SPIRE/PACS (CEA-SBT)	Monthly Report –November 2001	Date:	30/11/01

Work Package: Cooler **SPIRE-SBT-REP-001042**

1. Subsystem Progress Since Project Inception

Detailed design of the coolers (CQM, STM, PFM & FS) done. Manufacturing of 2 CQM + 2 STM done. Manufacturing of new large test cryostat in progress ("standard" test cryostat available). Product Assurance plan implemented.

2. Subsystem Progress This Month

- All parts for 2 CQM + 2 STM delivered and checked. All anomalies dealt with (when needed parts reworked or fully remachined). All parts available. Fit check done.
- Laser marking of parts done
- All soldering tools machined and delivered.
- Electron beam welding of tube/pump half sphere and tube/evaporator half sphere in progress (Subcontractor)
- Cooler structures (4) pre assembled (held using dedicated tooling) – to be delivered for EB welding Dec 5th.
- Results on gold plating tests : not possible to gold plate and oven brase afterward (diffusion of gold into copper – gold layer is gone). Two alternatives : 1) deposition of nickel layer to prevent diffusion : needs qualification and suspect potential thermal problem at 300 mK – not acceptable - or 2) gold plating once cooler is assembled : OK but needs carefull preparation and handling - SBT technical team to assist subcontractor at subcontractor premises
- Cleanliness philosophy : SBT approach (HSO-SBT-QA-040) has been accepted (mail BMS 16/11/01). Additionnal work needed on molecular contamination (coming soon). Clean room to be implemented at SBT early next year. Thus possibly not available during all CQMs phases; Yet CQMs will be kept in clean environment as much as possible (small clean room available for initial integration).
- Numerical modeling of overal cooler mechanical performance : TN in progress.
- Kevlar characterisation campaign : fatigue test set up built – currently in operation: Kevlar 34 (breaking at 12 DaN) sollicited between 7.8 – 9.2 DaN for over 240 000 times so far. (nominal tension in cooler : 5 DaN)
- Large test cryostat : manufacturing in progress

3. Problem Areas	Remedial Action

4. Engineering Activities

Tensiometer to be developed to check for Kevlar cord tension in situ - In progress – possible solution identified

5. Design Changes

6. PA/QA Activities

Inspection, anomalies, etc…– documentation updated - General QA management.

7. Subsystem Management Issues

None

8. Actions Requiring Immediate Attention

9. Status of Previous Actions

None

10. Activities Yet to be Achieved

11. Milestones		Status
Winter 00-01	Coolers Detailed Design	Completed
May 17th 2001	Coolers DDR (PACS & SPIRE)	Completed
June 26th 2001	Subcontractor selection for machining	Completed
October 2001	Parts Delivery	Completed
Nov/Dec 2001	CQM Coolers assembling	On schedule
Nov/Dec 2001	STM Coolers Assembling and Vtest	On schedule
Dec 2001	STM Coolers delivery	On schedule
Winter 01-02	CQM Coolers Qualification	On schedule
Spring 2002	CQM Coolers Delivery	On schedule

12. Schedule Changes

None