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Ref.: HP-ASED-FX-0510-02

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Betreff/Subj.: Reduction of HERSCHEL CVV Feed Through Connectors for SPIRE

Dear Sirs,

We have reached now a stage close to the final definition of the Herschel Cryo harness. A review together with the ESA project of the complexity and the technical risk showed that there are significant advantages to the system and hence ultimately to the instruments when reducing the amount of Feed Through connectors in the HERSCHEL Cryostat Vacuum Vessel. The goal is to avoid the middle connector ring.

Looking through your SPIRE Harness Definition Document SPIRE-RAL-PRJ-000608 Issue 1.0, Date 08/07/2002 and considering the required pins we found, that we can reduce the 26 Feed Through Connectors currently allocated to the Spire system to an amount of 14 to 15 connectors with 100 pins each.

Please find in the following a proposed allocation of Spire JFET and FPU connectors to the Feed Through's

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JFS Conn	Function	used Pins CVV Connector	Feed Through Connector	used Pins CVV Connector
			Change to	
J05	SLW JFET 01-12	24+1G/S=25	SPIRE FTh 01 (CVV ring connector number tbd) Part of C1 harness	74+6S/G (80 of 100)
J06	SLW JFET 13-24	24+1G/S=25		
J09	Spec Bias Tail A	26+4S/G=30		

Grounding/Shielding Concept not clear, please explain (A) wires/contacts

J07	PTC	8+1G/S=9	SPIRE FTh 02 (CVV ring connector number tbd) Part of C2 C3 harness	58+7S/G (65 of 100)
J26	PSW Biases B Re	24+2S=26		
J28	PMW/PLW Bias B Re	26+4S/G=29		

J01	SSW JFET Bol 01-12	24+1G/S=25	SPIRE FTh03 (CVV ring connector number tbd)	88 + 4 G/S (92 of 100)
J02	SSW JFET Bol 13-24	24+1G/S=25		
J03	SSW JFET Bol 25-36	24+1G/S=25		
J04	SSW JFET Bol 37-42 + 2 Spare	16+1G/S=17		

J10	Spec Bias TailB	26+4S/G=30	SPIRE FTh04 (CVV ring connector number tbd) Part of C1 C3 harness	76 + 10 S/G (86 of 100)
J25	PSW Biases A Pr	24+2S=26		
J27	PMW/PLW Bias A Pr	26+4S/G=30		

Grounding/Shielding Concept not clear, please explain (Ax,Bx,Cx,Dx) wires/contacs

J21	PMW 01-09 + 3 Spare	24+1S/G=25	SPIRE FTh05 (CVV ring connector number tbd) (C4 Harness)	96 + 4 S/G (100 of 100) 6 spares
J22	PMW 10-21	24+1S/G=25		
J23	PMW 22-33	24+1S/G=25		
J24	PMW 34-45	24+1S/G=25		

Spares wires could be used for Faraday and Overall Shield

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J17	PMW 01-09 + 3 Spare	24+1S/G=25		SPIRE FTh06 (CVV ring connector number tbd) (C5 Harness)	96 + 4 S/G (100 of 100) No spares!
J18	PMW 10-21	24+1S/G=25			
J19	PMW 22-33	24+1S/G=25			
J20	PMW 34-45	24+1S/G=25			

Pins for Faraday and Overall Shield needed !

J13	PLW	24+1S/G=25	Spares?	SPIRE FTh07 (CVV ring connector number tbd) (C6 Harness)	96 + 4 S/G (100 of 100) Spares ?
J14	PLW	24+1S/G=25			
J15	PLW	24+1S/G=25			
J16	PLW	24+1S/G=25			

Spares like C4 ?

J09	PSW	24+1S/G=25	Spares?	SPIRE FTh08 (CVV ring connector number tbd) (C7 Harness)	96 + 4 S/G (100 of 100) Spares ?
J10	PSW	24+1S/G=25			
J11	PSW	24+1S/G=25			
J12	PSW	24+1S/G=25			

Spares like C4 ?

J05	PSW	24+1S/G=25	Spares?	SPIRE FTh09 (CVV ring connector number tbd) (C8 Harness)	96 + 4 S/G (100 of 100) Spares ?
J06	PSW	24+1S/G=25			
J07	PSW	24+1S/G=25			
J08	PSW	24+1S/G=25			

Spares like C4 ?

J01	PSW	24+1S/G=25	Spares?	SPIRE FTh10 (CVV ring connector number tbd) (C9 Harness)	96 + 4 S/G (100 of 100) Spares ?
J02	PSW	24+1S/G=25			
J03	PSW	24+1S/G=25			
J04	PSW	24+1S/G=25			

Spares like C4 ?

J19	FA Cooler P	32+1S=33		SPIRE FTh11 (CVV ring connector number tbd) (C10 Harness)	80 + 4 Shd (84 of 100)
J21	FA Spect. Stim P	20+1S=21			
J23	FB Therm P	28+2S=30			

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J25	FB BSM P	30+6S=36		SPIRE FTh12 (CVV ring connector number tbd) (C11 Harness)	78 + 16 Shd (94 of 100)
J27	FC SMEC Launch P	26+4S=30			
J29	FC SMEC Control P	22+6S=28			

J20	FD Cooler R	32+1S=33		SPIRE FTh13 (CVV ring connector number tbd) (C12 Harness)	80 + 4 Shd (84 of 100)
J22	FD Spect. Stim R	20+1S=21			
J24	FE Therm R	28+2S=30			

J26	FE BSM R	30+6S=36		SPIRE FTh14 (CVV ring connector number tbd) (C13 Harness)	78 + 16 Shd (94 of 100)
J28	FF SMEC Launch R	26+4S=30			
J30	FF SMEC Control R	22+6S=28			

Before going too far with the implementation we would like to ask you for your comments, e.g. any restrictions in grouping, EMC classes, redundancy distribution, mixing high current lines with amplifier lines etc, especially in the region of JFET Faradays and Ground wires

However, if this proposal does not correspond to your needs, please give us a counterproposal which follows the redline shown before.

Due to the high criticality could you provide your agreement, respectively comments/ counterproposal by end August 2002 at the latest.

Kind regards

Astrium GmbH

i. A. A.von Ivady

i. A. R.Stritter