



Jefferson Lab Alignment Group

Data Transmittal

TO: S. Lassiter, M. Fowler

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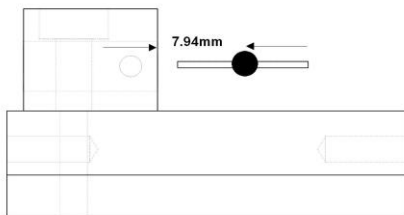
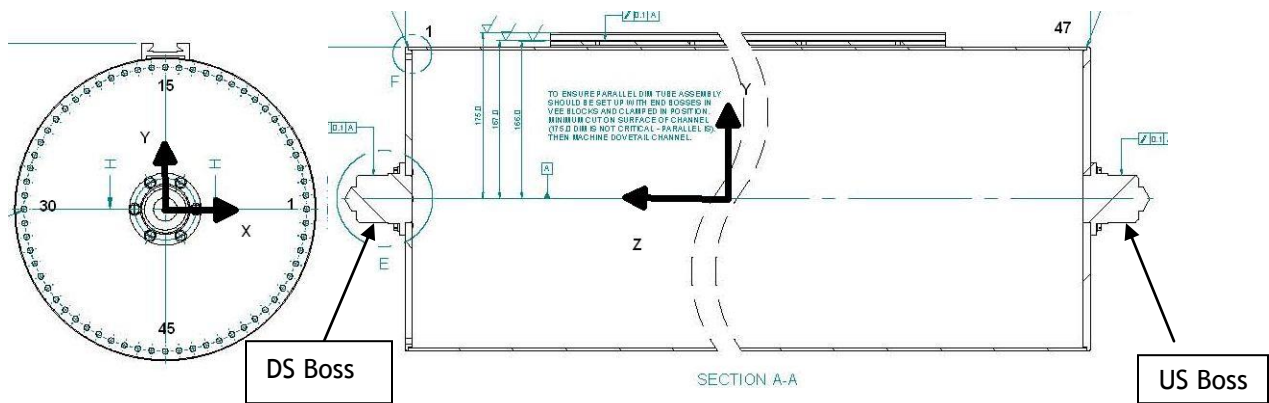
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: C1648

DETAILS:

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Below are the recent Q1 mapper results. The as-set coordinates are relative to the centerline of Q1 where the Z axis is defined by the bore and the rotation is controlled by the beamline cut-out. It should be noted that the measurements are to a point 7.94mm from the face the probe holder (see diagram below). The orientation for both the "Tube" and "Boss" circles is with Hole 15 at the top. Values are in mm.



Probe Offset

Constructed Circle Centers						
	X	Y	Z	Radius	Rx from Y	Ry from Z
PROBE@-800mm	0.07	0.05	-801.51	186.68	90.0440°	0.0239°
Probe@Center	0.04	-0.06	-1.21	186.76	90.0154°	-0.0050°
PROBE@800mm	0.04	0.04	798.89	186.63	89.9832°	-0.0133°
	X	Y	Z	Radius		
US Tube	-1.63	0.05	-800.53	180.75		
Tube CL	-2.09	0.18	-0.53	180.81		
DS_Tube	-1.69	0.19	799.47	180.80		
	X	Y	Z	Radius		
US_Boss	0.13	0.38	-1504.44	24.97		
DS_Boss	0.09	0.28	1503.37	24.99		

Probe position at each of the 47 locations along the rail in the top orientation (hole 15)							
	X	Y	Z		X	Y	Z
H1	0.15	187.46	1448.10	H25	0.22	186.76	-126.50
H2	-0.20	187.06	1397.85	H26	0.23	186.52	-252.06
H3	-0.41	186.81	1347.96	H27	0.35	186.92	-376.91
H4	-0.65	186.81	1298.09	H28	0.14	186.88	-501.49
H5	-0.64	186.78	1248.07	H29	0.25	186.62	-551.76
H6	-0.82	186.59	1198.25	H30	0.22	186.68	-601.68
H7	-0.64	186.54	1148.40	H31	0.20	186.94	-651.19
H8	-0.41	186.46	1098.29	H32	0.19	186.90	-701.36
H9	-0.45	186.47	1048.45	H33	0.15	186.70	-751.52
H10	-0.07	186.68	998.26	H34	0.13	186.58	-801.62
H11	-0.15	186.69	948.29	H35	0.10	186.64	-852.03
H12	-0.14	186.69	898.30	H36	0.02	187.00	-901.34
H13	-0.21	186.61	849.02	H37	0.07	187.03	-951.21
H14	-0.26	186.58	798.56	H38	0.11	187.06	-1001.34
H15	-0.28	186.73	748.35	H39	0.12	187.06	-1051.51
H16	-0.15	186.77	698.11	H40	0.10	187.05	-1101.36
H17	-0.10	186.73	648.24	H41	0.03	187.22	-1151.12
H18	-0.12	186.65	598.29	H42	-0.03	187.30	-1201.13
H19	-0.20	186.19	548.23	H43	0.02	187.45	-1251.05
H20	-0.41	186.49	498.39	H44	-0.06	187.59	-1300.91
H21	-0.11	186.75	373.54	H45	0.17	187.58	-1351.21
H22	-0.57	186.39	248.21	H46	0.09	188.01	-1400.94
H23	-0.49	186.77	123.46	H47	-0.39	188.49	-1450.65
H24	-0.19	186.45	-1.59				

Probe measured at each of the 64 positions in three separate locations

	X	Y	Z		X	Y	Z		X	Y	Z
H1_8	-183.03	36.52	798.68	H1_0	-183.11	36.53	-1.51	H1_-8	-182.83	37.08	-801.91
H2_8	-178.55	54.29	798.82	H2_0	-178.64	54.41	-0.84	H2_-8	-178.33	54.64	-801.94
H3_8	-172.36	71.53	798.79	H3_0	-172.45	71.56	-1.55	H3_-8	-172.14	71.85	-801.95
H4_8	-164.62	87.95	798.96	H4_0	-164.69	88.01	-0.77	H4_-8	-164.34	88.25	-801.86
H5_8	-155.09	103.82	798.74	H5_0	-155.12	103.93	-1.54	H5_-8	-154.79	104.09	-801.90
H6_8	-144.29	118.35	798.93	H6_0	-144.30	118.56	-1.27	H6_-8	-144.12	118.81	-800.83
H7_8	-132.05	131.88	798.76	H7_0	-132.06	131.96	-1.47	H7_-8	-131.87	132.27	-800.78
H8_8	-118.43	144.17	798.83	H8_0	-118.42	144.33	-0.80	H8_-8	-118.21	144.58	-800.62
H9_8	-103.70	155.18	798.83	H9_0	-103.69	155.26	-1.45	H9_-8	-103.49	155.50	-800.54
H10_8	-87.95	164.59	798.97	H10_0	-87.85	164.72	-0.73	H10_-8	-87.49	164.77	-801.96
H11_8	-71.42	172.43	798.80	H11_0	-71.34	172.51	-1.43	H11_-8	-71.04	172.52	-802.01
H12_8	-54.13	178.62	798.85	H12_0	-54.12	178.62	-0.62	H12_-8	-53.86	178.87	-800.79
H13_8	-36.52	183.01	798.79	H13_0	-36.41	183.09	-1.39	H13_-8	-36.20	183.26	-800.80
H14_8	-18.50	185.67	798.79	H14_0	-18.30	185.78	-1.41	H14_-8	-18.09	185.91	-800.72
H15_8R	-0.27	186.66	798.91	H15_0R	-0.17	186.68	-0.69	H15_-8	0.11	186.79	-800.73
H16_8	18.57	185.75	798.78	H16_0	18.75	185.76	-1.50	H16_-8	18.91	185.86	-801.39
H17_8	36.64	183.03	798.92	H17_0	36.81	183.05	-0.84	H17_-8	37.02	183.13	-801.43
H18_8	54.40	178.58	798.84	H18_0	54.62	178.55	-1.56	H18_-8	54.97	178.41	-801.49
H19_8	71.42	172.49	798.93	H19_0	71.63	172.46	-0.78	H19_-8	71.98	172.25	-801.51
H20_8	88.20	164.55	798.82	H20_0	88.42	164.50	-1.65	H20_-8	88.66	164.34	-801.49
H21_8	103.76	155.23	798.91	H21_0	103.94	155.15	-0.80	H21_-8	104.21	154.96	-801.49
H22_8	118.54	144.27	798.74	H22_0	118.68	144.20	-1.36	H22_-8	118.92	143.93	-801.73
H23_8	132.07	132.00	798.94	H23_0	132.26	131.89	-0.82	H23_-8	132.42	131.63	-801.71
H24_8	144.34	118.44	798.92	H24_0	144.46	118.37	-1.39	H24_-8	144.65	118.03	-801.69
H25_8	155.22	103.77	798.95	H25_0	155.41	103.61	-0.80	H25_-8	155.50	103.30	-801.68
H26_8	164.73	87.88	798.94	H26_0	164.93	87.71	-1.66	H26_-8	165.00	87.55	-801.42
H27_8	172.43	71.58	799.01	H27_0	172.63	71.41	-0.75	H27_-8	172.67	71.22	-801.39
H28_8	178.63	54.37	799.01	H28_0	178.80	54.15	-1.54	H28_-8	178.82	54.03	-801.47
H29_8	183.15	36.36	798.98	H29_0	183.30	36.11	-0.72	H29_-8	183.29	35.97	-801.51
H30_8	185.79	18.41	798.94	H30_0	185.94	18.11	-1.70	H30_-8	185.90	18.07	-801.67
H31_8	186.73	-0.15	798.85	H31_0	186.84	-0.36	-0.89	H31_-8	186.81	-0.44	-801.53
H32_8	185.80	-18.51	798.84	H32_0	185.91	-18.74	-1.73	H32_-8	185.84	-18.78	-801.65
H33_8	183.14	-36.30	798.90	H33_0	183.25	-36.56	-0.86	H33_-8	183.16	-36.59	-801.60
H34_8	178.70	-54.07	798.90	H34_0	178.78	-54.33	-1.67	H34_-8	178.65	-54.36	-801.63
H35_8	172.43	-71.52	798.96	H35_0	172.49	-71.85	-0.90	H35_-8	172.37	-71.84	-801.63
H36_8	164.54	-88.13	798.95	H36_0	164.58	-88.44	-1.71	H36_-8	164.46	-88.45	-801.70
H37_8	155.21	-103.68	798.95	H37_0	155.23	-103.99	-0.87	H37_-8	155.09	-104.00	-801.68
H38_8	144.24	-118.44	798.95	H38_0	144.25	-118.76	-1.56	H38_-8	144.08	-118.71	-801.89
H39_8	131.99	-131.95	798.92	H39_0	131.99	-132.23	-0.90	H39_-8	131.82	-132.19	-801.76
H40_8	118.24	-144.37	798.92	H40_0	118.22	-144.66	-1.57	H40_-8	117.95	-144.61	-801.72
H41_8	103.84	-155.05	798.96	H41_0	103.76	-155.34	-0.91	H41_-8	103.58	-155.28	-801.70

H42_8	87.87	-164.59	798.96	H42_0	87.79	-164.89	-1.52	H42_-8	87.62	-164.82	-801.59
H43_8	71.39	-172.36	799.01	H43_0	71.30	-172.64	-0.80	H43_-8	71.10	-172.56	-801.58
H44_8	54.06	-178.55	798.99	H44_0	53.96	-178.83	-1.51	H44_-8	53.78	-178.70	-801.70
H45_8	36.33	-183.00	798.95	H45_0	36.23	-183.24	-0.86	H45_-8	36.04	-183.09	-801.74
H46_8	18.02	-185.67	798.97	H46_0	17.86	-185.92	-1.68	H46_-8	17.72	-185.75	-801.75
H47_8	-0.20	-186.57	798.94	H47_OR	-0.22	-186.75	-0.89	H47_-8	-0.44	-186.62	-801.61
H48_8	-18.52	-185.64	799.03	H48_0	-18.72	-185.87	-1.50	H48_-8	-18.79	-185.64	-801.68
H49_8	-36.56	-182.93	799.02	H49_0	-36.75	-183.15	-0.84	H49_-8	-36.81	-182.94	-801.63
H50_8	-54.22	-178.52	798.97	H50_0	-54.40	-178.71	-1.66	H50_-8	-54.45	-178.45	-801.73
H51_8	-71.86	-172.17	798.96	H51_0	-72.01	-172.34	-0.94	H51_-8	-72.06	-172.14	-801.43
H52_8	-88.40	-164.30	798.88	H52_0	-88.61	-164.44	-1.57	H52_-8	-88.62	-164.22	-801.58
H53_8	-103.98	-154.92	798.91	H53_0	-104.11	-155.05	-0.96	H53_-8	-104.19	-154.83	-800.80
H54_8	-118.43	-144.21	798.96	H54_0	-118.59	-144.32	-0.85	H54_-8	-118.63	-144.07	-801.38
H55_8	-132.30	-131.59	798.87	H55_0	-132.49	-131.66	-1.66	H55_-8	-132.48	-131.41	-800.81
H56_8	-144.31	-118.33	798.93	H56_0	-144.46	-118.37	-1.02	H56_-8	-144.50	-118.08	-801.72
H57_8	-155.43	-103.29	798.91	H57_0	-155.64	-103.26	-1.64	H57_-8	-155.63	-102.97	-801.73
H58_8	-164.69	-87.72	798.89	H58_0	-164.90	-87.64	-1.14	H58_-8	-164.88	-87.40	-801.29
H59_8	-172.63	-70.94	798.83	H59_0	-172.79	-70.92	-1.53	H59_-8	-172.75	-70.65	-801.57
H60_8	-178.66	-54.03	798.81	H60_0	-178.77	-54.06	-1.00	H60_-8	-178.75	-53.75	-801.58
H61_8	-183.05	-36.36	798.90	H61_0	-183.22	-36.26	-1.56	H61_-8	-183.14	-35.96	-801.74
H62_8	-185.70	-18.32	798.93	H62_0	-185.88	-18.23	-0.96	H62_-8	-185.80	-17.91	-801.48
H63_8	-186.62	-0.03	798.80	H63_0	-186.76	0.05	-1.68	H63_-8	-186.66	0.38	-801.52
H64_8	-185.69	18.44	798.85	H64_0	-185.82	18.55	-0.97	H64_-8	-185.56	19.06	-801.91

Rotation Holes								
	X	Y	Z		X	Y	Z	
HOLE1	147.32	29.73	1508.93	HOLE33	-147.03	-29.25	1508.63	
HOLE2	143.67	44.03	1509.02	HOLE34	-143.47	-43.54	1508.64	
HOLE3	138.66	57.81	1509.08	HOLE35	-138.43	-57.40	1508.58	
HOLE4	132.36	71.13	1509.12	HOLE36	-132.12	-70.67	1508.57	
HOLE5	124.75	83.81	1509.13	HOLE37	-124.58	-83.25	1508.51	
HOLE6	115.97	95.58	1509.10	HOLE38	-115.74	-95.03	1508.54	
HOLE7	106.10	106.48	1509.10	HOLE39	-105.90	-105.94	1508.55	
HOLE8	95.16	116.41	1509.09	HOLE40	-94.97	-115.95	1508.55	
HOLE9	83.31	125.15	1509.11	HOLE41	-83.13	-124.65	1508.60	
HOLE10	70.68	132.70	1509.14	HOLE42	-70.52	-132.22	1508.65	
HOLE11	57.30	139.06	1509.12	HOLE43	-57.19	-138.53	1508.72	
HOLE12	43.48	143.96	1509.09	HOLE44	-43.30	-143.41	1508.71	
HOLE13	29.24	147.53	1509.05	HOLE45	-29.03	-146.97	1508.73	
HOLE14	14.64	149.65	1509.02	HOLE46	-14.43	-149.15	1508.74	
HOLE15	-0.03	150.32	1508.98	HOLE47	0.30	-149.85	1508.76	
HOLE16	-14.83	149.64	1508.97	HOLE48	15.00	-149.12	1508.80	
HOLE17	-29.41	147.38	1508.85	HOLE49	29.54	-146.96	1508.82	

HOLE18	-43.64	143.86	1508.86		HOLE50	43.83	-143.39	1508.87
HOLE19	-57.52	138.89	1508.82		HOLE51	57.68	-138.38	1508.88
HOLE20	-70.86	132.63	1508.81		HOLE52	71.04	-132.12	1508.91
HOLE21	-83.41	125.02	1508.82		HOLE53	83.66	-124.40	1509.03
HOLE22	-95.32	116.21	1508.82		HOLE54	95.42	-115.61	1509.04
HOLE23	-106.11	106.33	1508.79		HOLE55	106.33	-105.67	1509.06
HOLE24	-116.03	95.39	1508.84		HOLE56	116.19	-94.77	1509.02
HOLE25	-124.80	83.53	1508.85		HOLE57	125.04	-82.92	1509.00
HOLE26	-132.28	70.85	1508.89		HOLE58	132.58	-70.32	1508.96
HOLE27	-138.59	57.55	1508.85		HOLE59	138.82	-56.97	1508.97
HOLE28	-143.45	43.70	1508.85		HOLE60	143.76	-43.07	1508.96
HOLE29	-147.15	29.34	1508.82		HOLE61	147.30	-28.80	1508.93
HOLE30	-149.28	14.79	1508.77		HOLE62	149.47	-14.25	1508.90
HOLE31	-150.00	-0.03	1508.74		HOLE63	150.25	0.52	1508.91
HOLE32	-149.19	-14.71	1508.70		HOLE64	149.40	15.17	1508.96