ProtoDUNE DAQ Review

GB

Charge

1. Does the DAQ system design meet the science and engineering requirements for NP04? Does the design provide sufficient flexibility for alternates? Are the science and engineering requirements/justifications sufficiently complete and clear?
2. Are DAQ system risks captured and is there a plan for managing and mitigating these risks?
3. Does the design lead to a reasonable production schedule, including QA, installation and commissioning? Does the DAQ schedule allow sufficient time for testing of other components?
4. Does the documentation of the DAQ system technical design provide sufficiently comprehensive analysis and justification for the design adopted?
5. Is the DAQ system scope well defined and complete? Are all interfaces to other systems: Cold Electronics, Computing, EOS, beam instrumentation and Photon Detector systems documented, clearly identified and complete? Is the cabling and power well defined and understood? If any parts of the DAQ design impact the grounding and shielding are they understood and adequate?
6. Is the software architecture suitable, including Event Builder, Run Control, Online Monitoring, Timing, Triggering and Databases? Are there sufficient resources for the required software effort?
7. Are the DAQ specifications of commercial units and design drawings/part-lists of custom hardware sufficiently complete to demonstrate that the design can be constructed, installed and operated safely and efficiently?
8. Are operation conditions listed, understood and comprehensive? Are interfaces to calibration systems and plans well understood? Are proposed triggering schemes sufficiently well understood? Has appropriate consideration been made for collection of both zero suppressed and non-zero suppressed data?
9. Are the DAQ system analyses sufficiently comprehensive for safe handling, installation and operation at the CERN Neutrino Platform? Is the installation plan sufficiently well developed?
10. Have applicable lessons-learned from previous LArTPC devices been documented and implemented into the QA plan? Are the DAQ quality control test plans and inspection regimes sufficiently comprehensive to assure efficient commissioning and adequate operational performance of the NP04 experiment?

Lead Reviewers

- To streamline review, have lead reviewers for the different topics
  - Will lead the discussion during our discussion session, draft findings, comments, recommendations
  - Ensures at least one person fully focused on each topic
  - Others of course expected to contribute as well

Topics & People

- Overall architecture, system testing and exploitation (2 people)
  - Andrew, Sigve
- Timing, trigger & throttling
  - Phillipe
- TPC & SSP readout
  - Jos
- Trigger inputs
  - Leslie
- Dataflow
  - Niko
- Run control & monitoring
  - Wainer

Report Format

- Follow US review report format:
  - **Findings**: statements of fact, e.g. “team is planning to build this, with that expected performance”
  - **Comments**: observations, e.g. “team has necessary experience, good mitigation plans, … not clear, … is a concern”
  - **Recommendations**: actions that imperatively need to be taken, written in the imperative, e.g. “Document … better; Identify a mitigation strategy for…; Proceed with …”
- One set of slides from each (group) of lead reviewers
  - We will go over these during “dry run” tomorrow