



Jefferson Lab Alignment Group

Data Transmittal

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DATE: 13 May 2015

FROM: Kelly Tremblay

Checked: (mjw)

: B1639

DETAILS:

data : step2a\hallb\torus12\150427A

Coils B, C D and E were checked in Hall B on April 27th.

Coil E was installed approximately horizontal (270° clockwise looking downstream), coil D at 210°, coil C at 150° and coil B at 90°. The two survey ball holes on the outer edge away from the hub were used to determine the angles formed between the coils. The data below marked 'US' and 'DS' are the upstream and downstream prisms.

The ideal coordinates based on drawing B00000-04-01-1101 rev D and the found locations (note offset 5/16" due to the survey prism used) are:

	Ideal			Found			deltas		
	X [mm]	Y [mm]	Z [mm]	X [mm]	Y [mm]	Z [mm]	dx [mm]	dy [mm]	dz [mm]
Coil E - US	3207.20	0.00	-506.95	3206.25	-11.74	-506.34	-0.95	-11.74	0.61
Coil E - DS	4212.84	0.00	878.25	4212.70	-17.22	878.21	-0.14	-17.22	-0.04
Coil D - US	1603.62	-2777.52	-506.95	1592.82	-2782.99	-503.69	-10.80	-5.47	3.25
Coil D - DS	2106.42	-3648.43	878.25	2090.56	-3656.45	881.88	-15.86	-8.02	3.63
Coil C - US	-1603.62	-2777.52	-506.95	-1616.26	-2770.29	-503.64	-12.64	7.23	3.31
Coil C - DS	-2106.42	-3648.43	878.25	-2122.07	-3639.11	881.84	-15.65	9.32	3.59
Coil B - US	-3207.20	0.00	-506.95	-3207.87	13.21	-505.53	-0.67	13.21	1.42
Coil B - DS	-4212.84	0.00	878.25	-4213.91	18.69	879.26	-1.07	18.69	1.01

Angles from the hub to the prism locations (relative to beam following coordinate system)

Angles from Hub (degrees)		
	Ideal	Found
Coil E - US	270.0000	269.7849
Coil E - DS	270.0000	269.7447
Coil D - US	210.0000	209.7959
Coil D - DS	210.0000	209.7532
Coil C - US	150.0000	149.7565
Coil C - DS	150.0000	149.7681
Coil B - US	90.0000	89.7693
Coil B - DS	90.0000	89.7669

Angles coil to coil:

Angle Between Coils (degrees)				
		Ideal	Found	delta
E to D	US	60.0000	59.9890	0.0110
	DS	60.0000	59.9915	0.0085
D to C	US	60.0000	60.0394	-0.0394
	DS	60.0000	59.9851	0.0149
C to B	US	60.0000	59.9871	0.0129
	DS	60.0000	60.0012	-0.0012
E To B	US	180.0000	180.0156	-0.0156
	DS	180.0000	179.9778	0.0222
E to C	US	120.0000	120.0284	-0.0284
	DS	120.0000	119.9767	0.0233
D to B	US	120.0000	120.0265	-0.0265
	DS	120.0000	119.9863	0.0137

Distances between prism locations:

Distances between tooling Balls (mm)				
		ideal	Found	delta
Coil E-D	US	3207.2	3206.7	-0.48
	DS	4212.8	4212.8	-0.07
coil D-C	US	3207.2	3209.1	1.87
	DS	4212.8	4212.7	-0.17
Coil C - D	US	3207.2	3206.4	-0.78
	DS	4212.8	4213.7	0.86

Hub Centers:

Hub Centers locations (mm – beam following)			
	x	y	z
US	-0.6	-1.2	452
DS	0.1	-3.0	2507