



Finalized CRAFT-2009 CSC Alignment: Just the Numbers (Global Coordinates)

Jim Pivarski

Texas A&M University

11 October, 2009

All the values

Jim Pivarski 2/46



All values relative to ideal, alternating x , y , z (mm) and ϕ_x , ϕ_y , ϕ_z (mrad)

Columns: PG + hardware, same + global adjustment, **same + track-based chambers**

(color applied only if chamber was aligned)

chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
+1/1, 01	+1815.00	+1819.95	+1819.95	-0.00	-1.62	-1.62	+6151.93	+6151.93	+6151.93
	-3141.59	-3141.59	-3141.59	-0.00	-0.00	-0.00	+1570.80	+1570.96	+1570.96
+1/1, 02	+1787.43	+1792.33	+1792.33	+315.17	+313.54	+313.54	+5857.06	+5857.06	+5857.06
	-3141.59	-3141.59	-3141.59	-0.00	-0.00	-0.00	+1745.33	+1745.50	+1745.50
+1/1, 03	+1705.54	+1710.39	+1710.39	+620.77	+619.13	+619.13	+6150.06	+6150.06	+6150.06
	-3141.59	-3141.59	-3141.59	-0.00	-0.00	-0.00	+1919.86	+1920.03	+1920.03
+1/1, 04	+1571.84	+1576.64	+1576.64	+907.50	+905.84	+905.84	+5858.93	+5858.93	+5858.93
	-3141.59	-3141.59	-3141.59	-0.00	-0.00	-0.00	+2094.40	+2094.56	+2094.56
+1/1, 05	+1390.37	+1395.13	+1395.13	+1166.66	+1164.96	+1164.96	+6151.93	+6151.93	+6151.93
	-3141.59	-3141.59	-3141.59	-0.00	-0.00	-0.00	+2268.93	+2269.10	+2269.10
+1/1, 06	+1166.66	+1171.38	+1171.38	+1390.37	+1388.64	+1388.64	+5858.93	+5858.93	+5858.93
	-3141.59	-3141.59	-3141.59	-0.00	-0.00	-0.00	+2443.46	+2443.63	+2443.63
+1/1, 07	+907.50	+912.19	+912.19	+1571.84	+1570.06	+1570.06	+6151.93	+6151.93	+6151.93
	-3141.59	-3141.59	-3141.59	-0.00	-0.00	-0.00	+2617.99	+2618.16	+2618.16
+1/1, 08	+620.77	+625.43	+625.43	+1705.54	+1703.72	+1703.72	+5855.50	+5855.50	+5855.50
	-3141.59	-3141.59	-3141.59	-0.00	-0.00	-0.00	+2792.53	+2792.70	+2792.70
+1/1, 09	+315.17	+319.82	+319.82	+1787.43	+1785.55	+1785.55	+6148.50	+6148.50	+6148.50
	-3141.59	-3141.59	-3141.59	-0.00	-0.00	-0.00	+2967.06	+2967.23	+2967.23
+1/1, 10	-0.00	+4.65	+4.65	+1815.00	+1813.07	+1813.07	+5858.93	+5858.93	+5858.93
	+3141.59	-3141.59	-3141.59	+0.00	+0.00	+0.00	+3141.59	-3141.42	-3141.42
+1/1, 11	-315.17	-310.52	-310.52	+1787.43	+1785.44	+1785.44	+6151.93	+6151.93	+6151.93
	-3141.59	-3141.59	-3141.59	+0.00	+0.00	+0.00	-2967.06	-2966.89	-2966.89
+1/1, 12	-620.77	-616.10	-616.10	+1705.54	+1703.51	+1703.51	+5858.93	+5858.93	+5858.93
	-3141.59	-3141.59	-3141.59	+0.00	+0.00	+0.00	-2792.53	-2792.36	-2792.36

All the values

Jim Pivarski 3/46



All values relative to ideal, alternating x, y, z (mm) and ϕ_x, ϕ_y, ϕ_z (mrad)

Columns: PG + hardware, same + global adjustment, **same + track-based chambers**

(color applied only if chamber was aligned)

chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
+1/1, 13	-907.50	-902.81	-902.81	+1571.84	+1569.75	+1569.75	+6151.93	+6151.93	+6151.93
	-3141.59	-3141.59	-3141.59	+0.00	+0.00	+0.00	-2617.99	-2617.83	-2617.83
+1/1, 14	-1166.66	-1161.94	-1161.94	+1390.37	+1388.24	+1388.24	+5854.32	+5854.32	+5854.32
	-3141.59	-3141.59	-3141.59	+0.00	+0.00	+0.00	-2443.46	-2443.29	-2443.29
+1/1, 15	-1390.37	-1385.61	-1385.61	+1166.66	+1164.50	+1164.50	+6147.32	+6147.32	+6147.32
	-3141.59	-3141.59	-3141.59	+0.00	+0.00	+0.00	-2268.93	-2268.76	-2268.76
+1/1, 16	-1571.84	-1567.04	-1567.04	+907.50	+905.31	+905.31	+5858.93	+5858.93	+5858.93
	-3141.59	-3141.59	-3141.59	+0.00	+0.00	+0.00	-2094.40	-2094.23	-2094.23
+1/1, 17	-1705.54	-1700.69	-1700.69	+620.77	+618.55	+618.55	+6151.93	+6151.93	+6151.93
	-3141.59	-3141.59	-3141.59	+0.00	+0.00	+0.00	-1919.86	-1919.69	-1919.69
+1/1, 18	-1787.43	-1782.53	-1782.53	+315.17	+312.94	+312.94	+5858.93	+5858.93	+5858.93
	-3141.59	-3141.59	-3141.59	+0.00	+0.00	+0.00	-1745.33	-1745.16	-1745.16
+1/1, 19	-1815.00	-1810.05	-1810.05	-0.00	-2.23	-2.23	+6151.93	+6151.93	+6151.93
	-3141.59	-3141.59	-3141.59	+0.00	+0.00	+0.00	-1570.80	-1570.63	-1570.63
+1/1, 20	-1787.43	-1782.42	-1782.42	-315.17	-317.40	-317.40	+5859.03	+5859.03	+5859.03
	-3141.59	-3141.59	-3141.59	+0.00	+0.00	+0.00	-1396.26	-1396.09	-1396.09
+1/1, 21	-1705.54	-1700.48	-1700.48	-620.77	-622.98	-622.98	+6152.03	+6152.03	+6152.03
	-3141.59	-3141.59	-3141.59	+0.00	+0.00	+0.00	-1221.73	-1221.56	-1221.56
+1/1, 22	-1571.84	-1566.73	-1566.73	-907.50	-909.69	-909.69	+5858.93	+5858.93	+5858.93
	-3141.59	-3141.59	-3141.59	+0.00	+0.00	+0.00	-1047.20	-1047.03	-1047.03
+1/1, 23	-1390.37	-1385.22	-1385.22	-1166.66	-1168.82	-1168.82	+6151.93	+6151.93	+6151.93
	-3141.59	-3141.59	-3141.59	+0.00	+0.00	+0.00	-872.66	-872.50	-872.50
+1/1, 24	-1166.66	-1161.47	-1161.47	-1390.37	-1392.50	-1392.50	+5858.93	+5858.93	+5858.93
	-3141.59	-3141.59	-3141.59	+0.00	+0.00	+0.00	-698.13	-697.96	-697.96

All the values

Jim Pivarski 4/46



All values relative to ideal, alternating x , y , z (mm) and ϕ_x , ϕ_y , ϕ_z (mrad)

Columns: PG + hardware, same + global adjustment, **same + track-based chambers**

(color applied only if chamber was aligned)

chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
+1/1, 25	-907.50	-902.28	-902.28	-1571.84	-1573.92	-1573.92	+6151.93	+6151.93	+6151.93
	-3141.59	-3141.59	-3141.59	+0.00	+0.00	+0.00	-523.60	-523.43	-523.43
+1/1, 26	-620.77	-615.53	-615.53	-1705.54	-1707.58	-1707.58	+5862.45	+5862.45	+5862.45
	-3141.59	-3141.59	-3141.59	+0.00	+0.00	+0.00	-349.07	-348.90	-348.90
+1/1, 27	-315.17	-309.92	-309.92	-1787.43	-1789.41	-1789.41	+6155.45	+6155.45	+6155.45
	-3141.59	-3141.59	-3141.59	+0.00	+0.00	+0.00	-174.53	-174.36	-174.36
+1/1, 28	-0.00	+5.26	+5.26	-1815.00	-1816.93	-1816.93	+5858.93	+5858.93	+5858.93
	+3141.59	+3141.59	+3141.59	+0.00	+0.00	+0.00	+0.00	+0.17	+0.17
+1/1, 29	+315.17	+320.43	+320.43	-1787.43	-1789.30	-1789.30	+6151.93	+6151.93	+6151.93
	+3141.59	+3141.59	+3141.59	+0.00	+0.00	+0.00	+174.53	+174.70	+174.70
+1/1, 30	+620.77	+626.01	+626.01	-1705.54	-1707.37	-1707.37	+5858.93	+5858.93	+5858.93
	+3141.59	+3141.59	+3141.59	+0.00	+0.00	+0.00	+349.07	+349.23	+349.23
+1/1, 31	+907.50	+912.72	+912.72	-1571.84	-1573.61	-1573.61	+6151.93	+6151.93	+6151.93
	+3141.59	+3141.59	+3141.59	+0.00	+0.00	+0.00	+523.60	+523.77	+523.77
+1/1, 32	+1166.66	+1171.85	+1171.85	-1390.37	-1392.10	-1392.10	+5865.20	+5865.20	+5865.20
	+3141.59	+3141.59	+3141.59	+0.00	+0.00	+0.00	+698.13	+698.30	+698.30
+1/1, 33	+1390.37	+1395.52	+1395.52	-1166.66	-1168.35	-1168.35	+6158.20	+6158.20	+6158.20
	+3141.59	+3141.59	+3141.59	+0.00	+0.00	+0.00	+872.66	+872.83	+872.83
+1/1, 34	+1571.84	+1576.94	+1576.94	-907.50	-909.16	-909.16	+5858.93	+5858.93	+5858.93
	+3141.59	+3141.59	+3141.59	+0.00	+0.00	+0.00	+1047.20	+1047.37	+1047.37
+1/1, 35	+1705.54	+1710.60	+1710.60	-620.77	-622.41	-622.41	+6151.93	+6151.93	+6151.93
	+3141.59	+3141.59	+3141.59	+0.00	+0.00	+0.00	+1221.73	+1221.90	+1221.90
+1/1, 36	+1787.43	+1792.43	+1792.43	-315.17	-316.80	-316.80	+5858.93	+5858.93	+5858.93
	+3141.59	+3141.59	+3141.59	+0.00	+0.00	+0.00	+1396.26	+1396.43	+1396.43

All the values

Jim Pivarski 5/46



All values relative to ideal, alternating x , y , z (mm) and ϕ_x , ϕ_y , ϕ_z (mrad)

Columns: PG + hardware, same + global adjustment, **same + track-based chambers**

(color applied only if chamber was aligned)

chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
+1/2, 01	+3697.00	+3702.05	+3702.05	-0.00	+1.30	+1.30	+7122.57	+7122.57	+7122.57
	+3137.22	+3137.22	+3137.23	-0.00	-0.00	-0.00	+1570.62	+1570.75	+1570.75
+1/2, 02	+3640.83	+3645.80	+3645.80	+641.98	+643.27	+643.27	+6847.47	+6847.47	+6847.47
	+3137.23	+3137.23	+3137.24	+0.00	+0.00	+0.00	+1745.45	+1745.58	+1745.58
+1/2, 03	+3474.04	+3478.93	+3478.93	+1264.45	+1265.72	+1265.72	+7122.57	+7122.57	+7122.57
	+3137.22	+3137.22	+3137.23	-0.00	-0.00	-0.01	+1919.68	+1919.82	+1919.82
+1/2, 04	+3201.70	+3206.50	+3206.50	+1848.50	+1849.74	+1849.74	+6848.57	+6848.57	+6848.57
	+3137.22	+3137.22	+3137.23	-0.00	-0.00	-0.00	+2094.22	+2094.35	+2094.35
+1/2, 05	+2832.07	+2836.80	+2836.80	+2376.39	+2377.57	+2377.57	+7122.57	+7122.57	+7122.57
	+3137.22	+3137.22	+3137.23	-0.00	-0.00	+0.01	+2268.75	+2268.88	+2268.88
+1/2, 06	+2376.39	+2381.06	+2381.63	+2832.07	+2833.19	+2832.72	+6848.57	+6848.57	+6848.57
	+3137.22	+3137.22	+3137.22	-0.00	-0.00	-1.07	+2443.28	+2443.41	+2442.28
+1/2, 07	+1848.50	+1853.13	+1851.89	+3201.70	+3202.75	+3203.47	+7122.57	+7122.57	+7122.57
	+3137.22	+3137.22	+3137.23	-0.00	-0.00	-0.20	+2617.81	+2617.95	+2617.28
+1/2, 08	+1264.45	+1269.04	+1269.77	+3474.04	+3475.02	+3474.76	+6847.19	+6847.19	+6847.19
	+3136.96	+3136.96	+3136.96	-0.00	-0.00	+2.12	+2792.49	+2792.62	+2792.50
+1/2, 09	+641.98	+646.55	+646.24	+3640.83	+3641.73	+3641.79	+7122.57	+7122.57	+7122.57
	+3137.22	+3137.22	+3137.23	-0.00	-0.00	-1.77	+2966.88	+2967.01	+2968.43
+1/2, 10	-0.00	+4.56	+6.68	+3697.00	+3697.81	+3697.81	+6848.57	+6848.57	+6848.57
	+3137.22	+3137.22	+3137.23	-0.00	-0.00	-0.85	+3141.41	+3141.55	-3141.55
+1/2, 11	-641.98	-637.41	-637.41	+3640.83	+3641.56	+3641.56	+7122.57	+7122.57	+7122.57
	+3137.22	+3137.22	+3137.23	-0.00	-0.00	+0.00	-2967.24	-2967.11	-2967.11
+1/2, 12	-1264.45	-1259.86	-1259.86	+3474.04	+3474.69	+3474.69	+6848.57	+6848.57	+6848.57
	+3137.22	+3137.22	+3137.23	-0.00	-0.00	-0.01	-2792.71	-2792.57	-2792.57

All the values

Jim Pivarski 6/46



All values relative to ideal, alternating x , y , z (mm) and ϕ_x , ϕ_y , ϕ_z (mrad)

Columns: PG + hardware, same + global adjustment, **same + track-based chambers**

(color applied only if chamber was aligned)

chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
+1/2, 13	-1848.50	-1843.87	-1845.84	+3201.70	+3202.26	+3201.12	+7122.57	+7122.57	+7122.57
	+3137.22	+3137.22	+3137.23	-0.00	-0.00	-0.61	-2618.17	-2618.04	-2615.71
+1/2, 14	-2376.39	-2371.71	-2370.55	+2832.07	+2832.56	+2833.54	+6847.56	+6847.56	+6847.56
	+3136.70	+3136.70	+3136.70	-0.00	-0.00	-1.25	-2444.05	-2443.92	-2443.87
+1/2, 15	-2832.07	-2827.33	-2827.33	+2376.39	+2376.82	+2376.82	+7122.57	+7122.57	+7122.57
	+3137.22	+3137.22	+3137.23	-0.00	-0.00	+0.01	-2269.11	-2268.98	-2268.98
+1/2, 16	-3201.70	-3196.89	-3196.89	+1848.50	+1848.89	+1848.89	+6848.57	+6848.57	+6848.57
	+3137.22	+3137.22	+3137.23	-0.00	-0.00	+0.02	-2094.58	-2094.44	-2094.44
+1/2, 17	-3474.04	-3469.16	-3469.16	+1264.45	+1264.80	+1264.80	+7122.57	+7122.57	+7122.57
	+3137.22	+3137.22	+3137.23	-0.00	-0.00	-0.01	-1920.04	-1919.91	-1919.91
+1/2, 18	-3640.83	-3635.87	-3635.87	+641.98	+642.31	+642.31	+6848.57	+6848.57	+6848.57
	+3137.22	+3137.22	+3137.23	-0.00	-0.00	+0.00	-1745.51	-1745.38	-1745.38
+1/2, 19	-3697.00	-3691.95	-3691.95	-0.00	+0.32	+0.32	+7122.57	+7122.57	+7122.57
	+3137.22	+3137.22	+3137.23	-0.00	-0.00	-0.00	-1570.98	-1570.84	-1570.84
+1/2, 20	-3640.83	-3635.70	-3635.70	-641.98	-641.65	-641.65	+6848.30	+6848.30	+6848.30
	+3137.85	+3137.85	+3137.86	-0.00	-0.00	-0.00	-1396.70	-1396.57	-1396.57
+1/2, 21	-3474.04	-3468.82	-3468.82	-1264.45	-1264.10	-1264.10	+7122.57	+7122.57	+7122.57
	+3137.22	+3137.22	+3137.23	-0.00	-0.00	-0.01	-1221.91	-1221.78	-1221.78
+1/2, 22	-3201.70	-3196.40	-3196.40	-1848.50	-1848.11	-1848.11	+6848.57	+6848.57	+6848.57
	+3137.22	+3137.22	+3137.23	-0.00	-0.00	-0.00	-1047.38	-1047.24	-1047.24
+1/2, 23	-2832.07	-2826.70	-2824.54	-2376.39	-2375.95	-2378.53	+7122.57	+7122.57	+7122.57
	+3137.22	+3137.22	+3137.23	-0.00	-0.00	+0.81	-872.84	-872.71	-873.67
+1/2, 24	-2376.39	-2370.96	-2370.96	-2832.07	-2831.57	-2831.57	+6848.57	+6848.57	+6848.57
	+3137.22	+3137.22	+3137.23	-0.00	-0.00	-0.01	-698.31	-698.18	-698.18

All the values

Jim Pivarski 7/46



All values relative to ideal, alternating x , y , z (mm) and ϕ_x , ϕ_y , ϕ_z (mrad)

Columns: PG + hardware, same + global adjustment, **same + track-based chambers**

(color applied only if chamber was aligned)

chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
+1/2, 25	-1848.50	-1843.02	-1841.87	-3201.70	-3201.13	-3201.80	+7122.57	+7122.57	+7122.57
	+3137.22	+3137.22	+3137.23	-0.00	-0.00	-0.69	-523.78	-523.65	-524.47
+1/2, 26	-1264.45	-1258.93	-1260.45	-3474.04	-3473.40	-3472.85	+6851.04	+6851.04	+6851.03
	+3137.12	+3137.12	+3137.11	-0.00	-0.00	-2.44	-349.11	-348.97	-349.21
+1/2, 27	-641.98	-636.44	-634.28	-3640.83	-3640.11	-3640.49	+7122.57	+7122.57	+7122.56
	+3137.22	+3137.22	+3137.23	-0.00	-0.00	+2.13	-174.71	-174.58	-172.89
+1/2, 28	-0.00	+5.54	+4.10	-3697.00	-3696.19	-3696.19	+6848.57	+6848.57	+6848.56
	+3137.22	+3137.22	+3137.23	-0.00	-0.00	-3.22	-0.18	-0.05	-0.47
+1/2, 29	+641.98	+647.51	+648.08	-3640.83	-3639.94	-3639.84	+7122.57	+7122.57	+7122.57
	+3137.22	+3137.22	+3137.22	-0.00	-0.00	-2.23	+174.35	+174.49	+175.66
+1/2, 30	+1264.45	+1269.96	+1270.08	-3474.04	-3473.06	-3473.02	+6848.57	+6848.57	+6848.57
	+3137.22	+3137.22	+3137.23	-0.00	-0.00	-1.04	+348.89	+349.02	+347.98
+1/2, 31	+1848.50	+1853.98	+1853.98	-3201.70	-3200.64	-3200.64	+7122.57	+7122.57	+7122.57
	+3137.22	+3137.22	+3137.23	-0.00	-0.00	-0.01	+523.42	+523.55	+523.55
+1/2, 32	+2376.39	+2381.82	+2381.99	-2832.07	-2830.94	-2830.80	+6849.86	+6849.86	+6849.86
	+3137.47	+3137.47	+3137.48	-0.00	-0.00	+0.37	+698.04	+698.17	+698.90
+1/2, 33	+2832.07	+2837.44	+2837.44	-2376.39	-2375.20	-2375.20	+7122.57	+7122.57	+7122.57
	+3137.22	+3137.22	+3137.23	-0.00	-0.00	+0.01	+872.48	+872.62	+872.62
+1/2, 34	+3201.70	+3206.99	+3206.99	-1848.50	-1847.26	-1847.26	+6848.57	+6848.57	+6848.57
	+3137.22	+3137.22	+3137.23	-0.00	-0.00	+0.00	+1047.02	+1047.15	+1047.15
+1/2, 35	+3474.04	+3479.26	+3479.26	-1264.45	-1263.18	-1263.18	+7122.57	+7122.57	+7122.57
	+3137.22	+3137.22	+3137.23	-0.00	-0.00	-0.01	+1221.55	+1221.68	+1221.68
+1/2, 36	+3640.83	+3645.97	+3645.97	-641.98	-640.68	-640.68	+6848.57	+6848.57	+6848.57
	+3137.22	+3137.22	+3137.23	-0.00	-0.00	+0.00	+1396.08	+1396.22	+1396.22

All the values

Jim Pivarski 8/46



All values relative to ideal, alternating x , y , z (mm) and ϕ_x , ϕ_y , ϕ_z (mrad)

Columns: PG + hardware, same + global adjustment, **same + track-based chambers**

(color applied only if chamber was aligned)

chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
+1/3, 01	+5953.07	+5957.43	+5957.43	-1.16	+2.17	+2.17	+6949.00	+6949.00	+6949.00
	+3140.26	+3140.26	+3140.26	-0.00	-0.00	+0.00	+1570.46	+1570.48	+1570.48
+1/3, 02	+5862.37	+5866.71	+5866.71	+1031.80	+1035.13	+1035.13	+6949.00	+6949.00	+6949.00
	+3140.26	+3140.26	+3140.26	+0.00	-0.00	-0.00	+1745.05	+1745.07	+1745.07
+1/3, 03	+5594.95	+5599.28	+5599.28	+2034.80	+2038.12	+2038.12	+6948.41	+6948.41	+6948.41
	+3139.16	+3139.16	+3139.15	-0.00	-0.00	+0.00	+1919.07	+1919.09	+1919.09
+1/3, 04	+5156.47	+5160.77	+5160.77	+2975.57	+2978.89	+2978.89	+6949.00	+6949.00	+6949.00
	+3140.26	+3140.26	+3140.26	+0.00	+0.00	+0.02	+2094.65	+2094.66	+2094.66
+1/3, 05	+4561.03	+4565.31	+4565.31	+3826.37	+3829.68	+3829.68	+6949.00	+6949.00	+6949.00
	+3140.26	+3140.26	+3140.26	-0.00	+0.00	-0.03	+2268.13	+2268.15	+2268.15
+1/3, 06	+3827.74	+3832.02	+3832.02	+4559.17	+4562.46	+4562.46	+6949.00	+6949.00	+6949.00
	+3140.26	+3140.26	+3140.26	-0.00	+0.00	-0.04	+2443.00	+2443.02	+2443.02
+1/3, 07	+2975.96	+2980.22	+2980.22	+5153.89	+5157.16	+5157.16	+6949.00	+6949.00	+6949.00
	+3140.26	+3140.26	+3140.26	+0.00	-0.00	+0.02	+2617.28	+2617.30	+2617.30
+1/3, 08	+2035.53	+2039.79	+2039.79	+5592.58	+5595.83	+5595.83	+6949.00	+6949.00	+6949.00
	+3140.26	+3140.26	+3140.26	+0.00	+0.00	-0.00	+2792.53	+2792.55	+2792.55
+1/3, 09	+1033.47	+1037.72	+1037.72	+5861.08	+5864.32	+5864.32	+6946.88	+6946.88	+6946.88
	+3139.74	+3139.74	+3139.73	+0.00	+0.00	+0.00	+2967.06	+2967.08	+2967.08
+1/3, 10	-0.00	+4.25	+4.25	+5951.50	+5954.72	+5954.72	+6949.00	+6949.00	+6949.00
	+3140.26	+3140.26	+3140.26	+0.00	+0.00	+0.00	+3141.59	-3141.57	-3141.57
+1/3, 11	-1033.47	-1029.22	-1029.22	+5861.08	+5864.28	+5864.28	+6949.00	+6949.00	+6949.00
	+3140.26	+3140.26	+3140.26	+0.00	+0.00	-0.01	-2967.06	-2967.04	-2967.04
+1/3, 12	-2036.31	-2032.05	-2032.05	+5593.47	+5596.65	+5596.65	+6949.00	+6949.00	+6949.00
	+3140.26	+3140.26	+3140.26	+0.00	-0.00	+0.00	-2792.98	-2792.96	-2792.96

All the values

Jim Pivarski 9/46



All values relative to ideal, alternating x , y , z (mm) and ϕ_x , ϕ_y , ϕ_z (mrad)

Columns: PG + hardware, same + global adjustment, **same + track-based chambers**

(color applied only if chamber was aligned)

chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
+1/3, 13	-2976.13	-2971.86	-2971.86	+5154.89	+5158.05	+5158.05	+6949.00	+6949.00	+6949.00
	+3140.26	+3140.26	+3140.26	-0.00	-0.00	+0.02	-2617.50	-2617.48	-2617.48
+1/3, 14	-3826.93	-3822.66	-3822.66	+4559.26	+4562.41	+4562.41	+6947.98	+6947.98	+6947.98
	+3140.70	+3140.70	+3140.68	-0.00	+0.00	+0.05	-2443.78	-2443.77	-2443.77
+1/3, 15	-4560.81	-4556.52	-4556.52	+3827.01	+3830.14	+3830.14	+6949.00	+6949.00	+6949.00
	+3140.26	+3140.26	+3140.26	-0.00	-0.00	-0.04	-2269.44	-2269.42	-2269.42
+1/3, 16	-5154.75	-5150.45	-5150.45	+2975.91	+2979.03	+2979.03	+6949.00	+6949.00	+6949.00
	+3140.26	+3140.26	+3140.26	+0.00	+0.00	-0.00	-2094.18	-2094.16	-2094.16
+1/3, 17	-5594.12	-5589.80	-5589.80	+2034.60	+2037.71	+2037.71	+6949.00	+6949.00	+6949.00
	+3140.26	+3140.26	+3140.26	+0.00	-0.00	+0.02	-1918.84	-1918.82	-1918.82
+1/3, 18	-5863.10	-5858.76	-5858.76	+1032.93	+1036.04	+1036.04	+6949.00	+6949.00	+6949.00
	+3140.26	+3140.26	+3140.26	+0.00	+0.00	+0.00	-1744.91	-1744.89	-1744.89
+1/3, 19	-5953.52	-5949.16	-5949.16	-0.44	+2.66	+2.66	+6949.00	+6949.00	+6949.00
	+3140.26	+3140.26	+3140.26	-0.00	-0.00	-0.00	-1569.75	-1569.73	-1569.73
+1/3, 20	-5863.72	-5859.34	-5859.34	-1033.78	-1030.67	-1030.67	+6950.74	+6950.74	+6950.74
	+3139.55	+3139.55	+3139.55	+0.00	-0.00	-0.01	-1395.14	-1395.12	-1395.12
+1/3, 21	-5595.11	-5590.71	-5590.71	-2036.20	-2033.09	-2033.09	+6949.00	+6949.00	+6949.00
	+3140.26	+3140.26	+3140.26	-0.00	+0.00	+0.00	-1221.62	-1221.60	-1221.60
+1/3, 22	-5156.12	-5151.70	-5151.70	-2975.96	-2972.84	-2972.84	+6949.00	+6949.00	+6949.00
	+3140.26	+3140.26	+3140.26	-0.00	-0.00	-0.00	-1047.61	-1047.59	-1047.59
+1/3, 23	-4561.32	-4556.89	-4556.89	-3826.47	-3823.34	-3823.34	+6949.00	+6949.00	+6949.00
	+3140.26	+3140.26	+3140.26	+0.00	+0.00	+0.04	-873.53	-873.51	-873.51
+1/3, 24	-3826.74	-3822.29	-3822.29	-4558.60	-4555.46	-4555.46	+6949.00	+6949.00	+6949.00
	+3140.26	+3140.26	+3140.26	-0.00	+0.00	-0.04	-698.99	-698.97	-698.97

All the values

Jim Pivarski 10/46



All values relative to ideal, alternating x , y , z (mm) and ϕ_x , ϕ_y , ϕ_z (mrad)

Columns: PG + hardware, same + global adjustment, **same + track-based chambers**

(color applied only if chamber was aligned)

chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
+1/3, 25	-2976.48	-2972.03	-2972.03	-5152.70	-5149.54	-5149.54	+6949.00	+6949.00	+6949.00
	+3140.26	+3140.26	+3140.26	-0.00	-0.00	+0.00	-523.07	-523.05	-523.05
+1/3, 26	-2036.56	-2032.09	-2027.29	-5593.01	-5589.84	-5591.58	+6949.00	+6949.00	+6949.00
	+3140.26	+3140.26	+3140.25	-0.00	+0.00	-0.84	-348.80	-348.78	-348.80
+1/3, 27	-1033.31	-1028.84	-1028.84	-5863.26	-5860.06	-5860.06	+6950.97	+6950.97	+6950.97
	+3141.04	+3141.04	+3141.00	-0.00	-0.00	+0.02	-175.14	-175.12	-175.12
+1/3, 28	-0.00	+4.47	+4.75	-5951.50	-5948.28	-5948.28	+6949.00	+6949.00	+6948.99
	+3140.26	+3140.26	+3140.27	+0.00	+0.00	+3.88	+0.00	+0.02	-0.17
+1/3, 29	+1033.72	+1038.19	+1038.19	-5858.43	-5855.20	-5855.20	+6949.00	+6949.00	+6949.00
	+3140.26	+3140.26	+3140.26	+0.00	+0.00	-0.01	+174.49	+174.51	+174.51
+1/3, 30	+2035.84	+2040.31	+2040.31	-5592.75	-5589.50	-5589.50	+6949.00	+6949.00	+6949.00
	+3140.26	+3140.26	+3140.26	-0.00	+0.00	+0.00	+349.20	+349.22	+349.22
+1/3, 31	+2976.39	+2980.84	+2980.84	-5153.25	-5149.98	-5149.98	+6949.00	+6949.00	+6949.00
	+3140.26	+3140.26	+3140.26	+0.00	-0.00	-0.04	+524.81	+524.83	+524.83
+1/3, 32	+3826.44	+3830.88	+3831.79	-4559.24	-4555.96	-4555.19	+6949.00	+6949.00	+6949.00
	+3140.26	+3140.26	+3140.25	+0.00	+0.00	-2.90	+698.73	+698.75	+700.28
+1/3, 33	+4559.39	+4563.82	+4563.82	-3826.86	-3823.56	-3823.56	+6949.00	+6949.00	+6949.00
	+3140.26	+3140.26	+3140.26	-0.00	+0.00	+0.03	+872.45	+872.47	+872.47
+1/3, 34	+5155.75	+5160.16	+5160.16	-2976.14	-2972.83	-2972.83	+6949.00	+6949.00	+6949.00
	+3140.26	+3140.26	+3140.26	+0.00	+0.00	-0.00	+1047.45	+1047.47	+1047.47
+1/3, 35	+5593.03	+5597.43	+5597.43	-2035.73	-2032.41	-2032.41	+6949.00	+6949.00	+6949.00
	+3140.26	+3140.26	+3140.26	+0.00	-0.00	-0.00	+1221.32	+1221.34	+1221.34
+1/3, 36	+5862.70	+5867.08	+5867.08	-1034.25	-1030.92	-1030.92	+6949.00	+6949.00	+6949.00
	+3140.26	+3140.26	+3140.26	+0.00	-0.00	+0.00	+1396.06	+1396.08	+1396.08

All the values

Jim Pivarski 11/46



All values relative to ideal, alternating x , y , z (mm) and ϕ_x , ϕ_y , ϕ_z (mrad)

Columns: PG + hardware, same + global adjustment, **same + track-based chambers**

(color applied only if chamber was aligned)

chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
+1/4, 01	+1815.00	+1819.95	+1819.95	-0.00	-1.62	-1.62	+6151.93	+6151.93	+6151.93
	-3141.59	-3141.59	-3141.59	-0.00	-0.00	-0.00	+1570.80	+1570.96	+1570.96
+1/4, 02	+1787.43	+1792.33	+1792.33	+315.17	+313.54	+313.54	+5857.06	+5857.06	+5857.06
	-3141.59	-3141.59	-3141.59	-0.00	-0.00	-0.00	+1745.33	+1745.50	+1745.50
+1/4, 03	+1705.54	+1710.39	+1710.39	+620.77	+619.13	+619.13	+6150.06	+6150.06	+6150.06
	-3141.59	-3141.59	-3141.59	-0.00	-0.00	-0.00	+1919.86	+1920.03	+1920.03
+1/4, 04	+1571.84	+1576.64	+1576.64	+907.50	+905.84	+905.84	+5858.93	+5858.93	+5858.93
	-3141.59	-3141.59	-3141.59	-0.00	-0.00	-0.00	+2094.40	+2094.56	+2094.56
+1/4, 05	+1390.37	+1395.13	+1395.13	+1166.66	+1164.96	+1164.96	+6151.93	+6151.93	+6151.93
	-3141.59	-3141.59	-3141.59	-0.00	-0.00	-0.00	+2268.93	+2269.10	+2269.10
+1/4, 06	+1166.66	+1171.38	+1171.38	+1390.37	+1388.64	+1388.64	+5858.93	+5858.93	+5858.93
	-3141.59	-3141.59	-3141.59	-0.00	-0.00	-0.00	+2443.46	+2443.63	+2443.63
+1/4, 07	+907.50	+912.19	+912.19	+1571.84	+1570.06	+1570.06	+6151.93	+6151.93	+6151.93
	-3141.59	-3141.59	-3141.59	-0.00	-0.00	-0.00	+2617.99	+2618.16	+2618.16
+1/4, 08	+620.77	+625.43	+625.43	+1705.54	+1703.72	+1703.72	+5855.50	+5855.50	+5855.50
	-3141.59	-3141.59	-3141.59	-0.00	-0.00	-0.00	+2792.53	+2792.70	+2792.70
+1/4, 09	+315.17	+319.82	+319.82	+1787.43	+1785.55	+1785.55	+6148.50	+6148.50	+6148.50
	-3141.59	-3141.59	-3141.59	-0.00	-0.00	-0.00	+2967.06	+2967.23	+2967.23
+1/4, 10	-0.00	+4.65	+4.65	+1815.00	+1813.07	+1813.07	+5858.93	+5858.93	+5858.93
	+3141.59	-3141.59	-3141.59	+0.00	+0.00	+0.00	+3141.59	-3141.42	-3141.42
+1/4, 11	-315.17	-310.52	-310.52	+1787.43	+1785.44	+1785.44	+6151.93	+6151.93	+6151.93
	-3141.59	-3141.59	-3141.59	+0.00	+0.00	+0.00	-2967.06	-2966.89	-2966.89
+1/4, 12	-620.77	-616.10	-616.10	+1705.54	+1703.51	+1703.51	+5858.93	+5858.93	+5858.93
	-3141.59	-3141.59	-3141.59	+0.00	+0.00	+0.00	-2792.53	-2792.36	-2792.36

All the values

Jim Pivarski 12/46



All values relative to ideal, alternating x, y, z (mm) and ϕ_x, ϕ_y, ϕ_z (mrad)

Columns: PG + hardware, same + global adjustment, **same + track-based chambers**

(color applied only if chamber was aligned)

chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
+1/4, 13	-907.50	-902.81	-902.81	+1571.84	+1569.75	+1569.75	+6151.93	+6151.93	+6151.93
	-3141.59	-3141.59	-3141.59	+0.00	+0.00	+0.00	-2617.99	-2617.83	-2617.83
+1/4, 14	-1166.66	-1161.94	-1161.94	+1390.37	+1388.24	+1388.24	+5854.32	+5854.32	+5854.32
	-3141.59	-3141.59	-3141.59	+0.00	+0.00	+0.00	-2443.46	-2443.29	-2443.29
+1/4, 15	-1390.37	-1385.61	-1385.61	+1166.66	+1164.50	+1164.50	+6147.32	+6147.32	+6147.32
	-3141.59	-3141.59	-3141.59	+0.00	+0.00	+0.00	-2268.93	-2268.76	-2268.76
+1/4, 16	-1571.84	-1567.04	-1567.04	+907.50	+905.31	+905.31	+5858.93	+5858.93	+5858.93
	-3141.59	-3141.59	-3141.59	+0.00	+0.00	+0.00	-2094.40	-2094.23	-2094.23
+1/4, 17	-1705.54	-1700.69	-1700.69	+620.77	+618.55	+618.55	+6151.93	+6151.93	+6151.93
	-3141.59	-3141.59	-3141.59	+0.00	+0.00	+0.00	-1919.86	-1919.69	-1919.69
+1/4, 18	-1787.43	-1782.53	-1782.53	+315.17	+312.94	+312.94	+5858.93	+5858.93	+5858.93
	-3141.59	-3141.59	-3141.59	+0.00	+0.00	+0.00	-1745.33	-1745.16	-1745.16
+1/4, 19	-1815.00	-1810.05	-1810.05	-0.00	-2.23	-2.23	+6151.93	+6151.93	+6151.93
	-3141.59	-3141.59	-3141.59	+0.00	+0.00	+0.00	-1570.80	-1570.63	-1570.63
+1/4, 20	-1787.43	-1782.42	-1782.42	-315.17	-317.40	-317.40	+5859.03	+5859.03	+5859.03
	-3141.59	-3141.59	-3141.59	+0.00	+0.00	+0.00	-1396.26	-1396.09	-1396.09
+1/4, 21	-1705.54	-1700.48	-1700.48	-620.77	-622.98	-622.98	+6152.03	+6152.03	+6152.03
	-3141.59	-3141.59	-3141.59	+0.00	+0.00	+0.00	-1221.73	-1221.56	-1221.56
+1/4, 22	-1571.84	-1566.73	-1566.73	-907.50	-909.69	-909.69	+5858.93	+5858.93	+5858.93
	-3141.59	-3141.59	-3141.59	+0.00	+0.00	+0.00	-1047.20	-1047.03	-1047.03
+1/4, 23	-1390.37	-1385.22	-1385.22	-1166.66	-1168.82	-1168.82	+6151.93	+6151.93	+6151.93
	-3141.59	-3141.59	-3141.59	+0.00	+0.00	+0.00	-872.66	-872.50	-872.50
+1/4, 24	-1166.66	-1161.47	-1161.47	-1390.37	-1392.50	-1392.50	+5858.93	+5858.93	+5858.93
	-3141.59	-3141.59	-3141.59	+0.00	+0.00	+0.00	-698.13	-697.96	-697.96

All the values

Jim Pivarski 13/46



All values relative to ideal, alternating x , y , z (mm) and ϕ_x , ϕ_y , ϕ_z (mrad)

Columns: PG + hardware, same + global adjustment, **same + track-based chambers**

(color applied only if chamber was aligned)

chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
+1/4, 25	-907.50	-902.28	-902.28	-1571.84	-1573.92	-1573.92	+6151.93	+6151.93	+6151.93
	-3141.59	-3141.59	-3141.59	+0.00	+0.00	+0.00	-523.60	-523.43	-523.43
+1/4, 26	-620.77	-615.53	-615.53	-1705.54	-1707.58	-1707.58	+5862.45	+5862.45	+5862.45
	-3141.59	-3141.59	-3141.59	+0.00	+0.00	+0.00	-349.07	-348.90	-348.90
+1/4, 27	-315.17	-309.92	-309.92	-1787.43	-1789.41	-1789.41	+6155.45	+6155.45	+6155.45
	-3141.59	-3141.59	-3141.59	+0.00	+0.00	+0.00	-174.53	-174.36	-174.36
+1/4, 28	-0.00	+5.26	+5.26	-1815.00	-1816.93	-1816.93	+5858.93	+5858.93	+5858.93
	+3141.59	+3141.59	+3141.59	+0.00	+0.00	+0.00	+0.00	+0.17	+0.17
+1/4, 29	+315.17	+320.43	+320.43	-1787.43	-1789.30	-1789.30	+6151.93	+6151.93	+6151.93
	+3141.59	+3141.59	+3141.59	+0.00	+0.00	+0.00	+174.53	+174.70	+174.70
+1/4, 30	+620.77	+626.01	+626.01	-1705.54	-1707.37	-1707.37	+5858.93	+5858.93	+5858.93
	+3141.59	+3141.59	+3141.59	+0.00	+0.00	+0.00	+349.07	+349.23	+349.23
+1/4, 31	+907.50	+912.72	+912.72	-1571.84	-1573.61	-1573.61	+6151.93	+6151.93	+6151.93
	+3141.59	+3141.59	+3141.59	+0.00	+0.00	+0.00	+523.60	+523.77	+523.77
+1/4, 32	+1166.66	+1171.85	+1171.85	-1390.37	-1392.10	-1392.10	+5865.20	+5865.20	+5865.20
	+3141.59	+3141.59	+3141.59	+0.00	+0.00	+0.00	+698.13	+698.30	+698.30
+1/4, 33	+1390.37	+1395.52	+1395.52	-1166.66	-1168.35	-1168.35	+6158.20	+6158.20	+6158.20
	+3141.59	+3141.59	+3141.59	+0.00	+0.00	+0.00	+872.66	+872.83	+872.83
+1/4, 34	+1571.84	+1576.94	+1576.94	-907.50	-909.16	-909.16	+5858.93	+5858.93	+5858.93
	+3141.59	+3141.59	+3141.59	+0.00	+0.00	+0.00	+1047.20	+1047.37	+1047.37
+1/4, 35	+1705.54	+1710.60	+1710.60	-620.77	-622.41	-622.41	+6151.93	+6151.93	+6151.93
	+3141.59	+3141.59	+3141.59	+0.00	+0.00	+0.00	+1221.73	+1221.90	+1221.90
+1/4, 36	+1787.43	+1792.43	+1792.43	-315.17	-316.80	-316.80	+5858.93	+5858.93	+5858.93
	+3141.59	+3141.59	+3141.59	+0.00	+0.00	+0.00	+1396.26	+1396.43	+1396.43

All the values

Jim Pivarski 14/46



All values relative to ideal, alternating x , y , z (mm) and ϕ_x , ϕ_y , ϕ_z (mrad)

Columns: PG + hardware, same + global adjustment, **same + track-based chambers**

(color applied only if chamber was aligned)

chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
+2/1, 01	+2419.33	+2423.85	+2423.85	+210.33	+213.06	+213.06	+8408.60	+8408.60	+8408.60
	+3139.69	+3139.69	+3139.70	+0.00	+0.00	-0.00	+1657.87	+1658.05	+1658.05
+2/1, 02	+2200.68	+2205.05	+2205.05	+1024.56	+1027.26	+1027.26	+8157.90	+8157.90	+8157.90
	+3139.89	+3139.89	+3139.90	+0.00	+0.00	+0.01	+2008.59	+2008.77	+2008.77
+2/1, 03	+1715.67	+1719.92	+1719.86	+1715.55	+1718.16	+1718.22	+8408.60	+8408.60	+8408.60
	+3139.69	+3139.69	+3139.70	-0.00	+0.00	+5.85	+2357.09	+2357.27	+2356.35
+2/1, 04	+1025.69	+1029.86	+1029.86	+2199.61	+2202.09	+2202.09	+8160.60	+8160.60	+8160.60
	+3139.69	+3139.69	+3139.70	-0.00	-0.00	-0.02	+2705.26	+2705.44	+2705.44
+2/1, 05	+211.29	+215.42	+215.42	+2417.68	+2420.02	+2420.02	+8408.60	+8408.60	+8408.60
	+3139.69	+3139.69	+3139.70	+0.00	+0.00	+0.00	+3054.15	+3054.33	+3054.33
+2/1, 06	-627.80	-623.66	-623.66	+2343.39	+2345.57	+2345.57	+8160.60	+8160.60	+8160.60
	+3139.69	+3139.69	+3139.70	-0.00	+0.00	+0.03	-2879.41	-2879.23	-2879.23
+2/1, 07	-1391.80	-1387.60	-1387.60	+1987.09	+1989.14	+1989.14	+8408.60	+8408.60	+8408.60
	+3139.69	+3139.69	+3139.70	+0.00	+0.00	+0.01	-2530.57	-2530.39	-2530.39
+2/1, 08	-1987.18	-1982.87	-1982.87	+1391.48	+1393.43	+1393.43	+8162.50	+8162.50	+8162.50
	+3139.39	+3139.39	+3139.38	-0.00	-0.00	+0.02	-2181.13	-2180.95	-2180.95
+2/1, 09	-2344.39	-2339.95	-2339.95	+626.69	+628.58	+628.58	+8408.60	+8408.60	+8408.60
	+3139.69	+3139.69	+3139.70	+0.00	-0.00	-0.01	-1831.81	-1831.63	-1831.63
+2/1, 10	-2419.44	-2414.85	-2414.85	-212.00	-210.13	-210.13	+8158.60	+8158.60	+8158.60
	+3139.89	+3139.89	+3139.90	-0.00	-0.00	-0.00	-1483.21	-1483.03	-1483.03
+2/1, 11	-2200.03	-2195.29	-2197.33	-1025.93	-1024.03	-1019.67	+8408.60	+8408.60	+8408.59
	+3139.69	+3139.69	+3139.67	+0.00	-0.00	+2.88	-1134.29	-1134.11	-1139.46
+2/1, 12	-1717.39	-1712.52	-1712.52	-1716.74	-1714.74	-1714.74	+8160.60	+8160.60	+8160.60
	+3139.69	+3139.69	+3139.70	+0.00	-0.00	-0.02	-785.82	-785.64	-785.64

All the values

Jim Pivarski 15/46



All values relative to ideal, alternating x , y , z (mm) and ϕ_x , ϕ_y , ϕ_z (mrad)

Columns: PG + hardware, same + global adjustment, **same + track-based chambers**

(color applied only if chamber was aligned)

chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
+2/1, 13	-1026.20	-1021.25	-1021.25	-2200.64	-2198.52	-2198.52	+8408.60	+8408.60	+8408.60
	+3139.69	+3139.69	+3139.70	+0.00	-0.00	+0.01	-436.34	-436.16	-436.16
+2/1, 14	-211.19	-206.20	-206.20	-2421.21	-2418.95	-2418.95	+8161.70	+8161.70	+8161.70
	+3139.69	+3139.69	+3139.70	+0.00	-0.00	+0.01	-86.05	-85.87	-85.87
+2/1, 15	+628.36	+633.33	+634.09	-2344.77	-2342.36	-2342.16	+8408.60	+8408.60	+8408.60
	+3139.69	+3139.69	+3139.71	-0.00	-0.00	+3.83	+261.23	+261.41	+260.63
+2/1, 16	+1391.62	+1396.53	+1396.53	-1987.01	-1984.46	-1984.46	+8162.60	+8162.60	+8162.60
	+3139.69	+3139.69	+3139.70	+0.00	+0.00	-0.01	+610.55	+610.73	+610.73
+2/1, 17	+1988.08	+1992.89	+1992.89	-1392.07	-1389.41	-1389.41	+8408.60	+8408.60	+8408.60
	+3139.69	+3139.69	+3139.70	-0.00	-0.00	-0.01	+959.93	+960.11	+960.11
+2/1, 18	+2344.15	+2348.82	+2348.82	-628.36	-625.64	-625.64	+8160.60	+8160.60	+8160.60
	+3139.69	+3139.69	+3139.70	-0.00	+0.00	+0.01	+1308.87	+1309.05	+1309.05
+2/2, 01	+5266.85	+5271.13	+5271.13	+1.34	+4.64	+4.64	+8416.20	+8416.20	+8416.20
	+3139.19	+3139.19	+3139.20	-0.00	-0.00	-0.00	+1571.19	+1571.08	+1571.08
+2/2, 02	+5185.01	+5189.39	+5189.39	+914.26	+917.56	+917.56	+8168.40	+8168.40	+8168.40
	+3139.19	+3139.19	+3139.20	-0.00	+0.00	+0.01	+1745.33	+1745.22	+1745.22
+2/2, 03	+4949.99	+4954.46	+4954.46	+1800.78	+1804.11	+1804.11	+8414.40	+8414.40	+8414.40
	+3138.69	+3138.69	+3138.68	-0.00	+0.00	+0.01	+1919.86	+1919.75	+1919.75
+2/2, 04	+4559.62	+4564.19	+4564.19	+2632.50	+2635.87	+2635.87	+8168.40	+8168.40	+8168.40
	+3139.19	+3139.19	+3139.20	-0.00	+0.00	+0.02	+2094.40	+2094.29	+2094.29
+2/2, 05	+4034.38	+4039.03	+4036.17	+3383.34	+3386.77	+3390.17	+8416.20	+8416.20	+8416.20
	+3139.19	+3139.19	+3139.20	+0.00	+0.00	+0.31	+2268.54	+2268.43	+2268.51
+2/2, 06	+3385.33	+3390.05	+3389.47	+4031.60	+4035.10	+4035.59	+8168.40	+8168.40	+8168.40
	+3139.19	+3139.19	+3139.20	+0.00	+0.00	+1.28	+2442.90	+2442.80	+2445.51

All the values

Jim Pivarski 16/46



All values relative to ideal, alternating x , y , z (mm) and ϕ_x , ϕ_y , ϕ_z (mrad)

Columns: PG + hardware, same + global adjustment, **same + track-based chambers**

(color applied only if chamber was aligned)

chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
+2/2, 07	+2633.51	+2638.28	+2636.44	+4559.48	+4563.06	+4564.12	+8416.20	+8416.20	+8416.20
	+3139.19	+3139.19	+3139.21	-0.00	+0.00	+1.71	+2618.02	+2617.92	+2618.31
+2/2, 08	+1801.61	+1806.42	+1805.93	+4947.16	+4950.82	+4951.00	+8169.00	+8169.00	+8169.00
	+3138.69	+3138.69	+3138.69	+0.00	+0.00	+1.80	+2792.30	+2792.20	+2793.90
+2/2, 09	+914.48	+919.31	+919.31	+5184.50	+5188.26	+5188.26	+8416.20	+8416.20	+8416.20
	+3139.19	+3139.19	+3139.20	-0.00	-0.00	+0.00	+2966.70	+2966.59	+2966.59
+2/2, 10	-1.07	+3.77	+5.38	+5263.28	+5267.14	+5267.15	+8168.40	+8168.40	+8168.40
	+3139.19	+3139.19	+3139.19	+0.00	+0.00	-4.74	-3140.78	-3140.89	-3138.85
+2/2, 11	-914.38	-909.55	-909.55	+5184.67	+5188.62	+5188.62	+8416.20	+8416.20	+8416.20
	+3139.19	+3139.19	+3139.20	-0.00	-0.00	-0.01	-2966.82	-2966.92	-2966.92
+2/2, 12	-1802.61	-1797.80	-1796.64	+4945.57	+4949.62	+4950.05	+8168.40	+8168.40	+8168.40
	+3139.19	+3139.19	+3139.20	+0.00	-0.00	-0.76	-2791.65	-2791.76	-2791.94
+2/2, 13	-2632.83	-2628.06	-2627.20	+4559.88	+4564.02	+4564.52	+8416.20	+8416.20	+8416.20
	+3139.19	+3139.19	+3139.16	+0.00	+0.00	+8.05	-2617.82	-2617.92	-2622.12
+2/2, 14	-3385.63	-3380.92	-3380.92	+4031.78	+4036.00	+4036.00	+8168.40	+8168.40	+8168.40
	+3139.19	+3139.19	+3139.20	-0.00	+0.00	+0.00	-2442.99	-2443.10	-2443.10
+2/2, 15	-4035.21	-4030.57	-4031.03	+3384.16	+3388.45	+3387.90	+8417.90	+8417.90	+8417.90
	+3138.99	+3138.99	+3138.99	+0.00	+0.00	+2.99	-2268.60	-2268.71	-2270.55
+2/2, 16	-4559.62	-4555.06	-4555.31	+2632.50	+2636.85	+2636.42	+8168.40	+8168.40	+8168.40
	+3139.19	+3139.19	+3139.21	+0.00	-0.00	-0.17	-2094.40	-2094.50	-2094.78
+2/2, 17	-4948.05	-4943.58	-4943.58	+1799.25	+1803.64	+1803.64	+8416.20	+8416.20	+8416.20
	+3139.19	+3139.19	+3139.20	-0.00	-0.00	+0.00	-1919.24	-1919.34	-1919.34
+2/2, 18	-5185.52	-5181.14	-5181.14	+912.46	+916.88	+916.88	+8168.40	+8168.40	+8168.40
	+3139.19	+3139.19	+3139.20	-0.00	+0.00	+0.00	-1744.64	-1744.74	-1744.75

All the values

Jim Pivarski 17/46



All values relative to ideal, alternating x, y, z (mm) and ϕ_x, ϕ_y, ϕ_z (mrad)

Columns: PG + hardware, same + global adjustment, **same + track-based chambers**

(color applied only if chamber was aligned)

chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
+2/2, 19	-5266.38	-5262.09	-5262.09	-0.55	+3.87	+3.87	+8416.20	+8416.20	+8416.20
	+3139.19	+3139.19	+3139.20	-0.00	-0.00	+0.00	-1570.45	-1570.56	-1570.56
+2/2, 20	-5185.40	-5181.21	-5181.21	-916.00	-911.59	-911.59	+8167.30	+8167.30	+8167.30
	+3139.29	+3139.29	+3139.30	+0.00	+0.00	+0.00	-1395.86	-1395.96	-1395.96
+2/2, 21	-4948.02	-4943.93	-4944.80	-1802.42	-1798.03	-1795.66	+8416.20	+8416.20	+8416.17
	+3139.19	+3139.19	+3139.20	-0.00	+0.00	-2.83	-1221.18	-1221.28	-1222.11
+2/2, 22	-4558.69	-4554.69	-4554.69	-2633.48	-2629.14	-2629.14	+8168.40	+8168.40	+8168.40
	+3139.19	+3139.19	+3139.20	+0.00	-0.00	-0.03	-1046.42	-1046.53	-1046.53
+2/2, 23	-4033.67	-4029.75	-4029.75	-3385.32	-3381.03	-3381.03	+8416.20	+8416.20	+8416.20
	+3139.19	+3139.19	+3139.20	+0.00	-0.00	+0.00	-872.08	-872.19	-872.19
+2/2, 24	-3385.56	-3381.71	-3381.71	-4034.55	-4030.33	-4030.33	+8168.40	+8168.40	+8168.40
	+3139.19	+3139.19	+3139.20	-0.00	+0.00	-0.00	-697.84	-697.94	-697.94
+2/2, 25	-2633.45	-2629.66	-2628.32	-4559.52	-4555.38	-4556.15	+8416.20	+8416.20	+8416.20
	+3139.19	+3139.19	+3139.19	+0.00	-0.00	+3.39	-523.75	-523.85	-526.13
+2/2, 26	-1800.80	-1797.05	-1796.83	-4947.38	-4943.33	-4943.41	+8168.40	+8168.40	+8168.40
	+3139.19	+3139.19	+3139.21	+0.00	+0.00	-0.53	-348.60	-348.70	-348.12
+2/2, 27	-914.02	-910.29	-910.29	-5185.32	-5181.36	-5181.36	+8416.40	+8416.40	+8416.40
	+3139.69	+3139.69	+3139.70	+0.00	+0.00	+0.01	-174.61	-174.72	-174.72
+2/2, 28	+0.17	+3.89	+2.56	-5265.69	-5261.83	-5261.83	+8168.40	+8168.40	+8168.40
	+3139.19	+3139.19	+3139.21	+0.00	+0.00	-0.52	-0.26	-0.37	+0.60
+2/2, 29	+913.89	+917.62	+920.91	-5185.50	-5181.74	-5181.16	+8416.20	+8416.20	+8416.20
	+3139.19	+3139.19	+3139.19	-0.00	+0.00	+1.36	+174.26	+174.15	+173.43
+2/2, 30	+1801.71	+1805.47	+1806.25	-4948.47	-4944.80	-4944.52	+8168.40	+8168.40	+8168.40
	+3139.19	+3139.19	+3139.18	-0.00	+0.00	+2.09	+349.15	+349.04	+347.41

All the values

Jim Pivarski 18/46



All values relative to ideal, alternating x , y , z (mm) and ϕ_x , ϕ_y , ϕ_z (mrad)

Columns: PG + hardware, same + global adjustment, **same + track-based chambers**

(color applied only if chamber was aligned)

chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
+2/2, 31	+2632.44	+2636.23	+2636.23	-4560.20	-4556.62	-4556.62	+8416.20	+8416.20	+8416.20
	+3139.19	+3139.19	+3139.20	-0.00	-0.00	+0.02	+523.49	+523.39	+523.39
+2/2, 32	+3384.33	+3388.18	+3387.10	-4034.35	-4030.85	-4031.75	+8169.00	+8169.00	+8169.00
	+3139.59	+3139.59	+3139.59	-0.00	+0.00	+1.74	+698.73	+698.62	+700.66
+2/2, 33	+4033.22	+4037.14	+4037.30	-3384.28	-3380.85	-3380.66	+8416.20	+8416.20	+8416.20
	+3139.19	+3139.19	+3139.20	+0.00	+0.00	+0.08	+872.66	+872.56	+871.98
+2/2, 34	+4560.69	+4564.69	+4564.69	-2633.18	-2629.81	-2629.81	+8168.40	+8168.40	+8168.40
	+3139.19	+3139.19	+3139.20	-0.00	-0.00	-0.01	+1047.53	+1047.42	+1047.42
+2/2, 35	+4947.48	+4951.57	+4951.57	-1800.74	-1797.41	-1797.41	+8416.20	+8416.20	+8416.20
	+3139.19	+3139.19	+3139.20	+0.00	-0.00	-0.01	+1221.73	+1221.62	+1221.62
+2/2, 36	+5185.01	+5189.20	+5189.20	-914.26	-910.95	-910.95	+8168.40	+8168.40	+8168.40
	+3139.19	+3139.19	+3139.20	+0.00	+0.00	+0.01	+1396.26	+1396.16	+1396.16
+3/1, 01	+2518.11	+2523.18	+2523.18	+219.05	+223.35	+223.35	+9226.09	+9226.09	+9226.09
	+2.20	+2.20	+2.21	-0.00	+0.00	+0.00	-1483.84	-1483.89	-1483.89
+3/1, 02	+2291.16	+2296.28	+2296.28	+1066.66	+1070.97	+1070.97	+9474.20	+9474.20	+9474.20
	+2.60	+2.60	+2.61	+0.00	-0.00	-0.00	-1135.70	-1135.75	-1135.75
+3/1, 03	+1787.36	+1792.52	+1792.52	+1785.22	+1789.55	+1789.55	+9226.09	+9226.09	+9226.09
	+2.20	+2.20	+2.21	-0.00	-0.00	-0.00	-784.77	-784.82	-784.82
+3/1, 04	+1066.72	+1071.90	+1071.90	+2288.59	+2292.95	+2292.95	+9473.10	+9473.10	+9473.10
	+2.60	+2.60	+2.61	-0.00	-0.00	-0.00	-436.91	-436.96	-436.96
+3/1, 05	+220.24	+225.43	+225.43	+2515.85	+2520.27	+2520.27	+9226.09	+9226.09	+9226.09
	+2.20	+2.20	+2.21	+0.00	+0.00	-0.00	-86.39	-86.44	-86.44
+3/1, 06	-653.52	-648.34	-648.34	+2439.11	+2443.57	+2443.57	+9474.09	+9474.09	+9474.09
	+2.20	+2.20	+2.21	+0.00	+0.00	-0.03	+261.92	+261.87	+261.87

All the values

Jim Pivarski 19/46



All values relative to ideal, alternating x, y, z (mm) and ϕ_x, ϕ_y, ϕ_z (mrad)

Columns: PG + hardware, same + global adjustment, **same + track-based chambers**

(color applied only if chamber was aligned)

chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
+3/1, 07	-1448.34	-1443.17	-1443.17	+2068.91	+2073.40	+2073.40	+9226.09	+9226.09	+9226.09
	+2.20	+2.20	+2.21	-0.00	+0.00	-0.02	+611.75	+611.70	+611.70
+3/1, 08	-2068.01	-2062.87	-2062.87	+1448.49	+1453.01	+1453.01	+9475.00	+9475.00	+9475.00
	+1.80	+1.80	+1.79	-0.00	+0.00	-0.02	+959.80	+959.75	+959.75
+3/1, 09	-2440.84	-2435.75	-2435.75	+653.60	+658.14	+658.14	+9226.09	+9226.09	+9226.09
	+2.20	+2.20	+2.21	+0.00	+0.00	-0.01	+1309.43	+1309.38	+1309.38
+3/1, 10	-2517.38	-2512.33	-2512.33	-220.24	-215.69	-215.69	+9474.50	+9474.50	+9474.50
	+2.20	+2.20	+2.21	+0.00	+0.00	+0.00	+1658.06	+1658.01	+1658.01
+3/1, 11	-2290.24	-2285.23	-2285.23	-1067.96	-1063.42	-1063.42	+9226.09	+9226.09	+9226.09
	+2.20	+2.20	+2.21	+0.00	+0.00	-0.01	+2007.13	+2007.08	+2007.08
+3/1, 12	-1787.70	-1782.73	-1782.73	-1786.66	-1782.15	-1782.15	+9474.09	+9474.09	+9474.09
	+2.20	+2.20	+2.21	+0.00	-0.00	-0.00	+2357.00	+2356.95	+2356.95
+3/1, 13	-1068.27	-1063.32	-1063.32	-2290.38	-2285.91	-2285.91	+9226.09	+9226.09	+9226.09
	+2.20	+2.20	+2.21	+0.00	+0.00	-0.01	+2705.55	+2705.50	+2705.50
+3/1, 14	-221.23	-216.30	-216.30	-2517.47	-2513.04	-2513.04	+9472.60	+9472.60	+9472.60
	+2.00	+2.00	+2.01	-0.00	+0.00	-0.00	+3054.96	+3054.91	+3054.91
+3/1, 15	+653.64	+658.58	+658.58	-2442.59	-2438.20	-2438.20	+9226.09	+9226.09	+9226.09
	+2.20	+2.20	+2.21	+0.00	+0.00	-0.03	-2879.91	-2879.96	-2879.96
+3/1, 16	+1449.73	+1454.69	+1454.69	-2070.92	-2066.57	-2066.57	+9475.00	+9475.00	+9475.00
	+2.20	+2.20	+2.21	-0.00	+0.00	-0.02	-2530.96	-2531.01	-2531.01
+3/1, 17	+2070.21	+2075.20	+2075.20	-1450.73	-1446.41	-1446.41	+9226.09	+9226.09	+9226.09
	+2.20	+2.20	+2.21	+0.00	-0.00	+0.02	-2182.24	-2182.29	-2182.29
+3/1, 18	+2441.10	+2446.13	+2446.13	-654.92	-650.62	-650.62	+9474.09	+9474.09	+9474.09
	+2.20	+2.20	+2.21	+0.00	+0.00	-0.01	-1833.38	-1833.43	-1833.43

All the values

Jim Pivarski 20/46



All values relative to ideal, alternating x , y , z (mm) and ϕ_x , ϕ_y , ϕ_z (mrad)

Columns: PG + hardware, same + global adjustment, **same + track-based chambers**

(color applied only if chamber was aligned)

chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
+3/2, 01	+5265.00	+5269.01	+5269.01	-0.00	+2.95	+2.95	+9233.36	+9233.36	+9233.36
	+2.60	+2.60	+2.61	+0.00	+0.00	-0.00	-1570.80	-1571.16	-1571.16
+3/2, 02	+5187.23	+5191.57	+5191.57	+911.17	+914.15	+914.15	+9481.97	+9481.97	+9481.97
	+2.60	+2.60	+2.61	+0.00	+0.00	-0.00	-1396.87	-1397.24	-1397.24
+3/2, 03	+4950.52	+4955.19	+4955.19	+1799.26	+1802.33	+1802.33	+9233.40	+9233.40	+9233.40
	+2.30	+2.30	+2.29	-0.00	-0.00	-0.01	-1222.39	-1222.76	-1222.76
+3/2, 04	+4561.37	+4566.34	+4566.34	+2631.56	+2634.77	+2634.77	+9481.97	+9481.97	+9481.97
	+2.60	+2.60	+2.61	+0.00	+0.00	-0.02	-1047.63	-1047.99	-1047.99
+3/2, 05	+4034.99	+4040.24	+4040.24	+3383.08	+3386.48	+3386.48	+9233.36	+9233.36	+9233.36
	+2.60	+2.60	+2.61	-0.00	+0.00	+0.00	-873.08	-873.45	-873.45
+3/2, 06	+3385.81	+3391.30	+3391.30	+4033.86	+4037.50	+4037.50	+9481.97	+9481.97	+9481.97
	+2.60	+2.60	+2.61	-0.00	-0.00	-0.02	-698.29	-698.66	-698.66
+3/2, 07	+2632.75	+2638.43	+2638.43	+4558.39	+4562.31	+4562.31	+9233.36	+9233.36	+9233.36
	+2.60	+2.60	+2.62	-0.00	-0.00	-1.27	-523.85	-524.21	-524.21
+3/2, 08	+1801.48	+1807.30	+1807.30	+4947.35	+4951.57	+4951.57	+9481.70	+9481.70	+9481.70
	+3.10	+3.10	+3.10	-0.00	-0.00	-2.55	-348.21	-348.57	-348.57
+3/2, 09	+914.91	+920.82	+920.82	+5184.64	+5189.19	+5189.19	+9233.36	+9233.36	+9233.36
	+2.60	+2.60	+2.61	+0.00	+0.00	-0.00	-174.59	-174.96	-174.96
+3/2, 10	+0.01	+5.95	+6.46	+5263.91	+5268.79	+5268.79	+9481.97	+9481.97	+9481.97
	+2.60	+2.60	+2.61	-0.00	-0.00	-1.28	-0.23	-0.60	+0.37
+3/2, 11	-914.23	-908.32	-909.23	+5185.61	+5190.83	+5190.67	+9233.36	+9233.36	+9233.36
	+2.60	+2.60	+2.62	-0.00	-0.00	+3.59	+174.38	+174.01	+175.49
+3/2, 12	-1800.55	-1794.72	-1794.72	+4947.63	+4953.18	+4953.18	+9481.97	+9481.97	+9481.97
	+2.60	+2.60	+2.61	-0.00	+0.00	+0.01	+349.34	+348.97	+348.97

All the values

Jim Pivarski 21/46



All values relative to ideal, alternating x, y, z (mm) and ϕ_x, ϕ_y, ϕ_z (mrad)

Columns: PG + hardware, same + global adjustment, **same + track-based chambers**

(color applied only if chamber was aligned)

chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
+3/2, 13	-2633.99	-2628.31	-2629.75	+4559.24	+4565.09	+4564.26	+9233.36	+9233.36	+9233.35
	+2.60	+2.60	+2.60	-0.00	+0.00	-3.25	+523.90	+523.54	+522.61
+3/2, 14	-3384.77	-3379.28	-3377.17	+4032.39	+4038.51	+4040.27	+9481.97	+9481.97	+9481.95
	+2.60	+2.60	+2.60	-0.00	-0.00	+3.05	+698.13	+697.76	+695.74
+3/2, 15	-4033.22	-4027.97	-4027.97	+3384.28	+3390.64	+3390.64	+9234.51	+9234.51	+9234.51
	+2.70	+2.70	+2.70	-0.00	-0.00	+0.01	+872.66	+872.30	+872.30
+3/2, 16	-4559.96	-4554.98	-4554.98	+2630.89	+2637.44	+2637.45	+9481.97	+9481.97	+9481.97
	+2.60	+2.60	+2.61	-0.00	+0.00	-0.88	+1047.18	+1046.81	+1045.92
+3/2, 17	-4948.39	-4943.72	-4943.72	+1799.19	+1805.89	+1805.89	+9233.36	+9233.36	+9233.36
	+2.60	+2.60	+2.61	+0.00	-0.00	+0.00	+1222.30	+1221.93	+1221.93
+3/2, 18	-5184.76	-5180.41	-5180.41	+912.84	+919.62	+919.62	+9481.97	+9481.97	+9481.97
	+2.60	+2.60	+2.61	-0.00	-0.00	+0.00	+1396.55	+1396.18	+1396.18
+3/2, 19	-5265.49	-5261.48	-5261.48	-1.05	+5.77	+5.77	+9233.36	+9233.36	+9233.36
	+2.60	+2.60	+2.61	+0.00	+0.00	+0.00	+1570.53	+1570.16	+1570.16
+3/2, 20	-5184.99	-5181.31	-5181.31	-915.52	-908.74	-908.74	+9482.10	+9482.10	+9482.10
	+2.30	+2.30	+2.29	+0.00	-0.00	-0.01	+1744.88	+1744.52	+1744.52
+3/2, 21	-4947.95	-4944.60	-4944.60	-1801.83	-1795.13	-1795.13	+9233.36	+9233.36	+9233.36
	+2.60	+2.60	+2.61	+0.00	+0.00	-0.01	+1919.98	+1919.61	+1919.61
+3/2, 22	-4559.91	-4556.86	-4556.86	-2633.82	-2627.27	-2627.27	+9481.97	+9481.97	+9481.97
	+2.60	+2.60	+2.61	+0.00	-0.00	-0.01	+2094.34	+2093.97	+2093.97
+3/2, 23	-4032.58	-4029.81	-4029.81	-3385.83	-3379.47	-3379.47	+9233.36	+9233.36	+9233.36
	+2.60	+2.60	+2.61	+0.00	+0.00	-0.02	+2269.31	+2268.94	+2268.94
+3/2, 24	-3383.35	-3380.82	-3380.82	-4034.66	-4028.54	-4028.54	+9481.97	+9481.97	+9481.97
	+2.60	+2.60	+2.61	+0.00	+0.00	-0.02	+2443.53	+2443.16	+2443.16

All the values

Jim Pivarski 22/46



All values relative to ideal, alternating x, y, z (mm) and ϕ_x, ϕ_y, ϕ_z (mrad)

Columns: PG + hardware, same + global adjustment, **same + track-based chambers**

(color applied only if chamber was aligned)

chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
+3/2, 25	-2631.88	-2629.54	-2627.09	-4559.61	-4553.76	-4555.17	+9233.36	+9233.36	+9233.36
	+2.60	+2.60	+2.61	-0.00	-0.00	+1.08	+2617.89	+2617.53	+2615.86
+3/2, 26	-1800.06	-1797.87	-1797.68	-4947.67	-4942.12	-4942.19	+9481.97	+9481.97	+9481.97
	+2.60	+2.60	+2.60	+0.00	-0.00	-0.88	+2792.33	+2791.96	+2792.15
+3/2, 27	-913.09	-910.99	-907.36	-5185.94	-5180.73	-5181.36	+9232.20	+9232.20	+9232.19
	+3.00	+3.00	+3.00	+0.00	-0.00	-9.17	+2968.07	+2967.71	+2967.84
+3/2, 28	+0.57	+2.65	+2.65	-5264.99	-5260.11	-5260.11	+9481.97	+9481.97	+9481.96
	+2.60	+2.60	+2.61	-0.00	-0.00	+1.92	-3141.28	+3141.54	+3141.10
+3/2, 29	+914.26	+916.37	+919.89	-5185.01	-5180.46	-5179.84	+9233.36	+9233.36	+9233.36
	+2.60	+2.60	+2.60	+0.00	+0.00	-4.69	-2967.06	-2967.43	-2966.14
+3/2, 30	+1799.85	+1802.05	+1803.25	-4948.71	-4944.48	-4944.05	+9481.97	+9481.97	+9481.97
	+2.60	+2.60	+2.61	-0.00	-0.00	+1.46	-2792.57	-2792.93	-2792.21
+3/2, 31	+2632.50	+2634.84	+2635.20	-4559.62	-4555.71	-4555.50	+9233.36	+9233.36	+9233.36
	+2.60	+2.60	+2.60	+0.00	+0.00	-1.59	-2617.99	-2618.36	-2619.09
+3/2, 32	+3383.32	+3385.86	+3385.22	-4033.67	-4030.03	-4030.56	+9482.10	+9482.10	+9482.10
	+2.40	+2.40	+2.40	+0.00	-0.00	-1.13	-2443.96	-2444.33	-2445.50
+3/2, 33	+4033.59	+4036.36	+4036.36	-3385.56	-3382.15	-3382.15	+9233.36	+9233.36	+9233.36
	+2.60	+2.60	+2.61	-0.00	+0.00	-0.02	-2269.43	-2269.79	-2269.79
+3/2, 34	+4559.28	+4562.33	+4562.33	-2635.62	-2632.41	-2632.41	+9481.97	+9481.97	+9481.97
	+2.60	+2.60	+2.61	-0.00	-0.00	-0.00	-2094.77	-2095.13	-2095.13
+3/2, 35	+4948.11	+4951.46	+4951.46	-1801.90	-1798.83	-1798.83	+9233.36	+9233.36	+9233.36
	+2.60	+2.60	+2.61	+0.00	-0.00	+0.00	-1919.18	-1919.55	-1919.55
+3/2, 36	+5185.01	+5188.69	+5188.69	-914.26	-911.28	-911.28	+9481.97	+9481.97	+9481.97
	+2.60	+2.60	+2.61	+0.00	+0.00	-0.00	-1745.33	-1745.70	-1745.70

All the values

Jim Pivarski 23/46



All values relative to ideal, alternating x , y , z (mm) and ϕ_x , ϕ_y , ϕ_z (mrad)

Columns: PG + hardware, same + global adjustment, **same + track-based chambers**

(color applied only if chamber was aligned)

chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
+4/1, 01	+2617.37	+2622.86	+2622.86	+226.38	+235.67	+235.67	+10126.05	+10126.05	+10126.05
	+2.70	+2.70	+2.70	-0.00	-0.00	-0.00	-1484.20	-1483.80	-1483.80
+4/1, 02	+2381.87	+2387.00	+2387.00	+1108.58	+1117.78	+1117.78	+10374.05	+10374.05	+10374.05
	+2.70	+2.70	+2.70	+0.00	-0.00	-0.01	-1134.17	-1133.77	-1133.77
+4/1, 03	+1856.45	+1861.28	+1861.28	+1854.37	+1863.36	+1863.36	+10126.05	+10126.05	+10126.05
	+2.70	+2.70	+2.70	-0.00	-0.00	-0.02	-784.99	-784.59	-784.59
+4/1, 04	+1110.53	+1115.16	+1115.16	+2378.04	+2386.72	+2386.72	+10376.00	+10376.00	+10376.00
	+3.80	+3.80	+3.80	+0.00	+0.00	+0.01	-435.88	-435.48	-435.48
+4/1, 05	+229.68	+234.20	+234.20	+2614.82	+2623.16	+2623.16	+10126.05	+10126.05	+10126.05
	+2.70	+2.70	+2.70	+0.00	+0.00	+0.00	-87.30	-86.90	-86.90
+4/1, 06	-678.91	-674.35	-674.35	+2535.96	+2543.93	+2543.93	+10374.05	+10374.05	+10374.05
	+2.70	+2.70	+2.70	-0.00	-0.00	-0.01	+261.71	+262.11	+262.11
+4/1, 07	-1505.62	-1500.91	-1500.91	+2151.01	+2158.64	+2158.64	+10126.05	+10126.05	+10126.05
	+2.70	+2.70	+2.70	+0.00	-0.00	-0.00	+611.24	+611.64	+611.64
+4/1, 08	-2151.39	-2146.42	-2146.42	+1505.87	+1513.24	+1513.24	+10373.60	+10373.60	+10373.60
	+2.80	+2.80	+2.80	-0.00	+0.00	-0.00	+960.29	+960.69	+960.69
+4/1, 09	-2537.37	-2532.07	-2532.07	+678.29	+685.51	+685.51	+10126.05	+10126.05	+10126.05
	+2.70	+2.70	+2.70	-0.00	-0.00	+0.00	+1309.98	+1310.38	+1310.38
+4/1, 10	-2616.74	-2611.07	-2611.07	-230.48	-223.29	-223.29	+10374.05	+10374.05	+10374.05
	+2.70	+2.70	+2.70	-0.00	-0.00	-0.00	+1658.46	+1658.86	+1658.86
+4/1, 11	-2380.78	-2374.76	-2374.76	-1110.24	-1102.96	-1102.96	+10126.05	+10126.05	+10126.05
	+2.70	+2.70	+2.70	+0.00	+0.00	+0.01	+2007.66	+2008.06	+2008.06
+4/1, 12	-1858.20	-1851.88	-1851.88	-1858.55	-1851.05	-1851.05	+10374.05	+10374.05	+10374.05
	+2.70	+2.70	+2.70	+0.00	-0.00	-0.00	+2356.23	+2356.63	+2356.63

All the values

Jim Pivarski 24/46



All values relative to ideal, alternating x , y , z (mm) and ϕ_x , ϕ_y , ϕ_z (mrad)

Columns: PG + hardware, same + global adjustment, **same + track-based chambers**

(color applied only if chamber was aligned)

chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
+4/1, 13	-1111.39	-1104.85	-1104.85	-2380.62	-2372.82	-2372.82	+10126.05	+10126.05	+10126.05
	+2.70	+2.70	+2.70	+0.00	+0.00	-0.01	+2703.75	+2704.15	+2704.15
+4/1, 14	-229.11	-222.48	-225.30	-2617.41	-2609.26	-2609.02	+10374.20	+10374.20	+10374.19
	+2.20	+2.20	+2.23	+0.00	-0.00	+4.44	+3054.72	+3055.12	+3062.29
+4/1, 15	+680.16	+686.76	+686.76	-2538.66	-2530.15	-2530.15	+10126.05	+10126.05	+10126.05
	+2.70	+2.70	+2.70	-0.00	+0.00	+0.00	-2879.76	-2879.36	-2879.36
+4/1, 16	+1506.08	+1512.53	+1512.53	-2152.53	-2143.69	-2143.69	+10372.40	+10372.40	+10372.40
	+2.10	+2.10	+2.10	+0.00	+0.00	+0.00	-2531.79	-2531.38	-2531.38
+4/1, 17	+2152.00	+2158.19	+2158.19	-1509.07	-1499.96	-1499.96	+10126.05	+10126.05	+10126.05
	+2.70	+2.70	+2.70	+0.00	-0.00	+0.00	-2182.20	-2181.79	-2181.79
+4/1, 18	+2537.17	+2543.02	+2543.02	-682.74	-673.48	-673.48	+10374.05	+10374.05	+10374.05
	+2.70	+2.70	+2.70	-0.00	+0.00	+0.01	-1833.27	-1832.86	-1832.86
-1/1, 01	+1815.00	+1817.93	+1817.93	+0.00	-1.71	-1.71	-6152.78	-6152.78	-6152.78
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	-1570.80	-1570.14	-1570.14
-1/1, 02	+1787.43	+1790.15	+1790.15	+315.17	+313.44	+313.44	-5858.95	-5858.95	-5858.95
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	-1396.26	-1395.61	-1395.61
-1/1, 03	+1705.54	+1708.07	+1708.07	+620.77	+618.98	+618.98	-6151.95	-6151.95	-6151.95
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	-1221.73	-1221.07	-1221.07
-1/1, 04	+1571.84	+1574.17	+1574.17	+907.50	+905.63	+905.63	-5859.78	-5859.78	-5859.78
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	-1047.20	-1046.54	-1046.54
-1/1, 05	+1390.37	+1392.54	+1392.54	+1166.66	+1164.67	+1164.67	-6152.78	-6152.78	-6152.78
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	-872.66	-872.01	-872.01
-1/1, 06	+1166.66	+1168.68	+1168.68	+1390.37	+1388.23	+1388.23	-5859.78	-5859.78	-5859.78
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	-698.13	-697.48	-697.48

All the values

Jim Pivarski 25/46



All values relative to ideal, alternating x, y, z (mm) and ϕ_x, ϕ_y, ϕ_z (mrad)

Columns: PG + hardware, same + global adjustment, **same + track-based chambers**

(color applied only if chamber was aligned)

chamber	x or ϕ_x	y or ϕ_y	z or ϕ_z
-1/1, 07	+907.50 +909.40 +909.40 +0.00 +0.00 +0.00	+1571.84 +1569.53 +1569.53 -0.00 -0.00 -0.00	-6152.78 -6152.78 -6152.78 -523.60 -522.94 -522.94
-1/1, 08	+620.77 +622.58 +622.58 +0.00 +0.00 +0.00	+1705.54 +1703.05 +1703.05 -0.00 -0.00 -0.00	-5856.08 -5856.08 -5856.08 -349.07 -348.41 -348.41
-1/1, 09	+315.17 +316.93 +316.93 +0.00 +0.00 +0.00	+1787.43 +1784.73 +1784.73 -0.00 -0.00 -0.00	-6149.08 -6149.08 -6149.08 -174.53 -173.88 -173.88
-1/1, 10	+0.00 +1.74 +1.74 +0.00 +0.00 +0.00	+1815.00 +1812.10 +1812.10 -0.00 -0.00 -0.00	-5859.78 -5859.78 -5859.78 -0.00 +0.66 +0.66
-1/1, 11	-315.17 -313.41 -313.41 +0.00 +0.00 +0.00	+1787.43 +1784.32 +1784.32 -0.00 -0.00 -0.00	-6152.78 -6152.78 -6152.78 +174.53 +175.19 +175.19
-1/1, 12	-620.77 -618.95 -618.95 +0.00 +0.00 +0.00	+1705.54 +1702.23 +1702.23 -0.00 -0.00 -0.00	-5859.78 -5859.78 -5859.78 +349.07 +349.72 +349.72
-1/1, 13	-907.50 -905.60 -905.60 +0.00 +0.00 +0.00	+1571.84 +1568.34 +1568.34 -0.00 -0.00 -0.00	-6152.78 -6152.78 -6152.78 +523.60 +524.25 +524.25
-1/1, 14	-1166.66 -1164.64 -1164.64 +0.00 +0.00 +0.00	+1390.37 +1386.70 +1386.70 -0.00 -0.00 -0.00	-5857.40 -5857.40 -5857.40 +698.13 +698.79 +698.79
-1/1, 15	-1390.37 -1388.20 -1388.20 +0.00 +0.00 +0.00	+1166.66 +1162.84 +1162.84 -0.00 -0.00 -0.00	-6150.40 -6150.40 -6150.40 +872.66 +873.32 +873.32
-1/1, 16	-1571.84 -1569.50 -1569.87 +0.00 +0.00 +0.00	+907.50 +903.57 +902.91 -0.00 -0.00 -0.00	-5859.78 -5859.78 -5859.78 +1047.20 +1047.85 +1048.10
-1/1, 17	-1705.54 -1703.02 -1703.02 +0.00 +0.00 +0.00	+620.77 +616.74 +616.74 -0.00 -0.00 -0.00	-6152.78 -6152.78 -6152.78 +1221.73 +1222.39 +1222.39
-1/1, 18	-1787.43 -1784.70 -1784.70 +0.00 +0.00 +0.00	+315.17 +311.10 +311.10 -0.00 -0.00 -0.00	-5859.78 -5859.78 -5859.78 +1396.26 +1396.92 +1396.92

All the values

Jim Pivarski 26/46



All values relative to ideal, alternating x , y , z (mm) and ϕ_x , ϕ_y , ϕ_z (mrad)

Columns: PG + hardware, same + global adjustment, **same + track-based chambers**

(color applied only if chamber was aligned)

chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
-1/1, 19	-1815.00	-1812.07	-1812.07	+0.00	-4.09	-4.09	-6152.78	-6152.78	-6152.78
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	+1570.80	+1571.45	+1571.45
-1/1, 20	-1787.43	-1784.29	-1784.29	-315.17	-319.25	-319.25	-5859.67	-5859.67	-5859.67
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	+1745.33	+1745.99	+1745.99
-1/1, 21	-1705.54	-1702.20	-1702.20	-620.77	-624.79	-624.79	-6152.67	-6152.67	-6152.67
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	+1919.86	+1920.52	+1920.52
-1/1, 22	-1571.84	-1568.31	-1568.31	-907.50	-911.43	-911.43	-5859.78	-5859.78	-5859.78
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	+2094.40	+2095.05	+2095.05
-1/1, 23	-1390.37	-1386.67	-1386.67	-1166.66	-1170.47	-1170.47	-6152.78	-6152.78	-6152.78
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	+2268.93	+2269.58	+2269.58
-1/1, 24	-1166.66	-1162.81	-1162.81	-1390.37	-1394.04	-1394.04	-5859.78	-5859.78	-5859.78
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	+2443.46	+2444.12	+2444.12
-1/1, 25	-907.50	-903.54	-903.54	-1571.84	-1575.33	-1575.33	-6152.78	-6152.78	-6152.78
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	+2617.99	+2618.65	+2618.65
-1/1, 26	-620.77	-616.71	-616.71	-1705.54	-1708.85	-1708.85	-5863.69	-5863.69	-5863.69
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	+2792.53	+2793.18	+2793.18
-1/1, 27	-315.17	-311.07	-311.07	-1787.43	-1790.54	-1790.54	-6156.69	-6156.69	-6156.69
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	+2967.06	+2967.72	+2967.72
-1/1, 28	+0.00	+4.12	+4.12	-1815.00	-1817.90	-1817.90	-5859.78	-5859.78	-5859.78
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	+3141.59	+3140.94	+3140.94
-1/1, 29	+315.17	+319.28	+319.28	-1787.43	-1790.12	-1790.12	-6152.78	-6152.78	-6152.78
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	-2967.06	-2966.40	-2966.40
-1/1, 30	+620.77	+624.82	+624.82	-1705.54	-1708.04	-1708.04	-5859.78	-5859.78	-5859.78
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	-2792.53	-2791.87	-2791.87

All the values

Jim Pivarski 27/46



All values relative to ideal, alternating x, y, z (mm) and ϕ_x, ϕ_y, ϕ_z (mrad)

Columns: PG + hardware, same + global adjustment, **same + track-based chambers**

(color applied only if chamber was aligned)

chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
-1/1, 31	+907.50	+911.46	+911.46	-1571.84	-1574.14	-1574.14	-6152.78	-6152.78	-6152.78
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	-2617.99	-2617.34	-2617.34
-1/1, 32	+1166.66	+1170.50	+1170.50	-1390.37	-1392.51	-1392.51	-5862.86	-5862.86	-5862.86
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	-2443.46	-2442.81	-2442.81
-1/1, 33	+1390.37	+1394.07	+1394.07	-1166.66	-1168.65	-1168.65	-6155.86	-6155.86	-6155.86
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	-2268.93	-2268.27	-2268.27
-1/1, 34	+1571.84	+1575.36	+1575.36	-907.50	-909.37	-909.37	-5859.78	-5859.78	-5859.78
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	-2094.40	-2093.74	-2093.74
-1/1, 35	+1705.54	+1708.88	+1708.88	-620.77	-622.55	-622.55	-6152.78	-6152.78	-6152.78
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	-1919.86	-1919.21	-1919.21
-1/1, 36	+1787.43	+1790.57	+1790.57	-315.17	-316.90	-316.90	-5859.78	-5859.78	-5859.78
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	-1745.33	-1744.67	-1744.67
-1/2, 01	+3697.00	+3700.52	+3700.52	+0.00	+1.58	+1.58	-7121.68	-7121.68	-7121.68
	-4.37	-4.37	-4.37	+0.00	+0.00	+0.00	-1570.62	-1569.77	-1569.77
-1/2, 02	+3640.83	+3643.81	+3643.81	+641.98	+643.51	+643.51	-6847.88	-6847.88	-6847.88
	-4.37	-4.37	-4.37	+0.00	+0.00	+0.00	-1396.08	-1395.23	-1395.23
-1/2, 03	+3474.04	+3476.49	+3476.49	+1264.45	+1265.84	+1265.84	-7121.68	-7121.68	-7121.68
	-4.37	-4.37	-4.37	+0.00	+0.00	-0.00	-1221.55	-1220.70	-1220.70
-1/2, 04	+3201.70	+3203.65	+3203.65	+1848.50	+1849.66	+1849.66	-6847.68	-6847.68	-6847.68
	-4.37	-4.37	-4.37	+0.00	+0.00	+0.02	-1047.02	-1046.17	-1046.17
-1/2, 05	+2832.07	+2833.57	+2833.61	+2376.39	+2377.23	+2377.19	-7121.68	-7121.68	-7121.68
	-4.37	-4.37	-4.36	+0.00	+0.00	-0.21	-872.48	-871.64	-871.05
-1/2, 06	+2376.39	+2377.50	+2377.50	+2832.07	+2832.53	+2832.53	-6847.68	-6847.68	-6847.68
	-4.37	-4.37	-4.37	+0.00	+0.00	+0.00	-697.95	-697.10	-697.10

All the values

Jim Pivarski 28/46



All values relative to ideal, alternating x , y , z (mm) and ϕ_x , ϕ_y , ϕ_z (mrad)

Columns: PG + hardware, same + global adjustment, **same + track-based chambers**

(color applied only if chamber was aligned)

chamber	x or ϕ_x	y or ϕ_y	z or ϕ_z
-1/2, 07	+1848.50 +1849.30 +1849.52 -4.37 -4.37 -4.38	+3201.70 +3201.71 +3201.59 +0.00 +0.00 -0.19	-7121.68 -7121.68 -7121.68 -523.42 -522.57 -524.12
-1/2, 08	+1264.45 +1265.02 +1265.02 -4.37 -4.37 -4.37	+3474.04 +3473.56 +3473.56 +0.00 +0.00 +0.01	-6847.77 -6847.77 -6847.77 -348.89 -348.04 -348.04
-1/2, 09	+641.98 +642.41 +643.68 -4.37 -4.37 -4.37	+3640.83 +3639.82 +3639.60 +0.00 +0.00 -2.85	-7121.68 -7121.68 -7121.68 -174.35 -173.50 -173.49
-1/2, 10	+0.00 +0.38 +0.38 -4.37 -4.37 -4.37	+3697.00 +3695.44 +3695.44 +0.00 +0.00 +0.00	-6847.68 -6847.68 -6847.68 +0.18 +1.03 +1.03
-1/2, 11	-641.98 -641.54 -641.54 -4.37 -4.37 -4.37	+3640.83 +3638.73 +3638.73 +0.00 +0.00 +0.00	-7121.68 -7121.68 -7121.68 +174.71 +175.56 +175.56
-1/2, 12	-1264.45 -1263.87 -1265.40 -4.37 -4.37 -4.37	+3474.04 +3471.41 +3470.86 +0.00 +0.00 +2.56	-6847.68 -6847.68 -6847.68 +349.25 +350.10 +347.21
-1/2, 13	-1848.50 -1847.69 -1847.69 -4.37 -4.37 -4.37	+3201.70 +3198.57 +3198.57 +0.00 +0.00 -0.00	-7121.68 -7121.68 -7121.68 +523.78 +524.63 +524.63
-1/2, 14	-2376.39 -2375.27 -2375.27 -4.37 -4.37 -4.37	+2832.07 +2828.49 +2828.49 +0.00 +0.00 +0.01	-6846.71 -6846.71 -6846.71 +698.31 +699.16 +699.16
-1/2, 15	-2832.07 -2830.56 -2830.56 -4.37 -4.37 -4.37	+2376.39 +2372.42 +2372.42 +0.00 +0.00 +0.01	-7121.68 -7121.68 -7121.68 +872.84 +873.69 +873.69
-1/2, 16	-3201.70 -3199.74 -3199.74 -4.37 -4.37 -4.37	+1848.50 +1844.23 +1844.23 +0.00 +0.00 -0.01	-6847.68 -6847.68 -6847.68 +1047.38 +1048.23 +1048.23
-1/2, 17	-3474.04 -3471.59 -3471.59 -4.37 -4.37 -4.37	+1264.45 +1259.94 +1259.94 +0.00 +0.00 +0.01	-7121.68 -7121.68 -7121.68 +1221.91 +1222.76 +1222.76
-1/2, 18	-3640.83 -3637.85 -3637.85 -4.37 -4.37 -4.37	+641.98 +637.33 +637.33 +0.00 +0.00 -0.00	-6847.68 -6847.68 -6847.68 +1396.44 +1397.29 +1397.29

All the values

Jim Pivarski 29/46



All values relative to ideal, alternating x, y, z (mm) and ϕ_x, ϕ_y, ϕ_z (mrad)

Columns: PG + hardware, same + global adjustment, **same + track-based chambers**

(color applied only if chamber was aligned)

chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
-1/2, 19	-3697.00	-3693.47	-3693.47	+0.00	-4.70	-4.70	-7121.68	-7121.68	-7121.68
	-4.37	-4.37	-4.37	+0.00	+0.00	+0.00	+1570.98	+1571.83	+1571.83
-1/2, 20	-3640.83	-3636.76	-3636.76	-641.98	-646.62	-646.62	-6848.22	-6848.22	-6848.22
	-4.37	-4.37	-4.37	+0.00	+0.00	-0.00	+1745.51	+1746.36	+1746.36
-1/2, 21	-3474.04	-3469.44	-3469.44	-1264.45	-1268.95	-1268.95	-7121.68	-7121.68	-7121.68
	-4.37	-4.37	-4.37	+0.00	+0.00	-0.00	+1920.04	+1920.89	+1920.89
-1/2, 22	-3201.70	-3196.60	-3195.72	-1848.50	-1852.77	-1854.29	-6847.68	-6847.68	-6847.68
	-4.37	-4.37	-4.41	+0.00	+0.00	+6.88	+2094.58	+2095.42	+2089.84
-1/2, 23	-2832.07	-2826.52	-2826.52	-2376.39	-2380.35	-2380.35	-7121.68	-7121.68	-7121.68
	-4.37	-4.37	-4.37	+0.00	+0.00	-0.00	+2269.11	+2269.96	+2269.96
-1/2, 24	-2376.39	-2370.46	-2370.46	-2832.07	-2835.64	-2835.64	-6847.68	-6847.68	-6847.68
	-4.37	-4.37	-4.37	+0.00	+0.00	+0.01	+2443.64	+2444.49	+2444.49
-1/2, 25	-1848.50	-1842.26	-1842.87	-3201.70	-3204.82	-3204.47	-7121.68	-7121.68	-7121.68
	-4.37	-4.37	-4.38	+0.00	+0.00	+2.66	+2618.17	+2619.02	+2615.39
-1/2, 26	-1264.45	-1257.97	-1257.97	-3474.04	-3476.67	-3476.67	-6847.97	-6847.97	-6847.97
	-4.37	-4.37	-4.37	+0.00	+0.00	+0.01	+2792.71	+2793.56	+2793.56
-1/2, 27	-641.98	-635.36	-635.36	-3640.83	-3642.93	-3642.93	-7121.68	-7121.68	-7121.68
	-4.37	-4.37	-4.37	+0.00	+0.00	-0.00	+2967.24	+2968.09	+2968.09
-1/2, 28	+0.00	+6.66	+6.66	-3697.00	-3698.55	-3698.55	-6847.68	-6847.68	-6847.68
	-4.37	-4.37	-4.37	+0.00	+0.00	+0.00	-3141.41	-3140.56	-3140.56
-1/2, 29	+641.98	+648.59	+648.59	-3640.83	-3641.84	-3641.84	-7121.68	-7121.68	-7121.68
	-4.37	-4.37	-4.37	+0.00	+0.00	-0.00	-2966.88	-2966.03	-2966.03
-1/2, 30	+1264.45	+1270.92	+1270.92	-3474.04	-3474.52	-3474.52	-6847.68	-6847.68	-6847.68
	-4.37	-4.37	-4.37	+0.00	+0.00	-0.00	-2792.35	-2791.50	-2791.50

All the values

Jim Pivarski 30/46



All values relative to ideal, alternating x , y , z (mm) and ϕ_x , ϕ_y , ϕ_z (mrad)

Columns: PG + hardware, same + global adjustment, **same + track-based chambers**

(color applied only if chamber was aligned)

chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
-1/2, 31	+1848.50	+1854.74	+1855.14	-3201.70	-3201.68	-3201.45	-7121.68	-7121.68	-7121.68
	-4.37	-4.37	-4.37	+0.00	+0.00	-1.23	-2617.81	-2616.96	-2614.91
-1/2, 32	+2376.39	+2382.31	+2382.31	-2832.07	-2831.60	-2831.60	-6847.51	-6847.51	-6847.51
	-4.37	-4.37	-4.37	+0.00	+0.00	+0.01	-2443.28	-2442.43	-2442.43
-1/2, 33	+2832.07	+2837.61	+2837.61	-2376.39	-2375.54	-2375.54	-7121.68	-7121.68	-7121.68
	-4.37	-4.37	-4.37	+0.00	+0.00	-0.01	-2268.75	-2267.90	-2267.90
-1/2, 34	+3201.70	+3206.79	+3206.79	-1848.50	-1847.34	-1847.34	-6847.68	-6847.68	-6847.68
	-4.37	-4.37	-4.37	+0.00	+0.00	-0.01	-2094.22	-2093.37	-2093.37
-1/2, 35	+3474.04	+3478.64	+3478.64	-1264.45	-1263.05	-1263.05	-7121.68	-7121.68	-7121.68
	-4.37	-4.37	-4.37	+0.00	+0.00	+0.01	-1919.68	-1918.83	-1918.83
-1/2, 36	+3640.83	+3644.90	+3644.90	-641.98	-640.44	-640.44	-6847.68	-6847.68	-6847.68
	-4.37	-4.37	-4.37	+0.00	+0.00	-0.00	-1745.15	-1744.30	-1744.30
-1/3, 01	+5951.86	+5954.26	+5954.26	-1.79	+1.22	+1.22	-6949.00	-6949.00	-6949.00
	-1.33	-1.33	-1.34	-0.00	-0.00	-0.00	-1571.52	-1571.26	-1571.26
-1/3, 02	+5863.62	+5865.76	+5865.76	+1032.96	+1035.94	+1035.94	-6949.00	-6949.00	-6949.00
	-1.33	-1.33	-1.34	-0.00	-0.00	-0.02	-1396.67	-1396.41	-1396.41
-1/3, 03	+5593.78	+5595.65	+5595.65	+2034.21	+2037.12	+2037.12	-6949.00	-6949.00	-6949.00
	-1.33	-1.33	-1.34	+0.00	+0.00	+0.00	-1221.60	-1221.34	-1221.34
-1/3, 04	+5155.98	+5157.60	+5157.60	+2975.65	+2978.45	+2978.45	-6949.00	-6949.00	-6949.00
	-1.33	-1.33	-1.34	+0.00	+0.00	+0.02	-1046.99	-1046.73	-1046.73
-1/3, 05	+4559.48	+4560.87	+4560.87	+3824.39	+3827.02	+3827.02	-6949.00	-6949.00	-6949.00
	-1.33	-1.33	-1.34	-0.00	-0.00	-0.03	-872.23	-871.97	-871.97
-1/3, 06	+3826.15	+3827.36	+3827.36	+4558.17	+4560.61	+4560.61	-6949.00	-6949.00	-6949.00
	-1.33	-1.33	-1.34	+0.00	-0.00	-0.00	-699.37	-699.11	-699.11

All the values

Jim Pivarski 31/46



All values relative to ideal, alternating x , y , z (mm) and ϕ_x , ϕ_y , ϕ_z (mrad)

Columns: PG + hardware, same + global adjustment, **same + track-based chambers**

(color applied only if chamber was aligned)

chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
-1/3, 07	+2976.71	+2977.76	+2974.01	+5153.12	+5155.34	+5157.50	-6949.00	-6949.00	-6949.00
	-1.33	-1.33	-1.32	+0.00	-0.00	+1.52	-523.48	-523.21	-523.01
-1/3, 08	+2036.23	+2037.16	+2037.16	+5593.43	+5595.40	+5595.40	-6949.00	-6949.00	-6949.00
	-1.33	-1.33	-1.34	-0.00	+0.00	+0.02	-349.43	-349.16	-349.16
-1/3, 09	+1034.17	+1035.03	+1035.03	+5861.80	+5863.50	+5863.50	-6949.00	-6949.00	-6949.00
	-1.33	-1.33	-1.34	+0.00	+0.00	-0.01	-175.57	-175.31	-175.31
-1/3, 10	-0.28	+0.56	+0.56	+5952.98	+5954.41	+5954.41	-6949.00	-6949.00	-6949.00
	-1.33	-1.33	-1.34	-0.00	-0.00	+0.00	+0.61	+0.87	+0.87
-1/3, 11	-1034.15	-1033.29	-1033.29	+5860.89	+5862.05	+5862.05	-6949.00	-6949.00	-6949.00
	-1.33	-1.33	-1.34	+0.00	+0.00	+0.02	+173.68	+173.95	+173.95
-1/3, 12	-2037.41	-2036.48	-2036.48	+5592.67	+5593.57	+5593.57	-6949.00	-6949.00	-6949.00
	-1.33	-1.33	-1.34	+0.00	-0.00	+0.00	+348.96	+349.23	+349.23
-1/3, 13	-2977.36	-2976.31	-2976.31	+5153.25	+5153.90	+5153.90	-6949.00	-6949.00	-6949.00
	-1.33	-1.33	-1.34	-0.00	-0.00	-0.02	+523.80	+524.07	+524.07
-1/3, 14	-3828.17	-3826.97	-3826.97	+4558.29	+4558.71	+4558.71	-6949.00	-6949.00	-6949.00
	-1.33	-1.33	-1.34	+0.00	+0.00	+0.01	+699.32	+699.59	+699.59
-1/3, 15	-4561.74	-4560.34	-4560.34	+3825.22	+3825.45	+3825.45	-6949.00	-6949.00	-6949.00
	-1.33	-1.33	-1.34	+0.00	-0.00	+0.03	+872.52	+872.79	+872.79
-1/3, 16	-5156.75	-5155.12	-5155.12	+2974.90	+2974.97	+2974.97	-6949.00	-6949.00	-6949.00
	-1.33	-1.33	-1.34	-0.00	+0.00	-0.02	+1046.95	+1047.22	+1047.22
-1/3, 17	-5594.72	-5592.85	-5592.85	+2034.18	+2034.14	+2034.14	-6949.00	-6949.00	-6949.00
	-1.33	-1.33	-1.34	-0.00	-0.00	+0.02	+1221.87	+1222.14	+1222.14
-1/3, 18	-5863.21	-5861.07	-5861.07	+1031.45	+1031.33	+1031.33	-6949.00	-6949.00	-6949.00
	-1.33	-1.33	-1.34	-0.00	+0.00	+0.01	+1396.49	+1396.75	+1396.75



All values relative to ideal, alternating x, y, z (mm) and ϕ_x, ϕ_y, ϕ_z (mrad)

Columns: PG + hardware, same + global adjustment, **same + track-based chambers**

(color applied only if chamber was aligned)

chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
-1/3, 19	-5955.45	-5953.04	-5953.04	-1.21	-1.35	-1.35	-6949.00	-6949.00	-6949.00
	-1.33	-1.33	-1.34	-0.00	-0.00	+0.00	+1571.40	+1571.66	+1571.66
-1/3, 20	-5861.72	-5859.04	-5859.04	-1034.95	-1035.07	-1035.07	-6949.00	-6949.00	-6949.00
	-1.33	-1.33	-1.34	+0.00	-0.00	+0.01	+1745.01	+1745.27	+1745.27
-1/3, 21	-5593.41	-5590.46	-5590.46	-2037.50	-2037.54	-2037.54	-6949.00	-6949.00	-6949.00
	-1.33	-1.33	-1.34	+0.00	+0.00	+0.00	+1920.20	+1920.46	+1920.46
-1/3, 22	-5153.83	-5150.64	-5150.64	-2976.12	-2976.05	-2976.05	-6949.00	-6949.00	-6949.00
	-1.33	-1.33	-1.34	+0.00	-0.00	-0.00	+2093.66	+2093.93	+2093.93
-1/3, 23	-4559.39	-4555.97	-4555.97	-3827.30	-3827.07	-3827.07	-6949.00	-6949.00	-6949.00
	-1.33	-1.33	-1.34	-0.00	-0.00	+0.04	+2268.89	+2269.16	+2269.16
-1/3, 24	-3826.17	-3822.56	-3822.56	-4558.60	-4558.17	-4558.17	-6949.00	-6949.00	-6949.00
	-1.33	-1.33	-1.34	-0.00	+0.00	+0.03	+2442.71	+2442.97	+2442.97
-1/3, 25	-2975.04	-2971.27	-2971.27	-5153.33	-5152.69	-5152.69	-6949.00	-6949.00	-6949.00
	-1.33	-1.33	-1.34	+0.00	+0.00	-0.02	+2617.50	+2617.77	+2617.77
-1/3, 26	-2036.03	-2032.14	-2032.14	-5592.32	-5591.43	-5591.43	-6949.00	-6949.00	-6949.00
	-1.33	-1.33	-1.34	-0.00	+0.00	-0.00	+2792.65	+2792.92	+2792.92
-1/3, 27	-1032.27	-1028.31	-1028.31	-5860.95	-5859.79	-5859.79	-6949.00	-6949.00	-6949.00
	-1.33	-1.33	-1.34	-0.00	-0.00	-0.01	+2967.44	+2967.71	+2967.71
-1/3, 28	+1.32	+5.29	+5.29	-5950.01	-5948.58	-5948.58	-6949.00	-6949.00	-6949.00
	-1.33	-1.33	-1.34	-0.00	-0.00	-0.00	-3141.48	-3141.22	-3141.22
-1/3, 29	+1034.69	+1038.64	+1038.64	-5860.24	-5858.53	-5858.53	-6949.00	-6949.00	-6949.00
	-1.33	-1.33	-1.34	-0.00	+0.00	+0.01	-2966.84	-2966.57	-2966.57
-1/3, 30	+2037.39	+2041.28	+2041.28	-5592.20	-5590.23	-5590.23	-6949.00	-6949.00	-6949.00
	-1.33	-1.33	-1.34	-0.00	+0.00	+0.00	-2792.44	-2792.18	-2792.18

All the values

Jim Pivarski 33/46



All values relative to ideal, alternating x, y, z (mm) and ϕ_x, ϕ_y, ϕ_z (mrad)

Columns: PG + hardware, same + global adjustment, **same + track-based chambers**

(color applied only if chamber was aligned)

chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
-1/3, 31	+2976.41	+2980.17	+2980.17	-5153.98	-5151.76	-5151.76	-6949.00	-6949.00	-6949.00
	-1.33	-1.33	-1.34	-0.00	+0.00	-0.02	-2618.93	-2618.66	-2618.66
-1/3, 32	+3827.30	+3830.91	+3830.91	-4559.16	-4556.72	-4556.72	-6949.00	-6949.00	-6949.00
	-1.33	-1.33	-1.34	-0.00	-0.00	+0.00	-2443.73	-2443.46	-2443.46
-1/3, 33	+4560.78	+4564.20	+4564.20	-3826.56	-3823.93	-3823.93	-6949.00	-6949.00	-6949.00
	-1.33	-1.33	-1.34	+0.00	+0.00	-0.04	-2268.53	-2268.27	-2268.27
-1/3, 34	+5155.46	+5158.65	+5158.65	-2977.57	-2974.78	-2974.78	-6949.00	-6949.00	-6949.00
	-1.33	-1.33	-1.34	-0.00	-0.00	+0.04	-2095.19	-2094.93	-2094.93
-1/3, 35	+5594.44	+5597.38	+5597.38	-2036.53	-2033.62	-2033.62	-6949.00	-6949.00	-6949.00
	-1.33	-1.33	-1.34	+0.00	-0.00	+0.02	-1919.42	-1919.15	-1919.15
-1/3, 36	+5862.54	+5865.22	+5865.22	-1034.92	-1031.94	-1031.94	-6949.00	-6949.00	-6949.00
	-1.33	-1.33	-1.34	+0.00	-0.00	+0.00	-1745.29	-1745.03	-1745.03
-1/4, 01	+1815.00	+1817.93	+1817.93	+0.00	-1.71	-1.71	-6152.78	-6152.78	-6152.78
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	-1570.80	-1570.14	-1570.14
-1/4, 02	+1787.43	+1790.15	+1790.15	+315.17	+313.44	+313.44	-5858.95	-5858.95	-5858.95
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	-1396.26	-1395.61	-1395.61
-1/4, 03	+1705.54	+1708.07	+1708.07	+620.77	+618.98	+618.98	-6151.95	-6151.95	-6151.95
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	-1221.73	-1221.07	-1221.07
-1/4, 04	+1571.84	+1574.17	+1574.17	+907.50	+905.63	+905.63	-5859.78	-5859.78	-5859.78
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	-1047.20	-1046.54	-1046.54
-1/4, 05	+1390.37	+1392.54	+1392.54	+1166.66	+1164.67	+1164.67	-6152.78	-6152.78	-6152.78
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	-872.66	-872.01	-872.01
-1/4, 06	+1166.66	+1168.68	+1168.68	+1390.37	+1388.23	+1388.23	-5859.78	-5859.78	-5859.78
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	-698.13	-697.48	-697.48

All the values

Jim Pivarski 34/46



All values relative to ideal, alternating x, y, z (mm) and ϕ_x, ϕ_y, ϕ_z (mrad)

Columns: PG + hardware, same + global adjustment, **same + track-based chambers**

(color applied only if chamber was aligned)

chamber	x or ϕ_x	y or ϕ_y	z or ϕ_z
-1/4, 07	+907.50 +909.40 +909.40 +0.00 +0.00 +0.00	+1571.84 +1569.53 +1569.53 -0.00 -0.00 -0.00	-6152.78 -6152.78 -6152.78 -523.60 -522.94 -522.94
-1/4, 08	+620.77 +622.58 +622.58 +0.00 +0.00 +0.00	+1705.54 +1703.05 +1703.05 -0.00 -0.00 -0.00	-5856.08 -5856.08 -5856.08 -349.07 -348.41 -348.41
-1/4, 09	+315.17 +316.93 +316.93 +0.00 +0.00 +0.00	+1787.43 +1784.73 +1784.73 -0.00 -0.00 -0.00	-6149.08 -6149.08 -6149.08 -174.53 -173.88 -173.88
-1/4, 10	+0.00 +1.74 +1.74 +0.00 +0.00 +0.00	+1815.00 +1812.10 +1812.10 -0.00 -0.00 -0.00	-5859.78 -5859.78 -5859.78 -0.00 +0.66 +0.66
-1/4, 11	-315.17 -313.41 -313.41 +0.00 +0.00 +0.00	+1787.43 +1784.32 +1784.32 -0.00 -0.00 -0.00	-6152.78 -6152.78 -6152.78 +174.53 +175.19 +175.19
-1/4, 12	-620.77 -618.95 -618.95 +0.00 +0.00 +0.00	+1705.54 +1702.23 +1702.23 -0.00 -0.00 -0.00	-5859.78 -5859.78 -5859.78 +349.07 +349.72 +349.72
-1/4, 13	-907.50 -905.60 -905.60 +0.00 +0.00 +0.00	+1571.84 +1568.34 +1568.34 -0.00 -0.00 -0.00	-6152.78 -6152.78 -6152.78 +523.60 +524.25 +524.25
-1/4, 14	-1166.66 -1164.64 -1164.64 +0.00 +0.00 +0.00	+1390.37 +1386.70 +1386.70 -0.00 -0.00 -0.00	-5857.40 -5857.40 -5857.40 +698.13 +698.79 +698.79
-1/4, 15	-1390.37 -1388.20 -1388.20 +0.00 +0.00 +0.00	+1166.66 +1162.84 +1162.84 -0.00 -0.00 -0.00	-6150.40 -6150.40 -6150.40 +872.66 +873.32 +873.32
-1/4, 16	-1571.84 -1569.50 -1569.50 +0.00 +0.00 +0.00	+907.50 +903.57 +903.57 -0.00 -0.00 -0.00	-5859.78 -5859.78 -5859.78 +1047.20 +1047.85 +1047.85
-1/4, 17	-1705.54 -1703.02 -1703.02 +0.00 +0.00 +0.00	+620.77 +616.74 +616.74 -0.00 -0.00 -0.00	-6152.78 -6152.78 -6152.78 +1221.73 +1222.39 +1222.39
-1/4, 18	-1787.43 -1784.70 -1784.70 +0.00 +0.00 +0.00	+315.17 +311.10 +311.10 -0.00 -0.00 -0.00	-5859.78 -5859.78 -5859.78 +1396.26 +1396.92 +1396.92

All the values

Jim Pivarski 35/46



All values relative to ideal, alternating x , y , z (mm) and ϕ_x , ϕ_y , ϕ_z (mrad)

Columns: PG + hardware, same + global adjustment, **same + track-based chambers**

(color applied only if chamber was aligned)

chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
-1/4, 19	-1815.00	-1812.07	-1812.07	+0.00	-4.09	-4.09	-6152.78	-6152.78	-6152.78
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	+1570.80	+1571.45	+1571.45
-1/4, 20	-1787.43	-1784.29	-1784.29	-315.17	-319.25	-319.25	-5859.67	-5859.67	-5859.67
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	+1745.33	+1745.99	+1745.99
-1/4, 21	-1705.54	-1702.20	-1702.20	-620.77	-624.79	-624.79	-6152.67	-6152.67	-6152.67
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	+1919.86	+1920.52	+1920.52
-1/4, 22	-1571.84	-1568.31	-1568.31	-907.50	-911.43	-911.43	-5859.78	-5859.78	-5859.78
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	+2094.40	+2095.05	+2095.05
-1/4, 23	-1390.37	-1386.67	-1386.67	-1166.66	-1170.47	-1170.47	-6152.78	-6152.78	-6152.78
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	+2268.93	+2269.58	+2269.58
-1/4, 24	-1166.66	-1162.81	-1162.81	-1390.37	-1394.04	-1394.04	-5859.78	-5859.78	-5859.78
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	+2443.46	+2444.12	+2444.12
-1/4, 25	-907.50	-903.54	-903.54	-1571.84	-1575.33	-1575.33	-6152.78	-6152.78	-6152.78
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	+2617.99	+2618.65	+2618.65
-1/4, 26	-620.77	-616.71	-616.71	-1705.54	-1708.85	-1708.85	-5863.69	-5863.69	-5863.69
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	+2792.53	+2793.18	+2793.18
-1/4, 27	-315.17	-311.07	-311.07	-1787.43	-1790.54	-1790.54	-6156.69	-6156.69	-6156.69
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	+2967.06	+2967.72	+2967.72
-1/4, 28	+0.00	+4.12	+4.12	-1815.00	-1817.90	-1817.90	-5859.78	-5859.78	-5859.78
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	+3141.59	+3140.94	+3140.94
-1/4, 29	+315.17	+319.28	+319.28	-1787.43	-1790.12	-1790.12	-6152.78	-6152.78	-6152.78
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	-2967.06	-2966.40	-2966.40
-1/4, 30	+620.77	+624.82	+624.82	-1705.54	-1708.04	-1708.04	-5859.78	-5859.78	-5859.78
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	-2792.53	-2791.87	-2791.87

All the values

Jim Pivarski 36/46



All values relative to ideal, alternating x , y , z (mm) and ϕ_x , ϕ_y , ϕ_z (mrad)

Columns: PG + hardware, same + global adjustment, **same + track-based chambers**

(color applied only if chamber was aligned)

chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
-1/4, 31	+907.50	+911.46	+911.46	-1571.84	-1574.14	-1574.14	-6152.78	-6152.78	-6152.78
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	-2617.99	-2617.34	-2617.34
-1/4, 32	+1166.66	+1170.50	+1170.50	-1390.37	-1392.51	-1392.51	-5862.86	-5862.86	-5862.86
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	-2443.46	-2442.81	-2442.81
-1/4, 33	+1390.37	+1394.07	+1394.07	-1166.66	-1168.65	-1168.65	-6155.86	-6155.86	-6155.86
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	-2268.93	-2268.27	-2268.27
-1/4, 34	+1571.84	+1575.36	+1575.36	-907.50	-909.37	-909.37	-5859.78	-5859.78	-5859.78
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	-2094.40	-2093.74	-2093.74
-1/4, 35	+1705.54	+1708.88	+1708.88	-620.77	-622.55	-622.55	-6152.78	-6152.78	-6152.78
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	-1919.86	-1919.21	-1919.21
-1/4, 36	+1787.43	+1790.57	+1790.57	-315.17	-316.90	-316.90	-5859.78	-5859.78	-5859.78
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	-1745.33	-1744.67	-1744.67
-2/1, 01	+2417.76	+2421.07	+2421.07	+211.20	+214.52	+214.52	-8399.37	-8399.37	-8399.37
	-1.60	-1.60	-1.58	+0.00	-0.00	+0.01	-1482.88	-1480.70	-1480.70
-2/1, 02	+2200.49	+2202.02	+2202.02	+1026.04	+1028.88	+1028.88	-8151.00	-8151.00	-8151.00
	-2.00	-2.00	-2.01	+0.00	-0.00	-0.03	-1134.31	-1132.13	-1132.13
-2/1, 03	+1714.85	+1714.88	+1714.88	+1714.39	+1716.17	+1716.17	-8399.37	-8399.37	-8399.37
	-1.60	-1.60	-1.58	+0.00	+0.00	+0.00	-786.01	-783.82	-783.82
-2/1, 04	+1024.19	+1023.16	+1023.16	+2197.22	+2197.48	+2197.48	-8153.70	-8153.70	-8153.70
	-1.30	-1.30	-1.29	-0.00	+0.00	+0.04	-438.04	-435.86	-435.86
-2/1, 05	+210.97	+209.47	+208.17	+2416.51	+2415.00	+2415.11	-8399.37	-8399.37	-8399.37
	-1.60	-1.60	-1.58	+0.00	+0.00	-0.77	-86.72	-84.54	-86.65
-2/1, 06	-628.18	-629.52	-629.52	+2342.22	+2338.87	+2338.87	-8151.37	-8151.37	-8151.37
	-1.60	-1.60	-1.58	-0.00	-0.00	-0.00	+261.40	+263.58	+263.58

All the values

Jim Pivarski 37/46



All values relative to ideal, alternating x , y , z (mm) and ϕ_x , ϕ_y , ϕ_z (mrad)

Columns: PG + hardware, same + global adjustment, **same + track-based chambers**

(color applied only if chamber was aligned)

chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
-2/1, 07	-1391.76	-1392.32	-1392.32	+1986.35	+1981.34	+1981.34	-8399.37	-8399.37	-8399.37
	-1.60	-1.60	-1.58	+0.00	-0.00	-0.00	+611.25	+613.43	+613.43
-2/1, 08	-1987.58	-1986.84	-1985.19	+1390.39	+1384.08	+1386.46	-8149.20	-8149.20	-8149.20
	-1.60	-1.60	-1.59	+0.00	-0.00	-1.42	+960.65	+962.83	+964.89
-2/1, 09	-2344.47	-2342.06	-2342.06	+627.29	+620.20	+620.20	-8399.37	-8399.37	-8399.37
	-1.60	-1.60	-1.58	-0.00	+0.00	+0.01	+1309.19	+1311.37	+1311.37
-2/1, 10	-2418.14	-2413.90	-2413.90	-211.30	-218.55	-218.55	-8151.00	-8151.00	-8151.00
	-2.00	-2.00	-2.01	-0.00	+0.00	-0.00	+1658.34	+1660.52	+1660.52
-2/1, 11	-2199.93	-2193.91	-2193.91	-1027.19	-1033.96	-1033.96	-8399.37	-8399.37	-8399.37
	-1.60	-1.60	-1.58	-0.00	-0.00	-0.00	+2008.11	+2010.30	+2010.30
-2/1, 12	-1715.41	-1707.88	-1707.88	-1717.25	-1722.95	-1722.95	-8151.37	-8151.37	-8151.37
	-1.60	-1.60	-1.58	+0.00	+0.00	-0.05	+2356.24	+2358.43	+2358.43
-2/1, 13	-1025.34	-1016.76	-1016.76	-2199.32	-2203.52	-2203.52	-8399.37	-8399.37	-8399.37
	-1.60	-1.60	-1.58	-0.00	-0.00	-0.01	+2705.58	+2707.76	+2707.76
-2/1, 14	-210.45	-201.39	-201.39	-2417.33	-2419.74	-2419.74	-8153.60	-8153.60	-8153.60
	-0.80	-0.80	-0.77	+0.00	-0.00	-0.01	+3054.31	+3056.49	+3056.49
-2/1, 15	+628.36	+637.26	+637.26	-2343.63	-2344.21	-2344.21	-8399.37	-8399.37	-8399.37
	-1.60	-1.60	-1.58	-0.00	-0.00	-0.00	-2879.43	-2877.24	-2877.24
-2/1, 16	+1391.84	+1399.95	+1399.95	-1988.73	-1987.65	-1987.65	-8149.80	-8149.80	-8149.80
	-1.70	-1.70	-1.69	-0.00	-0.00	-0.02	-2532.01	-2529.83	-2529.83
-2/1, 17	+1988.21	+1995.02	+1995.02	-1391.47	-1389.08	-1389.08	-8399.37	-8399.37	-8399.37
	-1.60	-1.60	-1.58	+0.00	+0.00	+0.00	-2181.49	-2179.30	-2179.30
-2/1, 18	+2344.80	+2349.95	+2349.95	-628.62	-625.46	-625.46	-8151.37	-8151.37	-8151.37
	-1.60	-1.60	-1.58	+0.00	+0.00	-0.02	-1833.75	-1831.56	-1831.56

All the values

Jim Pivarski 38/46



All values relative to ideal, alternating x , y , z (mm) and ϕ_x , ϕ_y , ϕ_z (mrad)

Columns: PG + hardware, same + global adjustment, **same + track-based chambers**

(color applied only if chamber was aligned)

chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
-2/2, 01	+5265.13	+5266.79	+5266.79	-2.20	+7.93	+7.93	-8406.74	-8406.74	-8406.74
	-2.20	-2.20	-2.21	-0.00	-0.00	-0.00	-1571.73	-1570.05	-1570.05
-2/2, 02	+5186.21	+5186.33	+5186.33	+911.77	+921.77	+921.77	-8158.99	-8158.99	-8158.99
	-2.20	-2.20	-2.21	-0.00	+0.00	+0.00	-1397.32	-1395.65	-1395.65
-2/2, 03	+4950.43	+4949.07	+4949.07	+1798.69	+1808.30	+1808.30	-8406.80	-8406.80	-8406.80
	-2.20	-2.20	-2.21	+0.00	+0.00	+0.01	-1223.02	-1221.34	-1221.34
-2/2, 04	+4562.33	+4559.57	+4559.57	+2630.69	+2639.65	+2639.65	-8158.99	-8158.99	-8158.99
	-2.20	-2.20	-2.21	-0.00	+0.00	-0.02	-1048.07	-1046.39	-1046.39
-2/2, 05	+4034.79	+4030.76	+4029.85	+3383.04	+3391.11	+3392.18	-8406.74	-8406.74	-8406.74
	-2.20	-2.20	-2.20	+0.00	+0.00	-0.53	-873.41	-871.73	-873.05
-2/2, 06	+3386.16	+3381.04	+3381.83	+4031.38	+4038.36	+4037.69	-8158.99	-8158.99	-8158.99
	-2.20	-2.20	-2.23	+0.00	-0.00	+0.23	-698.66	-696.98	-699.26
-2/2, 07	+2633.60	+2627.60	+2629.83	+4558.08	+4563.79	+4562.51	-8406.74	-8406.74	-8406.74
	-2.20	-2.20	-2.21	-0.00	+0.00	-0.77	-524.13	-522.45	-522.14
-2/2, 08	+1801.80	+1795.15	+1795.85	+4948.07	+4952.39	+4952.13	-8161.10	-8161.10	-8161.10
	-2.10	-2.10	-2.10	-0.00	+0.00	-3.33	-349.05	-347.37	-348.15
-2/2, 09	+915.07	+908.03	+908.30	+5184.76	+5187.58	+5187.53	-8406.74	-8406.74	-8406.74
	-2.20	-2.20	-2.20	+0.00	-0.00	-1.11	-174.97	-173.29	-172.32
-2/2, 10	+0.12	-7.06	-7.06	+5263.56	+5264.85	+5264.85	-8158.99	-8158.99	-8158.99
	-2.20	-2.20	-2.21	-0.00	-0.00	-0.00	-0.28	+1.40	+1.40
-2/2, 11	-914.37	-921.42	-921.42	+5184.86	+5184.61	+5184.61	-8406.74	-8406.74	-8406.74
	-2.20	-2.20	-2.21	+0.00	+0.00	+0.00	+174.18	+175.86	+175.86
-2/2, 12	-1800.86	-1807.50	-1809.06	+4946.50	+4944.76	+4944.20	-8158.99	-8158.99	-8158.99
	-2.20	-2.20	-2.24	+0.00	+0.00	+2.69	+349.16	+350.84	+348.24

All the values

Jim Pivarski 39/46



All values relative to ideal, alternating x , y , z (mm) and ϕ_x , ϕ_y , ϕ_z (mrad)

Columns: PG + hardware, same + global adjustment, **same + track-based chambers**

(color applied only if chamber was aligned)

chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
-2/2, 13	-2632.87	-2638.86	-2638.86	+4558.88	+4555.74	+4555.74	-8406.74	-8406.74	-8406.74
	-2.20	-2.20	-2.21	+0.00	-0.00	+0.02	+523.68	+525.36	+525.36
-2/2, 14	-3384.16	-3389.26	-3390.84	+4030.79	+4026.39	+4025.06	-8158.99	-8158.99	-8158.99
	-2.20	-2.20	-2.21	+0.00	-0.00	-1.50	+698.19	+699.87	+700.97
-2/2, 15	-4034.27	-4038.29	-4038.29	+3383.86	+3378.37	+3378.37	-8405.10	-8405.10	-8405.10
	-2.50	-2.50	-2.49	-0.00	-0.00	-0.01	+872.08	+873.76	+873.76
-2/2, 16	-4560.47	-4563.22	-4563.22	+2629.66	+2623.29	+2623.29	-8158.99	-8158.99	-8158.99
	-2.20	-2.20	-2.21	-0.00	+0.00	+0.02	+1047.62	+1049.30	+1049.30
-2/2, 17	-4947.97	-4949.32	-4949.32	+1799.77	+1792.75	+1792.75	-8406.74	-8406.74	-8406.74
	-2.20	-2.20	-2.21	+0.00	-0.00	-0.02	+1221.67	+1223.35	+1223.35
-2/2, 18	-5186.30	-5186.16	-5186.16	+912.86	+905.44	+905.44	-8158.99	-8158.99	-8158.99
	-2.20	-2.20	-2.21	+0.00	+0.00	+0.01	+1396.18	+1397.86	+1397.86
-2/2, 19	-5264.33	-5262.66	-5262.66	-1.15	-8.70	-8.70	-8406.74	-8406.74	-8406.74
	-2.20	-2.20	-2.21	-0.00	-0.00	-0.00	+1570.92	+1572.60	+1572.60
-2/2, 20	-5184.59	-5181.39	-5181.39	-916.30	-923.72	-923.72	-8157.50	-8157.50	-8157.50
	-2.30	-2.30	-2.29	-0.00	-0.00	-0.00	+1745.93	+1747.61	+1747.61
-2/2, 21	-4947.38	-4942.69	-4942.69	-1801.27	-1808.28	-1808.28	-8406.74	-8406.74	-8406.74
	-2.20	-2.20	-2.21	-0.00	-0.00	-0.00	+1919.90	+1921.58	+1921.58
-2/2, 22	-4559.13	-4553.04	-4553.04	-2632.12	-2638.49	-2638.49	-8158.99	-8158.99	-8158.99
	-2.20	-2.20	-2.21	-0.00	+0.00	-0.02	+2094.63	+2096.31	+2096.31
-2/2, 23	-4032.90	-4025.54	-4025.54	-3384.95	-3390.42	-3390.42	-8406.74	-8406.74	-8406.74
	-2.20	-2.20	-2.21	-0.00	+0.00	-0.02	+2269.01	+2270.69	+2270.69
-2/2, 24	-3384.92	-3376.48	-3376.48	-4032.23	-4036.61	-4036.61	-8158.99	-8158.99	-8158.99
	-2.20	-2.20	-2.21	+0.00	+0.00	-0.02	+2442.96	+2444.64	+2444.64

All the values

Jim Pivarski 40/46



All values relative to ideal, alternating x , y , z (mm) and ϕ_x , ϕ_y , ϕ_z (mrad)

Columns: PG + hardware, same + global adjustment, **same + track-based chambers**

(color applied only if chamber was aligned)

chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
-2/2, 25	-2632.68	-2623.35	-2623.82	-4560.01	-4563.13	-4562.86	-8406.74	-8406.74	-8406.74
	-2.20	-2.20	-2.19	+0.00	-0.00	+1.07	+2617.86	+2619.54	+2618.71
-2/2, 26	-1801.32	-1791.35	-1791.35	-4946.55	-4948.28	-4948.28	-8158.99	-8158.99	-8158.99
	-2.20	-2.20	-2.21	-0.00	-0.00	+2.49	+2791.80	+2793.48	+2791.66
-2/2, 27	-914.43	-904.06	-904.06	-5184.39	-5184.62	-5184.62	-8408.40	-8408.40	-8408.40
	-1.90	-1.90	-1.89	-0.00	+0.00	-0.01	+2966.50	+2968.18	+2968.18
-2/2, 28	-0.99	+9.52	+10.58	-5263.96	-5262.66	-5262.66	-8158.99	-8158.99	-8158.99
	-2.20	-2.20	-2.21	-0.00	-0.00	-1.39	+3140.98	-3140.53	-3139.54
-2/2, 29	+913.55	+923.91	+923.91	-5184.20	-5181.36	-5181.36	-8406.74	-8406.74	-8406.74
	-2.20	-2.20	-2.21	-0.00	-0.00	-0.00	-2967.34	-2965.66	-2965.66
-2/2, 30	+1799.80	+1809.77	+1809.77	-4947.18	-4942.85	-4942.85	-8158.99	-8158.99	-8158.99
	-2.20	-2.20	-2.21	+0.00	+0.00	+0.01	-2792.67	-2790.99	-2790.99
-2/2, 31	+2631.58	+2640.89	+2640.89	-4559.74	-4554.02	-4554.02	-8406.74	-8406.74	-8406.74
	-2.20	-2.20	-2.21	-0.00	-0.00	+0.02	-2618.67	-2616.99	-2616.99
-2/2, 32	+3384.54	+3392.97	+3394.23	-4035.12	-4028.14	-4027.08	-8158.40	-8158.40	-8158.40
	-2.00	-2.00	-2.00	+0.00	-0.00	+1.27	-2443.95	-2442.27	-2441.05
-2/2, 33	+4032.42	+4039.76	+4039.76	-3386.08	-3378.01	-3378.01	-8406.74	-8406.74	-8406.74
	-2.20	-2.20	-2.21	+0.00	-0.00	+0.02	-2269.82	-2268.14	-2268.14
-2/2, 34	+4560.24	+4566.32	+4565.04	-2634.34	-2625.38	-2627.60	-8158.99	-8158.99	-8158.99
	-2.20	-2.20	-2.21	+0.00	-0.00	+1.89	-2095.41	-2093.73	-2095.91
-2/2, 35	+4948.00	+4952.68	+4952.68	-1803.43	-1793.82	-1793.82	-8406.74	-8406.74	-8406.74
	-2.20	-2.20	-2.21	+0.00	-0.00	+0.01	-1920.66	-1918.98	-1918.98
-2/2, 36	+5186.37	+5189.57	+5189.57	-915.94	-905.94	-905.94	-8158.99	-8158.99	-8158.99
	-2.20	-2.20	-2.21	+0.00	+0.00	+0.01	-1746.30	-1744.62	-1744.62

All the values

Jim Pivarski 41/46



All values relative to ideal, alternating x , y , z (mm) and ϕ_x , ϕ_y , ϕ_z (mrad)

Columns: PG + hardware, same + global adjustment, **same + track-based chambers**

(color applied only if chamber was aligned)

chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
-3/1, 01	+2516.23	+2519.92	+2519.92	+219.58	+224.98	+224.98	-9219.01	-9219.01	-9219.01
	-3139.09	-3139.09	-3139.10	-0.00	-0.00	+0.00	+1657.03	+1659.16	+1659.16
-3/1, 02	+2288.90	+2290.78	+2290.78	+1067.09	+1072.00	+1072.00	-9466.60	-9466.60	-9466.60
	-3139.19	-3139.19	-3139.20	+0.00	-0.00	-0.00	+2006.84	+2008.96	+2008.96
-3/1, 03	+1784.71	+1785.07	+1785.07	+1786.18	+1790.03	+1790.03	-9219.01	-9219.01	-9219.01
	-3139.09	-3139.09	-3139.10	-0.00	-0.00	-0.02	+2356.45	+2358.57	+2358.57
-3/1, 04	+1066.65	+1065.94	+1065.94	+2289.91	+2292.23	+2292.23	-9466.20	-9466.20	-9466.20
	-3138.99	-3138.99	-3138.99	-0.00	+0.00	+0.01	+2703.99	+2706.11	+2706.11
-3/1, 05	+217.88	+216.69	+213.93	+2516.04	+2516.56	+2516.80	-9219.01	-9219.01	-9219.01
	-3139.09	-3139.09	-3139.10	+0.00	+0.00	-2.41	+3054.42	+3056.54	+3058.27
-3/1, 06	-655.71	-656.73	-656.73	+2438.23	+2436.89	+2436.89	-9467.01	-9467.01	-9467.01
	-3139.09	-3139.09	-3139.10	-0.00	+0.00	+0.00	-2880.23	-2878.11	-2878.11
-3/1, 07	-1450.26	-1450.49	-1450.49	+2068.18	+2065.16	+2065.16	-9219.01	-9219.01	-9219.01
	-3139.09	-3139.09	-3139.10	+0.00	+0.00	-0.01	-2529.66	-2527.54	-2527.54
-3/1, 08	-2069.73	-2068.64	-2068.64	+1446.67	+1442.33	+1442.33	-9467.20	-9467.20	-9467.20
	-3139.29	-3139.29	-3139.30	-0.00	+0.00	-0.02	-2179.80	-2177.68	-2177.68
-3/1, 09	-2440.89	-2438.12	-2438.12	+654.04	+648.91	+648.91	-9219.01	-9219.01	-9219.01
	-3139.09	-3139.09	-3139.10	+0.00	+0.00	+0.01	-1832.60	-1830.47	-1830.47
-3/1, 10	-2518.92	-2514.28	-2514.28	-222.15	-227.44	-227.44	-9466.50	-9466.50	-9466.50
	-3138.89	-3138.89	-3138.90	-0.00	+0.00	-0.00	-1482.83	-1480.71	-1480.71
-3/1, 11	-2289.60	-2283.16	-2283.16	-1069.50	-1074.30	-1074.30	-9219.01	-9219.01	-9219.01
	-3139.09	-3139.09	-3139.10	-0.00	-0.00	+0.01	-1134.27	-1132.15	-1132.15
-3/1, 12	-1786.70	-1778.74	-1778.74	-1787.85	-1791.58	-1791.58	-9467.01	-9467.01	-9467.01
	-3139.09	-3139.09	-3139.10	-0.00	+0.00	-0.02	-784.66	-782.54	-782.54



All values relative to ideal, alternating x , y , z (mm) and ϕ_x , ϕ_y , ϕ_z (mrad)

Columns: PG + hardware, same + global adjustment, **same + track-based chambers**

(color applied only if chamber was aligned)

chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
-3/1, 13	-1066.42	-1057.40	-1057.40	-2289.99	-2292.19	-2292.19	-9219.01	-9219.01	-9219.01
	-3139.09	-3139.09	-3139.10	+0.00	+0.00	-0.00	-436.10	-433.98	-433.98
-3/1, 14	-219.01	-209.51	-209.51	-2517.99	-2518.39	-2518.39	-9467.30	-9467.30	-9467.30
	-3139.19	-3139.19	-3139.20	-0.00	+0.00	+0.00	-86.97	-84.85	-84.85
-3/1, 15	+653.95	+663.28	+663.28	-2440.90	-2439.44	-2439.44	-9219.01	-9219.01	-9219.01
	-3139.09	-3139.09	-3139.10	+0.00	+0.00	+0.00	+261.39	+263.51	+263.51
-3/1, 16	+1448.45	+1457.00	+1457.00	-2069.83	-2066.69	-2066.69	-9468.40	-9468.40	-9468.40
	-3139.09	-3139.09	-3139.10	+0.00	+0.00	+0.01	+611.29	+613.41	+613.41
-3/1, 17	+2069.07	+2076.30	+2076.30	-1450.45	-1446.00	-1446.00	-9219.01	-9219.01	-9219.01
	-3139.09	-3139.09	-3139.10	-0.00	-0.00	+0.00	+958.88	+961.00	+961.00
-3/1, 18	+2440.15	+2445.69	+2445.69	-653.97	-648.72	-648.72	-9467.01	-9467.01	-9467.01
	-3139.09	-3139.09	-3139.10	-0.00	+0.00	-0.00	+1307.83	+1309.95	+1309.95
-3/2, 01	+5264.46	+5266.70	+5266.70	-0.36	+8.77	+8.77	-9226.39	-9226.39	-9226.39
	-3138.89	-3138.89	-3138.90	-0.00	-0.00	-0.00	+1570.75	+1572.60	+1572.60
-3/2, 02	+5183.89	+5184.43	+5184.43	+913.02	+921.99	+921.99	-9474.70	-9474.70	-9474.70
	-3138.89	-3138.89	-3138.90	+0.00	-0.00	-0.00	+1745.06	+1746.91	+1746.91
-3/2, 03	+4947.59	+4946.50	+4946.50	+1800.08	+1808.62	+1808.62	-9226.70	-9226.70	-9226.70
	-3138.69	-3138.69	-3138.68	-0.00	+0.00	-0.01	+1919.61	+1921.46	+1921.46
-3/2, 04	+4558.43	+4555.79	+4556.10	+2632.21	+2640.03	+2639.49	-9474.70	-9474.70	-9474.70
	-3138.89	-3138.89	-3138.89	-0.00	+0.00	+2.23	+2094.43	+2096.28	+2099.36
-3/2, 05	+4033.30	+4029.27	+4029.27	+3384.26	+3391.10	+3391.10	-9226.39	-9226.39	-9226.39
	-3138.89	-3138.89	-3138.90	-0.00	+0.00	+0.01	+2268.19	+2270.04	+2270.04
-3/2, 06	+3383.66	+3378.43	+3377.89	+4032.53	+4038.17	+4038.62	-9474.70	-9474.70	-9474.70
	-3138.89	-3138.89	-3138.90	+0.00	+0.00	+0.93	+2443.11	+2444.96	+2443.08

All the values

Jim Pivarski 43/46



All values relative to ideal, alternating x , y , z (mm) and ϕ_x , ϕ_y , ϕ_z (mrad)

Columns: PG + hardware, same + global adjustment, **same + track-based chambers**

(color applied only if chamber was aligned)

chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
-3/2, 07	+2630.62	+2624.42	+2625.61	+4559.84	+4564.08	+4563.40	-9226.39	-9226.39	-9226.39
	-3138.89	-3138.89	-3138.91	-0.00	-0.00	-2.14	+2618.56	+2620.41	+2620.85
-3/2, 08	+1798.28	+1791.36	+1792.49	+4947.33	+4950.03	+4949.62	-9474.10	-9474.10	-9474.10
	-3138.59	-3138.59	-3138.60	-0.00	-0.00	+2.95	+2792.72	+2794.57	+2796.30
-3/2, 09	+913.00	+905.64	+905.64	+5184.58	+5185.64	+5185.64	-9226.39	-9226.39	-9226.39
	-3138.89	-3138.89	-3138.90	-0.00	+0.00	-0.00	+2967.12	+2968.97	+2968.97
-3/2, 10	-2.76	-10.26	-10.26	+5264.79	+5264.16	+5264.16	-9474.70	-9474.70	-9474.70
	-3138.89	-3138.89	-3138.90	-0.00	-0.00	-0.00	-3141.45	-3139.60	-3139.60
-3/2, 11	-915.94	-923.28	-923.28	+5182.62	+5180.29	+5180.29	-9226.39	-9226.39	-9226.39
	-3138.89	-3138.89	-3138.90	+0.00	+0.00	-0.00	-2966.06	-2964.21	-2964.21
-3/2, 12	-1802.97	-1809.88	-1809.88	+4945.82	+4941.86	+4941.86	-9474.70	-9474.70	-9474.70
	-3138.89	-3138.89	-3138.90	-0.00	+0.00	+0.02	-2791.81	-2789.96	-2789.96
-3/2, 13	-2632.50	-2638.69	-2639.09	+4559.62	+4554.12	+4553.89	-9226.39	-9226.39	-9226.39
	-3138.89	-3138.89	-3138.89	+0.00	-0.00	-1.24	-2617.99	-2616.14	-2616.42
-3/2, 14	-3384.34	-3389.55	-3388.88	+4031.01	+4024.12	+4024.68	-9474.70	-9474.70	-9474.70
	-3138.89	-3138.89	-3138.90	+0.00	+0.00	+2.40	-2443.30	-2441.45	-2443.63
-3/2, 15	-4033.22	-4037.24	-4036.54	+3384.28	+3376.18	+3377.02	-9226.20	-9226.20	-9226.20
	-3138.99	-3138.99	-3138.99	+0.00	+0.00	-0.53	-2268.93	-2267.08	-2268.27
-3/2, 16	-4561.92	-4564.53	-4564.53	+2629.61	+2620.54	+2620.54	-9474.70	-9474.70	-9474.70
	-3138.89	-3138.89	-3138.90	-0.00	-0.00	+0.01	-2093.84	-2091.98	-2091.98
-3/2, 17	-4948.23	-4949.30	-4949.30	+1799.80	+1790.01	+1790.01	-9226.39	-9226.39	-9226.39
	-3138.89	-3138.89	-3138.90	+0.00	-0.00	+0.02	-1919.70	-1917.84	-1917.84
-3/2, 18	-5185.01	-5184.45	-5184.45	+914.26	+904.04	+904.04	-9474.70	-9474.70	-9474.70
	-3138.89	-3138.89	-3138.90	-0.00	-0.00	-0.00	-1745.33	-1743.48	-1743.48

All the values

Jim Pivarski 44/46



All values relative to ideal, alternating x , y , z (mm) and ϕ_x , ϕ_y , ϕ_z (mrad)

Columns: PG + hardware, same + global adjustment, **same + track-based chambers**

(color applied only if chamber was aligned)

chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
-3/2, 19	-5265.93	-5263.67	-5263.67	-2.87	-13.24	-13.24	-9226.39	-9226.39	-9226.39
	-3138.89	-3138.89	-3138.90	-0.00	-0.00	+0.00	-1570.47	-1568.62	-1568.62
-3/2, 20	-5186.48	-5182.53	-5182.53	-916.04	-926.26	-926.26	-9474.20	-9474.20	-9474.20
	-3138.79	-3138.79	-3138.79	+0.00	-0.00	-0.00	-1396.09	-1394.24	-1394.24
-3/2, 21	-4947.80	-4942.20	-4942.20	-1802.82	-1812.60	-1812.60	-9226.39	-9226.39	-9226.39
	-3138.89	-3138.89	-3138.90	+0.00	-0.00	+0.00	-1221.42	-1219.57	-1219.57
-3/2, 22	-4560.08	-4552.95	-4552.95	-2634.78	-2643.84	-2643.84	-9474.70	-9474.70	-9474.70
	-3138.89	-3138.89	-3138.90	-0.00	+0.00	-0.01	-1047.05	-1045.20	-1045.20
-3/2, 23	-4032.66	-4024.13	-4024.13	-3386.49	-3394.58	-3394.58	-9226.39	-9226.39	-9226.39
	-3138.89	-3138.89	-3138.90	+0.00	+0.00	+0.01	-872.30	-870.45	-870.45
-3/2, 24	-3383.61	-3373.90	-3373.90	-4032.94	-4039.82	-4039.82	-9474.70	-9474.70	-9474.70
	-3138.89	-3138.89	-3138.90	+0.00	+0.00	+0.01	-698.51	-696.66	-696.66
-3/2, 25	-2632.50	-2621.81	-2621.81	-4559.62	-4565.11	-4565.11	-9226.39	-9226.39	-9226.39
	-3138.89	-3138.89	-3138.90	-0.00	-0.00	-0.00	-523.60	-521.75	-521.75
-3/2, 26	-1799.80	-1788.39	-1788.39	-4948.02	-4951.97	-4951.97	-9474.70	-9474.70	-9474.70
	-3138.89	-3138.89	-3138.90	-0.00	+0.00	-0.01	-349.13	-347.28	-347.28
-3/2, 27	-912.82	-900.97	-900.97	-5185.77	-5188.07	-5188.07	-9226.30	-9226.30	-9226.30
	-3139.39	-3139.39	-3139.38	-0.00	-0.00	-0.01	-174.31	-172.45	-172.45
-3/2, 28	+0.05	+12.05	+12.05	-5266.96	-5267.58	-5267.58	-9474.70	-9474.70	-9474.70
	-3138.89	-3138.89	-3138.90	-0.00	-0.00	+0.00	-0.96	+0.89	+0.89
-3/2, 29	+913.54	+925.38	+925.38	-5185.24	-5184.16	-5184.16	-9226.39	-9226.39	-9226.39
	-3138.89	-3138.89	-3138.90	-0.00	-0.00	-0.00	+173.63	+175.48	+175.48
-3/2, 30	+1801.12	+1812.52	+1811.41	-4948.12	-4945.40	-4945.81	-9474.70	-9474.70	-9474.70
	-3138.89	-3138.89	-3138.88	-0.00	-0.00	+0.24	+348.81	+350.67	+351.76

All the values

Jim Pivarski 45/46



All values relative to ideal, alternating x , y , z (mm) and ϕ_x , ϕ_y , ϕ_z (mrad)

Columns: PG + hardware, same + global adjustment, **same + track-based chambers**

(color applied only if chamber was aligned)

chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
-3/2, 31	+2630.75	+2641.43	+2641.43	-4559.67	-4555.42	-4555.42	-9226.39	-9226.39	-9226.39
	-3138.89	-3138.89	-3138.90	-0.00	-0.00	-0.01	+523.96	+525.81	+525.81
-3/2, 32	+3382.58	+3392.29	+3394.21	-4033.70	-4028.06	-4026.43	-9475.80	-9475.80	-9475.80
	-3138.89	-3138.89	-3138.90	-0.00	+0.00	-0.27	+697.92	+699.77	+702.08
-3/2, 33	+4032.91	+4041.41	+4041.41	-3385.59	-3378.74	-3378.74	-9226.39	-9226.39	-9226.39
	-3138.89	-3138.89	-3138.90	+0.00	+0.00	+0.00	+872.96	+874.81	+874.81
-3/2, 34	+4558.39	+4565.50	+4565.50	-2633.40	-2625.58	-2625.58	-9474.70	-9474.70	-9474.70
	-3138.89	-3138.89	-3138.90	+0.00	-0.00	-0.00	+1047.21	+1049.06	+1049.06
-3/2, 35	+4946.13	+4951.70	+4951.70	-1802.72	-1794.19	-1794.19	-9226.39	-9226.39	-9226.39
	-3138.89	-3138.89	-3138.90	+0.00	-0.00	-0.01	+1220.85	+1222.70	+1222.70
-3/2, 36	+5184.56	+5188.49	+5188.49	-915.52	-906.54	-906.54	-9474.70	-9474.70	-9474.70
	-3138.89	-3138.89	-3138.90	+0.00	+0.00	-0.00	+1396.57	+1398.42	+1398.42
-4/1, 01	+2616.44	+2621.08	+2621.08	+228.87	+231.67	+231.67	-10116.90	-10116.90	-10116.90
	-3139.99	-3139.99	-3140.01	-0.00	-0.00	+0.00	+1658.07	+1659.64	+1659.64
-4/1, 02	+2381.28	+2384.54	+2384.54	+1109.01	+1111.44	+1111.44	-10364.90	-10364.90	-10364.90
	-3139.99	-3139.99	-3140.01	+0.00	+0.00	+0.00	+2007.35	+2008.92	+2008.92
-4/1, 03	+1856.37	+1858.46	+1858.46	+1856.15	+1857.75	+1857.75	-10116.90	-10116.90	-10116.90
	-3139.99	-3139.99	-3140.01	-0.00	+0.00	-0.03	+2355.93	+2357.49	+2357.49
-4/1, 04	+1109.03	+1110.30	+1110.30	+2379.52	+2379.95	+2379.95	-10364.00	-10364.00	-10364.00
	-3140.09	-3140.09	-3140.09	+0.00	-0.00	-0.00	+2704.23	+2705.80	+2705.80
-4/1, 05	+228.50	+229.40	+229.40	+2615.05	+2614.11	+2614.11	-10116.90	-10116.90	-10116.90
	-3139.99	-3139.99	-3140.01	-0.00	+0.00	+0.01	+3053.77	+3055.34	+3055.34
-4/1, 06	-681.25	-680.22	-680.22	+2535.01	+2532.63	+2532.63	-10364.90	-10364.90	-10364.90
	-3139.99	-3139.99	-3140.01	-0.00	-0.00	-0.02	-2879.00	-2877.43	-2877.43



All values relative to ideal, alternating x , y , z (mm) and ϕ_x , ϕ_y , ϕ_z (mrad)

Columns: PG + hardware, same + global adjustment, **same + track-based chambers**

(color applied only if chamber was aligned)

chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
-4/1, 07	-1505.97	-1504.34	-1504.34	+2150.16	+2146.49	+2146.49	-10116.90	-10116.90	-10116.90
	-3139.99	-3139.99	-3140.01	+0.00	+0.00	+0.00	-2531.31	-2529.74	-2529.74
-4/1, 08	-2152.25	-2149.60	-2149.60	+1503.39	+1498.71	+1498.71	-10364.90	-10364.90	-10364.90
	-3139.99	-3139.99	-3140.01	+0.00	+0.00	-0.00	-2180.73	-2179.17	-2179.17
-4/1, 09	-2538.22	-2534.28	-2534.28	+677.60	+672.32	+672.32	-10116.90	-10116.90	-10116.90
	-3139.99	-3139.99	-3140.01	-0.00	-0.00	-0.01	-1831.44	-1829.88	-1829.88
-4/1, 10	-2616.72	-2611.35	-2611.35	-230.56	-235.97	-235.97	-10364.90	-10364.90	-10364.90
	-3139.99	-3139.99	-3140.01	+0.00	-0.00	-0.00	-1483.45	-1481.89	-1481.89
-4/1, 11	-2380.27	-2373.52	-2373.52	-1112.19	-1117.22	-1117.22	-10116.90	-10116.90	-10116.90
	-3139.99	-3139.99	-3140.01	-0.00	+0.00	+0.00	-1134.08	-1132.52	-1132.52
-4/1, 12	-1856.48	-1848.56	-1848.56	-1859.21	-1863.42	-1863.42	-10364.90	-10364.90	-10364.90
	-3139.99	-3139.99	-3140.01	+0.00	-0.00	-0.00	-784.77	-783.20	-783.20
-4/1, 13	-1109.05	-1100.31	-1100.31	-2381.75	-2384.79	-2384.79	-10116.90	-10116.90	-10116.90
	-3139.99	-3139.99	-3140.01	+0.00	+0.00	-0.01	-435.43	-433.86	-433.86
-4/1, 14	-228.31	-219.21	-219.21	-2617.56	-2619.22	-2619.22	-10365.90	-10365.90	-10365.90
	-3139.89	-3139.89	-3139.90	-0.00	+0.00	-0.00	-87.39	-85.82	-85.82
-4/1, 15	+680.28	+689.26	+689.26	-2536.50	-2536.73	-2536.73	-10116.90	-10116.90	-10116.90
	-3139.99	-3139.99	-3140.01	-0.00	+0.00	+0.00	+262.03	+263.59	+263.59
-4/1, 16	+1506.21	+1514.59	+1514.59	-2151.86	-2150.80	-2150.80	-10364.90	-10364.90	-10364.90
	-3139.99	-3139.99	-3140.01	+0.00	+0.00	+0.06	+610.75	+612.32	+612.32
-4/1, 17	+2152.17	+2159.54	+2159.54	-1505.93	-1503.85	-1503.85	-10116.90	-10116.90	-10116.90
	-3139.99	-3139.99	-3140.01	-0.00	+0.00	-0.00	+960.25	+961.81	+961.81
-4/1, 18	+2537.83	+2543.89	+2543.89	-679.56	-676.88	-676.88	-10364.90	-10364.90	-10364.90
	-3139.99	-3139.99	-3140.01	+0.00	-0.00	+0.00	+1310.02	+1311.59	+1311.59