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*** WBS 4. 1. 5 CALORIMETER (N. Johnson/Carosso)

4. 1. 5. 1 CAL Management

CAL documentation work continues
PDR presentation work ongoing

France

For every body the main activity was the responses to questions from CNES

4. 1. 5. 5 Crystal Detector Elements

Continued PIN bonding tests, thermal cycling of optical adhesives. Photographs of sample failed and whole bonds taken last week were a bit murky, so we might repeat them (NRL)

France

4. 1. 5. 5. 1. 1 Bonding process

- Thermal cycling is going on with diode glued on Csi for more than 56 thermal cycles.
- Bonding GSE(for EM):in progress.

4. 1. 5. 5. 3 Dual Pin Photodiode

- New dark current test bench in progress (16 DPD in parallel).
- Optical test bench for the DPD in progress.

4. 1. 5. 5. 4 PIN Interconnect:

- Work on the design of the EM flex

4. 1. 5. 5. 5 CDE A&T

Gluing of DualPhotodiodes on 3 last Csi crystals.
Wrapping of first 3 crystals.

4. 1. 5. 5. 5. 4 CDE test GSE

- Upgrade of the CEA cosmic bench for the measures on the VM2 CDE. Work on electronic card

4. 1. 5. 6 Pre Electronics Module

- Preparation of the VM2 environmental tests
- Production of 1 cell model for thermal vacuum test:
 - 1 cell composite structure
 - wrapped Csi log mounted with elastomerics bands
 - Cell closed with a frame, a silicone damper and an aluminum plate
- Preparation of LM2
- Facilities: Building of clean room for PEM integration in progress.
- PEM GSE : delivery of mother board

4. 1. 5. 6. 1 PEM Structure

- Structure : production of parts for VM2 model

4. 1. 5. 7 Analog Front End Electronics

A modification of the calorimeter PIN diode flex cable design has been discussed with our French collaborators. We are changing our design from soldering the flex cable on to PCB pins to soldering buss wires between the flex cable and the PCB. The hole pattern at the PCB end of the flex cable changes, along with the width and length of the cable.

The calorimeter GCRC digital chip design is being tested both in FPGA hardware and VHDL testbench software. Code bugs are being removed for readying design for silicon submission.

The first version of the GCFE Functional Test Document has been written, along with the first version of the Calorimeter electronics interface document (ICD). The first version documents are currently in review.

4. 1. E. 3 CAL Balloon Flight

Committed energy calibration algorithms to software archive. Reconstruction of CAL energies and positions in LEX4 look good. Position resolution for 1 MIP is ~2.5 cm rms, which is about what we expected, given the degraded optical contacts in the BFEM, the front-end noise, and calibration uncertainty. We will make one more pass through calib constants to fix other gain ranges. (NRL)

Continuing analysis of stability of light tapering in the 80 CsI crystals after 18 months of storage, mechanical vibration and shock, temperature cycling, humidity variation, etc etc. (NRL)

4. 1. D. 2. 5 LAT SW Support

Participated in ground software sim and recon electronic meeting. Led CAL discussion. Agenda and talks can be found at <http://gamma.nrl.navy.mil/glast/CalSW/Nov01/Workshop/default.htm>. Major topics are status and future for evt reconstruction, and needs/requirements for calibration s/w. (NRL)