

December 8, 2004 Barrel Electronics Video-conference

Agenda Items:

- Irradiation of boards
- plans for next year
- status of orders
- status of board repair
- misc.

Irradiation of Boards:

Background: In the past week, Brig brought up via email the fact that we had an opportunity to irradiate a "final" barrel board, which has never been done before.

Philippe mentions that if we want to share with CMS we can go to Prospero in the last week of January. CMS wants lower radiation levels but we can probably work something out. Brig mentions that he is willing to chip in money if we need to pay to go another time. Ole remarks that we might as well irradiate an endcap board as well, since the amount of extra work will be small. Anatoli wants to include the endcap cooling foam in the test, possibly by getting a small section of the cooling structure and mounting the board to it. Brig has proposed to read out during irradiation so that we don't have to wait 1 month for the result.

The current backend will work fine. there are no rad-hard patch panels though, so we will need some patch-panel-less scheme. the run to get out of the radiation zone will be between 40-50m. we may want to use cat5 or cat6 cable instead of the regular backend cables.

The preferred wiring scheme seems to be making a small (less than 1 meter) harness that takes the roof board/paddle card directly into backend cables. We should start building this small harness before christmas because we don't know if it will work. which test software to use is up in the air.

What do we expect to go wrong? The ASDBLR will lose gain at some point. also the band-gap reference on the DTMROC increases by about 5% when you start irradiating. this will affect the threshold DACs. Rick says that we should be able to measure this shift through the internal measurement of Vdd as long as we know what Vdd is set to fairly accurately. Anatoli wonders what we know about the stability of the test pulse. Ole mentions that the R's and C's in the DTMROC are known to be stable from former tests. Brig expects to see an increase in ASDBLR current draw. This points out that we should monitor V and I for the power supplies and possibly compensate for this effect.

If we can't go with CMS, it might make sense to schedule the gamma irradiation first since we can get the boards back quickly.

Getting back to details, Rick mentions that the small harness should be as short as possible, around 10-20cm, to minimize signal reflection at the connectors. The drive on the TTC is less than one gets on the patch panel, so we could lose BX. It might make sense to put a patch panel 30m away from the boards if we can manage it (due to the radiation).

Plans for Next Year:

There was thought about parts for 6-module tests in SR-1. Front and Back harnesses are done, and it is possible that PENN will have a second front harness done rather soon. 1 patch panel set is built and has been tested with a scope. PENN is starting on a second set. Ben asks if the DTMROCs on the patch panel are added to one of the lines for the front end or if they use extra lines. Rick replies that they in fact are grouped in with lines from the front end, such that the patch panel will only use 9 ttc lines. layout for the LV patch panel will start soon, but it may not be ready in time for this set of tests. Rick mentions that one of the undergrads at PENN could put together some temporary power board if this is the case. Anatoli says we should be sure to use 2 different bulk supplies for the two ends of the barrel to simulate the real running conditions. As for cooling, John says that we will need to take the manifolds from the test beam since the final ones won't be mounted yet. Anatoli says that there is no plan to run high voltage or gas for these tests. that will wait until May.

Status of Orders:

AR2F: Still a no-show. Coretek has been asking PENN if they will accept partial (i.e. only one of the two boards working) panels. Rick takes this to be a bad sign. The BOM for this board is OK now.

AR3F: Coretek has started working on this. It is possible that it will be done by the end of January.

AR3B: the pre-series of this board is likely to arrive at CERN before the shutdown on the 17th.

Board Repair:

No report was made on board repair.

Miscellaneous Issues:

Doug Benjamin asks about chip testing. Rick reports that they lost some days due to a computer failure. now Mike is rapidly sorting and doing test pulse tests. All of the pre-production DTMROCs have been re-tested and now need to be sorted. overall, there are around 10,000 DTMROCs that are sorted and ready to ship.