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\*\*\* WBS 4.1.5 CALORIMETER (N. Johnson/Carosso)

4.1.5.1 CAL Management

Program re-planning to implement the recent organizational changes is continuing. Schedule and costing being updated. Mitigation discussions continue.

A meeting is scheduled on February 6-8 to discuss the new responsibilities allocation and associated schedule.

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4.1.5.2 Systems Engineering

Continuing documentation update (CDE Spec, CAL Internal ICD's).

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4.1.5.3 Mission Assurance

- Prepared a detailed report on Plastic Encapsulated Microcircuits (PEM) defining purpose of test, failure mechanisms covered by each test and the value of each test.
- Prepared cost estimates for PEM parts (ASICs, DAC, ADC) and provided all details.
- Attended weekly meetings.
- Discussed and provided alternative solutions for design AFEE board from rigid-flex to rigid board. This was to remove failure mechanism, reduce cost, remove risk during manufacturing assembly, test and integration. All possible uncertainties were accounted for and will be managed.
- Preparing a list of outstanding issues related to pre-electronics module structures to be discussed with French.
- Discussed alternative ways of wrapping crystals. Final alternative will be discussed with French for CDE wrapping.
- Presented ASIC risk mitigation approach involving part selection, manufacturer assessment, part assessment, performance required, required testing, alternative ways of testing to reduce cost, meet schedules, and to increase reliability to various GSFC committees.

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4.1.5.5 Crystal Detector Elements

Reviewing and updating CDE spec for optical performance.

Continuing preparation for radiation damage study of CsI at NRL to back up similar studies in Sweden.

4.1.5.5.2 Csi (TI) Scintillation Crystals

Rad tests.

The Stockholm group has irradiated further boule samples. They also started to work on rad tests of entire CDE's.

I have received information from Uppsala on proton beam properties and are estimating needs and possibilities. Sara and myself are communicating about the calibration of their equipment. It is not clear to me yet that their calibration is ok.

Optical tests of 94 crystals.

Georg is working on the report from the tests, which are finished. However, he is

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very busy at the moment with teaching and taking a graduate course so he might need another week to finish the report.

**Optical test boxes.**

Leif has soon finished the remaining 4 boxes and we are preparing for test runs with them. You will get a separate email from Leif later today with further details.

**Travel to Amcrys.**

Leif and Tatjana will be in contact with Amcrys later today. Leif will tell you the outcome in his separate email.

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**4. 1. 5. 7 Analog Front End Electronics**

Initial set of ASIC test completed

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**4. 1. 5. 9 CAL Module Assembly and Test**

Continuing review of assembly and test schedules following discussions at PDR. Trying to improve flow and minimize redundant testing with separate deliveries of CDEs and mechanical structures from France.

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

Translating electronic and muon calibration routines from IDL to Root/C++. These are required for instrument I&T at SLAC. Goal is to complete routines for EM by May. Root routines are being checked with BTEM data from balloon flight preparations.

Working on GCR calibration algorithms with carbon beam data from GSI. Developing filters to identify charge-changing interactions.

**Balloon Flight Support**

We've begun again debugging the BFEM calorimeter following the balloon flight. Because of changes in the TEM relative to the pre-ship versions, we've spent most of the time creating fixes to the GSE software. More work remains to be done.

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