

Jefferson Lab Alignment Group

DATA TRANSMITTAL

TO: J. Gomez, J. LeRose

DATE: 13 Sept., 2000

PAGE : 1 of 3

FROM: C. J. Curtis

Checked:

: A627

DETAILS:

Below are the results from the recent surveys of the spectrometer sieve slits. The first set of results indicate the differences from ideal location of each element with respect to the centerline of the dipole. The numbers shown represent the location (in mm) of the target with respect to its ideal position. A negative X is to the beam right, positive Y is high, and positive Z is downstream. The spectrometers were under vacuum, and the slits were at atmosphere.

Fiducial	Del Z	Del X	Del Y	Encoder
HQ2_A	-10.08	0.52	-0.35	
HQ2_B	-10.16	0.30	-0.44	
HQ2_C	-10.01	0.22	-0.57	
HQ2_D	-10.15	-0.05	-0.55	
HQ1_A	-0.94	0.27	-0.48	
HQ1_C	-0.77	0.09	0.39	
HQ1_D	-0.13	0.18	0.27	
HQ1_M	-0.03	0.24	-0.28	
HSLIT_E	5.37	0.45	-0.15	
HSLIT_F	5.12	0.80	-0.18	
Large Slit (found)		2.30	-0.87	nominal
Sieve Slit (found)		0.72	-1.29	nominal
Large Slit (final)		2.30	0.00	6141
Sieve Slit (final)		0.76	0.00	3627
EQ2_G	-2.09	-0.36	-0.09	
EQ2_H	-2.13	-0.18	0.30	
EQ2_K	-2.07	0.18	-0.39	
EQ2_J	-0.85	0.36	-0.06	
EQ1_G	-9.20	-0.53	2.32	
EQ1_J	-8.91	-0.11	1.37	
EQ1_K	-9.74	-0.38	1.51	
EQ1_L	-9.95	-0.31	2.01	
ESLIT_G	14.76	-0.36	3.74	
ESLIT_H	12.75	-0.55	3.78	
Large Slit (found)		-1.87	4.34	nominal
Sieve Slit (found)		-0.54	3.68	nominal
Large Slit (final)		-1.88	0.00	6212
Sieve Slit (final)		-0.56	0.00	3695

DATA TRANSMITTAL (cont.)

: A627

DATE: 13 Sep 2000

PAGE : 2 of 3

The next set of results show the movement under vacuum for the slits and the slit boxes for each spectrometer. The values show the change (in mm) from the component's location at atmosphere, and at 50 mtorr. A positive DDX is a movement to the beam left, a positive DDY is a movement upwards. The expected value is pro-rated from the Q1 fiducials. The actual movement is the difference between this value and the measured value. The sieve movement indicates the movement of the sieve slit inside the box (i.e. difference between actuals of the box and the sieve.) Given an estimated accuracy of approx 0.1mm, the only significant movements occurred on the electron slits in X.

		HQ1_D	HQ1_B	Slit Box	Sieve
Test 1	DDX	-0.01	0.02	0.11	0.21
	Expected			0.06	0.06
	Actual Mov't			0.05	0.15
	Sieve Mov't				0.10
Test 2	DDX	0.06	0.06	0.18	0.21
	Expected			0.06	0.06
	Actual Mov't			0.12	0.15
	Sieve Mov't				0.03
Test 3	DDX	0.04	0.10	0.14	0.18
	Expected			0.18	0.18
	Actual Mov't			-0.04	0.00
	Sieve Mov't				0.04

		HQ1_D	HQ1_B	Slit Box	Sieve
Test 1	DDY	-0.06	-0.16	-0.26	-0.24
	Expected			-0.29	-0.29
	Actual Mov't			0.03	0.05
	Sieve Mov't				0.02
Test 2	DDY	-0.13	-0.18	-0.29	-0.33
	Expected			-0.25	-0.25
	Actual Mov't			-0.04	-0.08
	Sieve Mov't				-0.04
Test 3	DDY	-0.03	-0.04	0.05	0.05
	Expected			-0.05	-0.05
	Actual Mov't			0.10	0.10
	Sieve Mov't				0.00

DATA TRANSMITTAL (cont.)

: A627

DATE: 13 Sep 2000

PAGE : 3 of 3

		EQ1_K	EQ1_L	Slit Box	Sieve
Test 1	DDX	0.04	0.05	0.04	0.14
	Expected			0.06	0.06
	Actual Mov't			-0.02	0.08
	Sieve Mov't				0.10
Test 2	DDX	0.09	0.04	-0.01	0.18
	Expected			-0.03	-0.03
	Actual Mov't			0.02	0.21
	Sieve Mov't				0.19
Test 3	DDX	0.03	0.01	0.01	0.18
	Expected			-0.02	-0.02
	Actual Mov't			0.03	0.20
	Sieve Mov't				0.17
Test 4	DDX	0.03	-0.03	0.00	0.15
	Expected			-0.11	-0.11
	Actual Mov't			0.11	0.26
	Sieve Mov't				0.15

		EQ1_K	EQ1_L	Slit Box	Sieve
Test 1	DDY	0.00	-0.04	-0.26	-0.20
	Expected			-0.09	-0.09
	Actual Mov't			-0.17	-0.11
	Sieve Mov't				0.06
Test 2	DDY	-0.03	-0.09	-0.26	-0.17
	Expected			-0.17	-0.17
	Actual Mov't			-0.09	0.00
	Sieve Mov't				0.09
Test 3	DDY	-0.21	-0.40	-0.41	-0.37
	Expected			-0.65	-0.65
	Actual Mov't			0.24	0.28
	Sieve Mov't				0.04
Test 4	DDY	0.04	-0.05	-0.18	-0.16
	Expected			-0.17	-0.17
	Actual Mov't			-0.01	0.01
	Sieve Mov't				0.02