

Hall B 12-06-113 (BONUS) Experiment Readiness Review

Jefferson Lab May 31, 2017

1 Has the entire beamline and detector configuration been defined, including ownership, maintenance and control during beam operations?

- Comments
 - The beamline is the standard CLAS12 beamline and is well defined.
 - Accelerator operation in previous experiments have shown that the beam can be delivered within the required parameters.
 - The RTPC has well defined ownership within the collaboration and defined plans for maintenance and operation.
- Recommendation
 - It was not clear from the presentations who is responsible for construction the target this must be defined.

2 Are the beam commissioning procedures and machine protection systems sufficiently defined for this stage?

- Yes.

3 What is the status of the equipment towards operation? What are the completion/commissioning schedule and tasks?

- Finding
 - The group is making good use of their experience from BONUS6 and applying it to the design of BONUS12
 - The group benefits from the re-use of CLAS12 parts in BONUS12.
- Recommendation
 - The schedule as presented did not contain float and some dependencies were missing. It needs to be revisited to identify critical paths, efficiencies and to ensure that it is credible. The final schedule should contain at least three months of float before installation.
 - JLab personnel are relied on in the schedule. The scope and availability should be defined.

4. Are the responsibilities for carrying out each job identified, and are the manpower and other resources necessary to complete them on time in place?

- Recommendation:
 - The MVT/micromegas must be de-installed before BONUS is installed and re-installed after.
 - The group responsible for this work should be identified.
 - The procedures that are involved should also be defined.

5. Parameters and status of the target system to be used.

- Comment
 - The target is an incremental improvement on earlier successful design.
- Recommendation
 - Pressure vessel paperwork and review must be finalized.
 - The operational procedure documents presented to the committee are not complete and need to be finalized.
 - Training requirements for operators need to be defined.

What is the RTPC status? Has it been demonstrated for readiness to operate and to achieve the scientific goals of the experiment?

- Comments
 - The group has demonstrated that they are well along the right path to interfacing with CLAS12 systems and hardware.
 - The scheme for calibration looks reasonable.
 - GEM efficiency is high and is more than acceptable.
 - With an expected 2 kHz event rate the readout electronics will be capable of reading out the detector
- Recommendation
 - If not already the case the helium envelope around the target is exhausted outside the hall.
 - The real time resolution using the DREAM chip needs to be explored.
 - Evaluate better the overall reconstruction taking into account multiplicity and momentum to estimate realistic efficiency and performance of the reconstruction.
 - The DREAM chip reduces dead time but does not eliminate it. The true dead time should be determined.

Are the radiation levels expected to be generated in the hall acceptable? Is any local shielding required to minimize the effects of radiation in the hall equipment?

- Yes
- and No.

Thanks