



Jefferson Lab Alignment Group

Data Transmittal

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Checked:

: B1036

DETAILS:

Data: m:\align\calcs\hallb\sec 6 jan2006

The new "Italian" sector 6 Cerenkov chamber was aligned on the Hall B floor to a set of coordinates supplied by INFN (ref. B1034). The tubes along the top edges were located by forming 5 circles on the beam left and right sides (ref. B1035). These tubes will be the closest object to the permanently installed Region 3, sector 6 chamber. The Cerenkov was then installed in the forward carriage, and located relative to the forward carriage fiducials. During the location survey for the cerenkov, the beam left/right edge of the region 3, sector 6 detector was located by 3 points. The forward carriage data was then transformed into the originally found location (ref survey January 3rd 2006). The interpreted results of this transformation show that if the carriage is moved to its previous installed location, there will be approximately 4 to 5 centimeters clearance between the region 3 sector 6 and the new Cerenkov. All the coordinates below are in the Clas coordinate system.

Locations for interpolated surface tangent points on the Cerenkov are as follows :

Point	x (mm)	y (mm)	z (mm)
Beam Left			
BL1	1007.1	-653.4	3960.7
BL2	1396.8	-873.3	3743.3
BL3	1772.1	-1086.3	3476.1
BL4	2170.6	-1314.6	3092.3
BL5	2520.8	-1517.4	2657.4
Beam Right			
BR1	42.6	-1192.0	3972.9
BR2	44.8	-1661.6	3751.1
BR3	46.0	-2086.8	3485.9
BR4	46.2	-2587.3	3069.9
BR5	45.3	-2946.9	2680.5

The surveyed locations of the Region 3, sector 6 edges are as follows :

Point	x (mm)	y (mm)	z (mm)
Beam Right			
R3_SEC6_BR_D	77.1	-501.8	4172.6
R3_SEC6_BR_E	74.1	-1088.6	3964.5
R3_SEC6_BR_F	83.2	-1759.4	3612.6
Beam Left			
R3_SEC6_BL_A	423.1	-324.7	4170.6
R3_SEC6_BL_A	891.3	-593.2	3965.9
R3_SEC6_BL_C	1418.8	-908.5	3648.2

The “Italian” coordinates when transformed to the installed position have the following values. Also shown are the deltas showing the coordinates supplied from INFN, minus the theoretical installed position.

As-Interpolated Locations						
Point	x (mm)	y (mm)	z (mm)	dx (mm)	dy (mm)	dz (mm)
TP1	1659.4	-1016.5	4055.3	-1.8	3.7	29.2
TP2	2149.0	-1339.9	3538.2	-2.3	9.6	25.0
TP3	1861.9	-1507.8	4141.9	-0.9	3.2	23.9
TP4	43.6	-1894.2	4096.8	-0.4	0.8	23.7
TP5	89.1	-2528.2	3557.9	-0.5	6.3	17.3
TP6	367.5	-2352.0	4149.6	0.4	0.8	18.5
TB1	1213.7	-769.1	4417.9	-1.4	-0.6	32.6
TB2	61.4	-1427.7	4420.1	-0.4	-2.4	28.3
TB3	2673.1	-2460.5	3188.9	-1.4	14.0	12.8
TB4	2642.5	-2012.6	2810.4	-2.8	17.7	17.3
TB5	1544.2	-2679.4	2841.1	-1.7	15.8	12.9
TB6	1734.8	-2993.2	3183.1	-0.6	12.6	9.3
TB7	807.1	-3544.5	3199.8	0.3	11.1	5.7
TB8	422.5	-3294.5	2819.5	-0.8	14.3	9.0