

**Report**  
**Proton Radius (PRad) Experiment Readiness Review**  
**Followup**

2016 March 25

**Reviewers:** E.Chudakov (chair), P.Degtiarenko, D.Higinbotham, B.Manzlak, E.Sun,  
M.Tiefenback, G.Young

On 2016/03/25 the PRad collaboration presented the response to the recommendations from the Experimental Readiness Review that took place on 2015/11/12. The review committee acknowledges the impressive progress made by the collaboration during the few months in preparations for the experiment. In particular great progress has been achieved with the DAQ system and GEM detectors. The recommendations from the first ERR have been addressed. Thus, the committee finds that the PRad experiment is nearly ready to run and has only a few comments and recommendations:

**Comments:**

- a. The collaboration assumes running at 1<sup>st</sup> and 2<sup>nd</sup> passes; however, the accelerator configuration may not support an easy switch to 2<sup>nd</sup> pass. The collaboration needs to discuss the situation with the upper management.
- b. The experiment will be able to measure the background coming from the beam interactions on the gas upstream and downstream of the target. Should the background be uncomfortably higher than expected, additional pumps could be installed, provided they are readily available.
- c. One of the remaining tasks for the DAQ system is an online zero-suppression filter for the GEM data. Such a filter, expected to be installed and tested well before the run, is required for the physics data taking.
- d. PRad requires the GEM efficiency to be known with a 0.1% accuracy across the surface. The measurements of the efficiency should be done in parallel with the data taking. The high accuracy required appears to be a challenge and the collaboration should elaborate on the measurement methods.

**Recommendations:**

1. The collaboration should communicate all beam requirements with the accelerator division as soon as possible. Some of the requirements, such as the energy stability/measurements may require efforts to meet,
2. The Rapid Access procedure should be coordinated with the proper groups and must be included in the safety documentation. A need for a new walk-through should be clarified.