

MINUTES DISCUSSION ON DAQ REQUIREMENTS FOR COLD BOX – 17/01/2017

Attendees: Andrea, Geoff, Karol, Matt, Roberto

Andrea opens the meeting recalling the presentation made by Karol at the previous week ITI meeting, where he asked for DAQ requirements for the cold box, in terms for example of bandwidth, rates, storage.

Karol explains that actually in terms of storage there should be no problem, as half of the full ordered storage should be delivered before the start of tests. It may be worth though considering using also the EOS for storage of the test data. He also asks whether it is possible to read-out only half-APA, in case warm cables were not available. Rob and Andrea object that this would imply doubling of time for tests, and there would be the risk to miss some cross-talk effects when reading all wire planes.

Matt explains that he expects they will send 100 Gb/s of data to the DAQ, and notices that it would be good to involve RCE people in the discussion. Matt then details some of the tests they will do on CE boxes:

- pedestal/rms data for each channel, at room and cold temperature;
- pulse injection,
- measures of cross-talk, for which they will need slow trigger,
- measures of noise, as a function of digitization clock speed,
- change of front end configurations (gain, shaping time)

Rob asks whether the first APA will be used to select tests to then perform on the following modules. Matt confirms this, and he adds that they also want to use the first anode to confirm the channel mapping. They will want to take data with the PD's on and off.

Rob asks if, for the tests of CE during its installation, a dedicated set up will be used. Matt confirms that during installation they will use their own system, to be placed somewhere in the clean room. Karol asks if someone already thought of organizing space in the room for tables/instruments placement. Rob says that this is still to be done.

Matt mentions that they may also want to try to read a single analog channel on sample boards, for which they will need a lemo cable and a scope. This must be provided, and 1GHz sampling should be enough.

Andrea asks whether it will be possible to use the final warm cables to connect the DAQ and the box; Karol confirms it. Rob asks what is being used in the DAQ “desktop” test stand; Karol states that they use short cables, as that is not a qualification test.

Rob asks who provides the cables: Matt states that BNL will provide the cold ones, while FNAL (Terry Shaw) should provide the warm optical fibers.

Rob asks where the vertical slice test stand will be placed: Karol suggests housing it next to the position of the final DAQ racks.

Matt asks whether the wires will be biased. Andrea and Rob report the APA group wants to bias them: Matt then comments that cold and warm coax cables will be needed, and they should be provided by FNAL.

Matt asks about how to support the CE cables while inside the cold box: Andrea replies that this is under study. There is no solution yet, but the issue is well known.