



# REQUEST FOR ACTION (RFA) RESPONSE

## GLAST LAT Project Calorimeter Peer Review

17 – 18 March 2003

<b>Action Item:</b>	CAL – 027
<b>Presentation Section:</b>	Schedule and Transportation
<b>Submitted by:</b>	Bill Wisniewski

**Request:** Transport path - Investigate methods to streamline transport path; minimize multiple connections/acceptance test points. Consider test receipt of crystals by Swedes in France.

**Reason / Comment:** Multiple receiving and test operations may add unnecessary risk to hardware and schedule delay.

### **Response: Revised 24 April 2003**

The procurement and acceptance of the CsI crystals is the responsibility of the Swedish Consortium. With the fabrication and acceptance testing of engineering model crystals (~250 crystals) they have developed transportation and customs procedures to expedite deliveries in Sweden. The testing program in Sweden has been operating for over one year. The first flight crystals will be shipped from Amcrys-H in April. The acceptance test manpower plan has been developed for the ~ 9 months of processing in Kalmar, Sweden.

At this point, it would be a significant disruption to identify and train personnel that could be detailed in France for nine months to do the work there. We have attempted to mitigate this multipoint handling and testing by using identical test hardware in all sites and common test procedures. Six optical test benches have been fabricated – all identical. Two are used at Amcrys-H, two in Kalmar for acceptance testing, and one each at CEA and NRL. The crystals are accepted in Kalmar using identical equipment to the preship measurements performed at Amcrys-H. Amcrys data is provided on CD Rom with the shipment.

When the crystals are delivered to France, CEA needs to establish a light yield baseline for each crystal that will be used to accept the finished CDE. CEA believes that this baseline can be best established with the PIN diode of the ultimate CDE and are planning to adapt PIN diode readout to the PMT-based optical test bench. We are also testing with aperture masks for the PMT. The issue is establishing a correlation, if possible, of the PMT measurements to the CDE light yields with a PIN diode. If a reliable correlation can be established, CEA will use the PMTs since that test is faster and has better resolution. We are currently testing 48 flight prototype crystals to investigate the best procedure.

The standard GLAST optical test bench uses photomultiplier tubes for improved measurement accuracy (yield and tapering) and faster test results using radioactive sources.

The associated schedule risk of multipoint handling is somewhat mitigated by scheduling the work well off the critical path of CDE manufacturing (approx 4 months positive float.)

At this time we feel that there would be considerable risk in reorganizing the shipping and acceptance testing work in order to transfer it from Kalmar to Paris.