VLPC System Update

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MICE CM

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Cryo

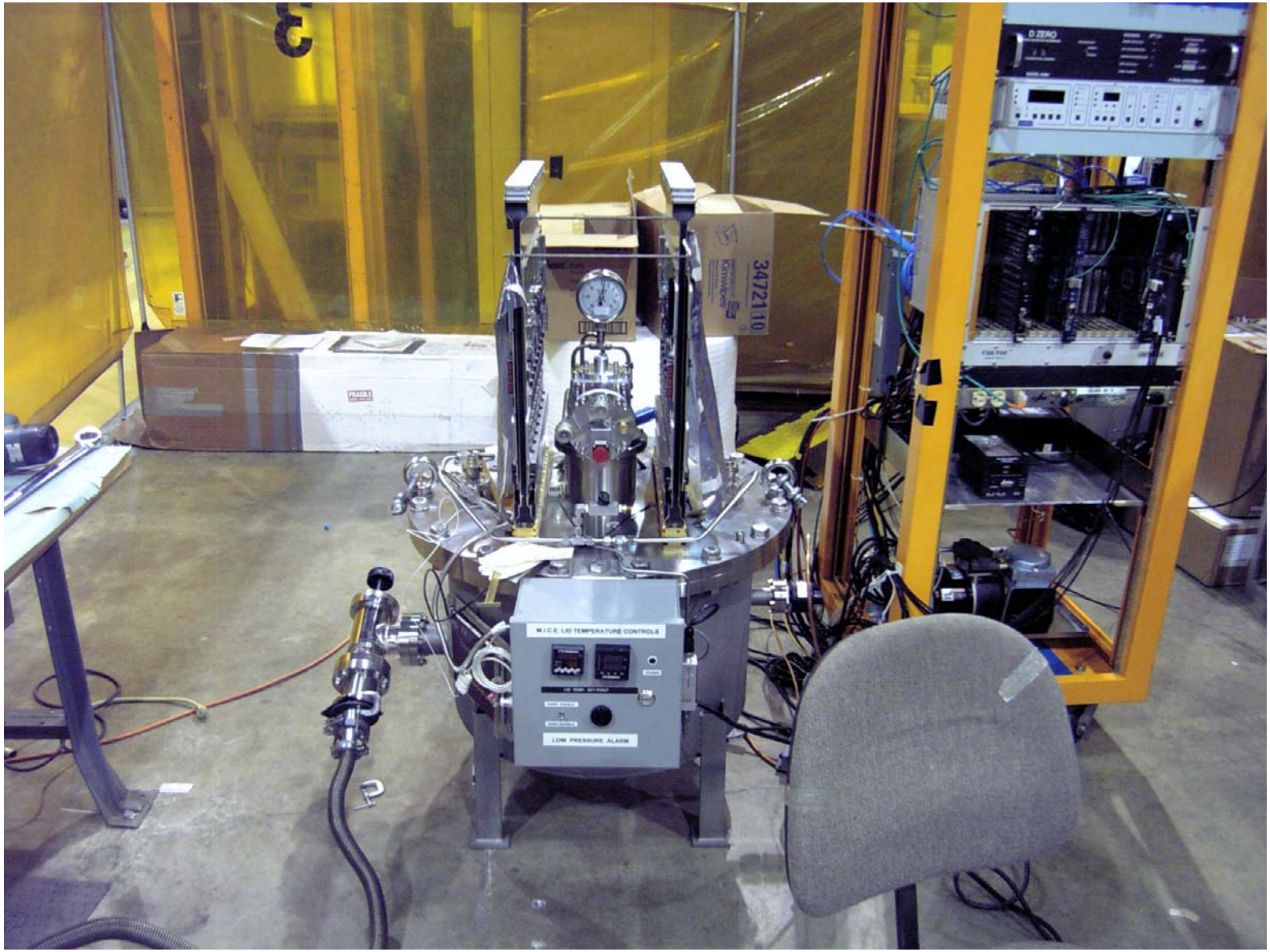
- Production cryostats 1 and 2 ran smoothly at operating temperature
- However, Cassette 109 in cryo #2 has developed an internal leak and will have to be pulled
  - This is the same problem that occurred with cassette 110 at RAL and was fixed (now in Cryo #4)
  - This issue may be related to cassettes 109 & 110 either in their original fab or from the fact that they were sitting in the D0 test cryostat for over 2 years.
- Cryo #2 has been pulled and #3 is cooling down
  - At Operating Temp as of……
- Production cryostat 4 has its cassettes installed
  - Almost ready for cooldown
- AFE power mods complete for Cryo #1 and Cryo #2/#3 and we no longer have any low voltage power problems

- The AFE power from Cryo #2 has been moved to Cryo #3
- Readout tests will continue this week with Cryo #1 and Cryo #3 (assuming cool-down goes according to plan)
- Cassette characterization for Cryo #3 will also occur this week if possible
- Target is to ship system (Cryo #1 and Cryo #3) by 3rd or 4th week of this month

Cryo on Stilts

New Configuration – Wiener PS located below cryostat

Cryo #3 Ready for Cooldown



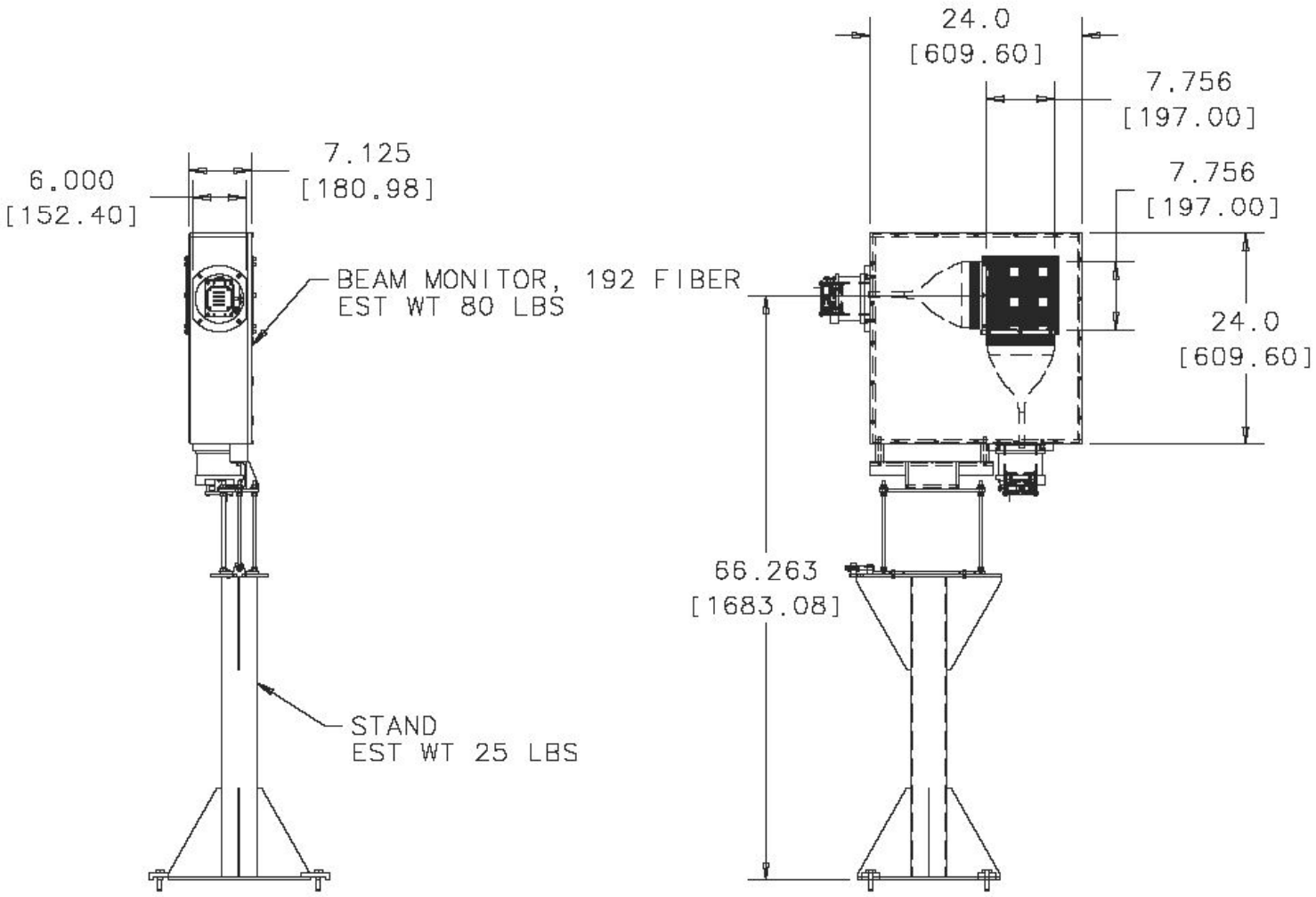
Cryo #4 Ready to be Installed in Vacuum Can

Beam Monitors

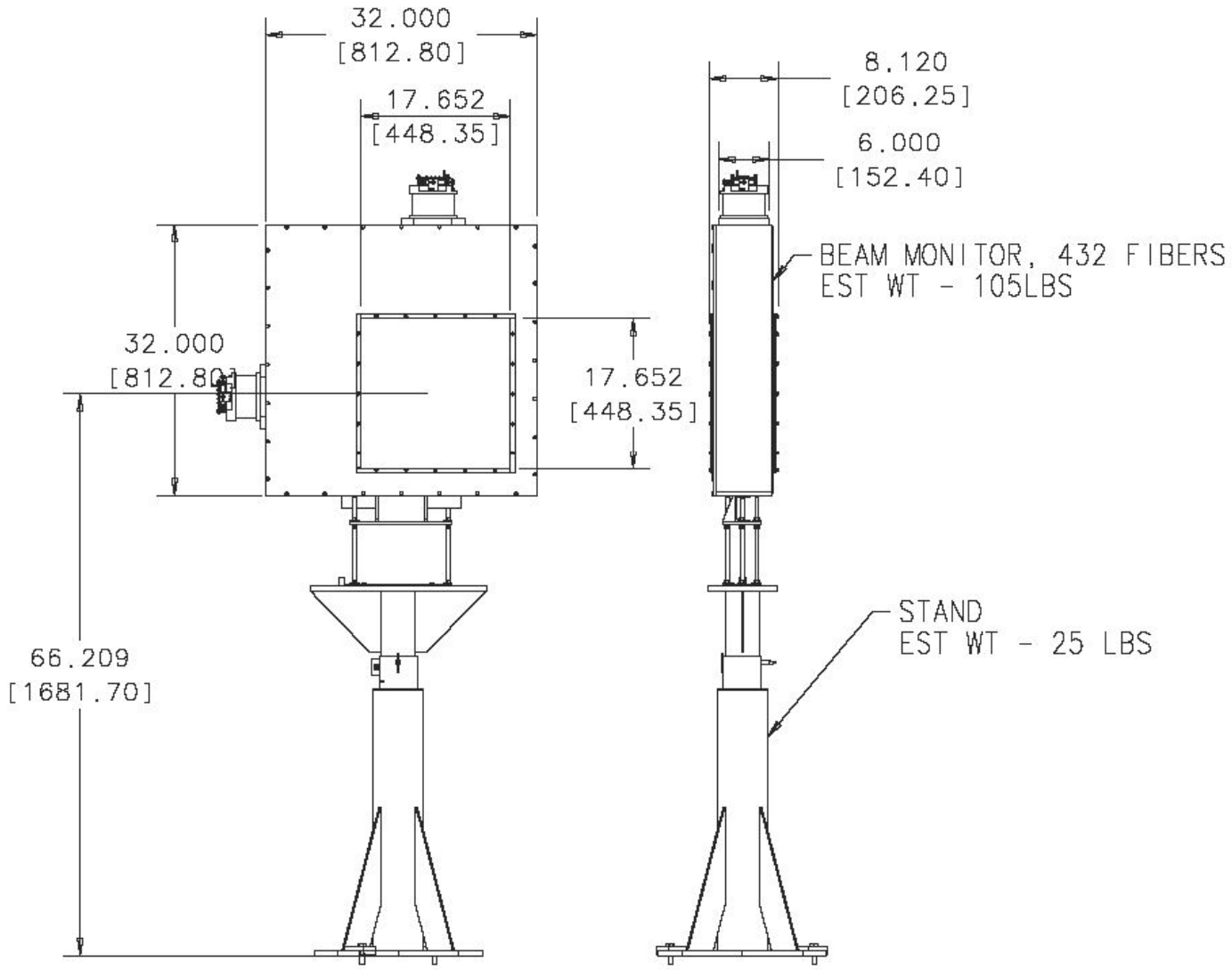
MICE Beam Monitors

- Two Monitors are being built
  - For vault – 19 cm X 19 cm active area
    - Two views (X,Y) - 192 1 mm fibers each
    - Each view readout with Burle 64 channel MAPMT (microchannel plate)
    - 3 fibers map into each pixel
  - For DSA – 43 cm X 43 cm active area
    - Two views (X,Y) – 434 1 mm fibers each
    - Each view readout with Burle 64 channle MAPMT
    - Central region - 3 fibers per pixel
    - Outer region – 8 fibers per pixel
- Custom Electronics
  - Sender Boards – 4 per PMT (16 channel)
    - Amplifier discriminator
    - Sends out pulse train of hits – LVDS
  - Receiver Board – Receives 4 senders
    - Communicates to sender (channel thresholds) via CAMAC commands
    - Converts VLDS to ECL
    - ECL signals go to Lecroy 4432 32 channel CAMAC scalers

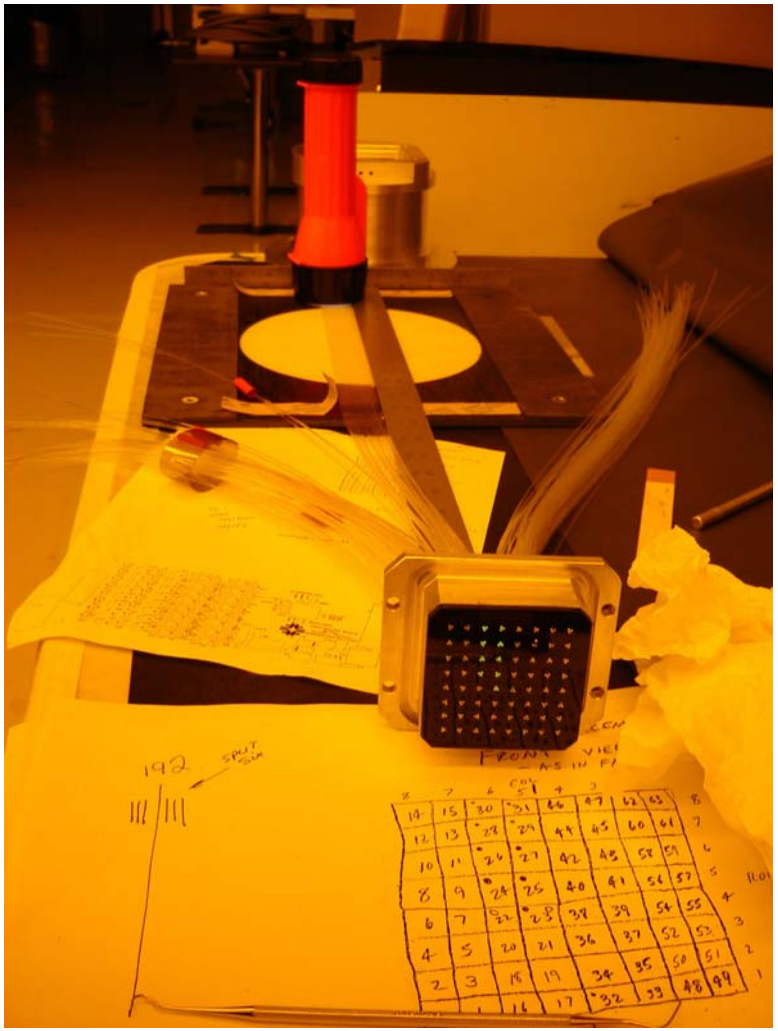
Small Beam Monitor

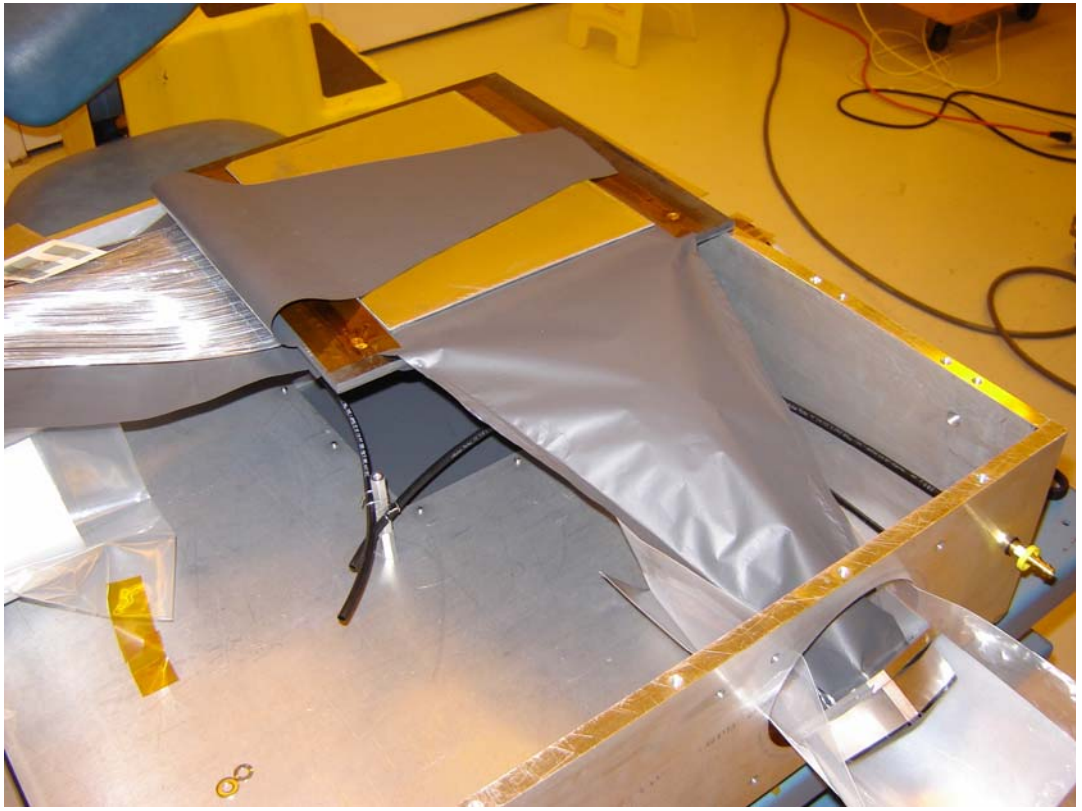


Large Beam Monitor

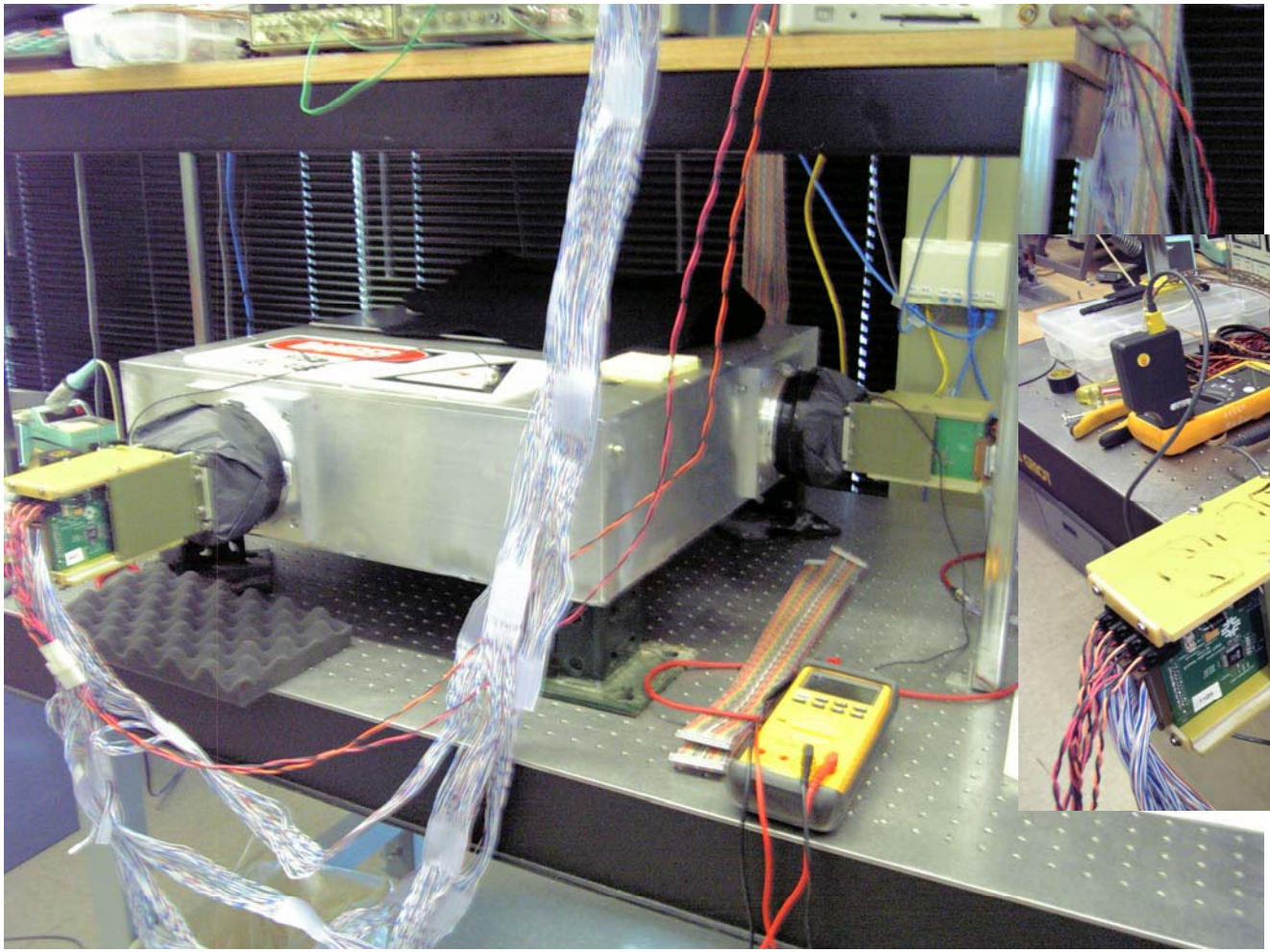


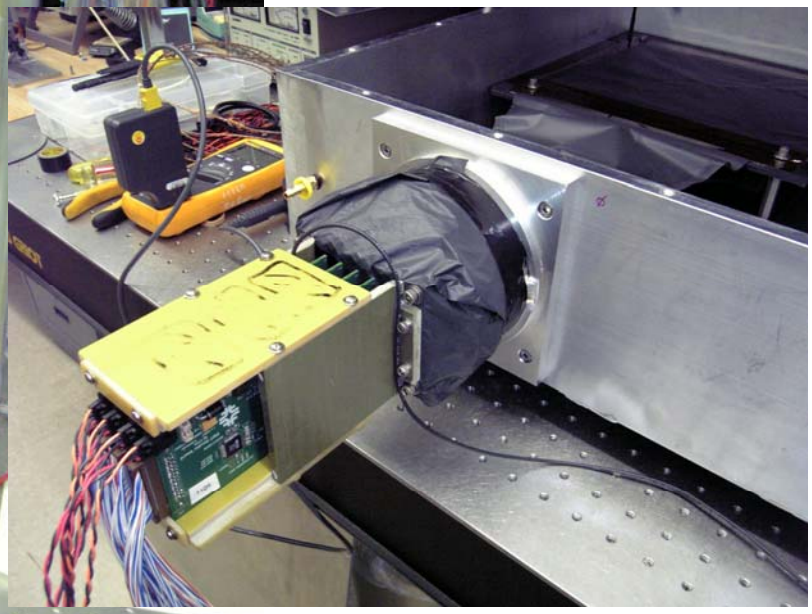
Small BM Innards





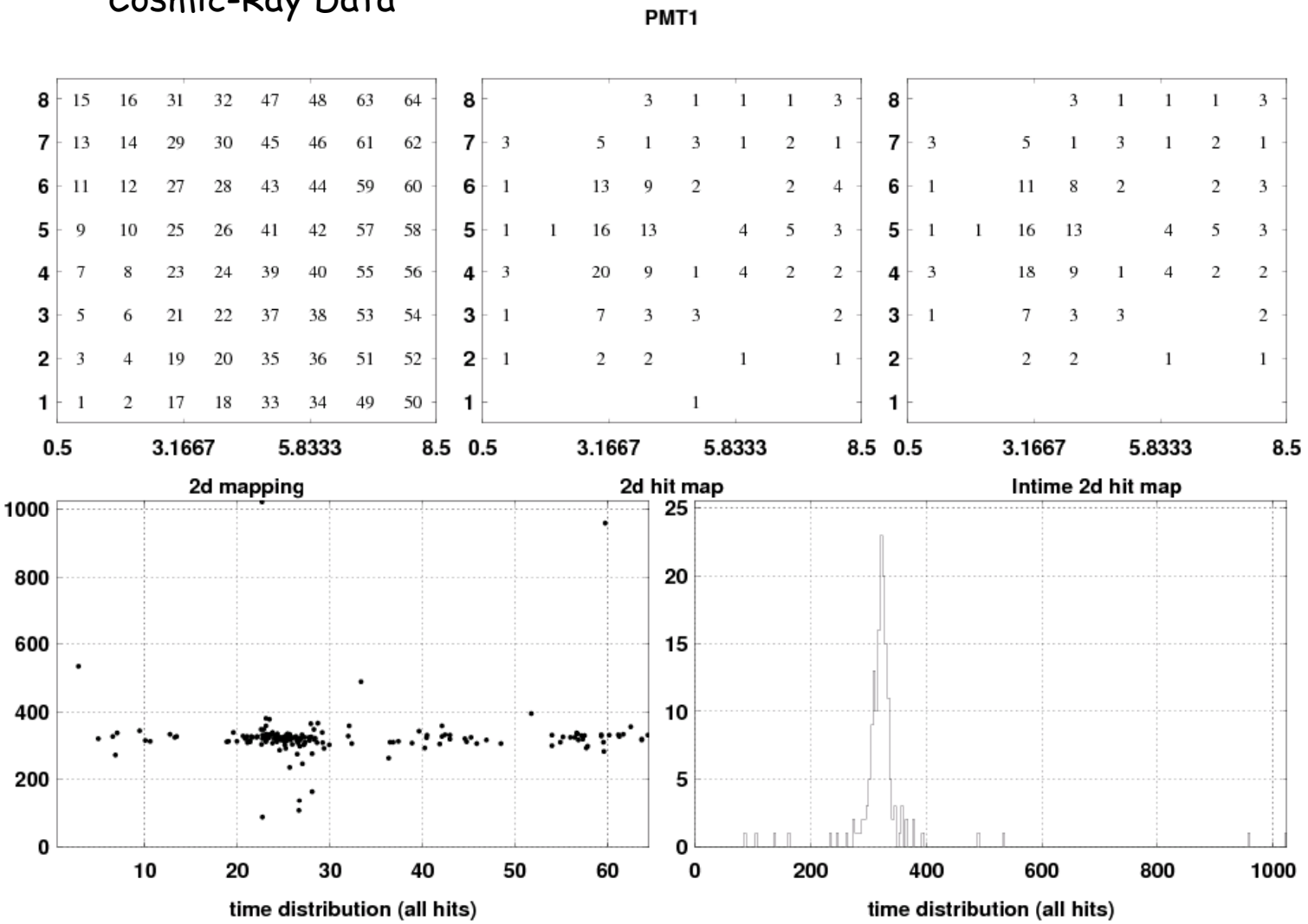
Small Beam Monitor Complete



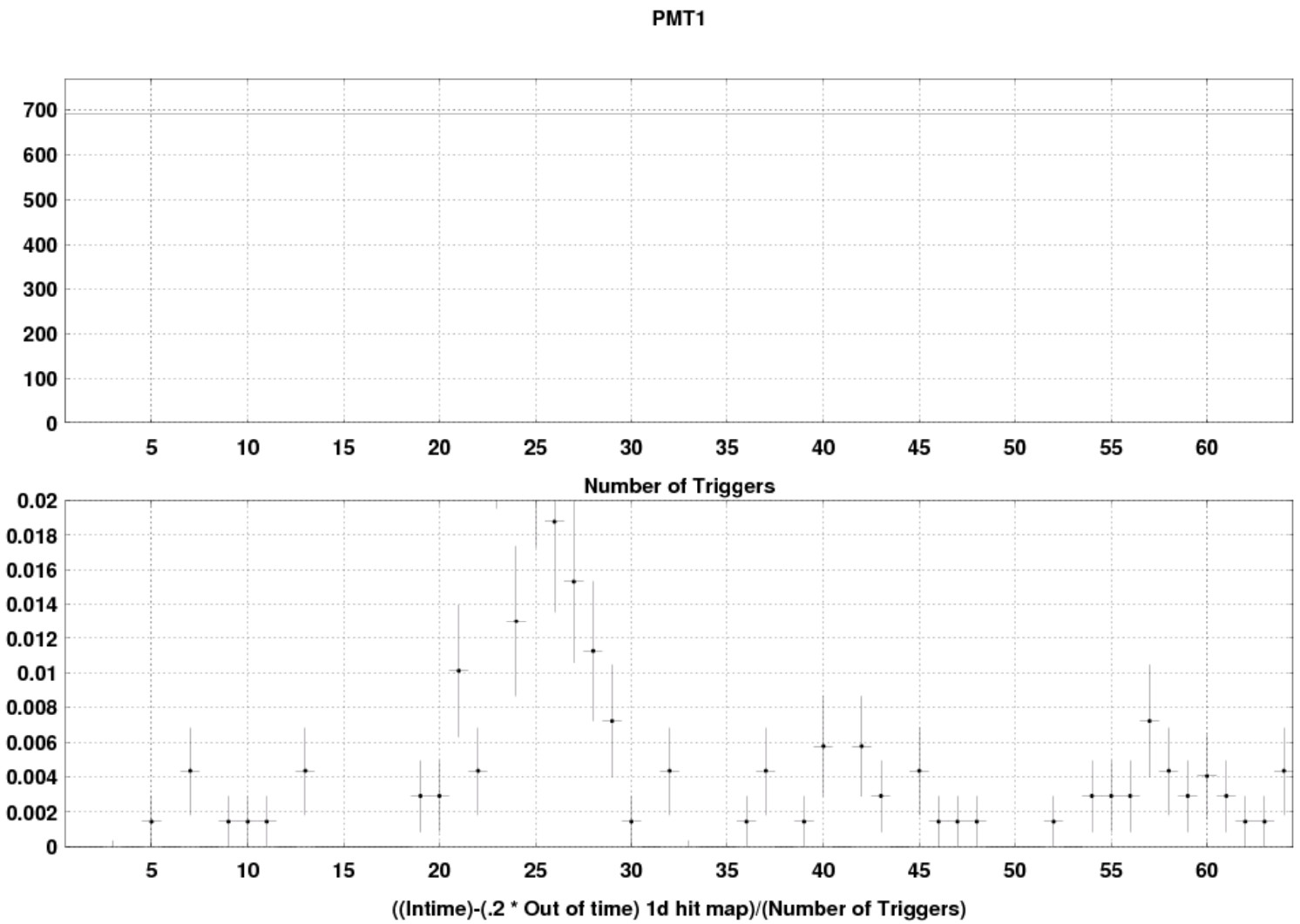


Small Beam Monitor is under Test

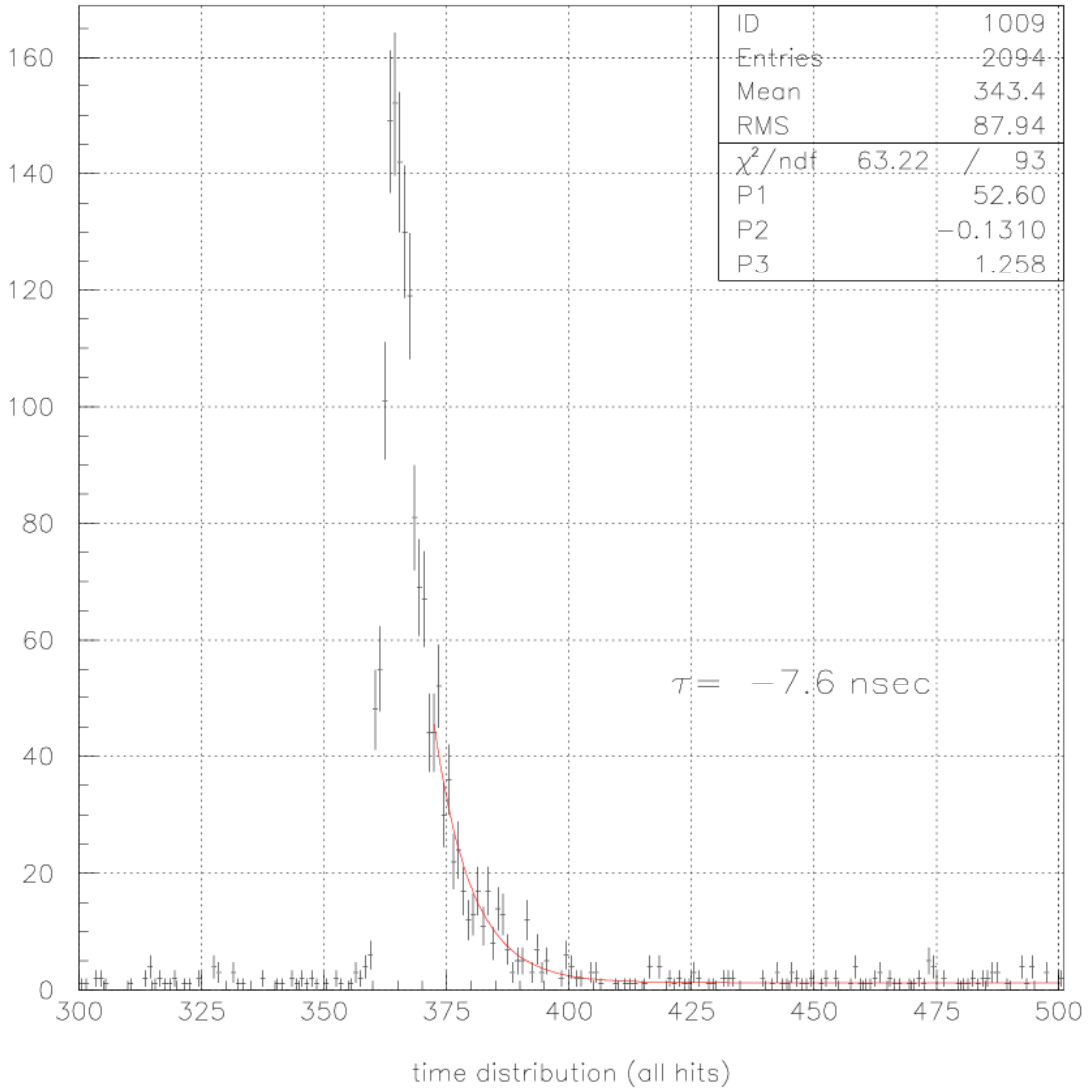
Cosmic-Ray Data



Hit Profile Using Finger Counter



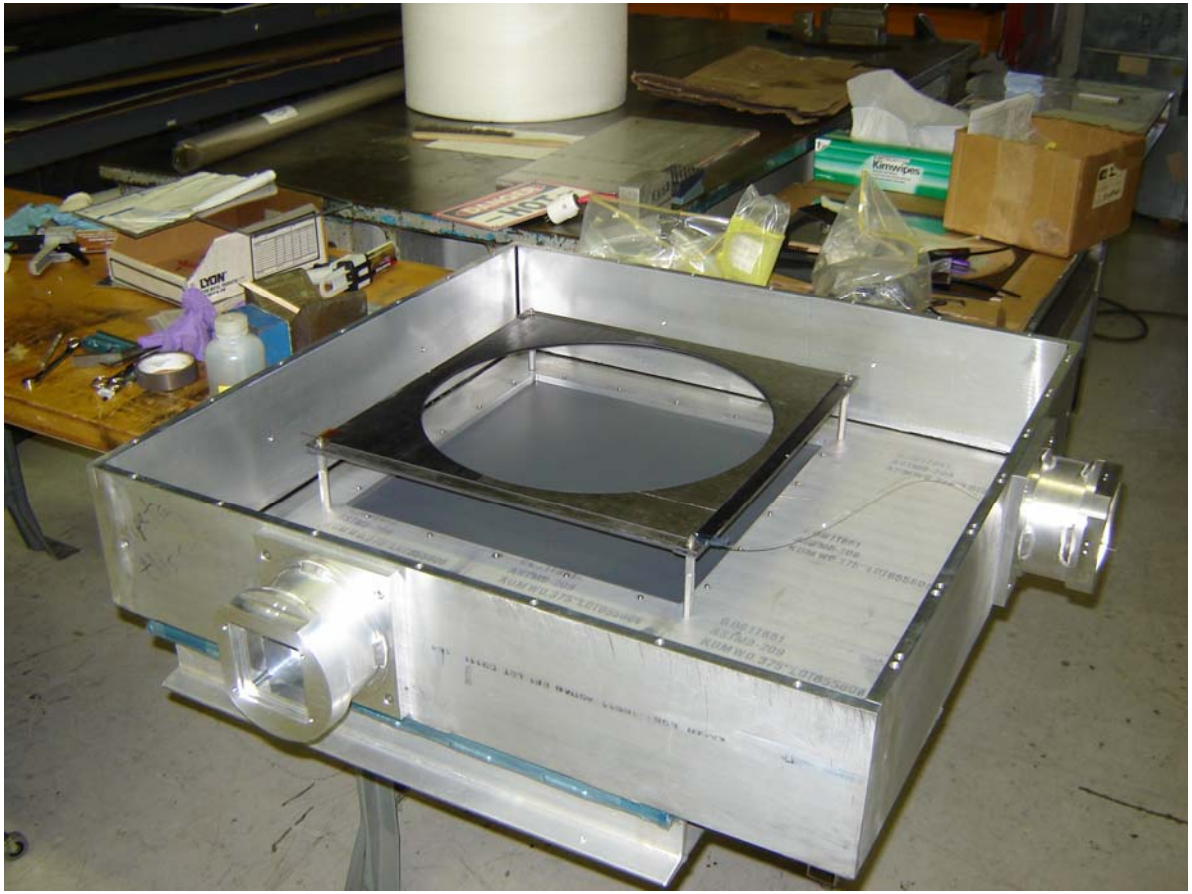
Fitting TDC Information



- We will not have TDCs on the BMs in MICE, but the Fermilab test stand does
- Fit to tail of in-time hit distribution
  - Tail agrees well with 8 ns decay time of 3HF
  - Early part dominating by multi-pe hits, so cannot fit to decay time

Large Beam Monitor

- Good progress is being made
- Essentially all mechanical parts complete
- Fiber layup of two views to begin this week



MICE Beam Monitors - Summary

- Small BM is under test and the data look good. Hit efficiency is high for PMT 1 a bit lower for PMT 2
- All Mechanical parts for Large BM done
  - Fiber layup to begin
- Custom Electronics
  - Working well
  - All boards should be ready in a few weeks
    - 18 senders (need 16)
    - 5 receivers (need 4)
- The plan is to install both BMs the week of March 24th !
  - Plane tickets purchased, rooms @ Ridgeway booked, car rented

- Many Thanks to Yoshida-san for coming to Fermilab this past week to work on characterization of the small BM