

g2p/gep BPM Requirements Meeting Minutes

Attendees: J.P. Chen, A. Camsonne, T. Michalski, K. Silfer (UNH), B. Bevins, G. Lahti, K. Allada, J. Musson

The following is a summary of issues discussed during the g2p/gep BPM Requirements Meeting:

- The goal of the meeting is to define g2p/gep specific needs/requirements for the BPMs on the articulating arm portion of the chicane.
- The experiment will run from 1.1 to 3.3 GeV with currents of 50-130 nA. 30 uA will be used for Compton Polarimeter measurements, straight to the dump. 1-2 uA will be used for other beam setup measurements.
- It was stated that 0.1mm measurement accuracy is required. The real requirement is to achieve ½ % measurement accuracy on an angle of 6 degrees, or 0.03 degrees accuracy.
- Integration time can be longer. Expect to be running at 1kHz due to the Qweak beam requirements. Need to know position within each helicity state.
- It was noted that new electronics will be required for the IBC1H00 and IBC1H00A in order to perform the desired low current monitoring. It will be the same as the receivers fielded in Hall C now.
- The output of the new BPM electronics will be the same format as the existing BPMs. Brian Bevins and John Musson will get together on the details. The expectation is to use the same screens and IOCs. The electronics for the BPM will use PC104 and will perform the position calculation.
- Resolution is going to be based on time – need a signal to noise ratio of 90dB and will have to integrate over time to achieve this.
- Expect 100dB isolation – need John's second nomograph for determination of the resolution.
- JP asked if we need to calibrate with a harp. It was agreed that if we can use a harp, it is to our advantage. Therefore, there is a desire to use the SuperHarp and place it as close to the BPMs (between them on the articulating arm) as possible. Need to review this with Butch and crew, especially on the short arm.
- A question was asked – is there crosstalk between 2 BPMs which are positioned 18" apart?
- The position of the SMA connectors on the BPM is considered its survey point for defining their spacing on the beamline.
- Test data from the BPM in the North LINAC was to be gathered on Tuesday PM.
- We should look at setting up a BPM experiment in Hall A in the new year (install over Christmas shutdown?).
- **NOTE: We neglected to discuss the requirements for Energy and Position Lock stability. I had this in my notes from another discussion.**

Actions (to be added to the Tuesday Beamline Meeting Action Items):

1. Look at adding the SuperHarp to the articulating arm assembly. Butch Dillon-Townes
2. Brian Bevins and John Musson will review the required data for control/monitor screens.