the SPIRE CVS respository.

Name	Dep./Comp.		Name	Dep./Comp.
Alberti von Mathias Dr.	ASG23	X	Schmidt Thomas	AED15
Baldock Richard	FAE12		Schuler Günter	ASA42
X Barlage Bernhard	AED13		Schweickert Gunn	ASG23
X Bayer Thomas	ASA42		Sonn Nico	ASG51
Brune Holger	ASA45		Steininger Eric	AED32
Edelhoff Dirk	AED2	X	Stritter Rene	AED11
Fehringer Alexander	ASG13		Suess Rudi	OTN/ASA44
X Fricke Wolfgang Dr.	AED 65		Theunissen Martijn	DSSA
Geiger Hermann	ASA42	X	Vascolto Riccardo	AED11
Grasi Andreas	OTN/ASA44		Wagner Klaus	ASG23
Grasshoff Brigitte	AET12	X	Wietbrock Walter	AET12
Hamer Simon	Terma		Wöhler Hans	ASG23
Hendrikse Jeffrey	HE Space		Wössner Ulrich	ASE252
X Hendry David	Terma	X	Zumstein Armin	ASQ42
Hengstler Reinhold	ASA42			
Hinger Jürgen	ASG23			
X Hohn Rüdiger	AED65			
Hözle Edgar Dr.	AED32			
X Hopfgarten Michael	AED32			
Huber Johann	ASA42			
Hund Walter	ASE252			
X Idler Siegmund	AED312			
Ivány von András	FAE12			
X Jahn Gerd Dr.	ASG23			
Kalde Clemens	ASM2			
Kameter Rudolf	OTN/ASA42	X	ESA/ESTEC	ESA
X Kettner Bernhard	AET42	X	Thales Alenia Space Cannes	TAS-F
Knoblauch August	AET32		Thales Alenia Space Torino	TAS-I
X Koelle Markus	ASA43			
X Koppe Axel	AED312		Instruments:	
X Kroeker Jürgen	AED65		MPE (PACS)	MPE
La Gioia Valentina	Terma	X	RAL (SPIRE)	RAL
Lang Jürgen	ASE252		SRON (HIFI)	SRON
X Langenstein Rolf	AED15			
X Langfermann Michael	ASA41			
Martin Olivier	ASA43		Subcontractors:	
Maukisch Jan	ASA43		Austrian Aerospace	AAE
Much Christoph	ASA43		Austrian Aerospace	AAEM
Müller Jörg	ASA42		BOC Edwards	BOCE
X Müller Martin	ASA43		Dutch Space Solar Arrays	DSSA
Peltz Heinz-Willi	ASG13		EADS Astrium Sub-Subsyst. & Equipment	ASSE
Pietroboni Karin	AED65		EADS CASA Espacio	CASA
Platzer Wilhelm	AED2		EADS CASA Espacio	ECAS
Reichle Konrad	ASA42		European Test Services	ETS
Runge Axel	OTN/ASA44		Patria New Technologies Oy	PANT
Sauer Maximilian Dr.	AED65		SENER Ingeniería SA	SEN
Schink Dietmar	AED32		Thales Alenia Space, Antwerp	TAS-ETCA