



Jefferson Lab Alignment Group

Data Transmittal

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Checked: TPSIII

: B1887

DETAILS:

data: step2b\hallb\ fwd_tag_hodo\180621a & 180718A : 2b\hallb\target\180810a

The forward tagger was surveyed on June 21st, 2018 and again on July 18th, 2018. On the June survey, only three upstream threaded alignment posts were visible to the crew. For the July survey, the crew managed to shoot all 8 posts.

The origin is the 12G design target location. The z mid-point of the crystal detectors (as-per the design model) was used as an 'ideal' position for the forward tagger. This position is 1997.8 mm downstream from the 12 G design target location and 724.53 mm downstream from design hall center. The Cebaf coordinates are given for reference.

Cebaf Coord System Ideal [meters]				
Component	X[m]	Y[m]	Z[m]	ds[mm]
12G Center	-80.60000	103.35526	-398.82153	0.00
Fwd. Tagger	-80.60000	103.35526	-400.81933	1997.8
Hall B Center	-80.60000	103.35526	-400.0948	1273.27

The table below shows the calculated center location of the forward tagger for both surveys. The June survey had a minimal amount of points to complete the calculation, while the July survey had all the reference points available. Note that different target posts were used than the INFN designed target. The design post has a reference offset from the insertion shoulder to the prism mounting surface of 41 millimeters, while the actual posts used were 44.1 mm for the upstream positions and 61.1 for the downstream positions.

A positive dX is to the left from the design beamline (looking downstream); a positive dY is vertical from the design beam; a positive dZ is downstream along design beam. d Yaw is a positive counter-clockwise about the Y axis; d Pitch is counter clockwise about the X axis; d Roll is positive about the Z axis. Units are millimeters and decimal degrees.

Beam Following Movements						
Epoch	dx [mm]	dy [mm]	dz [mm]	d Yaw	d Pitch	d Roll
June 21.2018	-1.14	-3.48	-3.82	0.2478	-0.2802	-0.2068
July 18.2018	0.12	0.374	-4.36	0.2272	0.0046	-0.3495

For reference, the as-set Hall B target is shown below (August 2018) :

Found			bfs			Angular delta		
X[m]	Y[m]	Z[m]	dX [mm]	dY[mm]	dZ[mm]	dYaw	dPitch	dRoll
-80.60105	103.36931	-398.79156	1.05	1.06	-29.97	-0.0115	0.0063	0.0252