

g2p/GEp Beam Transport Meeting Minutes

Attendees: T. Michalski, P. Kjeldsen, R. Lauzé, A. Camsonne, D. Williams, JP Chen, Z. (Vick) Chen, L. Dillon-Townes, P. Degtiarenko, K. Allada, C. Curtis, T. Delacruz, J. Heckman, A. Gavalya, T. Satogata, H. Smith, G. Marble, Y. Roblin

The following is a summary of issues discussed during the g2p/GEp Beam Transport Meeting:

- We continue to sort out the details regarding the FZ magnet PSs
 - Vick has the action to see if the AI magnet will fit in the proposed, existing stand. Still debating this option. It was stated that Ed has a 4'x4' stand that could be an alternative. It will be stationary in the hall, probably located near the FZ1 PS. Fundamental concern is stability due to the increased width and weight of the AI. Vick and Butch to resolve concerns.
 - We will not be getting the PSs out of Hall C before the 6MSD. The potential risk has been reviewed and the EESDCP group does not feel that further contingency plans need to be acted upon. However, the question of spare parts and their availability was raised. Vick will pursue this.
 - Polarity switch identified. Collaborator will not purchase. Vick will get order placed.
- BCM testing – still need one cavity.
- BPM testing – testing started during Beam Studies – initial results match expectations, on track to meet g2p needs. Still need additional Beam Study time to verify at low (10nA) beam current.
- There are 2 TCs being added to the LC dump. Need to determine the EES person responsible for capturing these signals. Ron to verify. Post meeting result – Kelly Mahoney and SSG will take responsibility for the TC signals. Expect that Hall A/target folks will have the TCs installed.
- Bill Gunning is setting up the SR in the EEL. Will update when everything is running.
- Check to see if your portion of the schedule is correct. It is posted in the same location as the meeting minutes.

Second half of the meeting was focused on a topic raised at last Thursday's target meeting. We also captured the discussion of the 1.1 GeV run with the target at the pivot.

- Issue description – simulation has found that acceptance at low Q^2 will be unacceptable due to the field strength of the target and a large scattering angle.
- To resolve the issue, it has been proposed that the target be elevated by 2.5-5cm. The final value is to be determined by further simulations.
- This will require determining new orbits and FZ1 and FZ2 field values for the 1.157, 1.706, 2.257 GeV energy runs when the target is in the 87cm upstream position. The target assembly will be repositioned to its "original" height for the 3.355 GeV run with the target 87cm upstream and for all runs when the target is at the pivot.
- The LC dump will not be elevated. If need be, it can be elongated.
- The timing to complete the simulation and determine target height position is about 1 week. Hope to have it by the collaboration meeting.
- Once the value is determined, Yves will have to rerun the orbits, Stephanie will have to verify the layouts, Alan G. will have to assess an issues with the target can assembly, Chris will have to determine what it will take to perform the alignment. This is additional work resulting from the change.

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- Discussed the 1.157 GeV run with the target at the pivot. The purpose of this run is to determine the transformation matrix for the spectrometer/detector optics. The FZ2 magnet would be in its position for the 2.257 run. This would require different fields on the FZ1/FZ2/Target magnets (about ½ field). Requires another orbit to be run.

STATUS:

OPTICS:

- We have all the orbits that have been run to date. Probably will have to update several of them if/when the upstream target position changes. Final set of orbit runs will be in a new file, to clarify what is final (existing database contains about 30 different orbits).
- Also need to assess the orbit for the 1.1 GeV run with the target at the pivot.

MAGNETS:

- Nothing new to report

BEAM TRANSPORT:

- Region 1 – nothing new to report
- Region 2 – nothing new to report
- Region 3 – FZ1 stand – to be inspected on Monday. FZ2 stand – sent out for quote/procurement this week. Still finalizing the support arms and positioning mechanism.
- Material – bellows returned, will be re-leak checked. Next focus is PS shielding box – modify existing assembly.
- Harps – prototype fork due within a week. Wiring fixture being developed. Fabricating harp assembly with a local supplier.
- BPMs – should be complete in the Machine Shop within a week. Then to vacuum for leak check. Then to test.

RAD CON:

- Nothing new to report

SOFTWARE:

- Nothing new to report

VACUUM:

- Nothing new to report

INSTALLATION:

- No status update

ALIGNMENT:

- Nothing new to report

EES – I&C:

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- Working details on calorimeter controller and PC104.
- Harp and receiver electronics in design and fab and test. BPM receiver 2nd prototype underway.

EES – DCP:

- Have some spares. Will further check with Simon. Will have to wait until we get the PSs in order to confirm all spares.

EES – SSG:

- No status update

TARGET/DUMP DESIGN ACTIVITIES:

- Water cooling being added to the LC dump. Plan to raise the target 2.5cm for some of the runs when target is 87 cm upstream.
- Target passed warm leak test. Now thermal shock and then cold leak test.

PHYSICS

- Readiness review set for May 6. Collaboration meeting on April 18 – next week.

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Action Items:

Action Item #	Date Added	Action Item	Responsible Individual	Due Date	Date Closed
11	9/28/10	Define the settings for chicane magnet current monitoring.	Y. Roblin	By 5/6	
16	10/5/10	Understand why there is a hole in the center of the rastered beam that comes from the faster raster/slow raster combination. Stated to be a waveform generator issue. Clarify this. If not HW, then probably SW?	C. Cuevas B. Gunning	TBD	
35	1/4/11	BCM testing at low current, w/ helicity, in January April.	J. Musson / A. Camsonne	4/?/11	
36	1/11/11	BPM testing with new electronics in North Linac – ½ done	J. Musson / D. Willaims	4/5/11	
37	2/1/11	Resolve open question on FZ magnet power supplies.	V. Chen	Ongoing	
41	3/14/11	Verify jacket for upside down girder BCM fits.	B. Dillon-Townes	3/22/11	
43	3/14/11	What is the required hysteresis required for the FZ1 and FZ2 magnets? What is the range of required current?	Y. Roblin	5/15/11	
44	3/22/11	Verify that the AI magnet can fit in the proposed magnet stand.	V. Chen	4/5/11	
45	3/22/11	Get the recommended polarity switch ordered via a collaborator.	JP Vick Chen	4/5/11	4/12/11
46	4/5/11	Determine the owner of the TC signals coming from LC dump. I&C, SSG	R. Lauzé	4/12/11	4/13/11
47	4/5/11	Verify ability to run 1.1 GeV through 2.2 GeV setup, while target is at the pivot.	Y. Roblin / T. Michalski / JP Chen	5/1/11	
48	4/12/11	Determine the vertical position change for the target at the 87 cm upstream position – for 1.157, 1.706, and 2.257 GeV runs	JP Chen/K. Allada	4/19/11	

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Design Decisions:

Date	Decision Item
8/31/10	The transport line exiting the FZ2 will have no vacuum connection to the target chamber. A beryllium window will terminate that line.
8/31/10	M20 BPM's were decided to be used on the transport line exiting the FZ2.
9/14/10	The Target will only be set at 80° and 90°, not 70°, per Al Gavalya.
9/14/10	The gap between the beam tube end and the target window was discussed. It should be minimized – consider 1 cm as a maximum gap. Re-opened during 9/21/10 meeting – look at using helium bag. Will use helium bag – issue closed.
9/30/10	The requirement for BPM accuracy is 0.1mm – per discussion at BPM requirements meeting and subsequent analysis/e-mail from K. Allada.
12/6/10	Use 5.5" M15 antenna style BPMs in articulating arm!
12/6/10	JP committed to a 2 cm raster, if need be, to accommodate threading the beam through the articulating arm.
1/11/11	Decision to use harps in tune mode rather than low current.
4/5/11	We will not accommodate a special 1.1 GeV run with the target at the pivot. There will be no change to the FZ2 stand design and no need to reposition the chicane. Evaluation of 1.1 GeV beam through 2.2 GeV chicane position to be performed.