



Jefferson Lab Alignment Group

Data Transmittal

TO: T. Whitlatch

DATE: 18 Jan 2023

FROM: Elena Balan

Checked: cg

: D2062

DETAILS:

M:\align\DATA\Step2B\HALLD\TAGGER\Microscope\230111A
M:\align\DATA\Step2B\HALLD\TAGGER\Hodoscope\230111A
M:\align\DATA\Step2B\HALLD\DIRC\230112A
M:\align\DATA\Step2B\HALLD\TAC\230112A

Hall D hodoscope plates 3 and 4, microscope, DIRC mirror boxes and bar boxes, TAC, and luminosity paddle were surveyed on January 2023. The found coordinates are in the CEBAF coordinate system. The Beam Following coordinates are the amount offset from the design (ideal) location. The results are relative to a beam-following coordinate system; +X is left of the beam, +Y is above the beam, and +Z is downstream. Rotation angles are as follows: +Pitch is a clockwise rotation looking from left, +Yaw is a counter-clockwise rotation looking from above, and +Roll is a counter-clock rotation looking from downstream.

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	79.21499	104.77071	306.6564	-0.13	-0.05	996.62	-0.0403
	h3-top-br-us	79.35531	104.77078	305.66927	0.57	-0.02	-0.43	
HODPL4	h4-top-br-ds	79.06717	104.77083	307.7012	-0.21	0.08	1051.06	-0.0228
	h4-top-br-us	79.21499	104.77099	306.65899	0.21	0.19	-1.57	

The microscope has three positions: the as-set one (HDMICR_AS_SET), the value after exercising motors (HDMICR_AMOT), and the requested position 2mm down on Y from ideal (HDMICR_2MM).

Component	CEBAF Coord. System			Beam Following Coord. System			As-Set [deg.]		
	X[m]	Y[m]	Z[m]	ΔX [mm]	ΔY [mm]	ΔZ [mm]	ΔYaw	$\Delta Pitch$	$\Delta Roll$
HDMICR_AS_SET									
US_SCINTILATOR_AS_SET	79.43376	104.69975	306.52333	0.49	-0.25	-0.30	0.0065	0.0060	-0.2071
DS_SCINTILATOR_AS_SET	79.29464	104.69981	307.50771	0.60	-0.19	993.86			
HDMICR_AMOT									
US_SCINTILATOR_AMOT	79.43371	104.70025	306.52339	0.45	0.25	-0.24	-0.0167	-0.0109	-0.0728
DS_SCINTILATOR_AMOT	79.29421	104.70002	307.50771	0.17	0.02	993.92			
HDMICR_2MM									
US_SCINTILATOR_2MM	79.43378	104.69822	306.52343	0.53	-1.78	-0.21	-0.0149	-0.0097	-0.1103
DS_SCINTILATOR_2MM	79.29431	104.69801	307.50776	0.27	-1.99	993.95			

Component	CEBAF Coord. System			Beam Following Coord. System			As-Set [deg.]		
	X[m]	Y[m]	Z[m]	ΔX [mm]	ΔY [mm]	ΔZ [mm]	ΔYaw	$\Delta Pitch$	$\Delta Roll$
DIRBRMB	77.58631	104.39489	403.94327	4.91	-7.66	-0.19	-0.2197	-0.2954	0.0782
DIRBLMB	83.62287	105.51248	403.95966	4.27	0.05	16.20	-0.0539	-0.2086	-0.1344
LDIRC1	80.60694	103.88195	403.98141	6.94	-6.67	-1.30	-0.1232	-0.1232	0.0350
LDIRC2	80.60579	104.39661	403.98241	5.79	-6.86	-0.30	-0.1172	-0.2564	0.0298
DIRC3	80.60209	104.99904	403.98372	2.09	2.52	1.01	-0.0917	-0.1773	-0.0123
DIRC4	80.60452	105.51405	403.98512	4.52	2.68	2.41	-0.1049	-0.1902	-0.0206

The luminosity paddle was measured on the approximative center of the DS face of the paddle.

The TAC was measured on the approximative centerline of the US face, using the grid paper as a reference.

Component	CEBAF Coord. System			Beam Following Coord. System		
	X[m]	Y[m]	Z[m]	ΔX [mm]	ΔY [mm]	ΔZ [mm]
LUMINOSITY	80.60626	104.70035	412.17187	6.26	0.20	-2210.13
TAC	80.60003	104.69941	414.44178	0.03	-0.58	59.78