Status of Anode Electronics

CMS Endcap Muon Meeting – CERN

June 4, 2000

T. Ferguson

I. Preamp Chips

A) Received 90 pilot-production chips back from MOSIS on April 11. Have tested 28 chips so far. All meet specifications. Have ordered 165 more chips.

B) Have installed chips and boards on new chamber. Working on grounding and noise reduction.

C) Successfully accessed board through ALCT board.

II. Radiation Tests

A) Exposed 6 older pre-production chips/boards at the Davis cyclotron in March and April. Doses from 13 - 600 krad at rates from 0.25 to 50 krad/minute. Monitored current and 3 different voltages.
No latch-ups observed in a total exposure of 1200 krad.
(30 LHC years of neutrons corresponds to 280 krad of the same number of 60 MeV protons.)

B) Final testing of pilot-production chips/boards will be done at Davis tomorrow.

C) Other pilot-production chips and boards sent to OSU for testing at their reactor.

III. LVDS-to-TTL Delay Chips

A) Received 50 chips back from MOSIS on May 12. Chips work.

B) Sent 8 chips to UCLA for radiation testing at Davis on June 6.

C) Will order 323 more chips.

IV. Future Plans

A) Finish radiation testing of chips and boards in next few weeks.

B) Do extensive tests on chambers at Fermilab and FAST sites in June and July.

C) Use oven at Fermilab to measure early and long-term chip failure rates. Each 20°C increase in temperature decreases required time for testing by a factor of 2.

D) Submit preamp chips for production in August.

V. New Research Associate.

We have hired Dr. Igor Vorobiev who will be our contact at CERN.