Jefferson Lab Alignment Group

Data Transmittal

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DETAILS: data : calcs\hallb\12g_fwdcar data\inspection\hallb\fwd carriage\170118a

An as-found survey on forward carriage was carried out on January 17th, 2017. All the previous surveys of the EC, PCal, Panel 1a, Panel 1b, and Panel 2 were summarized and their positions relative to Hall B's12 GeV target were determined. As requested, the locations for each of the thirty detectors are shown below as six parameters, plus the radial distance.

The x,y,z coordinates are the calculated locations of each detector in relative to each sector's coordinate system. The column labeled Rad is the distance to the xyz coordinate. The attached spreadsheet contains additional information and a sketch is attached showing the 'in' and 'out' locations as will be explained below.

Each sector has its own coordinate system. For sector 1, the origin is the 12 GeV target center. The positive Z-axis is the straight ahead beamline. The X-axis is perpendicular to the beamline, with positive X to the beam left, in the same plane as the beamline height. The positive Y-axis is vertically up. Sector 2 coordinate system is rotated 60º from sector 1, sector 3, 120º, sector 4, 180º, sector 5, 240º and sector 6, 300º. The rotations below are shown as rX, rY, rZ. rX is the rotation about the X axis following a right hand rule. rY and rZ are similar to rX.

detector	x [mm]	y [mm]	z [mm]	Rad [mm]	rX [deg]	rY [deg]	rZ [deg]
EC							
ec-s1	245.97	2.79	7981.73	7985.524	0.077898	-24.841827	0.287884
ec-s2	249.46	-1.59	7983.23	7987.122	0.064251	-24.803809	-0.011062
ec-s3	250.38	9.00	7983.61	7987.541	-0.310119	-24.813579	-0.046775
ec-s4	253.63	0.66	7980.17	7984.201	-0.048227	-24.717916	-0.163856
ec-s5	254.14	0.46	7981.60	7985.644	0.144522	-24.838164	-0.049899
ec-s6	248.42	-6.82	7978.87	7982.739	0.110380	-24.903715	0.050990
PCal							
pcal-s1	247.48	29.83	7694.16	7698.197	-0.009543	-24.945363	0.041734
pcal-s2	248.14	32.86	7694.20	7698.270	0.074726	-24.883951	0.024958
pcal-s3	250.87	34.27	7693.74	7697.901	-0.357748	-24.871431	-0.055915
pcal-s4	253.06	32.32	7693.89	7698.119	0.119071	-24.789005	0.038670
pcal-s5	252.03	27.75	7692.60	7696.777	0.143596	-24.879723	-0.083283
pcal-s6	249.15	27.47	7693.86	7697.943	0.114929	-25.012859	0.093953
Panel 1A							
1a-s1	684.04	-5.27	7282.06	7314.115	0.073287	-24.933242	-0.019311

detector	x [mm]	y [mm]	z [mm]	Rad [mm]	rX [deg]	rY [deg]	rZ [deg]
1a-s2	686.26	7.20	7278.52	7310.805	0.236379	-24.874833	0.239339
1a-s3	687.28	3.65	7283.11	7315.462	-0.372360	-24.926957	-0.141041
1a-s4	690.50	-0.67	7284.70	7317.347	0.049580	-24.756250	-0.129429
1a-s5	689.62	-1.79	7283.10	7315.673	0.206253	-24.830637	-0.036049
1a-s6	685.24	-3.13	7282.86	7315.029	0.132302	-24.980974	-0.019040
Panel 1B							
1b-s1	511.26	-2.71	7180.29	7198.470	0.002486	-24.894893	-0.043544
1b-s2	509.15	4.08	7182.17	7200.195	0.153589	-24.903453	0.050197
1b-s3	511.55	8.30	7182.39	7200.590	-0.358675	-24.904066	-0.129287
1b-s4	521.11	2.24	7180.78	7199.665	0.101687	-24.723084	-0.051004
1b-s5	517.86	0.15	7179.64	7198.296	0.177785	-24.804036	-0.064376
1b-s6	512.93	-5.11	7179.96	7198.259	0.097220	-24.945300	-0.028578
Panel 2							
p2-s1	3756.27	2.05	5460.85	6628.002	-0.290001	-57.797124	-0.327947
p2-s2	3733.30	6.46	5456.50	6611.425	0.042447	-57.927845	-0.084678
p2-s3	3739.90	-6.36	5460.41	6618.383	-0.839719	-58.109468	-1.035988
p2-s4	3735.79	3.52	5443.84	6602.387	180.026274	123.987647	-0.071662
p2-s5	3746.14	-6.40	5446.46	6610.410	-0.485044	-56.970937	-0.744339
p2-s6	3736.27	5.68	5440.66	6600.036	0.271813	-56.866890	0.086812