Minutes of Meeting

Date:	30.01.2006	**Herschel**	
Doc.-No.:	HP-2-ASED-MN-1160		
Meeting place:	Ottobrunn	Chairman:	P. Martin
Date/Time:	30.01.2006 / 14:00	Secretary	C. Schlosser
Agenda dated:		Close of Meeting:	30.01.2006

Subject: Telecon after Straylight Inspection with PACS

Participants:	P. Martin (AAS-F) H. Hartmann (ASED) C. Jewell (ESA) H. Feuchtgruber (PACS) N. Geis (PACS) D. Kampf (PACS) C. Schlosser (ASED)	Additional Distribution:	ESA ASP

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☐ Brief-Minutes (except following sheets) ☐ Summary of Results of Sheets 2 till

Conclusion:

We summarized the main findings of the inspection points. We identified what was not in the former model and we identified potential mechanisms which have to be assessed. The peak seen by PACS during FOV maps is not yet understood.

Reference	Results	Remarks
	Agenda 1. Industry understanding of PACS straylight tests (P. Martin) 2. Current investigations at Astrium 2.1 Main findings during last 2 KIPs 2.2 Questions to Instruments 2.3 Current Model Update 2.4 difference as modelled/as built 3. Next steps in terms of straylight problem **1. Industry Understanding of PACS Straylight Tests** The following summary of the problem has been taken from the PACS report: – Straylight background is 46 x higher (blue) and 26 x (red) – Non expected thermal behaviour on the red detector – Seems that straylight background is @82 K – Straylight peak moves twice at quickly as straylight background Calibration sources are "contaminated" by straylight background IMT CS1 background corresponds to ILT+70% IMT CS2 background corresponds to ILT+20% Additional information from PACS: – The non expected thermal behaviour of red detector was resolved at the same time than the cryosts thermal leak. There is no link with straylight – The peak is not influenced by the calibration source; the contaminated part is still there even if the	

Reference	Results	Remarks
	calibration source is switched off	
	2. Current Investigations at Astrium	
	2.1 Main Findings during last 2 KIPs	
	Findings of ESA and industry:	
	– HS2, HS3 and OB shield inner side are blank, whereas the HS1 is more polished	
	– among the 7 HIFI FPU mirrors (on -Y side, looking at LOU), the 6 which are not used on EQM are blanked, but there seem to be an opening in front of them, possibly enabling straylight (from hot CVV and LOU baffle) entering the HIFI FPU. This has to be confirmed by HIFI	
	– the entrance of SPIRE FPU is blank, except 5 squares (total around 30 to 50cm²) which are black and seem to be glued. This should be explained by SPIRE	
	– ASED to check which rigid pots have a chicane and which not	
	Findings of PACS:	
	– There is only an aperture on the OBA shield baffle, but not on the HS 2 baffle	AI 01 ASED C. Schlosser
	– What was the alignment accuracy, what are the impacts of cooling down and tilting?	
	– ASED to check cover cool down impact on alignment of the cover mirror	AI 02 ASED B. Kettner
	– How well is the aperture surface aligned to the optical bench? Does it change with the temperature or the tilting of the EQM?	
	– Are the openings for the harness and flexible links correctly computed in the model (50 cm² estimated in model)?	AI 03 ASED H. Hartmann
	– Holes in the thermal shields for the tank safety valves (rupture discs) are only "closed" by MLI. All are in direct path to the innermost part. This is not yet in the model.	

Reference	Results	Remarks
	– The aluminium foil on top of HS2 is loosely fixed to HS2. 300K flux could go through. **2.2 Questions to Instruments** **2.2.1 PACS** – Can the strange red detector thermal behaviour be linked to straylight on this detector? PACS answer: no. the correct behaviour was recovered after EQM cryostat repair – Could the sharp spot shown in the 1dimension field maps be a sharp edge? PACS answer: straylight peak is a spot in 2D.. it is not an edge – During field scanning from CS1 toward CS2, do the blue detectors see sharp edges/spot inside PACS? PACS answer: no obvious hot spot. ASED has the information in terms of chopper angle needed to image the blackbody PACS processed the measured FOV without calibration sources. The Straylight peak on the calibration source is found to have the same behaviour than the peak at the center, moving twice more quickly than the background **2.2.2 SPIRE** – Explanation of SPIRE EQM entrance and description of FM – straylight report just arrived **2.2.3 HIFI** – Clarification of HIFI openings on LOU side.	

Reference	Results	Remarks
	2.3 Current Model Update – Major: cryo cover BRDF is increased to a "best guess" level – Major: HS2 baffle has been removed from model – Minor: temperature update, in relation with EQM measurement – Check coherence between cryo-cover as-build and as-modelled **2.4 Difference between EQM Hardware and current EQM Straylight model:** – Major: HIFI straylight model is FM – Major: SPIRE straylight model entrance is fully black (see EQM hardware above) – Major: PACS calibration path and scanning movements are not modelled – Minor: TS2 upper foil is not modelled – Minor: a gap is modelled between TS2 ands TS3 (covered by MLI on EQM) – Major or Minor?: the emission and reflection coefficients on the modelled surfaces do not depend upon angles, whereas in reality, it depends on it. – Major or Minor? Holes in the thermal shields for the tank safety valves (rupture discs) are only "closed" by MLI. All are in direct path to the innermost part. This is not yet in the model. **3. Next Steps** – Recalculation of the straylight with the updated model (preliminary draft version available on 31.01.06 – Re-assess the flight performance (after understanding effects on EQM)	

Action Items List

No.:	Description:	Due Date	Originator Comp./Pers.	Actionee Comp./Pers.	Source	Completion
01	ASED to check which rigid pots have a chicane	17.02.06	AAS-F/Martin	ASED/Schlosser		
02	ASED to check cover cool down impact on alignment of the cover mirror	17.02.06	AAS-F/Martin	ASED/Kettner		
03	ASED to check whether the openings for the harness and flexible links are correctly computed in the model	17.02.06	AAS-F/Martin	ASED/Hartmann		

EADS Astrium

	Name	Dep./Comp.		Name	Dep./Comp.
X	Alberti von Mathias Dr.	AOE22		Schink Dietmar	AED44
	Barlage Bernhard	AED11	X	Schlosser Christian	OTN/AOA54
	Bayer Thomas	AOA52		Schmidt Rudolf	FAE22
	Brune Holger	AOA55		Schweickert Gunn	AOE22
	Edelhoff Dirk	APS3		Steininger Eric	AED32
	Fehringer Alexander	AOE13	X	Stritter Rene	AED11
X	Fricke Wolfgang Dr.	AED 65		Suess Rudi	AOA54
	Geiger Hermann	AOA52		Thörmer Klaus-Horst Dr.	OTN/AED65
	Gerner Willi	AED11		Wagner Klaus	AOE22
	Grasl Andreas	OTN/AOA54	X	Wietbrock Walter	AET12
	Grasshoff Brigitte	AET12		Wöhler Hans	AOE22
X	Hauser Armin	AOE22		Wössner Ulrich	ASE442
X	Hendry David	Terma Resid.			
	Hengstler Reinhold	AOA 5	X	Alcatel	ASP
X	Hinger Jürgen	AOE22	X	ESA/ESTEC	ESA
	Hofmann Rolf	ASE442		**Instruments:**	
X	Hohn Rüdiger	AED65	X	MPE (PACS)	MPE
	Hölzle Edgar Dr.	AED44	X	RAL (SPIRE)	RAL
	Huber Johann	AOA52	X	SRON (HIFI)	SRON
	Hund Walter	ASE442		**Subcontractors:**	
X	Idler Siegmund	AED312		Air Liquide, Space Department	AIR
	Ilsen Stijn	Terma Resid.		Air Liquide, Space Department	AIRS
	Ivády von András	FAE22		Air Liquide, Orbital System	AIRT
X	Jahn Gerd Dr.	AOE22		Alcatel Bell Space	ABSP
	Kalde Clemens	APE3		Astrium Sub-Subsyst. & Equipment	ASSE
	Kameter Rudolf	OTN/AOA54		Austrian Aerospace	AAE
	Kettner Bernhard	AET42		Austrian Aerospace	AAEM
	Knoblauch August	AET32		APCO Technologies S. A.	APCO
	Koelle Markus	AOA53		Bieri Engineering B. V.	BIER
	Koppe Axel	AED312		BOC Edwards	BOCE
X	Kroeker Jürgen	AED65		Dutch Space Solar Arrays	DSSA
	Kunz Oliver Dr.	AOE22		EADS CASA Espacio	CASA
X	Lamprecht Ernst	OTN/ASI21		EADS CASA Espacio	ECAS
	Lang Jürgen	ASE442		EADS Space Transportation	ASIP
	Langenstein Rolf	AED15		Eurocopter	ECD
X	Langfermann Michael	AOA51		European Test Services	ETS
X	Mack Paul	OTN/AOA54		HTS AG Zürich	HTSZ
	Maute Thomas	AOA52		Linde	LIND
	Müller Jörg	AOA52		Patria New Technologies Oy	PANT
	Müller Martin	AOA53		Phoenix, Volkmarsen	PHOE
	Müller Ralf	FAE22		Prototech AS	PROT
	Peltz Heinz-Willi	AOE13		QMC Instruments Ltd.	QMC
	Pietroboni Karin	AED65		Rembe, Brilon	REMB
	Platzer Wilhelm	AED22		Rosemount Aerospace GmbH	ROSE
	Reichle Konrad	AOA52		RYMSA, Radiación y Microondas S.A.	RYM
	Reuß Friedhelm	AED62		SENER Ingenieria SA	SEN
	Rühe Wolfgang	AED6		Stöhr, Königsbrunn	STOE
X	Runge Axel	OTN/AOA54		Terma A/S, Herlev	TER