



Jefferson Lab Alignment Group

Data Transmittal

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Checked:

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DETAILS:

Below are the results from the Line C Compton electron detector pre-alignment and calibration. A right handed coordinate system was established based on ideal main beam center using the upstream beam centerline flange and support cylinder for the detector. A +X is to the beam left, a +Z is downstream, and a +Y is up. A +yaw is counter clockwise looking from above, a + pitch is ccw from beam right, and a +roll is cw looking from upstream. Values are in millimeters and degrees. The downstream face of the downstream detector #1 and the upstream face of the upstream detector #4 were used to define the detector pitch and yaw. Points below are listed in the sequence as measured. Encoder values were recorded separately.

LOCATION

Det. 1 initial pitch check	18.059°
Det. 1 pitch adjust	16.958°
Det. 1 pitch adjust	16.973°
Det. 1 pitch adjust	9.094° (after initial attempt to fix tension??)
Det. 1 pitch adjust	10.551°
Det. 1 pitch adjust	11.905°
Det. 1 pitch adjust	7.685°
Det. 1 pitch adjust	6.207°
Det. 1 pitch adjust	8.494° (after tension spring replaced??)
Det. 1 pitch adjust	9.621°
Det. 1 pitch adjust	9.905°
Det. 1 final set pitch angle	9.961°
Det. 4 bottom with drive extended	Y: -163.99
Det. 4 bottom at home pos.	Y: -63.36 (note: home pos. into main beam line)
Det. 4 bottom with drive retracted	Y: 33.52 (out of main beam line)
Det. 1 bottom at running pos.	Y: -153.88
Det. 4 bottom at running pos.	Y: -160.25
Det. 1 and 4 bottom midpoint at running pos.	Y: -157.07 (5 mm above compton beam at -162.05)
Dist. between upst of det.4 and dnst of det.1	Z: 33.71
Det. 1 pitch check	10.150°
Det. 4 pitch check	10.079°
Det. 1 yaw	-1.302°
Det. 4 yaw	-2.242°
Det. 1 frame	X: -2.51
Det. Lower support post to confirm X offset	X: -1.36
Det. Upper support post to check roll	X: -1.16
Det. Support post roll	-0.164°
Det. frame roll	-0.715°
Det. 4 frame	X: -1.69