

SPIRE/PACS (CEA-SBT)	Monthly Report – April 2005	Date:	May 3 rd , 2005
--------------------------------	------------------------------------	--------------	----------------------------

SPIRE-SBT-REP-002428

Work Package: Cooler

1. Subsystem Progress Since Project Inception		
FM SPIRE unit delivered. FM PACS unit : heat switch being replaced		
2. Subsystem Progress This Month		
<ul style="list-style-type: none"> - FM1 (SPIRE) : DRB held Nov. 18th 2004. Awaiting comments on EIDP. - FM2 (PACS) : The available spare switches, including HS#6 (previous HS pump FM2) and HS#4 (Vtested on STM and damaged by Level 0 interface constraint) have been vibration tested. Since HS#1 is geometrically not acceptable (copper and titanium interfaces not parallel), it was tested without any snubber. Only one axis was tested (X axis - worst one perpendicular to the switch – PACS qualification level 11.5 Grms, duration 1 mn). All switches were then thermally characterized at 1.6 K. Contrary to all expectations, all switches exhibit good results. However only HS#5 fulfills all conditions (centering, etc...); this switch is currently being integrated in the PACS FM. This unit will then undergo an acceptance program (to the exception of the one week bake out). - Heat switches : New brazing process is yet to be demonstrated. The first brazing (first sample) has been a disaster. The subcontractor used temperatures incompatible with the Cu-Ti components !!. This subcontractor causes us major difficulties; we do not have really any other choice then to continue to work with him – however, along with CNES, we maintain a strong pressure on him. For the parts manufacturing the current status is: <ul style="list-style-type: none"> o Manufacturing of 5 “standard” heat switches : on going o Manufacturing of 5 “new” heat switches: on going. Program pending validation of new process - PACS – Level 0 Interface : The second proto strap has been thermally characterized. The results are now satisfactory as the added contact conductance is very good (≈ 2500 mW/K at 2K with 4 M4 screws), and the strap bulk is about 200 mW/K, for an overall mass of 100 grams, only 37 grams of which are supported by the heat switch I/F. This strap and the new Level 0 interface have been integrated on the titanium STM, along with a heat switch, and delivered to MPE to be vibration tested for qualification. The STM will be returned to SBT for investigation (check of HS) - FS : thermometers and heaters have been supplied by SAp. The two cooler hearts are being instrumented (FM2 PACS is the priority). 		
3. Problem Areas	Remedial Action	
Heat switch brazing process	New process to be validated. Plus current process slightly updated.	
4. Engineering Activities		
5. Design Changes		
If confirmed, minor modifications on heat switch parts (play). New interface for level 0 strap : pending validation		
6. PA/QA Activities		
General QA management.		
7. Subsystem Management Issues		
None		
8. Actions Requiring Immediate Attention		
SBT documents approval by SPIRE and PACS projects		
9. Status of Previous Actions		
None		
10. Activities Yet to be Achieved		
11. Milestones		Status
Mid 2004	FM assembling	Completed
Fall 2004	FM Acceptance program	Completed
Fall 2004	FM1 SPIRE Delivery	Completed
Summer 2005	FM2 PACS Delivery	Cooler updated – New acceptance program
2005	FS program	On going
12. Schedule Changes		