

*Light detection system:
update on the next short term activity*

ICARUS WA104 Meeting July 24th 2019

Next short term activity at FNAL

- Starting from July 30th some light detection activities are planned.
- The main item is focused on activities regarding the installation of the electronics (DAQ and HV) and electronics testing.
- In addition a PMT Vertical Slice Test is foreseen. The set-up is almost ready. This will permit the PMT waveform acquisition with the final electronic set-up (500 MS/s digitization, use of long cables).
- Finally some test on the trigger system will be accomplished.
- People involved:
 - Gian Luca Raselli, Massimo Rossella (Pavia);
 - Animesh Chatterjee (FNAL), Wesley Ketchum (FNAL) for DAQ;
 - Angela Fava (FNAL), Donatella Torretta (FNAL) Guang Meng (Padova) for Trigger;
 - Ather people interested (Summer students).

PMT Vertical Slice Test

- A PMT set-up for a Vertical Slice Test has been assembled.
- The PMT-VST Operational Readiness Clearance (ORC) review is completed.
- DAQ software is in preparation and will be ready this week.
- We can start data taking on 4 PMTs per time (4 long cable available)



- The VST permits the PMT acquisition using the final DAQ electronic chain (37m cable length, 500 MS/s sampling, LVDS generation).
- Data analysis results (Gain, Dark Rate...) will be compared to the same obtained with data acquired with the oscilloscope.

Installation of electronics

- PMT DAQ System:

- Mount the 8 VME crates on the 4 PMT DAQ racks.
- Install 3 V1730 digitizers in each VME racks.
- Install the two DT4700 modules for the Clock distribution.
- Deploy the clock distribution cabling.
- Install the DAQ Slow Control Monitoring (?).
- Deploy the 24 optical link fibers from the digitizers to the DAQ PCs.
- Check the AC power supply.

- PMT Power Supply:

- Mount the 2 CAEN SY1527 crates on the 2 HV racks (one each).
- Install 4 A1932 Distribution boards in crate.
- Mount the two BERTAN 210 power supply on the 2 HV racks (one each).
- Deploy the HV cables between BERTAN and CAEN modules.
- Install CAEN SHV/Radiall R1932 adapters on the 2 HV racks (4 each).
- Install the HV Slow Control Monitoring (?).
- Check the AC power supply.

PMT Cabling

- PMT cables are in shipment to CERN.
- It is not yet clear when they will be at FNAL ready to be mounted.
- Anyway some work previous the cable installation has to be performed using the spare units:
 - Study the path of the cable on the cable traces;
 - How to fix the cables;
 - Check possible problems where cables are bent;
 - Verify possible interferences with other system (Recirculation gas pipes);
 - Check the optical fibers path.
- Define the final cable labeling (with Donatella and Maura).

Tests on SPEXI Card

- Some test on beam Decoding/Trigger handling/TTLink generation will be accomplished.
- Instruct SPEXI to reject extra packets present in the beam signal.
- Installation of LabView package at FNAL.