



Jefferson Lab Alignment Group

Data Transmittal

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DATE: 10 Oct 2016

FROM: Kelly Tremblay

Checked: cg

: A1735

DETAILS:

data : fiduc\halla\dvcs\160930a

Hall A's DVCS detector was re-fiducialized September 30th, 2016. The coordinates are based on the previous surveyed fiducials (see memo A1710). The results are shown below. All coordinate units are millimeters. Angles are in degrees.

The relationship between the ideal fiducials and found fiducials are shown below. This gives an indication of the precision between the survey data precision to previous surveys or if the frame holding the crystals has moved. Units are all millimeters.

Name Fiducial	Ideal Fiducials			As-found fiducials			Delta			
	X1	Y1	Z1	X2	Y2	Z2	dX	dY	dZ	Mag
A	-313.598	-269.838	229.512	-313.613	-269.852	229.462	-0.015	-0.014	-0.050	0.055
D	-286.301	-163.536	12.836	-286.309	-163.579	12.873	-0.008	-0.043	0.037	0.057
E	-286.535	23.219	168.751	-286.483	23.256	168.782	0.052	0.037	0.031	0.071
F	-286.647	193.327	14.356	-286.655	193.342	14.384	-0.008	0.015	0.028	0.033
G	-286.691	222.560	172.139	-286.712	222.565	172.093	-0.021	0.005	-0.046	0.051
Average										0.053

The as-found centers, radius and deltas from the previous survey (A1710) of the crystals are shown below. Additionally, the rotation of the planes formed by the circles relative to the overall plane are displayed (Rx,Ry).

Circle	X	Y	Z	dx	dy	Radius	Rx	Ry
0	-231.87	-229.44	0.36	-1.33	0.24	11.03	-90.0091	-179.9319
1	-231.23	-198.26	0.35	-1.37	0.30	11.03	-90.0093	-179.9319
2	-232.75	-167.73	0.35	-1.27	0.39	11.03	-90.0091	-179.9319
3	-230.89	-137.15	0.34	-1.91	0.20	11.03	-90.0092	-179.9318
4	-231.69	-106.97	0.34	-0.94	-0.92	11.03	-90.0092	-179.9319
5	-230.09	-75.97	0.33	-1.22	-0.15	11.09	-90.0092	-179.9318
6	-231.09	-45.16	0.32	-0.24	0.05	11.14	-90.0091	-179.9319
7	-230.24	-14.31	0.32	-0.55	0.30	11.02	-90.0091	-179.9319
8	-230.20	16.20	0.31	-0.75	0.16	11.03	-90.0091	-179.9319
9	-230.97	46.87	0.31	-0.94	0.40	11.03	-90.0091	-179.9319
10	-229.68	77.50	0.30	0.09	0.07	11.07	-90.0091	-179.9319
11	-231.29	108.53	0.30	-0.55	0.68	11.03	-90.0091	-179.9319
12	-229.77	139.49	0.29	-0.57	0.78	11.04	-90.0090	-179.9320

Circle	X	Y	Z	dx	dy	Radius	Rx	Ry
13	-232.13	170.45	0.29	-0.60	0.82	11.08	-90.0090	-179.9321
14	-230.44	201.23	0.28	-0.82	0.87	11.09	-90.0091	-179.9320
15	-231.58	231.97	0.28	-2.14	0.88	11.02	-90.0091	-179.9319
16	-201.44	-229.83	0.32	-1.43	-0.21	11.04	-90.0091	-179.9319
17	-200.56	-199.10	0.31	-1.12	-0.11	11.09	-90.0092	-179.9319
18	-202.06	-168.08	0.31	-1.25	0.15	11.05	-90.0091	-179.9319
19	-200.61	-137.85	0.30	-2.26	-0.49	11.10	-90.0091	-179.9319
20	-200.98	-106.81	0.30	-0.57	-0.07	11.02	-90.0091	-179.9319
21	-199.54	-75.65	0.29	-1.33	0.43	11.03	-90.0091	-179.9319
22	-200.53	-44.95	0.29	-0.34	0.58	11.03	-90.0091	-179.9319
23	-199.56	-13.88	0.28	-0.76	0.30	11.04	-90.0091	-179.9319
24	-199.48	16.88	0.28	-0.68	0.73	11.05	-90.0091	-179.9319
25	-200.07	47.32	0.27	-0.72	0.29	11.03	-90.0091	-179.9319
26	-198.98	77.86	0.27	-0.01	0.45	11.03	-90.0091	-179.9319
27	-200.41	109.10	0.26	-0.58	0.83	11.04	-90.0091	-179.9319
28	-199.13	139.26	0.26	-0.74	0.25	11.04	-90.0091	-179.9319
29	-201.34	170.31	0.26	-0.47	0.86	11.02	-90.0091	-179.9319
30	-199.61	201.27	0.25	-0.63	1.15	11.08	-90.0091	-179.9319
31	-200.31	231.69	0.24	-1.35	1.57	10.99	-90.0091	-179.9319
32	-170.48	-229.78	0.28	-1.27	-0.29	11.03	-90.0091	-179.9319
33	-169.99	-199.27	0.28	-1.34	-0.19	11.07	-90.0091	-179.9319
34	-171.49	-168.33	0.27	-1.45	-0.34	11.07	-90.0091	-179.9319
35	-169.48	-137.46	0.27	-1.96	-0.17	11.05	-90.0091	-179.9319
36	-170.03	-106.65	0.26	-0.61	0.10	11.02	-90.0091	-179.9319
37	-168.64	-76.48	0.26	-0.79	-0.23	11.04	-90.0091	-179.9319
38	-169.69	-45.89	0.25	-0.32	-0.24	11.04	-90.0091	-179.9319
39	-168.97	-14.75	0.25	-0.53	0.33	11.04	-90.0091	-179.9319
40	-168.58	16.02	0.24	-0.44	0.22	11.06	-90.0091	-179.9319
41	-169.38	46.47	0.24	-0.69	-0.16	11.06	-90.0091	-179.9319
42	-168.41	77.33	0.23	-0.34	0.52	11.03	-90.0091	-179.9319
43	-169.91	108.48	0.23	-0.41	0.95	11.02	-90.0091	-179.9319
44	-168.60	138.90	0.22	-1.00	0.65	11.06	-90.0091	-179.9319
45	-170.26	169.67	0.22	-0.03	0.69	11.04	-90.0091	-179.9319
46	-168.68	200.81	0.21	0.11	1.22	11.02	-90.0091	-179.9319
47	-169.72	231.48	0.21	-1.43	1.25	11.00	-90.0091	-179.9319
48	-139.63	-229.40	0.25	-1.29	0.28	11.04	-90.0091	-179.9319
49	-138.76	-199.21	0.24	-0.74	-0.24	11.07	-90.0091	-179.9319
50	-140.51	-168.04	0.24	-1.08	-0.15	11.04	-90.0091	-179.9319
51	-138.94	-137.63	0.23	-1.91	-0.26	11.01	-90.0091	-179.9319
52	-139.68	-106.93	0.23	-0.88	-0.27	11.04	-90.0091	-179.9319
53	-137.63	-76.34	0.22	-0.45	-0.03	11.03	-90.0091	-179.9319
54	-139.05	-45.49	0.22	-0.64	-0.07	11.00	-90.0091	-179.9319
55	-138.18	-14.90	0.21	-0.53	0.02	11.03	-90.0091	-179.9319
56	-138.04	15.42	0.20	-0.40	0.16	11.04	-90.0091	-179.9319

Circle	X	Y	Z	dx	dy	Radius	Rx	Ry
57	-138.85	46.22	0.20	-0.66	0.42	11.03	-90.0091	-179.9319
58	-137.93	76.43	0.19	-0.49	-0.19	11.04	-90.0091	-179.9319
59	-139.43	107.87	0.19	-0.22	0.65	11.07	-90.0091	-179.9319
60	-138.16	138.15	0.19	-0.99	-0.09	11.03	-90.0091	-179.9319
61	-139.73	168.99	0.18	-0.31	0.09	11.00	-90.0091	-179.9319
62	-138.13	199.63	0.18	-0.54	0.19	11.02	-90.0091	-179.9319
63	-139.10	230.89	0.17	-1.42	0.73	11.01	-90.0091	-179.9318
64	-108.78	-229.58	0.21	-0.95	-0.06	11.02	-90.0092	-179.9319
65	-108.10	-198.65	0.20	-1.03	-0.18	11.03	-90.0091	-179.9319
66	-109.58	-167.94	0.20	-1.27	0.18	11.04	-90.0091	-179.9319
67	-107.49	-137.71	0.19	-0.99	-0.10	11.03	-90.0091	-179.9319
68	-108.62	-106.43	0.19	-0.52	0.75	11.02	-90.0091	-179.9319
69	-107.17	-76.41	0.18	-0.36	0.04	11.03	-90.0091	-179.9319
70	-108.38	-45.99	0.18	-0.48	0.14	11.00	-90.0091	-179.9319
71	-107.80	-15.18	0.17	-0.40	-0.14	11.04	-90.0091	-179.9319
72	-107.25	15.56	0.17	-0.19	0.37	11.04	-90.0091	-179.9319
73	-108.05	46.29	0.16	-0.67	0.23	11.06	-90.0092	-179.9320
74	-107.33	77.10	0.16	-0.26	0.72	11.02	-90.0091	-179.9319
75	-108.78	107.80	0.16	-0.39	0.14	11.02	-90.0091	-179.9318
76	-107.28	138.30	0.15	-0.56	0.13	11.04	-90.0091	-179.9319
77	-108.79	169.29	0.15	-0.20	0.67	11.07	-90.0091	-179.9319
78	-107.75	199.88	0.14	-0.85	0.80	11.04	-90.0091	-179.9319
79	-108.29	230.72	0.13	-1.13	1.17	10.99	-90.0091	-179.9319
80	-78.39	-229.23	0.17	-1.20	0.08	11.03	-90.0091	-179.9319
81	-77.69	-199.05	0.17	-1.20	-0.09	11.05	-90.0091	-179.9319
82	-78.71	-168.67	0.16	-1.09	-0.62	11.00	-90.0091	-179.9319
83	-77.40	-138.15	0.16	-1.46	-0.28	11.10	-90.0091	-179.9319
84	-78.00	-107.35	0.15	-0.18	-0.21	11.03	-90.0091	-179.9319
85	-76.80	-76.78	0.15	-0.42	0.07	11.02	-90.0091	-179.9319
86	-77.55	-45.70	0.14	-0.51	0.35	11.02	-90.0091	-179.9319
87	-76.79	-14.95	0.14	-0.08	0.53	11.02	-90.0091	-179.9319
88	-76.72	15.53	0.13	-0.33	0.59	11.02	-90.0091	-179.9319
89	-77.54	46.06	0.13	-0.79	0.49	11.03	-90.0091	-179.9319
90	-76.58	76.43	0.12	-0.25	0.28	11.00	-90.0091	-179.9319
91	-78.10	107.82	0.12	-0.27	0.75	11.05	-90.0092	-179.9319
92	-76.67	138.34	0.11	-0.60	0.44	11.08	-90.0092	-179.9319
93	-78.26	168.83	0.11	-0.33	0.62	11.03	-90.0091	-179.9319
94	-76.88	199.19	0.10	-0.62	0.16	11.05	-90.0091	-179.9319
95	-77.76	229.81	0.10	-1.25	0.53	11.01	-90.0091	-179.9319
96	-47.61	-229.58	0.14	-1.09	-0.13	11.10	-90.0092	-179.9319
97	-47.02	-199.27	0.13	-0.86	-0.07	11.04	-90.0091	-179.9319
98	-48.13	-168.03	0.13	-1.40	-0.20	11.03	-90.0091	-179.9319
99	-46.35	-137.61	0.12	-0.86	-0.21	11.03	-90.0091	-179.9319
100	-47.57	-107.32	0.12	-0.99	-0.31	11.02	-90.0091	-179.9319

Circle	X	Y	Z	dx	dy	Radius	Rx	Ry
101	-46.03	-76.33	0.11	-0.38	0.02	11.01	-90.0091	-179.9319
102	-46.99	-45.69	0.11	-0.29	0.09	11.03	-90.0091	-179.9319
103	-46.12	-15.25	0.10	-0.05	0.32	11.04	-90.0091	-179.9319
104	-46.30	15.47	0.10	-0.77	0.41	11.06	-90.0091	-179.9319
105	-46.87	45.71	0.09	-0.52	-0.24	11.03	-90.0091	-179.9319
106	-46.12	76.59	0.09	-0.33	-0.08	11.02	-90.0091	-179.9319
107	-47.49	107.60	0.08	-0.57	0.53	11.03	-90.0091	-179.9319
108	-46.47	137.91	0.08	-0.88	0.55	11.03	-90.0091	-179.9319
109	-47.24	168.38	0.07	-0.13	0.27	11.03	-90.0091	-179.9319
110	-46.35	199.18	0.07	-0.47	0.66	11.04	-90.0091	-179.9319
111	-47.18	229.93	0.06	-1.17	1.00	11.02	-90.0091	-179.9319
112	-16.78	-229.70	0.10	-0.93	-0.23	11.02	-90.0091	-179.9319
113	-16.49	-199.12	0.09	-1.35	-0.24	11.09	-90.0091	-179.9319
114	-17.18	-167.76	0.09	-1.03	0.70	11.07	-90.0091	-179.9318
115	-15.89	-137.49	0.08	-0.77	0.48	11.01	-90.0091	-179.9319
116	-16.79	-106.99	0.08	-0.79	0.09	11.02	-90.0091	-179.9319
117	-15.55	-76.15	0.07	-0.39	0.20	11.04	-90.0091	-179.9319
118	-16.20	-45.56	0.07	-0.03	0.55	11.02	-90.0091	-179.9319
119	-15.63	-14.79	0.06	-0.18	0.40	11.04	-90.0091	-179.9319
120	-15.64	15.53	0.06	-0.70	0.41	11.04	-90.0091	-179.9319
121	-16.14	46.17	0.05	-0.49	0.38	11.02	-90.0091	-179.9319
122	-15.46	77.09	0.05	0.03	0.83	11.06	-90.0091	-179.9318
123	-16.60	107.28	0.05	-0.29	0.36	11.02	-90.0092	-179.9320
124	-15.91	138.07	0.04	-0.64	0.70	11.07	-90.0091	-179.9319
125	-16.64	168.95	0.04	-0.36	0.38	11.07	-90.0091	-179.9318
126	-15.88	199.64	0.03	-0.62	0.45	11.06	-90.0091	-179.9319
127	-16.68	229.83	0.03	-1.09	0.02	11.02	-90.0091	-179.9319
128	13.98	-229.62	0.06	-0.98	0.03	11.02	-90.0092	-179.9319
129	14.52	-199.11	0.06	-0.68	-0.27	11.01	-90.0091	-179.9319
130	13.63	-167.98	0.05	-1.03	0.05	11.02	-90.0091	-179.9319
131	14.96	-137.87	0.05	-0.75	-0.10	11.01	-90.0091	-179.9319
132	13.91	-106.88	0.04	-0.90	-0.14	11.01	-90.0091	-179.9319
133	15.14	-76.11	0.04	-0.24	0.28	11.05	-90.0091	-179.9319
134	14.43	-45.90	0.03	-0.35	-0.27	11.02	-90.0091	-179.9319
135	14.84	-14.73	0.03	-0.17	0.58	11.03	-90.0091	-179.9319
136	14.69	15.65	0.02	-0.69	0.25	11.04	-90.0091	-179.9318
137	14.69	46.10	0.02	-0.58	0.30	11.03	-90.0091	-179.9319
138	14.96	76.56	0.01	-0.31	0.24	11.06	-90.0091	-179.9319
139	13.98	107.61	0.01	-0.56	0.45	11.06	-90.0091	-179.9319
140	14.78	137.97	0.00	-0.47	0.43	11.07	-90.0091	-179.9319
141	14.04	168.94	0.00	-0.16	0.68	11.07	-90.0091	-179.9318
142	14.88	199.42	-0.01	-0.21	0.91	11.06	-90.0091	-179.9318
143	14.20	230.11	-0.01	-0.69	0.62	11.00	-90.0094	-179.9319
144	44.90	-229.58	0.03	-1.03	-0.69	11.01	-90.0091	-179.9319

Circle	X	Y	Z	dx	dy	Radius	Rx	Ry
145	45.08	-198.84	0.02	-0.81	-0.03	11.02	-90.0091	-179.9319
146	44.47	-167.94	0.02	-0.95	0.36	10.94	-90.0091	-179.9319
147	45.30	-137.69	0.01	-0.75	0.10	11.02	-90.0091	-179.9319
148	44.93	-107.29	0.01	-0.71	-0.38	11.04	-90.0091	-179.9319
149	45.66	-76.73	0.00	-0.52	-0.08	11.05	-90.0091	-179.9319
150	45.06	-45.81	0.00	-0.31	0.33	11.01	-90.0091	-179.9319
151	45.48	-14.48	-0.01	-0.16	0.85	11.06	-90.0091	-179.9319
152	45.62	15.98	-0.01	-0.47	0.55	11.02	-90.0091	-179.9319
153	45.43	46.98	-0.02	-0.52	0.98	11.04	-90.0091	-179.9319
154	45.37	77.99	-0.02	-0.27	0.82	11.03	-90.0091	-179.9319
155	45.02	108.52	-0.03	-0.08	1.03	11.05	-90.0091	-179.9319
156	45.40	139.12	-0.03	-0.60	0.97	11.03	-90.0092	-179.9320
157	44.79	170.08	-0.04	-0.16	1.35	11.02	-90.0091	-179.9318
158	45.52	200.70	-0.04	-0.12	1.35	11.03	-90.0091	-179.9319
159	44.74	230.96	-0.05	-0.63	1.63	10.99	-90.0091	-179.9319
160	75.48	-229.63	-0.01	-0.73	-0.42	11.04	-90.0091	-179.9319
161	75.46	-199.05	-0.02	-0.70	0.02	11.07	-90.0091	-179.9319
162	75.19	-168.25	-0.02	-0.76	0.11	11.05	-90.0091	-179.9319
163	76.00	-137.89	-0.03	-0.51	-0.51	11.05	-90.0091	-179.9319
164	76.17	-106.64	-0.03	-0.31	0.46	11.03	-90.0091	-179.9319
165	76.29	-76.40	-0.04	0.03	0.15	10.98	-90.0091	-179.9319
166	75.74	-45.89	-0.04	-0.31	0.06	11.05	-90.0091	-179.9319
167	75.88	-15.25	-0.05	-0.35	0.22	11.03	-90.0091	-179.9319
168	76.35	15.75	-0.05	-0.16	-0.16	11.04	-90.0091	-179.9319
169	76.06	46.95	-0.06	-0.43	0.73	11.05	-90.0091	-179.9319
170	75.95	77.28	-0.06	-0.33	0.39	11.04	-90.0091	-179.9318
171	75.92	107.90	-0.07	-0.02	0.52	11.07	-90.0091	-179.9318
172	76.12	139.04	-0.07	-0.38	0.85	11.01	-90.0091	-179.9319
173	75.87	169.38	-0.08	0.20	0.96	11.02	-90.0091	-179.9319
174	75.95	200.40	-0.08	-0.06	1.12	11.04	-90.0091	-179.9318
175	75.34	231.06	-0.08	-0.44	0.68	11.00	-90.0091	-179.9319
176	106.07	-229.35	-0.05	-0.78	0.12	11.03	-90.0091	-179.9319
177	106.22	-198.92	-0.05	-0.80	-0.12	11.01	-90.0092	-179.9320
178	105.82	-167.77	-0.06	-0.64	0.04	11.04	-90.0091	-179.9319
179	106.55	-137.40	-0.06	-0.63	-0.12	11.05	-90.0091	-179.9319
180	107.09	-106.45	-0.07	0.16	0.43	11.07	-90.0091	-179.9318
181	106.65	-76.07	-0.07	-0.31	0.31	11.06	-90.0091	-179.9319
182	106.62	-45.66	-0.08	-0.12	-0.20	11.04	-90.0091	-179.9319
183	106.43	-14.38	-0.08	-0.45	0.76	11.05	-90.0091	-179.9319
184	106.93	16.41	-0.09	-0.03	0.42	11.07	-90.0091	-179.9319
185	106.46	46.87	-0.09	-0.53	0.31	11.03	-90.0091	-179.9319
186	106.57	77.28	-0.10	-0.13	-0.07	11.04	-90.0091	-179.9319
187	106.51	108.84	-0.10	-0.22	1.02	11.05	-90.0091	-179.9319
188	106.68	139.04	-0.11	-0.16	0.92	11.05	-90.0091	-179.9319

Circle	X	Y	Z	dx	dy	Radius	Rx	Ry
189	106.42	169.56	-0.11	-0.19	0.73	11.02	-90.0091	-179.9319
190	106.51	199.93	-0.12	-0.15	0.70	11.07	-90.0091	-179.9318
191	105.80	230.92	-0.12	-0.31	0.91	11.00	-90.0091	-179.9319
192	136.77	-229.46	-0.08	-0.96	-0.03	11.05	-90.0091	-179.9319
193	136.82	-198.71	-0.09	-0.76	-0.21	11.02	-90.0091	-179.9319
194	136.80	-167.73	-0.09	-0.25	0.56	11.07	-90.0092	-179.9319
195	136.89	-137.06	-0.10	-0.72	0.10	11.04	-90.0091	-179.9319
196	137.35	-106.80	-0.10	-0.28	-0.34	11.06	-90.0091	-179.9319
197	137.09	-76.17	-0.11	-0.35	-0.29	11.01	-90.0091	-179.9319
198	137.33	-45.31	-0.11	0.01	-0.34	11.06	-90.0091	-179.9319
199	137.21	-14.33	-0.12	-0.31	-0.08	11.02	-90.0091	-179.9319
200	137.27	16.33	-0.12	-0.12	0.30	11.03	-90.0091	-179.9319
201	137.24	47.11	-0.13	-0.35	0.21	11.03	-90.0092	-179.9319
202	136.98	78.04	-0.13	-0.19	0.63	11.03	-90.0091	-179.9319
203	137.38	108.37	-0.14	0.15	0.23	11.03	-90.0091	-179.9319
204	137.27	139.22	-0.14	-0.48	-0.28	11.03	-90.0091	-179.9319
205	137.33	170.00	-0.15	-0.01	0.12	11.14	-90.0091	-179.9319
206	137.08	200.86	-0.15	-0.29	0.04	10.98	-90.0092	-179.9319
207	136.51	231.37	-0.16	-0.61	0.13	10.99	-90.0091	-179.9319