

Jefferson Lab Alignment Group

DATA TRANSMITTAL

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DATE: 28 Aug 2000

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Checked:

: A624

DETAILS:

Earlier this month a second survey was carried out in Line A of the Beam Switch Yard in order to determine the angle between the superharp pairs. The first survey was measured in July 1998 (see DTM #457). This survey involved setting the encoders at 118408 and measuring the offset to the tooling ball block on the superharp ("As Fnd Offset"). The external fiducial wire was then set directly below the tooling ball block, the encoders reset, and then the relative location of these reference blocks was determined using traditional angle and distance measurements.

The data was adjusted such that the line between the first superharps was held fixed. This approach ensured a minimum of bias on the results. Absolute and relative error ellipses from this adjustment were used to indicate the accuracy of the measurements; semi major (A) and semi minor (B) axes are shown. Harp coordinates and calculated azimuths and angles are given below. (Note: An independent check of survey lines at the beginning and end of this network was conducted using a gyro-theodolite. The angle between the lines agreed to within 3 seconds.)

An adjustment holding control points fixed was used to determine the location of the tooling ball blocks with respect to the ideal beam position. From this adjustment an offset to the beamline was calculated ("Bmline Offset"). The offsets and ellipse values below are given in millimeters.

POINT	Z	X	A	B	As Fnd Offset	Bmline Offset
HARP0	79690.96729	59921.05466	0.00	0.00	-1.16	235.4
HARP1	79687.00371	59921.27652	0.05	0.00	-0.98	235.2

Azimuth 0-1 : 273.2038 deg

HARP3	79644.42100	59938.00946	0.41	0.09	-1.66	234.9
HARP4	79641.47727	59940.26799	0.44	0.09	-2.50	235.2

Azimuth 3-4 : 307.4967deg

Angle (0-1) to (3-4) : 34.2929 deg

Estimated accuracy : 4.6 seconds or 0.0013 deg