



SPIRE-AST-COM-002012

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Reference:
HP-ASED-FX-0096-04
Date:
13.02.2004

Subject: Response to AI#7, SPIRE I/F Meeting, HP-ASP-MN-4307, 10/02/04,

Clarification of inconsistencies between the Cryoharness Tables in the IID-A (consistent with HP-2-ASED-TN-0010, Issue 3.0) and the SPIRE Cryoharness Tables in SPIRE IID-B

Dear Sirs,

At the above reference SPIRE IF Meeting an inconsistency between the above referenced cryoharness tables was identified.

The complete set of cryoharness-tables was reviewed and the following was detected:

• **Cryoharness - CVV Internal:**

1. C1 harness branch: Spectrometer JFET: Harnesses of Connector P09/P10 are redundant. Specified average currents for redundant harness (Connector P10) shall be all zero (see **Annex 1**)
2. C3 harness branch: Photometer JFET: Harnesses of Connector P27/P26 are redundant. Specified average currents for redundant harness (Connector P10) shall be all zero (see **Annex 1**)
3. C10 HS Heater Pump split in two, i.e. Evaporator and Sorption HS Heater, I_{average} doubled (see table below)
4. C11 BSM Chop motor drive and BSM Jiggle motor drive average currents increased from 1.0E-02A to 2.0E-02A and 2.5E-03A to 5.0E-03A, respectively (wrt. IID-B, Issue 2.2 and IID-B, Issue 3.11, see table below)

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From: Horst Faas
 Ref.: HP-ASED-FX-0096-04
 Date: 13.02.2004

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5. C11 SMEC LVDT Secondaries I_{max} (5.0E-05) and I_{average} (5.0E-02). I_{average} is a typo. Value of SPIRE IID-B, Issue 2.2 to be used (see **Annex 1** and table below)
6. C11 SMEC Drive Coil / (Rob) now 8.00E-02A / 0.0A instead of twice 4.00E-02A. Following discussion with SPIRE it was agreed that the values from SPIRE IID-B, issue 2.2 are maintained. (see table below and attached email, **Annex 2**, dated 16/02/04, from RAL/D.Griffin)

Branch	Description	Unit	Connector	R _{max} (Ohm) at 300 K	SPIRE IID-B Issue 2.2 I _{average} (A)	SPIRE IID-B Issue 3.11 I _{average} (A)	HP-ASED- TN-0010, Issue 3.0 I _{nominal} (A)	Values to be used in update of TN-0010 I _{nominal} (A)
C10	Evaporator HS Heater	HSFPU	P19	50	3.80E-04	3.80E-04	3.80E-04	3.80E-04
C10	Sorption Pump HS Heater	HSFPU	P19	50	-	3.80E-04	-	3.80E-04
C11	BSM Chop motor drive	HSFPU	P25	10	1.00E-02	2.00E-02	1.00E-02	2.00E-02
C11	BSM Jiggle motor drive	HSFPU	P25	19	2.50E-03	5.00E-03	2.50E-03	5.00E-03
C11	SMEC LVDT Secondaries	HSFPU	P27	50	3.54E-05	5.0E-02	3.54E-05	5.00E-05
C11	SMEC Drive Coil	HSFPU	P29	5	4.00E-02	8.00E-02	4.00E-02	4.00E-02
C11	SMEC Drive (Rob.)	HSFPU	P29	5	4.00E-02	0	4.00E-02	4.00E-02

• **Cryoharness - CVV External:**

7. I11/S11 BSM Chop motor drive and BSM Jiggle motor drive average currents increased from 1.0E-02A to 2.0E-02A and 2.5E-03A to 5.0E-03A, respectively (wrt. IID-B, Issue 2.2 and IID-B, Issue 3.11, see table below)
8. I11/S11 SMEC LVDT Secondaries I_{max} (5.0E-05) and I_{average} (5.0E-02). I_{average} is a typo. Value of SPIRE IID-B, Issue 2.2 to be used (see **Annex 1** and table below)
9. C11 SMEC Drive Coil / (Rob) now 8.00E-02A / 0.0A instead of twice 4.00E-02A. Following discussion with SPIRE it was agreed that the values from SPIRE IID-B, issue 2.2 are maintained. (see table below and attached email, **Annex 2**, dated 16/02/04, from RAL/D.Griffin)

Branch	Description	Unit	Connector	R _{max} (Ohm) at 300 K	SPIRE IID-B Issue 2.2 I _{average} (A)	SPIRE IID-B Issue 3.11 I _{average} (A)	HP-ASED- TN-0010, Issue 3.0 I _{nominal} (A)	Values to be used in update of TN-0010 I _{nominal} (A)
I11/S11	BSM Chop motor drive	HSFPU	P25	10	1.00E-02	2.00E-02	1.00E-02	2.00E-02
I11/S11	BSM Jiggle motor drive	HSFPU	P25	19	2.50E-03	5.00E-03	2.50E-03	5.00E-03
I11/S11	SMEC LVDT Primary	HSFPU	P27	50	2.50E-03	2.50E-03	3.54E-03	2.50E-03



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Branch	Description	Unit	Connector	R_max (Ohm) at 300 K	SPIRE IID-B Issue 2.2 I_average (A)	SPIRE IID-B Issue 3.11 I_average (A)	HP-2-ASED- TN-0010 Issue 3.0 nominal (A)	Values to be used in update of TN-0010 I_nominal (A)
I11/S11	SMEC LVDT Secondaries	HSFPU	P27	50	5.00E-05	5.0E-05	3.54E-05	5.00E-05
I11/S11	SMEC Drive Coil	HSFPU	P29	5	4.00E-02	8.00E-02	4.00E-02	4.00E-02
I11/S11	SMEC Drive (Rob.)	HSFPU	P29	5	4.00E-02	0	4.00E-02	4.00E-02

Furthermore, please note that for the lifetime calculations the duty cycles in HP-2-ASED-TN-0010, Issue 3.0 apply. They are based values provided by SPIRE in an Excel Spreadsheet (Email, dated 14/02/02). It is noted that these values are not anymore maintained in the SPIRE IID-B harness tables, although in the PACS IID-B harness table those duty cycles are still available. Please confirm the baseline for the duty cycles and re-instate those back into the SPIRE IID-B harness tables.

Please note that the Item 1, 2, 5, 6 and 9 identified above, require an update of the IID-B, Issue 3.11. Please initiate and formalize that asap.

Kind regards

EADS ASTRIUM

i. V. W. Rühle

i. A. J. Kroeker



From: Horst Faas
Ref.: HP-ASED-FX-0096-04
Date: 13.02.2004
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Annex 1:

-----Original Message-----

From: Griffin, DK (Doug) [mailto:D.K.Griffin@rl.ac.uk]
Sent: Donnerstag, 12. Februar 2004 14:23
To: 'Faas, Horst'; Griffin, DK (Doug) ; Delderfield, J (John)
Cc: 'guy.doubrovik@space.alcatel.fr'; Hund, Walter; Hauser, Armin; Lang, Juergen; Dominique Pouliquen (Dominique.Pouliquen@astrsp-mrs.fr)
Subject: RE: Clarifications of Harness Tables ...

Hi Horst,

Re: points 1 and 2. The redundant signals carry zero average current. This is an error.
Re: point 3. Once again this is an error. The secondary of the LVDT is a signal output which carries 50 uV max. I cannot say what the average will be, but it would have to be very tiny as the input impedance of the amplifier is high. For arguments sake, I will update it to 50uV average.

The primary carries up to 5mA and has an average of 2.5mA

Re: point 4. We were told to take the duty cycles out of the tables (by ESA). We have not been maintaining them.

Please let me know if you need any more clarifications

Best regards,

Doug Griffin

-----Original Message-----

From: Faas, Horst [mailto:Horst.Faas@astrium.eads.net]
Sent: 12 February 2004 12:02
To: 'Doug K. Griffin (D.K.Griffin@rl.ac.uk)'; 'John Delderfield (j.delderfield@rl.ac.uk)'
Cc: 'guy.doubrovik@space.alcatel.fr'; Hund, Walter; Hauser, Armin; Lang, Juergen; Faas, Horst
Subject: Clarifications of Harness Tables ...

Dear Doug and John,

As it seems rather difficult to get hold of you during testing, here are my questions concerning the harness table following the discussion at the last I/F Mtg.

1. C1 harness branch: Spectrometer JFET: Harness of Connector J09/J10 are redundant. Why have you specified average currents for both harnesses? Should be all zero.
2. C3 harness branch: Photometer JFET: Harness of Connector J27/J26 are redundant. Why have you specified average currents for both harnesses? Should be all zero.
3. C11 SMEC LVDT Secondaries I_{max} (5.0E-05) and I_{average} (5.0E-02) are not correct and inconsistent with LVDT Primary. Please clarify.
4. Duty cycles are not provided anymore in the Harness table in the IID-B and HDD. They should be included in future updates again. Have they been updated.

Thanks in advance for your response.

Best regards,
Horst



From: Horst Faas
Ref.: HP-ASED-FX-0096-04
Date: 13.02.2004

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Annex 2:

-----Original Message-----

From: Griffin, DK (Doug) [mailto:D.K.Griffin@rl.ac.uk]

Sent: Montag, 16. Februar 2004 11:20

To: Horst Faas (Horst.Faas@astrium.eads.net)

Cc: Delderfield, J (John) ; Dominique Pouliquen (Dominique.Pouliquen@astrsp-mrs.fr); Sawyer, EC (Eric)

Subject: SMEC Drive Currents in HDD 1.1

Hi Horst,

Regarding our phone conversation this morning, I can confirm that the average current allocated to the SMEC drive should be:

40mA average in the nominal and robust drive lines and not,

80mA average in nominal and 0mA in robust as is indicated in HDD 1.1

The peak current should remain at 100mA in both the nominal and the robust wires as is indicated in the HDD 1.1

Regards,

Doug

Douglas Griffin

Systems Engineer

RAL-Space Science and Technology Department

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