

Weekly Report for the week ending Apr. 27, 2001

\*\*\* CALORIMETER (N. Johnson)

#### 4. 1. 5. 1 CAL Management

Participated in the usual array of tele and video conferences.

Supported the T&DF Level III requirements review.

Prepared CAL international status presentation for NASA Hq on Friday.

Preparing inputs to Quarterly report.

Continued update of schedule and cost data

Discussion with CNES

Discussion with Hamamatsu-France (D. Bederede)

Documentation management in progress template, codification. . (Jean-Louis Ritou, Y. Acker)

Work on general specification

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#### 4. 1. 5. 3 Performance Assurance

Discussed LAT TKR and LAT SSD specification with Dr Hartmut and changes

being incorporated in the specification. These changes involved testing, visual examination, quality control and failure modes. I am unable to locate Rad Hard DAC required for Calorimeter work. Reliability plan and Contamination plan draft shall be released by next week for review. Provided comments on LAT contamination survey. Attended ACD meeting at GSFC and discussed reliability and parts procedures. ACD is also planning to use various parts common to LAT. We can save ACD cost and schedule if ACD requirements are combined with our procurement.

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#### 4. 1. 5. 4 CAL Design

- Investigated the possibility of using ~20 MeV gamma rays from a nuclear reaction at a tandem Van de Graaff generator to test calorimeter modules. It can be done in-house at NRL and we might set up the reaction with another detector this summer to study the photon yield and practicality of this test.

- Structure

Modify design of VM2 mechanical structure to optimize interface with electronics boards, start adding to design interface with TEM

- CAL GSE SW

Requirement for test at CERN & soft in progress (CENBG)

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#### 4. 1. 5. 5. 2 CAL CsI Scintillation Crystal

- Build crates and prepare shipment of optical test stations to Sweden

- Machining of old crystals at NRL to new dimensions to be packaged and used as reference crystals for optical test stations

- Designed and ordered prototype shipping containers for crystals for trips from Sweden to France

- Work continues on the user interface and the output data structures for the

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analysis software for the crystal optical testing station (NRL).

- Crystal performance & wrapping testing:  
Document on the new hodoscope of the cosmic bench(Ph Bourgeois)  
Analysis of the last run showing that 23 hours are enough for good statistics with the upgraded cosmic bench (FX Gentit)  
Test of light yields measurement with air gap between crystal and PIN diode compte rendu de manip. The loss are different depending on the diodes . The loss are lower if it is left silicone on the diode (no explanation)(Ph Bourgeois, Y Piret).  
Mechanical support for the measure of 3 crystals in the same time are Done (S Herve).

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4. 1. 5. 5. 3 PIN Photodiode

-Finally received go-ahead to start acquisition of new custom PIN diodes with a commitment from France to buy their share. (NRL)  
  
-Tested new optical bond material between diodes and CsI. It is an optical grade double-sided adhesive. It performed very well in optical tests, but failed in the temperature cycling. (NRL)  
  
-Discussions are going on with specialized companies for the realization of the Flex cable and the soldering on the double photodiode (P. Prat, J. Cretolle).  
  
- PIN Bonding  
Study of feasibility ordered to CETIM company. CETIM is asked to make calculations, select three glues and perform the gluing. Mechanical test will follow. Further test plan and schedule under study to get in good shape for the PDR.

CsI sample are in preparation to be sent. The surface ruggedness of CsI has been studied at Polytechnique and the study results sent to CETIM The light yield have been measured at polytechnique for various surface ruggednesses. Not any dependence have been found.  
Contact taken with PICsIT program. Detailed information on gluing problems have been got through ESA.  
CNES experts on gluing have been contacted about process and assemblies qualification, and about aging method according to mission profile.  
Additional contact taken with Pierre Mandrou at CESRT (ACD of Sigma telescope): the ACD Tiles were glued with optical epoxy and found stable during the mission life. (Taher Sharshar & Gilles Bogaert).

Studies for the procurement of an apparatus for thermal cycling (Didier Imbaut)

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4. 1. 5. 6 CAL Pre Electronics Module

- VM2 Structure  
Start contacts with companies for production of mechanical parts for VM2 tooling.  
- Facilities  
Evaluate options to minimize cost of clean room facility at Ecole Polytechnique, study first price offers  
- PEM integration : GSE  
The EGSE acquisition system and VME rack and pilot have been installed.  
A 32 channel QCD unit (CAEN) is installed for testing purpose. Specific software is currently written.

4. 1. 5. 4. 5 CAL Software/Design Verification

Submitted geometry description for carbon-cell mechanical design to simulation s/w archive. Descriptive documents and figures are in preparation. (Chekhtman)

CAL-HI trigger study and report are in progress. Simulations will be verified in the coming week. (Chekhtman and Grove).

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