

Jefferson Lab Alignment Group

DATA TRANSMITTAL

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DETAILS:

A survey of the Hall C GZero Octant # 2 detector support was carried out on February 15th, 2000. The results are as follows :

1) Relationship of the nominal to the as-constructed plate holes (in a 2-d planar position) is shown on page 2/3 of this transmittal. The surveyed data was transformed to 3 held nominal positions and a comparison of coordinates was used to derive the differences. A summary of the rms error (for x/y) for each plate, plus the standard deviation is shown below (mm). Note that the coordinate system is based on the nominal 2-d plate values, and is different than the system shown in item 3.

Beam Right Data

| | |
|----------------------------|------|
| standard dev w/o extension | 0.02 |
| average w/o extension | 0.03 |

| | |
|---------------------------|------|
| standard dev w/ extension | 0.07 |
| average w/ extension | 0.06 |

Beam Left Data

| | |
|-----------------------|------|
| stdev w/o extension | 0.02 |
| average w/o extension | 0.03 |

| | |
|----------------------|------|
| stdev w/ extension | 0.13 |
| average w/ extension | 0.08 |

2) The angles formed by the beam left and right plates was found to be at 35.960°. The nominal angle is 36°.

3) The offset relationship between hole locations on the plates is shown for each pair of points on page 4 to 6 of this report. The data shows the as-found transformed coordinates (mm), the nominal coordinates, the deltas between individual coordinates and the delta between the cross distances. Cross distance is defined as the distance between the beam left plate holes to it's counterpart on the beam right plate. A negative delta cross distance indicates that the as-found distance is less than the nominal distance. The coordinate system for these calculations is based on the nominals from target center.

Note that the overall precision of this theodolite survey is to approximately 0.08 mm, and no accounting of how well the survey target was placed in the hole is considered.