

 CARLO GAVAZZI SPACE SpA		RELAZIONE DI RIUNIONE/VISITA MINUTES OF MEETING/VISIT		N°	
				FOGLIO SHEET	DI OF
DATA – DATE 15/11/01		LOCALITA' – LOCATION CERN		COMMESSA – JOB AMS02- thermal control	
RIF. - REF.		DESCRIZIONE AMS02- Thermal control Mechanical design and integration workshop <i>DESCRIPTION</i>		CLIENTE CUSTOMER CERN	
IMPIANTO PROJECT		LOCALITA' – LOCATION GENEVA - CERN <i>LOCATION</i>		ORDINE CONTRACT	
SCOPO RIUNIONE PURPOSE OF MEETING		TRACKER RADIATOR		REDATTO – WRITTEN BY <u>M. MOLINA</u> DISTRIBUTION	
		Homogeneization of the CGS / NLR results Hypothesis: 1.6 m ² are the baseline, with a trapezoid radiator Beta angle will be identified , worst hot for the tracker radiators RAM, WAKE, and in average by CGS 1) CGS->NLR IF data GR(T), Q(T), SINKT(T) 2) NLR->CGS Actual power on the radiator Q(T) 3) CGS recalculates I/F data / 4) NLR verifies radiator temperature 5) If needed NLR->CGS G(T) representing the fluidic link 6) NLR->CGS for integrating the fluid model (in april 2001 failed) <u>CURVED VS. PLANAR RADIATOR</u> **** Curved radiator Thermal performance=Comparison with the max. available area, in a couple of cases (CGS) due date 7/12/2001 Pros condenser parallel to flight direction (greater PNP) Stiffer wrt a flat one Cons Cost high		AI 4 CGS 23 nov 2001 AI 5 Done, 23 nov for an additional case AI 6 23 nov, 30 nov for an additional case AI 7 30 nov, 7 dec for an additional case AI 8 7 dec, 14 december AI 9 CGS person to NLR for about 1 week at the latest 15/1/2002 AI 10 NLR person to CGS for about 1 week at the latest 1/2/2002 AI 11 CGS 7/12/2001 NLR to provide comments 14/12/2001	

(1) INDICARE IL NOMINATIVO RESPONSABILE DELL'AZIONE E DATA DI COMPLETAMENTO

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		COMMESSA – JOB AMS _ Thermal Control		RIF. - REF.	
PUNTI ITEMS	ARGOMENTI DISCUSSI – DESCRIPTION OF DISCUSSION				AZIONE A CURA (1) ACTION BY (1)
<p>*** Planar radiator</p> <p>PROS Cost = OK</p> <p>TO BE DEFINED: Debris: Present LMSO data, scaled to 22% relative area lead to 97% PNP . According to the Tracker group this is not enough. OHB will perform debris analysis to assess flat radiator with flat condensers on the basis of NLR already provided layout</p> <p>The target is 0.99999 (considering the Tracker Thermal Control system as a pressure vessel)</p> <p>Mass= TBD</p> <p>*** Straight with bent heat pipes ELIMINATED because: Schlitt: in the middle decreases the bending stiffness Delil: COST = high Mass= maybe increased DEBRIS= the same as curved radiator.</p> <p>Testing Planar radiator -vertical testing of AMS OK -horizontal testing OK; but only the main loop can work assisted by gravity (working as a thermosyphon, moreover you can switch on the cooling loop with the condenser upward)</p> <p>CONCLCUSION= you can test both interfaces</p> <p>Curved - horizontal testing possible, but only half of the system is used (+ something to be assessed)</p> <p>Testing = aim = Thermal cycling in vacuum to test - functional performance at temperature extreme - workmanship - th. control performance (heaters) - instruments interactions, the thermal interfaces are checked at any power, at any temperature, with any rea of he radiator</p> <p> - thermal balance ?? A TMM of the vacuum chamber does not exist, but some correlations are still possible.</p>					<p>If NLR comments positive AI 12 OHB to provide cost impact 15/1/2002</p> <p>AI 13 OHB 21/12/2001</p> <p>OHB, CGS, NLR to provide examples for the verification at subdetector level.</p> <p>J Burger to collect from subdetectors 'things' to be tested during the system level test</p> <p>AI 14 CGS/thermal team to submit LMSO thermal test goal 15/1/2002</p>

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If the flat radiator is chosen as a baseline, tilting angle impact on the phase shift of the tracker will be investigated.

Discussion on mounting of the radiator will follow after the ram/wake radiators assessment.

Decision about Z-up or X-up testing to come after test goal definition.