



Jefferson Lab Alignment Group

Data Transmittal

TO: T. Whitlatch

DATE: 08/30/2022

FROM: Elena Balan

Checked: CG

: D2047

DETAILS:

M:\align\DATA\Step2B\HallD\220819A
M:\align\DATA\Step2B\HallD\TAGGER\Hodoscope\220825A
M:\align\DATA\Step2B\HallD\TAGGER\Microscope\220825A
M:\align\DATA\Step2B\HallD\Target\220822A
M:\align\DATA\Step2B\HallD\COMPCAL\220825A

Below are the as found position of Hall D components measured in August, 2022. The found coordinates are in the CEBAF coordinate system. The Beam Following coordinates represent the amount offset from the design (ideal) location. The results are relative to a beam-following coordinate system; +X is left of beam, +Y is above beam, +Z is downstream. Angles are reported using the right-hand rule; +Pitch is a counter-clockwise rotation looking from left, +Yaw is a counter-clockwise rotation looking from above, +Roll is a counter-clock rotation looking from downstream.

Component	CEBAF Coord. System			Beam Following Coord. System			As-Set [deg.]		
	X[m]	Y[m]	Z[m]	ΔX [mm]	ΔY [mm]	ΔZ [mm]	Yaw	Pitch	Roll
HDPRSP	80.59986	104.70001	386.76748	-0.14000	0.01300	5.85000	0.00315	0.01719	-0.00029
HGDETL	80.83851	104.7005	389.6947	-0.226	0.534	45.585	4.67652	0.00516	0.01891
HGDETR	80.36133	104.7005	389.6951	0.097	0.52	45.967	-4.6926	-0.00229	0.01404
LGDETL	80.87487	104.7012	390.184	0.032	1.171	6.565	4.66731	-0.05414	-0.08394
LGDETR	80.32489	104.7031	390.1847	-0.212	3.118	7.302	-4.79926	0.00115	0.10027
HDMICR	79.43064	104.698	306.5228	0.112	-0.047	-0.154	-11.0605	0.00573	0.00516

- The Beryllium target was measured on 23/08/2022 and the Helium target was measured on 9/08/2022.

Component	CEBAF Coord. System			Beam Following Coord. System			As-Set [deg.]		
	X[m]	Y[m]	Z[m]	ΔX [mm]	ΔY [mm]	ΔZ [mm]	Yaw	Pitch	Roll
HDBERL	80.60020	104.70010	398.78850	0.20	0.08	-1.37	0.01977	0.00315	-0.01662
HDHETAR	80.59955	104.69961	398.78877	-0.45	-0.39	-1.06	-0.01404	-0.00143	-0.00086

Meas. Plate	Corner	CEBAF Coord. System			Beam Following Coord.			Yaw[deg.]
		X[m]	Y[m]	Z[m]	ΔX [mm]	ΔY [mm]	ΔZ [mm]	
HODPL3	h3-top-br-ds	79.21501	104.7709	306.6584	0.16	0.15	998.58	-0.0086
	h3-top-br-us	79.35479	104.7711	305.6712	0.31	0.28	0.51	
HODPL4	h4-top-br-ds	79.06727	104.7731	307.7024	0.06	2.32	1052.21	-0.0022
	h4-top-br-us	79.21472	104.7731	306.6601	0.10	2.33	-0.42	
HODPL5	h5-top-br-ds	78.92063	104.7708	308.7384	-0.03	0.05	1044.48	-0.0047
	h5-top-br-us	79.06676	104.7709	307.7059	0.06	0.05	1.63	

Meas. Plate	Corner	CEBAF Coord. System			Beam Following Coord.			Yaw[deg.]
		X[m]	Y[m]	Z[m]	ΔX [mm]	ΔY [mm]	ΔZ [mm]	
HODPL6	h6-top-br-ds	78.72979	104.7708	310.0876	-0.08	0.02	1200.36	-0.0089
	h6-top-br-us	78.89802	104.7708	308.8995	0.11	0.00	0.37	
HODPL7	h7-top-br-ds	78.55101	104.7708	311.3515	0.09	0.01	1219.80	0.0052
	h7-top-br-us	78.72176	104.7707	310.1435	-0.20	0.06	0.25	

For the Lead absorber aperture (Pb) component the beam following coordinates are post summer 2022 run and are relative to the ARWEN frame. The CEBAF coordinates are approximately determined.

Component	CEBAF Coord. System			Beam Following Coord. System		
	X[m]	Y[m]	Z[m]	ΔX [mm]	ΔY [mm]	ΔZ [mm]
Pb	80.6007	104.7023	406.0274	0.24	1.92	-227.75

Part of the August surveys were the COMPCAL positions. For the component names please see the figure below. The CompCal coordinates were determined as an average of the 4 repetitions.

Component	CEBAF Coord. System			Beam Following Coord. System			[deg.]		
	X[m]	Y[m]	Z[m]	ΔX [mm]	ΔY [mm]	ΔZ [mm]	Yaw	Pitch	Roll
COMPCAL	80.60008	104.6999	410.8992	0.08	-0.14	-40.36	-0.0196	-0.0495	-0.0241
COMPCAL R1_1	80.60011	104.7003	410.8988	0.11	0.31	-40.78	-0.0078	-0.3238	-0.0124
COMPCAL R1_12	80.59956	104.7003	410.8984	-0.44	0.31	-41.21	-0.0481	-0.2347	-0.0389
COMPCAL R12_1	80.60063	104.7001	410.9011	0.63	0.12	-38.51	-0.0216	0.3846	-0.0024
COMPCAL R12_12	80.60045	104.7006	410.9015	0.45	0.57	-38.09	-0.0540	0.6196	-0.0526

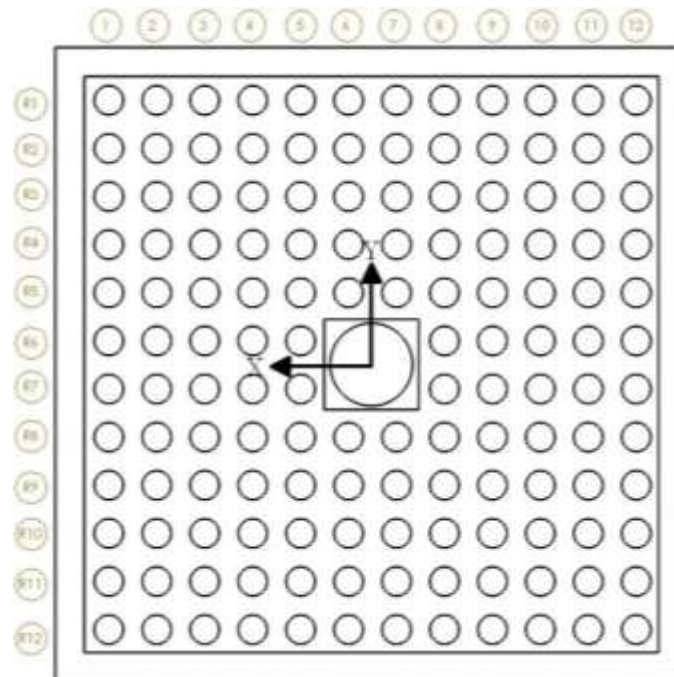


Figure 1. CompCal corner names