



Finalized CRAFT-2009 CSC Alignment: Just the Numbers

Jim Pivarski

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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)

station, chamber	x or ϕ_x	y or ϕ_y	z or ϕ_z
+1/1, 01	+0.00 -1.62 -1.62	+0.00 +4.95 +4.95	+17.57 +17.57 +17.57
	+0.00 +0.00 +0.00	-0.00 -0.00 -0.00	-0.00 -0.17 -0.17
+1/1, 02	+0.00 -2.45 -2.45	+0.00 +4.54 +4.54	+19.44 +19.44 +19.44
	+0.00 +0.00 +0.00	-0.00 -0.00 -0.00	-0.00 -0.17 -0.17
+1/1, 03	+0.00 -3.20 -3.20	+0.00 +3.99 +3.99	+19.44 +19.44 +19.44
	+0.00 +0.00 +0.00	-0.00 -0.00 -0.00	-0.00 -0.17 -0.17
+1/1, 04	+0.00 -3.84 -3.84	+0.00 +3.32 +3.32	+17.57 +17.57 +17.57
	+0.00 +0.00 +0.00	-0.00 -0.00 -0.00	-0.00 -0.17 -0.17
+1/1, 05	+0.00 -4.36 -4.36	+0.00 +2.55 +2.55	+17.57 +17.57 +17.57
	+0.00 +0.00 +0.00	-0.00 -0.00 -0.00	-0.00 -0.17 -0.17
+1/1, 06	+0.00 -4.73 -4.73	+0.00 +1.71 +1.71	+17.57 +17.57 +17.57
	+0.00 +0.00 +0.00	-0.00 -0.00 -0.00	-0.00 -0.17 -0.17
+1/1, 07	+0.00 -4.95 -4.95	+0.00 +0.81 +0.81	+17.57 +17.57 +17.57
	+0.00 +0.00 +0.00	+0.00 +0.00 +0.00	-0.00 -0.17 -0.17
+1/1, 08	+0.00 -5.01 -5.01	+0.00 -0.12 -0.12	+21.00 +21.00 +21.00
	+0.00 +0.00 +0.00	+0.00 +0.00 +0.00	-0.00 -0.17 -0.17
+1/1, 09	-0.00 -4.91 -4.91	+0.00 -1.04 -1.04	+21.00 +21.00 +21.00
	+0.00 +0.00 +0.00	+0.00 +0.00 +0.00	-0.00 -0.17 -0.17
+1/1, 10	-0.00 -4.65 -4.65	+0.00 -1.93 -1.93	+17.57 +17.57 +17.57
	+0.00 +0.00 +0.00	+0.00 +0.00 +0.00	-0.00 -0.17 -0.17
+1/1, 11	-0.00 -4.24 -4.24	+0.00 -2.76 -2.76	+17.57 +17.57 +17.57
	+0.00 +0.00 +0.00	+0.00 +0.00 +0.00	+0.00 -0.17 -0.17
+1/1, 12	-0.00 -3.69 -3.69	+0.00 -3.51 -3.51	+17.57 +17.57 +17.57
	+0.00 +0.00 +0.00	+0.00 +0.00 +0.00	+0.00 -0.17 -0.17



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)

station, chamber	x or ϕ_x	y or ϕ_y	z or ϕ_z
+1/1, 13	-0.00 -3.02 -3.02 +0.00 +0.00 +0.00	+0.00 -4.15 -4.15 +0.00 +0.00 +0.00	+17.57 +17.57 +17.57 +0.00 -0.17 -0.17
+1/1, 14	-0.00 -2.25 -2.25 +0.00 +0.00 +0.00	+0.00 -4.66 -4.66 +0.00 +0.00 +0.00	+22.18 +22.18 +22.18 +0.00 -0.17 -0.17
+1/1, 15	-0.00 -1.40 -1.40 +0.00 +0.00 +0.00	+0.00 -5.03 -5.03 +0.00 +0.00 +0.00	+22.18 +22.18 +22.18 +0.00 -0.17 -0.17
+1/1, 16	-0.00 -0.50 -0.50 +0.00 +0.00 +0.00	+0.00 -5.25 -5.25 +0.00 +0.00 +0.00	+17.57 +17.57 +17.57 +0.00 -0.17 -0.17
+1/1, 17	-0.00 +0.42 +0.42 -0.00 -0.00 -0.00	+0.00 -5.31 -5.31 +0.00 +0.00 +0.00	+17.57 +17.57 +17.57 +0.00 -0.17 -0.17
+1/1, 18	-0.00 +1.35 +1.35 -0.00 -0.00 -0.00	-0.00 -5.21 -5.21 +0.00 +0.00 +0.00	+17.57 +17.57 +17.57 -0.00 -0.17 -0.17
+1/1, 19	-0.00 +2.23 +2.23 -0.00 -0.00 -0.00	-0.00 -4.95 -4.95 +0.00 +0.00 +0.00	+17.57 +17.57 +17.57 -0.00 -0.17 -0.17
+1/1, 20	-0.00 +3.07 +3.07 -0.00 -0.00 -0.00	-0.00 -4.54 -4.54 +0.00 +0.00 +0.00	+17.47 +17.47 +17.47 -0.00 -0.17 -0.17
+1/1, 21	+0.00 +3.81 +3.81 -0.00 -0.00 -0.00	-0.00 -3.99 -3.99 +0.00 +0.00 +0.00	+17.47 +17.47 +17.47 -0.00 -0.17 -0.17
+1/1, 22	+0.00 +4.45 +4.45 -0.00 -0.00 -0.00	-0.00 -3.32 -3.32 -0.00 -0.00 -0.00	+17.57 +17.57 +17.57 -0.00 -0.17 -0.17
+1/1, 23	+0.00 +4.97 +4.97 -0.00 -0.00 -0.00	-0.00 -2.55 -2.55 -0.00 -0.00 -0.00	+17.57 +17.57 +17.57 -0.00 -0.17 -0.17
+1/1, 24	+0.00 +5.34 +5.34 -0.00 -0.00 -0.00	-0.00 -1.71 -1.71 -0.00 -0.00 -0.00	+17.57 +17.57 +17.57 -0.00 -0.17 -0.17

All the values

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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)

station, chamber	x or ϕ_x	y or ϕ_y	z or ϕ_z
+1/1, 25	+0.00 +5.56 +5.56	-0.00 -0.81 -0.81	+17.57 +17.57 +17.57
	-0.00 -0.00 -0.00	-0.00 -0.00 -0.00	-0.00 -0.17 -0.17
+1/1, 26	+0.00 +5.62 +5.62	-0.00 +0.12 +0.12	+14.05 +14.05 +14.05
	-0.00 -0.00 -0.00	-0.00 -0.00 -0.00	-0.00 -0.17 -0.17
+1/1, 27	+0.00 +5.52 +5.52	-0.00 +1.04 +1.04	+14.05 +14.05 +14.05
	-0.00 -0.00 -0.00	-0.00 -0.00 -0.00	-0.00 -0.17 -0.17
+1/1, 28	+0.00 +5.26 +5.26	-0.00 +1.93 +1.93	+17.57 +17.57 +17.57
	-0.00 -0.00 -0.00	-0.00 -0.00 -0.00	-0.00 -0.17 -0.17
+1/1, 29	+0.00 +4.85 +4.85	-0.00 +2.76 +2.76	+17.57 +17.57 +17.57
	-0.00 -0.00 -0.00	-0.00 -0.00 -0.00	-0.00 -0.17 -0.17
+1/1, 30	+0.00 +4.30 +4.30	+0.00 +3.51 +3.51	+17.57 +17.57 +17.57
	-0.00 -0.00 -0.00	-0.00 -0.00 -0.00	+0.00 -0.17 -0.17
+1/1, 31	+0.00 +3.63 +3.63	+0.00 +4.15 +4.15	+17.57 +17.57 +17.57
	-0.00 -0.00 -0.00	-0.00 -0.00 -0.00	+0.00 -0.17 -0.17
+1/1, 32	+0.00 +2.86 +2.86	+0.00 +4.66 +4.66	+11.30 +11.30 +11.30
	-0.00 -0.00 -0.00	-0.00 -0.00 -0.00	+0.00 -0.17 -0.17
+1/1, 33	+0.00 +2.01 +2.01	+0.00 +5.03 +5.03	+11.30 +11.30 +11.30
	+0.00 +0.00 +0.00	-0.00 -0.00 -0.00	+0.00 -0.17 -0.17
+1/1, 34	+0.00 +1.11 +1.11	+0.00 +5.25 +5.25	+17.57 +17.57 +17.57
	+0.00 +0.00 +0.00	-0.00 -0.00 -0.00	+0.00 -0.17 -0.17
+1/1, 35	+0.00 +0.19 +0.19	+0.00 +5.31 +5.31	+17.57 +17.57 +17.57
	+0.00 +0.00 +0.00	-0.00 -0.00 -0.00	+0.00 -0.17 -0.17
+1/1, 36	+0.00 -0.73 -0.73	+0.00 +5.21 +5.21	+17.57 +17.57 +17.57
	+0.00 +0.00 +0.00	-0.00 -0.00 -0.00	+0.00 -0.17 -0.17

All the values

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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)

station, chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
+1/2, 01	+0.00	+1.30	+1.30	+0.00	+5.05	+5.05	+5.04	+5.04	+5.04
	-4.37	-4.37	-4.37	+0.00	+0.00	+0.00	+0.18	+0.05	+0.05
+1/2, 02	+0.00	+0.41	+0.41	+0.00	+5.12	+5.12	+6.15	+6.15	+6.15
	-4.36	-4.36	-4.35	-0.00	-0.00	-0.00	-0.12	-0.25	-0.25
+1/2, 03	+0.00	-0.47	-0.47	+0.00	+5.03	+5.03	+5.04	+5.04	+5.04
	-4.37	-4.37	-4.37	+0.00	+0.00	+0.01	+0.18	+0.05	+0.05
+1/2, 04	+0.00	-1.33	-1.33	+0.00	+4.78	+4.78	+5.04	+5.04	+5.04
	-4.37	-4.37	-4.37	+0.00	+0.00	+0.00	+0.18	+0.05	+0.05
+1/2, 05	+0.00	-2.14	-2.14	+0.00	+4.39	+4.39	+5.04	+5.04	+5.04
	-4.37	-4.37	-4.37	+0.00	+0.00	-0.01	+0.18	+0.05	+0.05
+1/2, 06	+0.00	-2.86	-3.59	+0.00	+3.87	+3.87	+5.04	+5.04	+5.05
	-4.37	-4.37	-4.37	+0.00	+0.00	+1.07	+0.18	+0.05	+1.18
+1/2, 07	+0.00	-3.48	-2.05	+0.00	+3.23	+3.23	+5.04	+5.04	+5.04
	-4.37	-4.37	-4.36	+0.00	+0.00	+0.20	+0.18	+0.05	+0.71
+1/2, 08	+0.00	-3.98	-4.76	+0.00	+2.49	+2.49	+6.42	+6.42	+6.42
	-4.63	-4.63	-4.64	+0.00	+0.00	-2.12	+0.04	-0.09	+0.02
+1/2, 09	-0.00	-4.34	-4.03	+0.00	+1.68	+1.68	+5.04	+5.04	+5.04
	-4.37	-4.37	-4.36	+0.00	+0.00	+1.77	+0.18	+0.05	-1.37
+1/2, 10	-0.00	-4.56	-6.68	+0.00	+0.81	+0.81	+5.04	+5.04	+5.04
	-4.37	-4.37	-4.37	+0.00	+0.00	+0.85	+0.18	+0.05	-0.04
+1/2, 11	-0.00	-4.63	-4.63	+0.00	-0.08	-0.08	+5.04	+5.04	+5.04
	-4.37	-4.37	-4.37	+0.00	+0.00	-0.00	+0.18	+0.05	+0.05
+1/2, 12	-0.00	-4.53	-4.53	+0.00	-0.97	-0.97	+5.04	+5.04	+5.04
	-4.37	-4.37	-4.37	+0.00	+0.00	+0.01	+0.18	+0.05	+0.05

All the values

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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)

station, chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
+1/2, 13	-0.00	-4.29	-2.01	+0.00	-1.82	-1.82	+5.04	+5.04	+5.04
	-4.37	-4.37	-4.37	+0.00	+0.00	+0.61	+0.18	+0.05	-2.29
+1/2, 14	-0.00	-3.90	-5.42	+0.00	-2.63	-2.63	+6.06	+6.06	+6.06
	-4.89	-4.89	-4.90	+0.00	+0.00	+1.25	+0.59	+0.46	+0.41
+1/2, 15	-0.00	-3.38	-3.38	+0.00	-3.35	-3.35	+5.04	+5.04	+5.04
	-4.37	-4.37	-4.37	+0.00	+0.00	-0.01	+0.18	+0.05	+0.05
+1/2, 16	-0.00	-2.74	-2.74	+0.00	-3.97	-3.97	+5.04	+5.04	+5.04
	-4.37	-4.37	-4.37	+0.00	+0.00	-0.02	+0.18	+0.05	+0.05
+1/2, 17	-0.00	-2.00	-2.00	+0.00	-4.47	-4.47	+5.04	+5.04	+5.04
	-4.37	-4.37	-4.37	+0.00	+0.00	+0.01	+0.18	+0.05	+0.05
+1/2, 18	-0.00	-1.19	-1.19	-0.00	-4.84	-4.84	+5.04	+5.04	+5.04
	-4.37	-4.37	-4.37	+0.00	+0.00	-0.00	+0.18	+0.05	+0.05
+1/2, 19	-0.00	-0.32	-0.32	-0.00	-5.05	-5.05	+5.04	+5.04	+5.04
	-4.37	-4.37	-4.37	+0.00	+0.00	+0.00	+0.18	+0.05	+0.05
+1/2, 20	-0.00	+0.57	+0.57	-0.00	-5.12	-5.12	+5.31	+5.31	+5.31
	-3.74	-3.74	-3.73	+0.00	+0.00	+0.00	+0.44	+0.31	+0.31
+1/2, 21	+0.00	+1.46	+1.46	-0.00	-5.03	-5.03	+5.04	+5.04	+5.04
	-4.37	-4.37	-4.37	+0.00	+0.00	+0.01	+0.18	+0.05	+0.05
+1/2, 22	+0.00	+2.31	+2.31	-0.00	-4.78	-4.78	+5.04	+5.04	+5.04
	-4.37	-4.37	-4.37	+0.00	+0.00	+0.00	+0.18	+0.05	+0.05
+1/2, 23	+0.00	+3.12	+6.48	-0.00	-4.39	-4.39	+5.04	+5.04	+5.04
	-4.37	-4.37	-4.36	+0.00	+0.00	-0.81	+0.18	+0.05	+1.00
+1/2, 24	+0.00	+3.84	+3.84	-0.00	-3.87	-3.87	+5.04	+5.04	+5.04
	-4.37	-4.37	-4.37	+0.00	+0.00	+0.01	+0.18	+0.05	+0.05

All the values

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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)

station, chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
+1/2, 25	+0.00	+4.46	+5.79	-0.00	-3.23	-3.23	+5.04	+5.04	+5.04
	-4.37	-4.37	-4.37	+0.00	+0.00	+0.69	+0.18	+0.05	+0.87
+1/2, 26	+0.00	+4.96	+3.35	-0.00	-2.49	-2.49	+2.57	+2.57	+2.58
	-4.47	-4.47	-4.49	+0.00	+0.00	+2.44	+0.04	-0.09	+0.14
+1/2, 27	+0.00	+5.33	+7.52	-0.00	-1.68	-1.68	+5.04	+5.04	+5.05
	-4.37	-4.37	-4.36	+0.00	+0.00	-2.13	+0.18	+0.05	-1.64
+1/2, 28	+0.00	+5.54	+4.10	-0.00	-0.81	-0.81	+5.04	+5.04	+5.05
	-4.37	-4.37	-4.37	+0.00	+0.00	+3.22	+0.18	+0.05	+0.47
+1/2, 29	+0.00	+5.61	+6.18	-0.00	+0.08	+0.08	+5.04	+5.04	+5.05
	-4.37	-4.37	-4.37	+0.00	+0.00	+2.23	+0.18	+0.05	-1.13
+1/2, 30	+0.00	+5.52	+5.64	+0.00	+0.97	+0.97	+5.04	+5.04	+5.04
	-4.37	-4.37	-4.37	+0.00	+0.00	+1.04	+0.18	+0.05	+1.09
+1/2, 31	+0.00	+5.27	+5.27	+0.00	+1.82	+1.82	+5.04	+5.04	+5.04
	-4.37	-4.37	-4.37	+0.00	+0.00	+0.01	+0.18	+0.05	+0.05
+1/2, 32	+0.00	+4.88	+5.11	+0.00	+2.63	+2.63	+3.75	+3.75	+3.75
	-4.12	-4.12	-4.11	+0.00	+0.00	-0.37	+0.09	-0.04	-0.77
+1/2, 33	+0.00	+4.36	+4.36	+0.00	+3.35	+3.35	+5.04	+5.04	+5.04
	-4.37	-4.37	-4.37	+0.00	+0.00	-0.01	+0.18	+0.05	+0.05
+1/2, 34	+0.00	+3.72	+3.72	+0.00	+3.97	+3.97	+5.04	+5.04	+5.04
	-4.37	-4.37	-4.37	+0.00	+0.00	-0.00	+0.18	+0.05	+0.05
+1/2, 35	+0.00	+2.98	+2.98	+0.00	+4.47	+4.47	+5.04	+5.04	+5.04
	-4.37	-4.37	-4.37	+0.00	+0.00	+0.01	+0.18	+0.05	+0.05
+1/2, 36	+0.00	+2.17	+2.17	+0.00	+4.84	+4.84	+5.04	+5.04	+5.04
	-4.37	-4.37	-4.37	+0.00	+0.00	-0.00	+0.18	+0.05	+0.05

All the values

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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)

station, chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
+1/3, 01	-1.16	+2.17	+2.17	+1.57	+5.93	+5.93	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	+0.00	+0.00	-0.00	+0.33	+0.32	+0.32
+1/3, 02	-1.86	+0.66	+0.66	+0.98	+5.83	+5.83	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	-0.00	+0.00	+0.00	+0.28	+0.26	+0.26
+1/3, 03	-1.50	+0.14	+0.14	+1.98	+7.18	+7.18	+3.18	+3.18	+3.18
	-2.43	-2.43	-2.44	+0.00	+0.00	-0.00	+0.80	+0.78	+0.78
+1/3, 04	-1.31	-0.60	-0.60	+1.92	+7.30	+7.30	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	-0.00	-0.00	-0.02	-0.25	-0.27	-0.27
+1/3, 05	-0.60	-0.83	-0.83	+1.99	+7.40	+7.40	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	+0.00	-0.00	+0.03	+0.79	+0.78	+0.78
+1/3, 06	-1.64	-2.80	-2.80	+1.45	+6.72	+6.72	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	+0.00	-0.00	+0.04	+0.46	+0.44	+0.44
+1/3, 07	-0.31	-2.37	-2.37	-0.12	+4.85	+4.85	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	-0.00	+0.00	-0.02	+0.71	+0.69	+0.69
+1/3, 08	+0.00	-2.89	-2.89	+0.00	+4.51	+4.51	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	-0.00	-0.00	+0.00	+0.00	-0.02	-0.02
+1/3, 09	-0.00	-3.62	-3.62	+0.00	+3.92	+3.92	+4.71	+4.71	+4.71
	-1.85	-1.85	-1.86	-0.00	-0.00	-0.00	+0.00	-0.02	-0.02
+1/3, 10	-0.00	-4.25	-4.25	+0.00	+3.22	+3.22	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	-0.00	-0.00	-0.00	+0.00	-0.02	-0.02
+1/3, 11	-0.00	-4.74	-4.74	+0.00	+2.41	+2.41	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	-0.00	-0.00	+0.01	+0.00	-0.02	-0.02
+1/3, 12	+0.42	-4.66	-4.66	+1.10	+2.63	+2.63	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	-0.00	+0.00	-0.00	+0.45	+0.43	+0.43

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)

station, chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
+1/3, 13	-0.04	-5.32	-5.32	+0.83	+1.44	+1.44	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	+0.00	+0.00	-0.02	-0.50	-0.52	-0.52
+1/3, 14	+0.96	-4.33	-4.33	+1.00	+0.66	+0.66	+3.61	+3.61	+3.61
	-0.89	-0.89	-0.91	+0.00	-0.00	-0.05	+0.32	+0.30	+0.30
+1/3, 15	-0.03	-5.19	-5.19	+2.24	+0.96	+0.96	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	+0.00	+0.00	+0.04	+0.51	+0.50	+0.50
+1/3, 16	+0.16	-4.69	-4.69	+0.60	-1.57	-1.57	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	-0.00	-0.00	+0.00	-0.22	-0.24	-0.24
+1/3, 17	+1.40	-3.00	-3.00	+1.13	-1.87	-1.87	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	-0.00	+0.00	-0.02	-1.03	-1.05	-1.05
+1/3, 18	+0.88	-2.94	-2.94	+1.89	-1.84	-1.84	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	-0.00	-0.00	-0.00	-0.42	-0.43	-0.43
+1/3, 19	+0.44	-2.66	-2.66	+2.02	-2.34	-2.34	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	+0.00	+0.00	+0.00	-1.05	-1.07	-1.07
+1/3, 20	-0.15	-2.45	-2.45	+2.65	-2.20	-2.20	+0.85	+0.85	+0.85
	-2.04	-2.04	-2.04	-0.00	+0.00	+0.01	-1.12	-1.14	-1.14
+1/3, 21	-0.24	-1.65	-1.65	+2.61	-2.59	-2.59	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	+0.00	-0.00	-0.00	-0.11	-0.13	-0.13
+1/3, 22	-0.80	-1.29	-1.29	+1.81	-3.58	-3.58	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	+0.00	+0.00	+0.00	+0.41	+0.39	+0.39
+1/3, 23	-0.72	-0.27	-0.27	+2.28	-3.13	-3.13	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	-0.00	-0.00	-0.04	+0.86	+0.85	+0.85
+1/3, 24	-1.24	+0.15	+0.15	+0.37	-4.90	-4.90	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	+0.00	-0.00	+0.04	+0.85	+0.83	+0.83

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)

station, chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
+1/3, 25	-1.36	+0.92	+0.92	-0.89	-5.86	-5.86	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	+0.00	+0.00	-0.00	-0.53	-0.55	-0.55
+1/3, 26	-0.81	+2.30	+7.41	+0.76	-3.76	-3.76	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	+0.00	-0.00	+0.84	-0.26	-0.28	-0.26
+1/3, 27	+0.53	+4.38	+4.38	+2.11	-1.81	-1.81	+0.62	+0.62	+0.62
	-0.55	-0.55	-0.60	+0.00	+0.00	-0.02	+0.61	+0.59	+0.59
+1/3, 28	+0.00	+4.47	+4.75	-0.00	-3.22	-3.22	+2.59	+2.59	+2.60
	-1.33	-1.33	-1.33	-0.00	-0.00	-3.88	-0.00	-0.02	+0.17
+1/3, 29	+0.70	+5.67	+5.67	-2.57	-4.98	-4.98	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	-0.00	-0.00	+0.01	+0.04	+0.02	+0.02
+1/3, 30	+0.23	+5.54	+5.54	+0.27	-1.26	-1.26	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	+0.00	-0.00	-0.00	-0.13	-0.15	-0.15
+1/3, 31	+1.00	+6.50	+6.50	-0.46	-1.07	-1.07	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	-0.00	+0.00	+0.04	-1.21	-1.23	-1.23
+1/3, 32	+0.59	+6.11	+7.30	+0.67	+1.01	+1.01	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	-0.00	-0.00	+2.90	-0.60	-0.62	-2.15
+1/3, 33	-0.83	+4.55	+4.55	+1.05	+2.33	+2.33	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	+0.00	-0.00	-0.03	+0.21	+0.19	+0.19
+1/3, 34	+0.46	+5.54	+5.54	+1.58	+3.75	+3.75	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	-0.00	-0.00	+0.00	-0.25	-0.27	-0.27
+1/3, 35	-0.03	+4.59	+4.59	+0.49	+3.49	+3.49	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	-0.00	+0.00	+0.00	+0.41	+0.39	+0.39
+1/3, 36	-0.49	+3.55	+3.55	+1.73	+5.46	+5.46	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	-0.00	+0.00	-0.00	+0.20	+0.18	+0.18



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)

station, chamber	x or ϕ_x	y or ϕ_y	z or ϕ_z
+1/4, 01	+0.00 -1.62 -1.62	+0.00 +4.95 +4.95	+17.57 +17.57 +17.57
	+0.00 +0.00 +0.00	-0.00 -0.00 -0.00	-0.00 -0.17 -0.17
+1/4, 02	+0.00 -2.45 -2.45	+0.00 +4.54 +4.54	+19.44 +19.44 +19.44
	+0.00 +0.00 +0.00	-0.00 -0.00 -0.00	-0.00 -0.17 -0.17
+1/4, 03	+0.00 -3.20 -3.20	+0.00 +3.99 +3.99	+19.44 +19.44 +19.44
	+0.00 +0.00 +0.00	-0.00 -0.00 -0.00	-0.00 -0.17 -0.17
+1/4, 04	+0.00 -3.84 -3.84	+0.00 +3.32 +3.32	+17.57 +17.57 +17.57
	+0.00 +0.00 +0.00	-0.00 -0.00 -0.00	-0.00 -0.17 -0.17
+1/4, 05	+0.00 -4.36 -4.36	+0.00 +2.55 +2.55	+17.57 +17.57 +17.57
	+0.00 +0.00 +0.00	-0.00 -0.00 -0.00	-0.00 -0.17 -0.17
+1/4, 06	+0.00 -4.73 -4.73	+0.00 +1.71 +1.71	+17.57 +17.57 +17.57
	+0.00 +0.00 +0.00	-0.00 -0.00 -0.00	-0.00 -0.17 -0.17
+1/4, 07	+0.00 -4.95 -4.95	+0.00 +0.81 +0.81	+17.57 +17.57 +17.57
	+0.00 +0.00 +0.00	+0.00 +0.00 +0.00	-0.00 -0.17 -0.17
+1/4, 08	+0.00 -5.01 -5.01	+0.00 -0.12 -0.12	+21.00 +21.00 +21.00
	+0.00 +0.00 +0.00	+0.00 +0.00 +0.00	-0.00 -0.17 -0.17
+1/4, 09	-0.00 -4.91 -4.91	+0.00 -1.04 -1.04	+21.00 +21.00 +21.00
	+0.00 +0.00 +0.00	+0.00 +0.00 +0.00	-0.00 -0.17 -0.17
+1/4, 10	-0.00 -4.65 -4.65	+0.00 -1.93 -1.93	+17.57 +17.57 +17.57
	+0.00 +0.00 +0.00	+0.00 +0.00 +0.00	-0.00 -0.17 -0.17
+1/4, 11	-0.00 -4.24 -4.24	+0.00 -2.76 -2.76	+17.57 +17.57 +17.57
	+0.00 +0.00 +0.00	+0.00 +0.00 +0.00	+0.00 -0.17 -0.17
+1/4, 12	-0.00 -3.69 -3.69	+0.00 -3.51 -3.51	+17.57 +17.57 +17.57
	+0.00 +0.00 +0.00	+0.00 +0.00 +0.00	+0.00 -0.17 -0.17



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)

station, chamber	x or ϕ_x	y or ϕ_y	z or ϕ_z
+1/4, 13	-0.00 -3.02 -3.02	+0.00 -4.15 -4.15	+17.57 +17.57 +17.57
	+0.00 +0.00 +0.00	+0.00 +0.00 +0.00	+0.00 -0.17 -0.17
+1/4, 14	-0.00 -2.25 -2.25	+0.00 -4.66 -4.66	+22.18 +22.18 +22.18
	+0.00 +0.00 +0.00	+0.00 +0.00 +0.00	+0.00 -0.17 -0.17
+1/4, 15	-0.00 -1.40 -1.40	+0.00 -5.03 -5.03	+22.18 +22.18 +22.18
	+0.00 +0.00 +0.00	+0.00 +0.00 +0.00	+0.00 -0.17 -0.17
+1/4, 16	-0.00 -0.50 -0.50	+0.00 -5.25 -5.25	+17.57 +17.57 +17.57
	+0.00 +0.00 +0.00	+0.00 +0.00 +0.00	+0.00 -0.17 -0.17
+1/4, 17	-0.00 +0.42 +0.42	+0.00 -5.31 -5.31	+17.57 +17.57 +17.57
	-0.00 -0.00 -0.00	+0.00 +0.00 +0.00	+0.00 -0.17 -0.17
+1/4, 18	-0.00 +1.35 +1.35	-0.00 -5.21 -5.21	+17.57 +17.57 +17.57
	-0.00 -0.00 -0.00	+0.00 +0.00 +0.00	-0.00 -0.17 -0.17
+1/4, 19	-0.00 +2.23 +2.23	-0.00 -4.95 -4.95	+17.57 +17.57 +17.57
	-0.00 -0.00 -0.00	+0.00 +0.00 +0.00	-0.00 -0.17 -0.17
+1/4, 20	-0.00 +3.07 +3.07	-0.00 -4.54 -4.54	+17.47 +17.47 +17.47
	-0.00 -0.00 -0.00	+0.00 +0.00 +0.00	-0.00 -0.17 -0.17
+1/4, 21	+0.00 +3.81 +3.81	-0.00 -3.99 -3.99	+17.47 +17.47 +17.47
	-0.00 -0.00 -0.00	+0.00 +0.00 +0.00	-0.00 -0.17 -0.17
+1/4, 22	+0.00 +4.45 +4.45	-0.00 -3.32 -3.32	+17.57 +17.57 +17.57
	-0.00 -0.00 -0.00	-0.00 -0.00 -0.00	-0.00 -0.17 -0.17
+1/4, 23	+0.00 +4.97 +4.97	-0.00 -2.55 -2.55	+17.57 +17.57 +17.57
	-0.00 -0.00 -0.00	-0.00 -0.00 -0.00	-0.00 -0.17 -0.17
+1/4, 24	+0.00 +5.34 +5.34	-0.00 -1.71 -1.71	+17.57 +17.57 +17.57
	-0.00 -0.00 -0.00	-0.00 -0.00 -0.00	-0.00 -0.17 -0.17

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)

station, chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
+1/4, 25	+0.00	+5.56	+5.56	-0.00	-0.81	-0.81	+17.57	+17.57	+17.57
	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.17	-0.17
+1/4, 26	+0.00	+5.62	+5.62	-0.00	+0.12	+0.12	+14.05	+14.05	+14.05
	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.17	-0.17
+1/4, 27	+0.00	+5.52	+5.52	-0.00	+1.04	+1.04	+14.05	+14.05	+14.05
	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.17	-0.17
+1/4, 28	+0.00	+5.26	+5.26	-0.00	+1.93	+1.93	+17.57	+17.57	+17.57
	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.17	-0.17
+1/4, 29	+0.00	+4.85	+4.85	-0.00	+2.76	+2.76	+17.57	+17.57	+17.57
	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.17	-0.17
+1/4, 30	+0.00	+4.30	+4.30	+0.00	+3.51	+3.51	+17.57	+17.57	+17.57
	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	+0.00	-0.17	-0.17
+1/4, 31	+0.00	+3.63	+3.63	+0.00	+4.15	+4.15	+17.57	+17.57	+17.57
	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	+0.00	-0.17	-0.17
+1/4, 32	+0.00	+2.86	+2.86	+0.00	+4.66	+4.66	+11.30	+11.30	+11.30
	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	+0.00	-0.17	-0.17
+1/4, 33	+0.00	+2.01	+2.01	+0.00	+5.03	+5.03	+11.30	+11.30	+11.30
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	+0.00	-0.17	-0.17
+1/4, 34	+0.00	+1.11	+1.11	+0.00	+5.25	+5.25	+17.57	+17.57	+17.57
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	+0.00	-0.17	-0.17
+1/4, 35	+0.00	+0.19	+0.19	+0.00	+5.31	+5.31	+17.57	+17.57	+17.57
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	+0.00	-0.17	-0.17
+1/4, 36	+0.00	-0.73	-0.73	+0.00	+5.21	+5.21	+17.57	+17.57	+17.57
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	+0.00	-0.17	-0.17

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)

station, chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
+2/1, 01	-1.33	+1.00	+1.00	+1.45	+6.19	+6.19	+1.01	+1.01	+1.01
	-1.90	-1.90	-1.89	-0.00	-0.00	+0.00	+0.19	+0.01	+0.01
+2/1, 02	-1.48	-0.88	-0.88	+0.49	+5.59	+5.59	+3.71	+3.71	+3.71
	-1.70	-1.70	-1.69	-0.00	-0.00	-0.01	-1.47	-1.64	-1.64
+2/1, 03	-0.08	-1.24	-1.16	-0.76	+4.09	+4.09	+1.01	+1.01	+1.01
	-1.90	-1.90	-1.90	+0.00	-0.00	-5.85	-0.89	-1.07	-0.16
+2/1, 04	+0.00	-2.72	-2.72	+0.00	+4.01	+4.01	+1.01	+1.01	+1.01
	-1.90	-1.90	-1.89	+0.00	+0.00	+0.02	-0.00	-0.18	-0.18
+2/1, 05	+0.23	-3.68	-3.68	-0.10	+2.59	+2.59	+1.01	+1.01	+1.01
	-1.90	-1.90	-1.89	-0.00	-0.00	-0.00	+0.18	-0.00	-0.00
+2/1, 06	-0.10	-4.67	-4.67	-0.98	+0.07	+0.07	+1.01	+1.01	+1.01
	-1.90	-1.90	-1.89	+0.00	-0.00	-0.03	-0.38	-0.56	-0.56
+2/1, 07	+0.35	-4.27	-4.27	-0.97	-1.70	-1.70	+1.01	+1.01	+1.01
	-1.90	-1.90	-1.89	-0.00	+0.00	-0.01	-0.16	-0.34	-0.34
+2/1, 08	-0.04	-4.10	-4.10	-1.08	-3.49	-3.49	-0.89	-0.89	-0.89
	-2.20	-2.20	-2.21	+0.00	+0.00	-0.02	-0.53	-0.71	-0.71
+2/1, 09	+1.43	-1.54	-1.54	-0.29	-4.10	-4.10	+1.01	+1.01	+1.01
	-1.90	-1.90	-1.89	-0.00	+0.00	+0.01	-0.78	-0.96	-0.96
+2/1, 10	+0.33	-1.14	-1.14	+1.71	-3.02	-3.02	+3.01	+3.01	+3.01
	-1.70	-1.70	-1.69	+0.00	+0.00	+0.00	-0.32	-0.50	-0.50
+2/1, 11	+0.04	+0.31	-4.50	+0.48	-4.62	-4.61	+1.01	+1.01	+1.02
	-1.90	-1.90	-1.92	-0.00	+0.00	-2.88	-0.17	-0.35	+4.99
+2/1, 12	-0.46	+1.57	+1.57	+1.29	-3.55	-3.55	+1.01	+1.01	+1.01
	-1.90	-1.90	-1.89	-0.00	+0.00	+0.02	+0.42	+0.24	+0.24

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)

station, chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
+2/1, 13	-0.02	+3.57	+3.57	+1.15	-2.86	-2.86	+1.01	+1.01	+1.01
	-1.90	-1.90	-1.89	-0.00	+0.00	-0.01	+0.00	-0.18	-0.18
+2/1, 14	+0.64	+5.41	+5.41	+3.40	+0.71	+0.71	-0.09	-0.09	-0.09
	-1.90	-1.90	-1.89	-0.00	+0.00	-0.01	-1.22	-1.40	-1.40
+2/1, 15	+0.08	+5.51	+6.28	+0.51	-0.54	-0.54	+1.01	+1.01	+1.01
	-1.90	-1.90	-1.88	+0.00	+0.00	-3.83	+0.57	+0.39	+1.17
+2/1, 16	+0.25	+5.73	+5.73	-1.13	-0.41	-0.41	-0.99	-0.99	-0.99
	-1.90	-1.90	-1.89	-0.00	-0.00	+0.01	+0.32	+0.14	+0.14
+2/1, 17	+0.00	+4.93	+4.93	+0.00	+2.41	+2.41	+1.01	+1.01	+1.01
	-1.90	-1.90	-1.89	+0.00	+0.00	+0.01	-0.00	-0.18	-0.18
+2/1, 18	-0.24	+3.60	+3.60	-0.10	+3.71	+3.71	+1.01	+1.01	+1.01
	-1.90	-1.90	-1.89	+0.00	-0.00	-0.01	+0.13	-0.05	-0.05
+2/2, 01	+1.34	+4.64	+4.64	+1.85	+6.13	+6.13	-6.59	-6.59	-6.59
	-2.40	-2.40	-2.39	+0.00	+0.00	+0.00	-0.39	-0.29	-0.29
+2/2, 02	-0.00	+2.49	+2.49	-0.00	+4.89	+4.89	-6.79	-6.79	-6.79
	-2.40	-2.40	-2.39	+0.00	-0.00	-0.01	-0.00	+0.11	+0.11
+2/2, 03	-0.81	+0.79	+0.79	+2.37	+7.72	+7.72	-4.79	-4.79	-4.79
	-2.90	-2.90	-2.91	+0.00	-0.00	-0.01	+0.00	+0.11	+0.11
+2/2, 04	-0.00	+0.64	+0.64	-0.00	+5.64	+5.64	-6.79	-6.79	-6.79
	-2.40	-2.40	-2.39	+0.00	-0.00	-0.02	-0.00	+0.11	+0.11
+2/2, 05	-1.46	-1.82	+2.62	+0.29	+6.05	+6.05	-6.59	-6.59	-6.59
	-2.40	-2.40	-2.40	-0.00	-0.00	-0.31	+0.39	+0.50	+0.42
+2/2, 06	-1.85	-3.21	-2.46	-0.56	+5.15	+5.15	-6.79	-6.79	-6.79
	-2.40	-2.40	-2.39	-0.00	-0.00	-1.28	+0.56	+0.66	-2.05

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)

station, chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
+2/2, 07	-0.94	-3.29	-1.16	+0.38	+5.86	+5.86	-6.59	-6.59	-6.59
	-2.40	-2.40	-2.38	+0.00	-0.00	-1.71	-0.03	+0.08	-0.32
+2/2, 08	-0.94	-4.20	-3.68	-0.01	+5.08	+5.08	-7.39	-7.39	-7.39
	-2.90	-2.90	-2.90	-0.00	-0.00	-1.80	+0.22	+0.33	-1.37
+2/2, 09	-0.30	-4.41	-4.41	-0.46	+4.08	+4.08	-6.59	-6.59	-6.59
	-2.40	-2.40	-2.39	+0.00	+0.00	-0.00	+0.36	+0.47	+0.47
+2/2, 10	+1.07	-3.77	-5.38	-1.72	+2.14	+2.15	-6.79	-6.79	-6.79
	-2.40	-2.40	-2.40	-0.00	-0.00	+4.74	-0.81	-0.70	-2.75
+2/2, 11	+0.18	-5.27	-5.27	-0.32	+2.74	+2.74	-6.59	-6.59	-6.59
	-2.40	-2.40	-2.39	+0.00	+0.00	+0.01	-0.24	-0.13	-0.13
+2/2, 12	+2.41	-3.49	-4.73	-1.16	+1.01	+1.01	-6.79	-6.79	-6.79
	-2.40	-2.40	-2.39	-0.00	+0.00	+0.76	-0.87	-0.77	-0.58
+2/2, 13	+0.16	-6.04	-7.04	+0.39	+1.59	+1.59	-6.59	-6.59	-6.58
	-2.40	-2.40	-2.43	-0.00	-0.00	-8.05	-0.18	-0.07	+4.13
+2/2, 14	+1.97	-4.36	-4.36	-0.24	-0.03	-0.03	-6.79	-6.79	-6.79
	-2.40	-2.40	-2.39	+0.00	-0.00	-0.00	-0.47	-0.36	-0.36
+2/2, 15	+1.37	-4.90	-4.18	+1.45	+0.65	+0.65	-8.29	-8.29	-8.29
	-2.60	-2.60	-2.60	-0.00	-0.00	-2.99	-0.32	-0.22	+1.63
+2/2, 16	+0.00	-6.05	-5.55	-0.00	-1.78	-1.78	-6.79	-6.79	-6.79
	-2.40	-2.40	-2.39	-0.00	+0.00	+0.17	+0.00	+0.11	+0.38
+2/2, 17	+1.59	-4.06	-4.06	+0.03	-2.68	-2.68	-6.59	-6.59	-6.59
	-2.40	-2.40	-2.39	+0.00	+0.00	-0.00	-0.63	-0.52	-0.52
+2/2, 18	+1.86	-3.25	-3.25	+0.18	-3.36	-3.36	-6.79	-6.79	-6.79
	-2.40	-2.40	-2.39	+0.00	-0.00	-0.00	-0.69	-0.58	-0.58

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)

station, chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
+2/2, 19	+0.55	-3.87	-3.87	+1.38	-2.91	-2.91	-6.59	-6.59	-6.59
	-2.40	-2.40	-2.39	+0.00	+0.00	-0.00	-0.34	-0.24	-0.24
+2/2, 20	+1.65	-1.97	-1.97	+0.68	-4.20	-4.20	-5.69	-5.69	-5.69
	-2.30	-2.30	-2.29	-0.00	-0.00	-0.00	-0.41	-0.30	-0.30
+2/2, 21	+1.39	-1.33	-3.85	+1.08	-4.26	-4.26	-6.59	-6.59	-6.55
	-2.40	-2.40	-2.40	+0.00	-0.00	+2.83	-0.56	-0.45	+0.38
+2/2, 22	+1.32	-0.45	-0.45	-0.31	-5.95	-5.95	-6.79	-6.79	-6.79
	-2.40	-2.40	-2.39	-0.00	+0.00	+0.03	-0.77	-0.67	-0.67
+2/2, 23	+0.51	-0.26	-0.26	+1.01	-4.75	-4.75	-6.59	-6.59	-6.59
	-2.40	-2.40	-2.39	-0.00	+0.00	-0.00	-0.58	-0.48	-0.48
+2/2, 24	-0.13	+0.10	+0.10	+1.85	-3.86	-3.86	-6.79	-6.79	-6.79
	-2.40	-2.40	-2.39	+0.00	-0.00	+0.00	-0.30	-0.19	-0.19
+2/2, 25	-0.87	+0.34	+1.88	+0.38	-5.10	-5.10	-6.59	-6.59	-6.59
	-2.40	-2.40	-2.40	-0.00	+0.00	-3.39	+0.15	+0.26	+2.53
+2/2, 26	-0.09	+2.05	+2.27	-0.07	-5.16	-5.16	-6.79	-6.79	-6.79
	-2.40	-2.40	-2.38	-0.00	-0.00	+0.53	-0.47	-0.36	-0.94
+2/2, 27	+0.29	+3.27	+3.27	+0.26	-4.28	-4.28	-6.79	-6.79	-6.79
	-1.90	-1.90	-1.89	-0.00	-0.00	-0.01	+0.08	+0.19	+0.19
+2/2, 28	+0.17	+3.89	+2.56	+0.69	-3.17	-3.17	-6.79	-6.79	-6.79
	-2.40	-2.40	-2.39	-0.00	-0.00	+0.52	+0.26	+0.37	-0.60
+2/2, 29	-0.44	+3.88	+7.22	+0.42	-2.64	-2.64	-6.59	-6.59	-6.59
	-2.40	-2.40	-2.40	+0.00	-0.00	-1.36	+0.27	+0.38	+1.11
+2/2, 30	+0.58	+5.36	+6.19	+1.26	-0.90	-0.90	-6.79	-6.79	-6.79
	-2.40	-2.40	-2.41	+0.00	-0.00	-2.09	-0.08	+0.03	+1.66

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)

station, chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
+2/2, 31	-0.34	+4.73	+4.73	+0.46	-0.74	-0.74	-6.59	-6.59	-6.59
	-2.40	-2.40	-2.39	+0.00	+0.00	-0.02	+0.11	+0.21	+0.21
+2/2, 32	-0.69	+4.51	+3.11	+0.89	+0.69	+0.69	-7.39	-7.39	-7.39
	-2.00	-2.00	-2.01	+0.00	-0.00	-1.74	-0.60	-0.49	-2.53
+2/2, 33	-0.00	+5.15	+5.39	-0.00	+0.80	+0.80	-6.59	-6.59	-6.59
	-2.40	-2.40	-2.39	-0.00	-0.00	-0.08	+0.00	+0.11	+0.68
+2/2, 34	-0.06	+4.86	+4.86	+1.27	+3.05	+3.05	-6.79	-6.79	-6.79
	-2.40	-2.40	-2.39	+0.00	+0.00	+0.01	-0.33	-0.22	-0.22
+2/2, 35	-0.00	+4.53	+4.53	-0.00	+2.70	+2.70	-6.59	-6.59	-6.59
	-2.40	-2.40	-2.39	-0.00	+0.00	+0.01	+0.00	+0.11	+0.11
+2/2, 36	-0.00	+3.98	+3.98	-0.00	+3.55	+3.55	-6.79	-6.79	-6.79
	-2.40	-2.40	-2.39	-0.00	-0.00	-0.01	+0.00	+0.11	+0.11
+3/1, 01	+1.25	-2.59	-2.59	+0.62	+6.05	+6.05	-4.30	-4.30	-4.30
	+2.20	+2.20	+2.21	-0.00	+0.00	+0.00	-0.31	-0.36	-0.36
+3/1, 02	+1.56	-0.18	-0.18	+0.29	+6.75	+6.75	-4.19	-4.19	-4.19
	+2.60	+2.60	+2.61	+0.00	-0.00	-0.00	-1.24	-1.29	-1.29
+3/1, 03	+1.51	+2.09	+2.09	-0.80	+5.91	+5.91	-4.30	-4.30	-4.30
	+2.20	+2.20	+2.21	-0.00	-0.00	-0.00	+0.63	+0.58	+0.58
+3/1, 04	-0.42	+2.43	+2.43	-2.02	+4.13	+4.13	-5.29	-5.29	-5.29
	+2.60	+2.60	+2.61	-0.00	-0.00	-0.00	-0.58	-0.63	-0.63
+3/1, 05	+0.13	+4.91	+4.91	-1.52	+3.32	+3.32	-4.30	-4.30	-4.30
	+2.20	+2.20	+2.21	+0.00	+0.00	-0.00	+0.88	+0.83	+0.83
+3/1, 06	+0.04	+6.20	+6.20	-1.85	+1.11	+1.11	-4.30	-4.30	-4.30
	+2.20	+2.20	+2.21	+0.00	+0.00	-0.03	+0.12	+0.07	+0.07

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)

station, chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
+3/1, 07	+0.27	+7.08	+7.08	-1.52	-0.80	-0.80	-4.30	-4.30	-4.30
	+2.20	+2.20	+2.21	-0.00	+0.00	-0.02	+0.89	+0.84	+0.84
+3/1, 08	+0.37	+7.02	+7.02	-2.17	-3.78	-3.78	-3.39	-3.39	-3.39
	+1.80	+1.80	+1.79	-0.00	+0.00	-0.02	-0.13	-0.18	-0.18
+3/1, 09	-0.41	+5.30	+5.30	-0.16	-3.91	-3.91	-4.30	-4.30	-4.30
	+2.20	+2.20	+2.21	+0.00	+0.00	-0.01	+0.43	+0.38	+0.38
+3/1, 10	+0.00	+4.09	+4.09	-0.00	-5.43	-5.43	-3.89	-3.89	-3.89
	+2.20	+2.20	+2.21	+0.00	+0.00	+0.00	-0.00	-0.05	-0.05
+3/1, 11	+0.00	+2.00	+2.00	-0.00	-6.46	-6.46	-4.30	-4.30	-4.30
	+2.20	+2.20	+2.21	+0.00	+0.00	-0.01	-0.00	-0.05	-0.05
+3/1, 12	+0.73	+0.41	+0.41	+0.46	-6.25	-6.25	-4.30	-4.30	-4.30
	+2.20	+2.20	+2.21	+0.00	-0.00	-0.00	+0.81	+0.75	+0.75
+3/1, 13	+0.23	-2.37	-2.37	+0.26	-5.88	-5.88	-4.30	-4.30	-4.30
	+2.20	+2.20	+2.21	+0.00	+0.00	-0.01	+0.29	+0.24	+0.24
+3/1, 14	+0.98	-3.55	-3.55	+0.17	-4.67	-4.67	-5.79	-5.79	-5.79
	+2.00	+2.00	+2.01	-0.00	+0.00	-0.00	+0.63	+0.58	+0.58
+3/1, 15	+0.82	-5.08	-5.08	+1.53	-1.43	-1.43	-4.30	-4.30	-4.30
	+2.20	+2.20	+2.21	+0.00	+0.00	-0.03	-0.12	-0.17	-0.17
+3/1, 16	+0.28	-6.28	-6.28	+0.93	+0.21	+0.21	-3.39	-3.39	-3.39
	+2.20	+2.20	+2.21	-0.00	+0.00	-0.02	-0.24	-0.29	-0.29
+3/1, 17	+0.94	-5.46	-5.46	+0.92	+2.53	+2.53	-4.30	-4.30	-4.30
	+2.20	+2.20	+2.21	+0.00	-0.00	+0.02	-0.58	-0.63	-0.63
+3/1, 18	+0.80	-4.66	-4.66	+0.42	+4.17	+4.17	-4.30	-4.30	-4.30
	+2.20	+2.20	+2.21	+0.00	+0.00	-0.01	-0.79	-0.84	-0.84

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)

station, chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
+3/2, 01	+0.00	-2.95	-2.95	+0.00	+4.01	+4.01	+2.97	+2.97	+2.97
	+2.60	+2.60	+2.61	+0.00	+0.00	-0.00	+0.00	-0.37	-0.37
+3/2, 02	+3.42	+1.24	+1.24	+1.65	+6.44	+6.44	+3.58	+3.58	+3.58
	+2.60	+2.60	+2.61	+0.00	+0.00	-0.00	-0.61	-0.97	-0.97
+3/2, 03	+2.43	+1.14	+1.14	+2.35	+7.79	+7.79	+3.01	+3.01	+3.01
	+2.30	+2.30	+2.29	-0.00	-0.00	-0.01	-0.66	-1.03	-1.03
+3/2, 04	+1.69	+1.39	+1.39	+1.04	+6.95	+6.95	+3.58	+3.58	+3.58
	+2.60	+2.60	+2.61	+0.00	+0.00	-0.02	-0.43	-0.80	-0.80
+3/2, 05	+2.06	+2.82	+2.82	+0.58	+6.79	+6.79	+2.97	+2.97	+2.97
	+2.60	+2.60	+2.61	-0.00	+0.00	+0.00	-0.42	-0.78	-0.78
+3/2, 06	+0.77	+2.63	+2.63	+1.47	+7.79	+7.79	+3.58	+3.58	+3.58
	+2.60	+2.60	+2.61	-0.00	-0.00	-0.02	-0.16	-0.53	-0.53
+3/2, 07	+0.84	+3.80	-1.16	-0.94	+5.30	+5.30	+2.97	+2.97	+2.97
	+2.60	+2.60	+2.62	-0.00	-0.00	-1.27	-0.25	-0.61	-1.33
+3/2, 08	+0.74	+4.77	+5.30	+0.13	+6.09	+6.09	+3.31	+3.31	+3.31
	+3.10	+3.10	+3.10	-0.00	-0.00	-2.55	+0.86	+0.49	-0.88
+3/2, 09	+0.71	+5.74	+5.74	-0.25	+5.25	+5.25	+2.97	+2.97	+2.97
	+2.60	+2.60	+2.61	+0.00	+0.00	-0.00	-0.06	-0.42	-0.42
+3/2, 10	+0.01	+5.95	+6.46	-1.09	+3.79	+3.79	+3.58	+3.58	+3.58
	+2.60	+2.60	+2.61	-0.00	-0.00	-1.28	-0.23	-0.60	+0.37
+3/2, 11	+0.13	+6.86	+5.93	+0.58	+4.69	+4.69	+2.97	+2.97	+2.97
	+2.60	+2.60	+2.62	-0.00	-0.00	+3.59	-0.15	-0.52	+0.96
+3/2, 12	+0.23	+7.60	+7.60	+0.08	+3.29	+3.29	+3.58	+3.58	+3.58
	+2.60	+2.60	+2.61	-0.00	+0.00	+0.01	+0.27	-0.09	-0.09

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)

station, chamber	x or ϕ_x	y or ϕ_y	z or ϕ_z
+3/2, 13	-1.48 +6.36 +4.70	+0.41 +2.64 +2.64	+2.97 +2.97 +2.97
	+2.60 +2.60 +2.60	-0.00 +0.00 -3.25	+0.30 -0.06 -0.99
+3/2, 14	-0.91 +7.23 +9.98	-0.33 +0.84 +0.83	+3.58 +3.58 +3.56
	+2.60 +2.60 +2.60	-0.00 -0.00 +3.05	-0.00 -0.37 -2.39
+3/2, 15	-0.00 +8.25 +8.25	+0.00 +0.07 +0.07	+4.12 +4.12 +4.12
	+2.70 +2.70 +2.70	-0.00 -0.00 +0.01	+0.00 -0.37 -0.37
+3/2, 16	-1.56 +6.60 +6.61	-0.52 -1.55 -1.55	+3.58 +3.58 +3.58
	+2.60 +2.60 +2.61	-0.00 +0.00 -0.88	-0.02 -0.39 -1.27
+3/2, 17	-1.76 +6.13 +6.13	+0.33 -1.77 -1.77	+2.97 +2.97 +2.97
	+2.60 +2.60 +2.61	+0.00 -0.00 +0.00	+0.57 +0.20 +0.20
+3/2, 18	-1.36 +6.08 +6.08	-0.50 -3.60 -3.60	+3.58 +3.58 +3.58
	+2.60 +2.60 +2.61	-0.00 -0.00 +0.00	+0.29 -0.08 -0.08
+3/2, 19	-1.05 +5.77 +5.77	+0.49 -3.52 -3.52	+2.97 +2.97 +2.97
	+2.60 +2.60 +2.61	+0.00 +0.00 +0.00	-0.27 -0.63 -0.63
+3/2, 20	-1.25 +4.79 +4.79	+0.19 -4.60 -4.60	+3.71 +3.71 +3.71
	+2.30 +2.30 +2.29	+0.00 -0.00 -0.01	-0.45 -0.81 -0.81
+3/2, 21	-0.87 +4.28 +4.28	+0.81 -4.63 -4.63	+2.97 +2.97 +2.97
	+2.60 +2.60 +2.61	+0.00 +0.00 -0.01	+0.12 -0.25 -0.25
+3/2, 22	-1.00 +3.15 +3.15	+0.91 -5.01 -5.01	+3.58 +3.58 +3.58
	+2.60 +2.60 +2.61	+0.00 -0.00 -0.01	-0.05 -0.42 -0.42
+3/2, 23	-1.61 +1.48 +1.48	+0.51 -5.70 -5.70	+2.97 +2.97 +2.97
	+2.60 +2.60 +2.61	+0.00 +0.00 -0.02	+0.38 +0.01 +0.01
+3/2, 24	-1.63 +0.37 +0.37	+0.51 -5.81 -5.81	+3.58 +3.58 +3.58
	+2.60 +2.60 +2.61	+0.00 +0.00 -0.02	+0.07 -0.30 -0.30

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)

station, chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
+3/2, 25	-0.53	+0.37	-2.46	-0.32	-6.56	-6.56	+2.97	+2.97	+2.97
	+2.60	+2.60	+2.61	-0.00	-0.00	+1.08	-0.10	-0.47	-2.14
+3/2, 26	-0.70	-0.86	-1.07	-0.06	-6.02	-6.02	+3.58	+3.58	+3.58
	+2.60	+2.60	+2.60	+0.00	-0.00	-0.88	-0.20	-0.57	-0.38
+3/2, 27	-1.31	-2.48	-6.16	+0.71	-4.79	-4.79	+1.81	+1.81	+1.81
	+3.00	+3.00	+3.00	+0.00	-0.00	-9.17	+1.01	+0.65	+0.78
+3/2, 28	-0.57	-2.65	-2.65	-0.01	-4.89	-4.89	+3.58	+3.58	+3.58
	+2.60	+2.60	+2.61	-0.00	-0.00	+1.92	+0.32	-0.05	-0.49
+3/2, 29	+0.00	-2.87	-6.45	+0.00	-4.11	-4.11	+2.97	+2.97	+2.97
	+2.60	+2.60	+2.60	+0.00	+0.00	-4.69	-0.00	-0.37	+0.92
+3/2, 30	+1.25	-2.26	-3.54	+0.85	-2.37	-2.37	+3.58	+3.58	+3.58
	+2.60	+2.60	+2.61	-0.00	-0.00	+1.46	-0.04	-0.40	+0.32
+3/2, 31	+0.00	-3.98	-4.40	+0.00	-2.22	-2.22	+2.97	+2.97	+2.97
	+2.60	+2.60	+2.60	+0.00	+0.00	-1.59	-0.00	-0.37	-1.10
+3/2, 32	+1.02	-3.26	-2.43	-0.27	-1.43	-1.43	+3.71	+3.71	+3.71
	+2.40	+2.40	+2.40	+0.00	-0.00	-1.13	-0.50	-0.87	-2.04
+3/2, 33	+0.75	-3.64	-3.64	+1.10	+1.03	+1.03	+2.97	+2.97	+2.97
	+2.60	+2.60	+2.61	-0.00	+0.00	-0.02	-0.50	-0.87	-0.87
+3/2, 34	+2.87	-1.43	-1.43	+1.26	+2.29	+2.29	+3.58	+3.58	+3.58
	+2.60	+2.60	+2.61	-0.00	-0.00	-0.00	-0.37	-0.74	-0.74
+3/2, 35	+0.88	-3.15	-3.15	+0.99	+3.09	+3.09	+2.97	+2.97	+2.97
	+2.60	+2.60	+2.61	+0.00	-0.00	+0.00	+0.68	+0.31	+0.31
+3/2, 36	+0.00	-3.58	-3.58	+0.00	+3.10	+3.10	+3.58	+3.58	+3.58
	+2.60	+2.60	+2.61	+0.00	+0.00	-0.00	-0.00	-0.37	-0.37

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)

station, chamber	x or ϕ_x	y or ϕ_y	z or ϕ_z
+4/1, 01	+2.60 -6.18 -6.18	+0.64 +6.92 +6.92	+0.66 +0.66 +0.66
	+2.70 +2.70 +2.70	-0.00 -0.00 -0.00	-0.67 -0.27 -0.27
+4/1, 02	+1.91 -4.26 -4.26	+0.72 +9.25 +9.25	+0.66 +0.66 +0.66
	+2.70 +2.70 +2.70	+0.00 -0.00 -0.01	+0.29 +0.69 +0.69
+4/1, 03	+1.47 -1.47 -1.47	-2.55 +7.22 +7.22	+0.66 +0.66 +0.66
	+2.70 +2.70 +2.70	-0.00 -0.00 -0.02	+0.41 +0.81 +0.81
+4/1, 04	+1.48 +2.00 +2.00	-1.94 +7.89 +7.89	+2.61 +2.61 +2.61
	+3.80 +3.80 +3.80	+0.00 +0.00 +0.01	+0.45 +0.86 +0.86
+4/1, 05	+0.90 +4.69 +4.69	-1.61 +7.09 +7.09	+0.66 +0.66 +0.66
	+2.70 +2.70 +2.70	+0.00 +0.00 +0.00	-0.03 +0.37 +0.37
+4/1, 06	+0.58 +7.04 +7.04	-1.24 +5.28 +5.28	+0.66 +0.66 +0.66
	+2.70 +2.70 +2.70	-0.00 -0.00 -0.01	-0.09 +0.32 +0.32
+4/1, 07	+0.44 +8.68 +8.68	-0.91 +2.64 +2.64	+0.66 +0.66 +0.66
	+2.70 +2.70 +2.70	+0.00 -0.00 -0.00	+0.38 +0.78 +0.78
+4/1, 08	-0.45 +8.44 +8.44	-0.45 -0.29 -0.29	+0.21 +0.21 +0.21
	+2.80 +2.80 +2.80	-0.00 +0.00 -0.00	+0.36 +0.76 +0.76
+4/1, 09	-1.55 +6.80 +6.80	-0.03 -3.29 -3.29	+0.66 +0.66 +0.66
	+2.70 +2.70 +2.70	-0.00 -0.00 +0.00	+0.98 +1.38 +1.38
+4/1, 10	-1.54 +5.13 +5.13	+0.37 -5.90 -5.90	+0.66 +0.66 +0.66
	+2.70 +2.70 +2.70	-0.00 -0.00 -0.00	+0.39 +0.80 +0.80
+4/1, 11	-0.06 +4.00 +4.00	+0.43 -8.11 -8.11	+0.66 +0.66 +0.66
	+2.70 +2.70 +2.70	+0.00 +0.00 +0.01	+0.53 +0.93 +0.93
+4/1, 12	-0.24 +0.58 +0.58	+1.64 -8.13 -8.13	+0.66 +0.66 +0.66
	+2.70 +2.70 +2.70	+0.00 -0.00 -0.00	+0.03 +0.43 +0.43

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)

station, chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
+4/1, 13	+1.17	-1.46	-1.46	+0.76	-9.06	-9.06	+0.66	+0.66	+0.66
	+2.70	+2.70	+2.70	+0.00	+0.00	-0.01	-1.51	-1.11	-1.11
+4/1, 14	+0.12	-5.78	-2.95	+0.91	-7.78	-7.77	+0.81	+0.81	+0.81
	+2.20	+2.20	+2.23	+0.00	-0.00	+4.44	+0.40	+0.80	+7.96
+4/1, 15	+0.07	-8.50	-8.50	+1.70	-4.82	-4.82	+0.66	+0.66	+0.66
	+2.70	+2.70	+2.70	-0.00	+0.00	+0.00	+0.03	+0.44	+0.44
+4/1, 16	+0.93	-9.42	-9.42	+0.61	-2.94	-2.94	-0.99	-0.99	-0.99
	+2.10	+2.10	+2.10	-0.00	+0.00	+0.00	-1.06	-0.66	-0.66
+4/1, 17	+1.82	-9.19	-9.19	+1.88	+1.73	+1.73	+0.66	+0.66	+0.66
	+2.70	+2.70	+2.70	+0.00	-0.00	+0.00	-0.53	-0.13	-0.13
+4/1, 18	+2.81	-7.65	-7.65	+0.92	+4.18	+4.18	+0.66	+0.66	+0.66
	+2.70	+2.70	+2.70	-0.00	+0.00	+0.01	-0.67	-0.27	-0.27
-1/1, 01	+0.00	+1.71	+1.71	+0.00	+2.93	+2.93	+16.72	+16.72	+16.72
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	+0.00	+0.66	+0.66
-1/1, 02	+0.00	+2.18	+2.18	+0.00	+2.38	+2.38	+17.55	+17.55	+17.55
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	+0.00	+0.66	+0.66
-1/1, 03	+0.00	+2.54	+2.54	+0.00	+1.76	+1.76	+17.55	+17.55	+17.55
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	+0.00	+0.66	+0.66
-1/1, 04	+0.00	+2.79	+2.79	+0.00	+1.09	+1.09	+16.72	+16.72	+16.72
	+0.00	-0.00	-0.00	-0.00	-0.00	-0.00	+0.00	+0.66	+0.66
-1/1, 05	+0.00	+2.92	+2.92	+0.00	+0.38	+0.38	+16.72	+16.72	+16.72
	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	+0.00	+0.66	+0.66
-1/1, 06	+0.00	+2.92	+2.92	+0.00	-0.34	-0.34	+16.72	+16.72	+16.72
	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	+0.00	+0.66	+0.66



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)

station, chamber	x or ϕ_x	y or ϕ_y	z or ϕ_z
-1/1, 07	+0.00 +2.80 +2.80 -0.00 -0.00 -0.00	+0.00 -1.05 -1.05 +0.00 +0.00 +0.00	+16.72 +16.72 +16.72 +0.00 +0.66 +0.66
-1/1, 08	+0.00 +2.56 +2.56 -0.00 -0.00 -0.00	-0.00 -1.73 -1.73 +0.00 +0.00 +0.00	+20.42 +20.42 +20.42 +0.00 +0.66 +0.66
-1/1, 09	-0.00 +2.20 +2.20 -0.00 -0.00 -0.00	-0.00 -2.35 -2.35 +0.00 +0.00 +0.00	+20.42 +20.42 +20.42 +0.00 +0.66 +0.66
-1/1, 10	-0.00 +1.74 +1.74 -0.00 -0.00 -0.00	-0.00 -2.90 -2.90 +0.00 +0.00 +0.00	+16.72 +16.72 +16.72 -0.00 +0.66 +0.66
-1/1, 11	-0.00 +1.19 +1.19 -0.00 -0.00 -0.00	-0.00 -3.37 -3.37 +0.00 +0.00 +0.00	+16.72 +16.72 +16.72 +0.00 +0.66 +0.66
-1/1, 12	-0.00 +0.57 +0.57 -0.00 -0.00 -0.00	-0.00 -3.73 -3.73 +0.00 +0.00 +0.00	+16.72 +16.72 +16.72 +0.00 +0.66 +0.66
-1/1, 13	-0.00 -0.10 -0.10 -0.00 -0.00 -0.00	-0.00 -3.98 -3.98 +0.00 +0.00 +0.00	+16.72 +16.72 +16.72 +0.00 +0.66 +0.66
-1/1, 14	-0.00 -0.81 -0.81 -0.00 -0.00 -0.00	-0.00 -4.11 -4.11 +0.00 +0.00 +0.00	+19.10 +19.10 +19.10 +0.00 +0.66 +0.66
-1/1, 15	-0.00 -1.53 -1.53 -0.00 -0.00 -0.00	-0.00 -4.11 -4.11 +0.00 +0.00 +0.00	+19.10 +19.10 +19.10 +0.00 +0.66 +0.66
-1/1, 16	-0.00 -2.24 -2.99 -0.00 +0.00 +0.00	-0.00 -3.99 -3.99 +0.00 +0.00 -0.00	+16.72 +16.72 +16.72 +0.00 +0.66 +0.91
-1/1, 17	-0.00 -2.92 -2.92 +0.00 +0.00 +0.00	-0.00 -3.75 -3.75 +0.00 +0.00 +0.00	+16.72 +16.72 +16.72 +0.00 +0.66 +0.66
-1/1, 18	-0.00 -3.54 -3.54 +0.00 +0.00 +0.00	+0.00 -3.39 -3.39 +0.00 +0.00 +0.00	+16.72 +16.72 +16.72 +0.00 +0.66 +0.66



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)

station, chamber	x or ϕ_x	y or ϕ_y	z or ϕ_z
-1/1, 19	-0.00 -4.09 -4.09 +0.00 +0.00 +0.00	+0.00 -2.93 -2.93 +0.00 +0.00 +0.00	+16.72 +16.72 +16.72 +0.00 +0.66 +0.66
-1/1, 20	-0.00 -4.56 -4.56 +0.00 +0.00 +0.00	+0.00 -2.38 -2.38 +0.00 +0.00 +0.00	+16.83 +16.83 +16.83 +0.00 +0.66 +0.66
-1/1, 21	-0.00 -4.92 -4.92 +0.00 +0.00 +0.00	+0.00 -1.76 -1.76 +0.00 +0.00 +0.00	+16.83 +16.83 +16.83 +0.00 +0.66 +0.66
-1/1, 22	-0.00 -5.17 -5.17 +0.00 +0.00 +0.00	+0.00 -1.09 -1.09 +0.00 +0.00 +0.00	+16.72 +16.72 +16.72 +0.00 +0.66 +0.66
-1/1, 23	-0.00 -5.30 -5.30 +0.00 +0.00 +0.00	+0.00 -0.38 -0.38 +0.00 +0.00 +0.00	+16.72 +16.72 +16.72 +0.00 +0.66 +0.66
-1/1, 24	-0.00 -5.30 -5.30 +0.00 +0.00 +0.00	+0.00 +0.34 +0.34 +0.00 +0.00 +0.00	+16.72 +16.72 +16.72 +0.00 +0.66 +0.66
-1/1, 25	-0.00 -5.18 -5.18 +0.00 +0.00 +0.00	+0.00 +1.05 +1.05 +0.00 +0.00 +0.00	+16.72 +16.72 +16.72 +0.00 +0.66 +0.66
-1/1, 26	-0.00 -4.94 -4.94 +0.00 +0.00 +0.00	+0.00 +1.72 +1.72 +0.00 +0.00 +0.00	+12.81 +12.81 +12.81 +0.00 +0.66 +0.66
-1/1, 27	-0.00 -4.58 -4.58 +0.00 +0.00 +0.00	+0.00 +2.35 +2.35 +0.00 +0.00 +0.00	+12.81 +12.81 +12.81 +0.00 +0.66 +0.66
-1/1, 28	-0.00 -4.12 -4.12 +0.00 +0.00 +0.00	+0.00 +2.90 +2.90 +0.00 +0.00 +0.00	+16.72 +16.72 +16.72 +0.00 +0.66 +0.66
-1/1, 29	-0.00 -3.57 -3.57 +0.00 +0.00 +0.00	+0.00 +3.37 +3.37 +0.00 +0.00 +0.00	+16.72 +16.72 +16.72 +0.00 +0.66 +0.66
-1/1, 30	-0.00 -2.95 -2.95 +0.00 +0.00 +0.00	+0.00 +3.73 +3.73 +0.00 +0.00 +0.00	+16.72 +16.72 +16.72 +0.00 +0.66 +0.66

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)

station, chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
-1/1, 31	-0.00	-2.28	-2.28	+0.00	+3.98	+3.98	+16.72	+16.72	+16.72
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	+0.00	+0.66	+0.66
-1/1, 32	-0.00	-1.57	-1.57	+0.00	+4.11	+4.11	+13.64	+13.64	+13.64
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	+0.00	+0.66	+0.66
-1/1, 33	-0.00	-0.85	-0.85	+0.00	+4.11	+4.11	+13.64	+13.64	+13.64
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	+0.00	+0.66	+0.66
-1/1, 34	-0.00	-0.14	-0.14	+0.00	+3.99	+3.99	+16.72	+16.72	+16.72
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	+0.00	+0.66	+0.66
-1/1, 35	+0.00	+0.53	+0.53	+0.00	+3.75	+3.75	+16.72	+16.72	+16.72
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	+0.00	+0.66	+0.66
-1/1, 36	+0.00	+1.16	+1.16	+0.00	+3.39	+3.39	+16.72	+16.72	+16.72
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	+0.00	+0.66	+0.66
-1/2, 01	+0.00	-1.58	-1.58	+0.00	+3.52	+3.52	+5.94	+5.94	+5.94
	-4.37	-4.37	-4.37	+0.00	+0.00	+0.00	+0.18	+1.03	+1.03
-1/2, 02	+0.00	-1.00	-1.00	+0.00	+3.20	+3.20	+5.73	+5.73	+5.73
	-4.37	-4.37	-4.37	+0.00	+0.00	+0.00	+0.18	+1.03	+1.03
-1/2, 03	+0.00	-0.47	-0.47	+0.00	+2.78	+2.78	+5.94	+5.94	+5.94
	-4.37	-4.37	-4.37	+0.00	+0.00	-0.00	+0.18	+1.03	+1.03
-1/2, 04	+0.00	-0.03	-0.03	+0.00	+2.27	+2.27	+5.94	+5.94	+5.94
	-4.37	-4.37	-4.37	+0.00	+0.00	+0.02	+0.18	+1.03	+1.03
-1/2, 05	+0.00	+0.32	+0.37	+0.00	+1.70	+1.70	+5.94	+5.94	+5.94
	-4.37	-4.37	-4.36	+0.00	+0.00	-0.21	+0.18	+1.03	+1.62
-1/2, 06	+0.00	+0.56	+0.56	+0.00	+1.07	+1.07	+5.94	+5.94	+5.94
	-4.37	-4.37	-4.37	+0.00	+0.00	+0.00	+0.18	+1.03	+1.03

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)

station, chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
-1/2, 07	+0.00	+0.69	+0.93	+0.00	+0.41	+0.41	+5.94	+5.94	+5.94
	-4.37	-4.37	-4.38	+0.00	+0.00	-0.19	+0.18	+1.03	-0.52
-1/2, 08	+0.00	+0.70	+0.70	-0.00	-0.26	-0.26	+5.84	+5.84	+5.84
	-4.37	-4.37	-4.37	+0.00	+0.00	+0.01	+0.18	+1.03	+1.03
-1/2, 09	-0.00	+0.60	+1.90	-0.00	-0.92	-0.92	+5.94	+5.94	+5.94
	-4.37	-4.37	-4.37	+0.00	+0.00	-2.85	+0.18	+1.03	+1.05
-1/2, 10	-0.00	+0.38	+0.38	-0.00	-1.56	-1.56	+5.94	+5.94	+5.94
	-4.37	-4.37	-4.37	+0.00	+0.00	+0.00	+0.18	+1.03	+1.03
-1/2, 11	-0.00	+0.06	+0.06	-0.00	-2.15	-2.15	+5.94	+5.94	+5.94
	-4.37	-4.37	-4.37	+0.00	+0.00	+0.00	+0.18	+1.03	+1.03
-1/2, 12	-0.00	-0.36	-1.99	-0.00	-2.67	-2.67	+5.94	+5.94	+5.94
	-4.37	-4.37	-4.37	+0.00	+0.00	+2.56	+0.18	+1.03	-1.86
-1/2, 13	-0.00	-0.87	-0.87	-0.00	-3.11	-3.11	+5.94	+5.94	+5.94
	-4.37	-4.37	-4.37	+0.00	+0.00	-0.00	+0.18	+1.03	+1.03
-1/2, 14	-0.00	-1.44	-1.44	-0.00	-3.46	-3.46	+6.90	+6.90	+6.90
	-4.37	-4.37	-4.37	+0.00	+0.00	+0.01	+0.18	+1.03	+1.03
-1/2, 15	-0.00	-2.07	-2.07	-0.00	-3.70	-3.70	+5.94	+5.94	+5.94
	-4.37	-4.37	-4.37	+0.00	+0.00	+0.01	+0.18	+1.03	+1.03
-1/2, 16	-0.00	-2.72	-2.72	-0.00	-3.83	-3.83	+5.94	+5.94	+5.94
	-4.37	-4.37	-4.37	+0.00	+0.00	-0.01	+0.18	+1.03	+1.03
-1/2, 17	-0.00	-3.40	-3.40	-0.00	-3.85	-3.85	+5.94	+5.94	+5.94
	-4.37	-4.37	-4.37	+0.00	+0.00	+0.01	+0.18	+1.03	+1.03
-1/2, 18	-0.00	-4.06	-4.06	+0.00	-3.74	-3.74	+5.94	+5.94	+5.94
	-4.37	-4.37	-4.37	+0.00	+0.00	-0.00	+0.18	+1.03	+1.03

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)

station, chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
-1/2, 19	-0.00	-4.70	-4.70	+0.00	-3.53	-3.53	+5.94	+5.94	+5.94
	-4.37	-4.37	-4.37	+0.00	+0.00	+0.00	+0.18	+1.03	+1.03
-1/2, 20	-0.00	-5.28	-5.28	+0.00	-3.20	-3.20	+5.39	+5.39	+5.39
	-4.37	-4.37	-4.37	+0.00	+0.00	-0.00	+0.18	+1.03	+1.03
-1/2, 21	-0.00	-5.81	-5.81	+0.00	-2.78	-2.78	+5.94	+5.94	+5.94
	-4.37	-4.37	-4.37	+0.00	+0.00	-0.00	+0.18	+1.03	+1.03
-1/2, 22	-0.00	-6.25	-8.00	+0.00	-2.28	-2.28	+5.94	+5.94	+5.94
	-4.37	-4.37	-4.41	+0.00	+0.00	+6.88	+0.18	+1.03	-4.55
-1/2, 23	-0.00	-6.60	-6.60	+0.00	-1.70	-1.70	+5.94	+5.94	+5.94
	-4.37	-4.37	-4.37	+0.00	+0.00	-0.00	+0.18	+1.03	+1.03
-1/2, 24	-0.00	-6.84	-6.84	+0.00	-1.07	-1.07	+5.94	+5.94	+5.94
	-4.37	-4.37	-4.37	+0.00	+0.00	+0.01	+0.18	+1.03	+1.03
-1/2, 25	-0.00	-6.97	-6.26	+0.00	-0.42	-0.42	+5.94	+5.94	+5.94
	-4.37	-4.37	-4.38	+0.00	+0.00	+2.66	+0.18	+1.03	-2.60
-1/2, 26	-0.00	-6.98	-6.98	+0.00	+0.26	+0.26	+5.64	+5.64	+5.64
	-4.37	-4.37	-4.37	+0.00	+0.00	+0.01	+0.18	+1.03	+1.03
-1/2, 27	-0.00	-6.88	-6.88	+0.00	+0.92	+0.92	+5.94	+5.94	+5.94
	-4.37	-4.37	-4.37	+0.00	+0.00	-0.00	+0.18	+1.03	+1.03
-1/2, 28	-0.00	-6.66	-6.66	+0.00	+1.55	+1.55	+5.94	+5.94	+5.94
	-4.37	-4.37	-4.37	+0.00	+0.00	+0.00	+0.18	+1.03	+1.03
-1/2, 29	-0.00	-6.34	-6.34	+0.00	+2.14	+2.14	+5.94	+5.94	+5.94
	-4.37	-4.37	-4.37	+0.00	+0.00	-0.00	+0.18	+1.03	+1.03
-1/2, 30	-0.00	-5.92	-5.92	+0.00	+2.67	+2.67	+5.94	+5.94	+5.94
	-4.37	-4.37	-4.37	+0.00	+0.00	-0.00	+0.18	+1.03	+1.03

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)

station, chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
-1/2, 31	-0.00	-5.41	-5.87	+0.00	+3.11	+3.11	+5.94	+5.94	+5.94
	-4.37	-4.37	-4.37	+0.00	+0.00	-1.23	+0.18	+1.03	+3.09
-1/2, 32	-0.00	-4.84	-4.84	+0.00	+3.46	+3.46	+6.10	+6.10	+6.10
	-4.37	-4.37	-4.37	+0.00	+0.00	+0.01	+0.18	+1.03	+1.03
-1/2, 33	-0.00	-4.21	-4.21	+0.00	+3.70	+3.70	+5.94	+5.94	+5.94
	-4.37	-4.37	-4.37	+0.00	+0.00	-0.01	+0.18	+1.03	+1.03
-1/2, 34	-0.00	-3.55	-3.55	+0.00	+3.83	+3.83	+5.94	+5.94	+5.94
	-4.37	-4.37	-4.37	+0.00	+0.00	-0.01	+0.18	+1.03	+1.03
-1/2, 35	+0.00	-2.88	-2.88	+0.00	+3.84	+3.84	+5.94	+5.94	+5.94
	-4.37	-4.37	-4.37	+0.00	+0.00	+0.01	+0.18	+1.03	+1.03
-1/2, 36	+0.00	-2.22	-2.22	+0.00	+3.74	+3.74	+5.94	+5.94	+5.94
	-4.37	-4.37	-4.37	+0.00	+0.00	-0.00	+0.18	+1.03	+1.03
-1/3, 01	+1.79	-1.22	-1.22	+0.36	+2.76	+2.76	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	-0.00	-0.00	-0.00	-0.73	-0.46	-0.46
-1/3, 02	+0.95	-1.62	-1.62	+2.41	+5.03	+5.03	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	-0.00	-0.00	-0.02	-0.41	-0.15	-0.15
-1/3, 03	+1.65	-0.44	-0.44	+0.68	+3.43	+3.43	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	+0.00	+0.00	+0.00	+0.13	+0.39	+0.39
-1/3, 04	+1.00	-0.61	-0.61	+1.54	+4.34	+4.34	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	+0.00	+0.00	+0.02	+0.21	+0.47	+0.47
-1/3, 05	+1.13	+0.00	+0.00	-0.47	+2.29	+2.29	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	-0.00	-0.00	-0.03	+0.43	+0.70	+0.70
-1/3, 06	+1.07	+0.42	+0.42	-0.33	+2.31	+2.31	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	+0.00	-0.00	-0.00	-1.24	-0.98	-0.98

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)

station, chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
-1/3, 07	+1.35	+1.15	-3.18	-0.41	+2.03	+2.03	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.32	+0.00	-0.00	+1.52	+0.12	+0.39	+0.59
-1/3, 08	+0.37	+0.57	+0.57	+1.04	+3.21	+3.21	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	-0.00	+0.00	+0.02	-0.36	-0.10	-0.10
-1/3, 09	+0.57	+1.11	+1.11	+0.82	+2.65	+2.65	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	+0.00	+0.00	-0.01	-1.04	-0.77	-0.77
-1/3, 10	-0.28	+0.56	+0.56	+1.48	+2.91	+2.91	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	-0.00	-0.00	+0.00	+0.61	+0.87	+0.87
-1/3, 11	-0.71	+0.34	+0.34	-0.07	+0.92	+0.92	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	+0.00	+0.00	+0.02	-0.85	-0.59	-0.59
-1/3, 12	-1.73	-0.55	-0.55	+0.73	+1.25	+1.25	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	+0.00	-0.00	+0.00	-0.10	+0.16	+0.16
-1/3, 13	-1.84	-0.61	-0.61	+0.03	+0.06	+0.06	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	-0.00	-0.00	-0.02	+0.20	+0.47	+0.47
-1/3, 14	-2.53	-1.34	-1.34	+1.05	+0.60	+0.60	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	+0.00	+0.00	+0.01	+1.19	+1.46	+1.46
-1/3, 15	-1.94	-0.87	-0.87	+1.80	+0.88	+0.88	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	+0.00	-0.00	+0.03	-0.14	+0.12	+0.12
-1/3, 16	-2.03	-1.16	-1.16	+1.82	+0.45	+0.45	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	-0.00	+0.00	-0.02	-0.24	+0.02	+0.02
-1/3, 17	-2.00	-1.40	-1.40	+1.54	-0.23	-0.23	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	-0.00	-0.00	+0.02	+0.14	+0.41	+0.41
-1/3, 18	-2.36	-2.10	-2.10	+1.74	-0.38	-0.38	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	-0.00	+0.00	+0.01	+0.23	+0.49	+0.49

All the values

Jim Pivarski 32/46



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)

station, chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
-1/3, 19	-1.21	-1.35	-1.35	+3.95	+1.54	+1.54	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	-0.00	-0.00	+0.00	+0.60	+0.87	+0.87
-1/3, 20	-1.35	-1.93	-1.93	+0.88	-1.74	-1.74	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	+0.00	-0.00	+0.01	-0.32	-0.06	-0.06
-1/3, 21	-1.56	-2.61	-2.61	+1.45	-1.30	-1.30	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	+0.00	+0.00	+0.00	+0.34	+0.60	+0.60
-1/3, 22	-0.48	-2.01	-2.01	-0.09	-2.89	-2.89	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	+0.00	-0.00	-0.00	-0.73	-0.47	-0.47
-1/3, 23	-1.16	-3.18	-3.18	+1.34	-1.43	-1.43	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	-0.00	-0.00	+0.04	-0.04	+0.23	+0.23
-1/3, 24	+0.81	-1.69	-1.69	+0.00	-2.64	-2.64	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	-0.00	+0.00	+0.03	-0.76	-0.49	-0.49
-1/3, 25	-0.21	-3.15	-3.15	-1.06	-3.51	-3.51	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	+0.00	+0.00	-0.02	-0.49	-0.23	-0.23
-1/3, 26	+0.55	-2.79	-2.79	-0.08	-2.24	-2.24	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	-0.00	+0.00	-0.00	+0.13	+0.39	+0.39
-1/3, 27	-1.16	-4.85	-4.85	-0.34	-2.16	-2.16	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	-0.00	-0.00	-0.01	+0.39	+0.65	+0.65
-1/3, 28	-1.32	-5.29	-5.29	-1.49	-2.92	-2.92	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	-0.00	-0.00	-0.00	+0.11	+0.38	+0.38
-1/3, 29	-1.35	-5.54	-5.54	-0.62	-1.61	-1.61	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	-0.00	+0.00	+0.01	+0.22	+0.49	+0.49
-1/3, 30	-1.88	-6.20	-6.20	+0.28	-0.24	-0.24	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	-0.00	+0.00	+0.00	+0.09	+0.35	+0.35

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)

station, chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
-1/3, 31	-0.65	-5.03	-5.03	+0.18	+0.14	+0.14	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	-0.00	+0.00	-0.02	-0.93	-0.67	-0.67
-1/3, 32	-1.31	-5.64	-5.64	+1.16	+1.61	+1.61	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	-0.00	-0.00	+0.00	-0.27	-0.00	-0.00
-1/3, 33	-0.30	-4.51	-4.51	+1.93	+2.85	+2.85	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	+0.00	+0.00	-0.04	+0.39	+0.66	+0.66
-1/3, 34	+0.92	-3.09	-3.09	+2.04	+3.41	+3.41	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	-0.00	-0.00	+0.04	-0.79	-0.53	-0.53
-1/3, 35	+0.30	-3.44	-3.44	+2.09	+3.86	+3.86	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	+0.00	-0.00	+0.02	+0.45	+0.71	+0.71
-1/3, 36	+1.18	-2.22	-2.22	+1.69	+3.81	+3.81	+2.59	+2.59	+2.59
	-1.33	-1.33	-1.34	+0.00	-0.00	+0.00	+0.04	+0.30	+0.30
-1/4, 01	+0.00	+1.71	+1.71	+0.00	+2.93	+2.93	+16.72	+16.72	+16.72
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	+0.00	+0.66	+0.66
-1/4, 02	+0.00	+2.18	+2.18	+0.00	+2.38	+2.38	+17.55	+17.55	+17.55
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	+0.00	+0.66	+0.66
-1/4, 03	+0.00	+2.54	+2.54	+0.00	+1.76	+1.76	+17.55	+17.55	+17.55
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	+0.00	+0.66	+0.66
-1/4, 04	+0.00	+2.79	+2.79	+0.00	+1.09	+1.09	+16.72	+16.72	+16.72
	+0.00	-0.00	-0.00	-0.00	-0.00	-0.00	+0.00	+0.66	+0.66
-1/4, 05	+0.00	+2.92	+2.92	+0.00	+0.38	+0.38	+16.72	+16.72	+16.72
	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	+0.00	+0.66	+0.66
-1/4, 06	+0.00	+2.92	+2.92	+0.00	-0.34	-0.34	+16.72	+16.72	+16.72
	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	+0.00	+0.66	+0.66



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)

station, chamber	x or ϕ_x	y or ϕ_y	z or ϕ_z
-1/4, 07	+0.00 +2.80 +2.80	+0.00 -1.05 -1.05	+16.72 +16.72 +16.72
	-0.00 -0.00 -0.00	+0.00 +0.00 +0.00	+0.00 +0.66 +0.66
-1/4, 08	+0.00 +2.56 +2.56	-0.00 -1.73 -1.73	+20.42 +20.42 +20.42
	-0.00 -0.00 -0.00	+0.00 +0.00 +0.00	+0.00 +0.66 +0.66
-1/4, 09	-0.00 +2.20 +2.20	-0.00 -2.35 -2.35	+20.42 +20.42 +20.42
	-0.00 -0.00 -0.00	+0.00 +0.00 +0.00	+0.00 +0.66 +0.66
-1/4, 10	-0.00 +1.74 +1.74	-0.00 -2.90 -2.90	+16.72 +16.72 +16.72
	-0.00 -0.00 -0.00	+0.00 +0.00 +0.00	-0.00 +0.66 +0.66
-1/4, 11	-0.00 +1.19 +1.19	-0.00 -3.37 -3.37	+16.72 +16.72 +16.72
	-0.00 -0.00 -0.00	+0.00 +0.00 +0.00	+0.00 +0.66 +0.66
-1/4, 12	-0.00 +0.57 +0.57	-0.00 -3.73 -3.73	+16.72 +16.72 +16.72
	-0.00 -0.00 -0.00	+0.00 +0.00 +0.00	+0.00 +0.66 +0.66
-1/4, 13	-0.00 -0.10 -0.10	-0.00 -3.98 -3.98	+16.72 +16.72 +16.72
	-0.00 -0.00 -0.00	+0.00 +0.00 +0.00	+0.00 +0.66 +0.66
-1/4, 14	-0.00 -0.81 -0.81	-0.00 -4.11 -4.11	+19.10 +19.10 +19.10
	-0.00 -0.00 -0.00	+0.00 +0.00 +0.00	+0.00 +0.66 +0.66
-1/4, 15	-0.00 -1.53 -1.53	-0.00 -4.11 -4.11	+19.10 +19.10 +19.10
	-0.00 -0.00 -0.00	+0.00 +0.00 +0.00	+0.00 +0.66 +0.66
-1/4, 16	-0.00 -2.24 -2.24	-0.00 -3.99 -3.99	+16.72 +16.72 +16.72
	-0.00 +0.00 +0.00	+0.00 +0.00 +0.00	+0.00 +0.66 +0.66
-1/4, 17	-0.00 -2.92 -2.92	-0.00 -3.75 -3.75	+16.72 +16.72 +16.72
	+0.00 +0.00 +0.00	+0.00 +0.00 +0.00	+0.00 +0.66 +0.66
-1/4, 18	-0.00 -3.54 -3.54	+0.00 -3.39 -3.39	+16.72 +16.72 +16.72
	+0.00 +0.00 +0.00	+0.00 +0.00 +0.00	+0.00 +0.66 +0.66



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)

station, chamber	x or ϕ_x	y or ϕ_y	z or ϕ_z
-1/4, 19	-0.00 -4.09 -4.09 +0.00 +0.00 +0.00	+0.00 -2.93 -2.93 +0.00 +0.00 +0.00	+16.72 +16.72 +16.72 +0.00 +0.66 +0.66
-1/4, 20	-0.00 -4.56 -4.56 +0.00 +0.00 +0.00	+0.00 -2.38 -2.38 +0.00 +0.00 +0.00	+16.83 +16.83 +16.83 +0.00 +0.66 +0.66
-1/4, 21	-0.00 -4.92 -4.92 +0.00 +0.00 +0.00	+0.00 -1.76 -1.76 +0.00 +0.00 +0.00	+16.83 +16.83 +16.83 +0.00 +0.66 +0.66
-1/4, 22	-0.00 -5.17 -5.17 +0.00 +0.00 +0.00	+0.00 -1.09 -1.09 +0.00 +0.00 +0.00	+16.72 +16.72 +16.72 +0.00 +0.66 +0.66
-1/4, 23	-0.00 -5.30 -5.30 +0.00 +0.00 +0.00	+0.00 -0.38 -0.38 +0.00 +0.00 +0.00	+16.72 +16.72 +16.72 +0.00 +0.66 +0.66
-1/4, 24	-0.00 -5.30 -5.30 +0.00 +0.00 +0.00	+0.00 +0.34 +0.34 +0.00 +0.00 +0.00	+16.72 +16.72 +16.72 +0.00 +0.66 +0.66
-1/4, 25	-0.00 -5.18 -5.18 +0.00 +0.00 +0.00	+0.00 +1.05 +1.05 +0.00 +0.00 +0.00	+16.72 +16.72 +16.72 +0.00 +0.66 +0.66
-1/4, 26	-0.00 -4.94 -4.94 +0.00 +0.00 +0.00	+0.00 +1.72 +1.72 +0.00 +0.00 +0.00	+12.81 +12.81 +12.81 +0.00 +0.66 +0.66
-1/4, 27	-0.00 -4.58 -4.58 +0.00 +0.00 +0.00	+0.00 +2.35 +2.35 +0.00 +0.00 +0.00	+12.81 +12.81 +12.81 +0.00 +0.66 +0.66
-1/4, 28	-0.00 -4.12 -4.12 +0.00 +0.00 +0.00	+0.00 +2.90 +2.90 +0.00 +0.00 +0.00	+16.72 +16.72 +16.72 +0.00 +0.66 +0.66
-1/4, 29	-0.00 -3.57 -3.57 +0.00 +0.00 +0.00	+0.00 +3.37 +3.37 +0.00 +0.00 +0.00	+16.72 +16.72 +16.72 +0.00 +0.66 +0.66
-1/4, 30	-0.00 -2.95 -2.95 +0.00 +0.00 +0.00	+0.00 +3.73 +3.73 +0.00 +0.00 +0.00	+16.72 +16.72 +16.72 +0.00 +0.66 +0.66

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)

station, chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
-1/4, 31	-0.00	-2.28	-2.28	+0.00	+3.98	+3.98	+16.72	+16.72	+16.72
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	+0.00	+0.66	+0.66
-1/4, 32	-0.00	-1.57	-1.57	+0.00	+4.11	+4.11	+13.64	+13.64	+13.64
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	+0.00	+0.66	+0.66
-1/4, 33	-0.00	-0.85	-0.85	+0.00	+4.11	+4.11	+13.64	+13.64	+13.64
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	+0.00	+0.66	+0.66
-1/4, 34	-0.00	-0.14	-0.14	+0.00	+3.99	+3.99	+16.72	+16.72	+16.72
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	+0.00	+0.66	+0.66
-1/4, 35	+0.00	+0.53	+0.53	+0.00	+3.75	+3.75	+16.72	+16.72	+16.72
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	+0.00	+0.66	+0.66
-1/4, 36	+0.00	+1.16	+1.16	+0.00	+3.39	+3.39	+16.72	+16.72	+16.72
	+0.00	+0.00	+0.00	-0.00	-0.00	-0.00	+0.00	+0.66	+0.66
-2/1, 01	+0.33	-2.69	-2.69	-0.03	+3.55	+3.55	+10.24	+10.24	+10.24
	-1.60	-1.60	-1.58	+0.00	-0.00	+0.01	+0.65	+2.83	+2.83
-2/1, 02	+0.06	-1.87	-1.87	+0.94	+3.53	+3.53	+10.61	+10.61	+10.61
	-2.00	-2.00	-2.01	+0.00	-0.00	-0.03	+0.15	+2.33	+2.33
-2/1, 03	+0.33	-0.91	-0.91	-2.16	-0.89	-0.89	+10.24	+10.24	+10.24
	-1.60	-1.60	-1.58	+0.00	+0.00	+0.00	-0.61	+1.57	+1.57
-2/1, 04	-0.35	-1.40	-1.40	-2.81	-3.00	-3.00	+7.91	+7.91	+7.91
	-1.30	-1.30	-1.29	-0.00	+0.00	+0.04	-1.71	+0.47	+0.47
-2/1, 05	-0.44	-1.81	-3.12	-1.30	-2.94	-2.94	+10.24	+10.24	+10.24
	-1.60	-1.60	-1.58	+0.00	+0.00	-0.77	+0.54	+2.73	+0.61
-2/1, 06	-0.56	-2.72	-2.72	-2.01	-4.89	-4.89	+10.24	+10.24	+10.24
	-1.60	-1.60	-1.58	-0.00	-0.00	-0.00	-0.40	+1.79	+1.79

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)

station, chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
-2/1, 07	-0.74	-4.07	-4.07	-1.60	-5.38	-5.38	+10.24	+10.24	+10.24
	-1.60	-1.60	-1.58	+0.00	-0.00	-0.00	+0.38	+2.57	+2.57
-2/1, 08	-1.09	-5.83	-2.94	-1.37	-5.60	-5.59	+12.41	+12.41	+12.41
	-1.60	-1.60	-1.59	+0.00	-0.00	-1.42	+0.72	+2.90	+4.96
-2/1, 09	-0.88	-7.10	-7.10	-0.06	-4.22	-4.22	+10.24	+10.24	+10.24
	-1.60	-1.60	-1.58	-0.00	+0.00	+0.01	+0.19	+2.37	+2.37
-2/1, 10	+0.26	-7.33	-7.33	+0.36	-3.24	-3.24	+10.61	+10.61	+10.61
	-2.00	-2.00	-2.01	-0.00	+0.00	-0.00	+0.27	+2.46	+2.46
-2/1, 11	-1.22	-9.90	-9.90	+0.93	-1.67	-1.67	+10.24	+10.24	+10.24
	-1.60	-1.60	-1.58	-0.00	-0.00	-0.00	+0.98	+3.17	+3.17
-2/1, 12	-1.30	-10.66	-10.66	+0.25	-1.03	-1.03	+10.24	+10.24	+10.24
	-1.60	-1.60	-1.58	+0.00	+0.00	-0.05	+0.05	+2.23	+2.23
-2/1, 13	-0.20	-9.75	-9.75	-0.41	-0.23	-0.23	+10.24	+10.24	+10.24
	-1.60	-1.60	-1.58	-0.00	-0.00	-0.01	+0.32	+2.50	+2.50
-2/1, 14	-1.04	-10.27	-10.27	-0.53	+1.09	+1.09	+8.01	+8.01	+8.01
	-0.80	-0.80	-0.77	+0.00	-0.00	-0.01	-0.02	+2.16	+2.16
-2/1, 15	-0.38	-8.82	-8.82	-0.60	+2.27	+2.27	+10.24	+10.24	+10.24
	-1.60	-1.60	-1.58	-0.00	-0.00	-0.00	+0.37	+2.55	+2.55
-2/1, 16	+0.56	-6.71	-6.71	+0.39	+4.16	+4.16	+11.81	+11.81	+11.81
	-1.70	-1.70	-1.69	-0.00	-0.00	-0.02	-1.29	+0.90	+0.90
-2/1, 17	-0.57	-6.43	-6.43	-0.24	+3.97	+3.97	+10.24	+10.24	+10.24
	-1.60	-1.60	-1.58	+0.00	+0.00	+0.00	+0.17	+2.36	+2.36
-2/1, 18	+0.32	-4.06	-4.06	+0.61	+4.75	+4.75	+10.24	+10.24	+10.24
	-1.60	-1.60	-1.58	+0.00	+0.00	-0.02	-1.15	+1.04	+1.04

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)

station, chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
-2/2, 01	+2.20	-7.93	-7.93	+0.13	+1.79	+1.79	+2.87	+2.87	+2.87
	-2.20	-2.20	-2.21	-0.00	-0.00	-0.00	-0.93	+0.75	+0.75
-2/2, 02	+2.66	-7.17	-7.17	+0.74	+2.60	+2.60	+2.62	+2.62	+2.62
	-2.20	-2.20	-2.21	-0.00	+0.00	+0.00	-1.06	+0.62	+0.62
-2/2, 03	+2.93	-6.56	-6.56	+2.08	+4.08	+4.08	+2.81	+2.81	+2.81
	-2.20	-2.20	-2.21	+0.00	+0.00	+0.01	-1.29	+0.39	+0.39
-2/2, 04	+2.92	-6.22	-6.22	+1.44	+3.52	+3.52	+2.62	+2.62	+2.62
	-2.20	-2.20	-2.21	-0.00	+0.00	-0.02	-0.87	+0.81	+0.81
-2/2, 05	+1.95	-6.82	-8.22	+0.40	+2.50	+2.50	+2.87	+2.87	+2.87
	-2.20	-2.20	-2.20	+0.00	+0.00	-0.53	-0.75	+0.93	-0.38
-2/2, 06	+2.63	-5.77	-4.75	-0.20	+1.85	+1.85	+2.62	+2.62	+2.62
	-2.20	-2.20	-2.23	+0.00	-0.00	+0.23	-0.52	+1.16	-1.13
-2/2, 07	+1.72	-6.33	-3.75	-0.79	+1.16	+1.16	+2.87	+2.87	+2.87
	-2.20	-2.20	-2.21	-0.00	+0.00	-0.77	-0.54	+1.14	+1.46
-2/2, 08	+0.80	-6.93	-6.18	+0.92	+2.70	+2.70	+0.51	+0.51	+0.51
	-2.10	-2.10	-2.10	-0.00	+0.00	-3.33	+0.02	+1.70	+0.92
-2/2, 09	+0.85	-6.58	-6.30	-0.11	+1.45	+1.45	+2.87	+2.87	+2.87
	-2.20	-2.20	-2.20	+0.00	-0.00	-1.11	-0.44	+1.24	+2.21
-2/2, 10	+0.12	-7.06	-7.06	-1.44	-0.15	-0.15	+2.62	+2.62	+2.62
	-2.20	-2.20	-2.21	-0.00	-0.00	-0.00	-0.28	+1.40	+1.40
-2/2, 11	-0.14	-7.12	-7.12	-0.13	+0.85	+0.85	+2.87	+2.87	+2.87
	-2.20	-2.20	-2.21	+0.00	+0.00	+0.00	-0.35	+1.33	+1.33
-2/2, 12	-0.45	-7.29	-8.94	-0.88	-0.24	-0.24	+2.62	+2.62	+2.62
	-2.20	-2.20	-2.24	+0.00	+0.00	+2.69	+0.10	+1.78	-0.82

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)

station, chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
-2/2, 13	-0.69	-7.45	-7.45	-0.46	-0.18	-0.18	+2.87	+2.87	+2.87
	-2.20	-2.20	-2.21	+0.00	-0.00	+0.02	+0.08	+1.76	+1.76
-2/2, 14	-1.48	-8.21	-10.27	-1.94	-2.03	-2.03	+2.62	+2.62	+2.62
	-2.20	-2.20	-2.21	+0.00	-0.00	-1.50	+0.06	+1.74	+2.84
-2/2, 15	-0.99	-7.78	-7.78	+0.54	+0.09	+0.09	+4.51	+4.51	+4.51
	-2.50	-2.50	-2.49	-0.00	-0.00	-0.01	-0.58	+1.10	+1.10
-2/2, 16	-2.88	-9.77	-9.77	-0.69	-1.49	-1.49	+2.62	+2.62	+2.62
	-2.20	-2.20	-2.21	-0.00	+0.00	+0.02	+0.42	+2.10	+2.10
-2/2, 17	-1.07	-8.13	-8.13	+0.13	-1.00	-1.00	+2.87	+2.87	+2.87
	-2.20	-2.20	-2.21	+0.00	-0.00	-0.02	-0.06	+1.62	+1.62
-2/2, 18	-1.60	-8.88	-8.88	+1.02	-0.40	-0.40	+2.62	+2.62	+2.62
	-2.20	-2.20	-2.21	+0.00	+0.00	+0.01	-0.08	+1.60	+1.60
-2/2, 19	-1.15	-8.70	-8.70	-0.67	-2.34	-2.34	+2.87	+2.87	+2.87
	-2.20	-2.20	-2.21	-0.00	-0.00	-0.00	+0.12	+1.80	+1.80
-2/2, 20	-2.09	-9.95	-9.95	-0.06	-1.93	-1.93	+4.11	+4.11	+4.11
	-2.30	-2.30	-2.29	-0.00	-0.00	-0.00	+0.61	+2.29	+2.29
-2/2, 21	-0.54	-8.73	-8.73	+0.09	-1.92	-1.92	+2.87	+2.87	+2.87
	-2.20	-2.20	-2.21	-0.00	-0.00	-0.00	+0.03	+1.71	+1.71
-2/2, 22	+0.08	-8.48	-8.48	-0.62	-2.71	-2.71	+2.62	+2.62	+2.62
	-2.20	-2.20	-2.21	-0.00	+0.00	-0.02	+0.24	+1.92	+1.92
-2/2, 23	-0.72	-9.65	-9.65	+0.18	-1.93	-1.93	+2.87	+2.87	+2.87
	-2.20	-2.20	-2.21	-0.00	+0.00	-0.02	+0.09	+1.76	+1.76
-2/2, 24	+1.13	-8.15	-8.15	-0.35	-2.42	-2.42	+2.62	+2.62	+2.62
	-2.20	-2.20	-2.21	+0.00	+0.00	-0.02	-0.50	+1.18	+1.18

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)

station, chamber	x or ϕ_x	y or ϕ_y	z or ϕ_z
-2/2, 25	-0.04 -9.67 -9.14	+0.42 -1.54 -1.54	+2.87 +2.87 +2.87
	-2.20 -2.20 -2.19	+0.00 -0.00 +1.07	-0.14 +1.54 +0.71
-2/2, 26	+0.87 -9.10 -9.09	-0.68 -2.47 -2.46	+2.62 +2.62 +2.62
	-2.20 -2.20 -2.21	-0.00 -0.00 +2.49	-0.72 +0.96 -0.86
-2/2, 27	+0.28 -9.98 -9.98	-0.59 -2.15 -2.15	+1.21 +1.21 +1.21
	-1.90 -1.90 -1.89	-0.00 +0.00 -0.01	-0.56 +1.12 +1.12
-2/2, 28	+0.99 -9.52 -10.58	-1.04 -2.34 -2.34	+2.62 +2.62 +2.62
	-2.20 -2.20 -2.21	-0.00 -0.00 -1.39	-0.61 +1.07 +2.05
-2/2, 29	+0.56 -10.14 -10.14	-0.92 -1.92 -1.92	+2.87 +2.87 +2.87
	-2.20 -2.20 -2.21	-0.00 -0.00 -0.00	-0.28 +1.40 +1.40
-2/2, 30	+0.78 -10.07 -10.07	-0.61 -1.26 -1.26	+2.62 +2.62 +2.62
	-2.20 -2.20 -2.21	+0.00 +0.00 +0.01	-0.15 +1.53 +1.53
-2/2, 31	+0.86 -10.07 -10.07	-0.36 -0.66 -0.66	+2.87 +2.87 +2.87
	-2.20 -2.20 -2.21	-0.00 -0.00 +0.02	-0.68 +1.00 +1.00
-2/2, 32	+1.02 -9.93 -11.58	+1.62 +1.69 +1.69	+3.21 +3.21 +3.21
	-2.00 -2.00 -2.00	+0.00 -0.00 +1.27	-0.48 +1.19 +2.41
-2/2, 33	+1.90 -9.00 -9.00	+0.54 +0.98 +0.98	+2.87 +2.87 +2.87
	-2.20 -2.20 -2.21	+0.00 -0.00 +0.02	-0.89 +0.79 +0.79
-2/2, 34	+1.29 -9.51 -6.95	+1.45 +2.24 +2.24	+2.62 +2.62 +2.62
	-2.20 -2.20 -2.21	+0.00 -0.00 +1.89	-1.02 +0.66 -1.52
-2/2, 35	+2.36 -8.27 -8.27	+1.41 +2.52 +2.52	+2.87 +2.87 +2.87
	-2.20 -2.20 -2.21	+0.00 -0.00 +0.01	-0.80 +0.88 +0.88
-2/2, 36	+1.43 -8.98 -8.98	+1.63 +3.04 +3.04	+2.62 +2.62 +2.62
	-2.20 -2.20 -2.21	+0.00 +0.00 +0.01	-0.97 +0.71 +0.71

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)

station, chamber	x or ϕ_x	y or ϕ_y	z or ϕ_z
-3/1, 01	-0.56 +4.50 +4.50	-1.21 +2.93 +2.93	-11.38 -11.38 -11.38
	+2.50 +2.50 +2.49	+0.00 +0.00 -0.00	+1.03 -1.09 -1.09
-3/1, 02	-0.22 +3.44 +3.44	-1.58 +2.20 +2.20	-11.79 -11.79 -11.79
	+2.40 +2.40 +2.39	-0.00 +0.00 +0.00	+0.29 -1.83 -1.83
-3/1, 03	+1.04 +3.50 +3.50	-2.00 +0.98 +0.98	-11.38 -11.38 -11.38
	+2.50 +2.50 +2.49	+0.00 +0.00 +0.02	-0.25 -2.38 -2.38
-3/1, 04	+1.05 +2.67 +2.67	-0.85 +0.95 +0.95	-12.19 -12.19 -12.19
	+2.60 +2.60 +2.61	+0.00 -0.00 -0.01	+1.27 -0.85 -0.85
-3/1, 05	+2.24 +3.47 +6.23	-1.54 -1.13 -1.14	-11.38 -11.38 -11.38
	+2.50 +2.50 +2.49	-0.00 -0.00 +2.41	-0.09 -2.21 -3.94
-3/1, 06	+2.31 +3.64 +3.64	-2.14 -3.17 -3.17	-11.38 -11.38 -11.38
	+2.50 +2.50 +2.49	+0.00 -0.00 -0.00	+0.44 -1.69 -1.69
-3/1, 07	+1.72 +3.65 +3.65	-1.01 -3.35 -3.35	-11.38 -11.38 -11.38
	+2.50 +2.50 +2.49	-0.00 -0.00 +0.01	-1.07 -3.19 -3.19
-3/1, 08	+2.11 +5.03 +5.03	-1.80 -5.19 -5.19	-11.19 -11.19 -11.19
	+2.30 +2.30 +2.29	+0.00 -0.00 +0.02	-1.86 -3.99 -3.99
-3/1, 09	+0.00 +4.23 +4.23	-0.00 -4.01 -4.01	-11.38 -11.38 -11.38
	+2.50 +2.50 +2.49	-0.00 -0.00 -0.01	+0.00 -2.12 -2.12
-3/1, 10	+1.77 +7.44 +7.44	+1.69 -2.46 -2.46	-11.89 -11.89 -11.89
	+2.70 +2.70 +2.70	+0.00 -0.00 +0.00	-0.70 -2.82 -2.82
-3/1, 11	+1.67 +8.74 +8.74	+0.07 -3.73 -3.73	-11.38 -11.38 -11.38
	+2.50 +2.50 +2.49	+0.00 +0.00 -0.01	-0.19 -2.31 -2.31
-3/1, 12	+0.82 +9.08 +9.08	+0.59 -2.40 -2.40	-11.38 -11.38 -11.38
	+2.50 +2.50 +2.49	+0.00 -0.00 +0.02	-0.74 -2.86 -2.86

All the values

Jim Pivarski 42/46



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)

station, chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
-3/1, 13	+1.28	+10.39	+10.39	-0.88	-2.70	-2.70	-11.38	-11.38	-11.38
	+2.50	+2.50	+2.49	-0.00	-0.00	+0.00	-0.23	-2.36	-2.36
-3/1, 14	+1.28	+10.78	+10.78	+0.50	+0.07	+0.07	-11.09	-11.09	-11.09
	+2.40	+2.40	+2.39	+0.00	-0.00	-0.00	-0.29	-2.42	-2.42
-3/1, 15	-0.09	+9.31	+9.31	-0.02	+0.99	+0.99	-11.38	-11.38	-11.38
	+2.50	+2.50	+2.49	-0.00	-0.00	-0.00	+0.41	-1.71	-1.71
-3/1, 16	-0.71	+8.10	+8.10	-0.70	+1.64	+1.64	-9.99	-9.99	-9.99
	+2.50	+2.50	+2.49	-0.00	-0.00	-0.01	-0.42	-2.55	-2.55
-3/1, 17	-1.37	+6.43	+6.43	-0.17	+3.20	+3.20	-11.38	-11.38	-11.38
	+2.50	+2.50	+2.49	+0.00	+0.00	-0.00	+1.05	-1.07	-1.07
-3/1, 18	-0.12	+6.37	+6.37	-0.74	+3.26	+3.26	-11.38	-11.38	-11.38
	+2.50	+2.50	+2.49	+0.00	-0.00	+0.00	+1.17	-0.95	-0.95
-3/2, 01	-0.36	+8.77	+8.77	-0.54	+1.70	+1.70	-4.00	-4.00	-4.00
	+2.70	+2.70	+2.70	+0.00	+0.00	+0.00	+0.05	-1.81	-1.81
-3/2, 02	-1.03	+7.72	+7.72	-1.32	+0.77	+0.77	-3.69	-3.69	-3.69
	+2.70	+2.70	+2.70	-0.00	+0.00	+0.00	+0.27	-1.59	-1.59
-3/2, 03	-0.65	+7.74	+7.74	-0.12	+1.77	+1.77	-3.69	-3.69	-3.69
	+2.90	+2.90	+2.91	+0.00	-0.00	+0.01	+0.25	-1.60	-1.60
-3/2, 04	+0.35	+8.43	+7.81	-1.18	+0.45	+0.45	-3.69	-3.69	-3.69
	+2.70	+2.70	+2.70	+0.00	-0.00	-2.23	-0.03	-1.88	-4.97
-3/2, 05	-0.06	+7.76	+7.76	+0.05	+1.36	+1.36	-4.00	-4.00	-4.00
	+2.70	+2.70	+2.70	+0.00	-0.00	-0.01	+0.74	-1.11	-1.11
-3/2, 06	+0.03	+7.66	+8.36	-0.93	+0.03	+0.03	-3.69	-3.69	-3.69
	+2.70	+2.70	+2.69	-0.00	-0.00	-0.93	+0.35	-1.50	+0.38

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)

station, chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
-3/2, 07	+1.73	+9.22	+7.85	-0.75	-0.18	-0.17	-4.00	-4.00	-4.00
	+2.70	+2.70	+2.69	+0.00	+0.00	+2.14	-0.56	-2.41	-2.85
-3/2, 08	+2.26	+9.68	+8.48	-0.98	-0.81	-0.81	-4.29	-4.29	-4.29
	+3.00	+3.00	+2.99	+0.00	+0.00	-2.95	-0.19	-2.04	-3.77
-3/2, 09	+1.17	+8.59	+8.59	-0.65	-0.88	-0.88	-4.00	-4.00	-4.00
	+2.70	+2.70	+2.70	+0.00	-0.00	+0.00	-0.06	-1.91	-1.91
-3/2, 10	+2.76	+10.26	+10.26	-0.21	-0.84	-0.84	-3.69	-3.69	-3.69
	+2.70	+2.70	+2.70	+0.00	+0.00	+0.00	-0.14	-1.99	-1.99
-3/2, 11	+2.07	+9.71	+9.71	-2.07	-3.09	-3.09	-4.00	-4.00	-4.00
	+2.70	+2.70	+2.70	-0.00	-0.00	+0.00	-1.00	-2.85	-2.85
-3/2, 12	+2.67	+10.52	+10.52	-0.79	-2.16	-2.16	-3.69	-3.69	-3.69
	+2.70	+2.70	+2.70	+0.00	-0.00	-0.02	-0.71	-2.56	-2.56
-3/2, 13	+0.00	+8.11	+8.57	-0.00	-1.67	-1.67	-4.00	-4.00	-4.00
	+2.70	+2.70	+2.70	-0.00	+0.00	+1.24	+0.00	-1.85	-1.57
-3/2, 14	+1.47	+9.89	+9.02	-1.66	-3.59	-3.59	-3.69	-3.69	-3.69
	+2.70	+2.70	+2.69	-0.00	-0.00	-2.40	-0.16	-2.01	+0.17
-3/2, 15	+0.00	+8.78	+7.69	-0.00	-2.13	-2.13	-4.19	-4.19	-4.19
	+2.60	+2.60	+2.60	-0.00	-0.00	+0.53	+0.00	-1.85	-0.65
-3/2, 16	+3.65	+12.81	+12.81	+0.54	-1.73	-1.73	-3.69	-3.69	-3.69
	+2.70	+2.70	+2.70	+0.00	+0.00	-0.01	-0.56	-2.41	-2.41
-3/2, 17	+1.14	+10.70	+10.70	+0.38	-1.96	-1.96	-4.00	-4.00	-4.00
	+2.70	+2.70	+2.70	-0.00	+0.00	-0.02	-0.17	-2.02	-2.02
-3/2, 18	+0.00	+9.97	+9.97	-0.00	-2.33	-2.33	-3.69	-3.69	-3.69
	+2.70	+2.70	+2.70	+0.00	+0.00	+0.00	-0.00	-1.85	-1.85

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)

station, chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
-3/2, 19	+2.87	+13.24	+13.24	+0.93	-1.33	-1.33	-4.00	-4.00	-4.00
	+2.70	+2.70	+2.70	+0.00	+0.00	-0.00	-0.33	-2.18	-2.18
-3/2, 20	+1.50	+12.25	+12.25	+1.76	-0.36	-0.36	-4.19	-4.19	-4.19
	+2.80	+2.80	+2.80	-0.00	+0.00	+0.00	-0.17	-2.02	-2.02
-3/2, 21	+1.85	+12.95	+12.95	+1.01	-0.90	-0.90	-4.00	-4.00	-4.00
	+2.70	+2.70	+2.70	-0.00	+0.00	-0.00	-0.31	-2.16	-2.16
-3/2, 22	+1.75	+13.16	+13.16	+1.54	-0.11	-0.11	-3.69	-3.69	-3.69
	+2.70	+2.70	+2.70	+0.00	-0.00	+0.01	-0.15	-2.00	-2.00
-3/2, 23	+2.06	+13.73	+13.73	+0.99	-0.34	-0.34	-4.00	-4.00	-4.00
	+2.70	+2.70	+2.70	-0.00	-0.00	-0.01	-0.37	-2.22	-2.22
-3/2, 24	+0.32	+12.19	+12.19	-0.65	-1.62	-1.62	-3.69	-3.69	-3.69
	+2.70	+2.70	+2.70	-0.00	-0.00	-0.01	+0.38	-1.47	-1.47
-3/2, 25	+0.00	+12.00	+12.00	-0.00	-0.59	-0.59	-4.00	-4.00	-4.00
	+2.70	+2.70	+2.70	+0.00	+0.00	+0.00	-0.00	-1.85	-1.85
-3/2, 26	+1.07	+13.14	+13.14	+0.19	-0.00	-0.00	-3.69	-3.69	-3.69
	+2.70	+2.70	+2.70	+0.00	-0.00	+0.01	+0.06	-1.79	-1.79
-3/2, 27	+1.55	+13.61	+13.61	+0.49	+0.70	+0.70	-4.09	-4.09	-4.09
	+2.20	+2.20	+2.21	+0.00	+0.00	+0.01	-0.23	-2.08	-2.08
-3/2, 28	+0.05	+12.05	+12.05	+1.96	+2.58	+2.58	-3.69	-3.69	-3.69
	+2.70	+2.70	+2.70	+0.00	+0.00	-0.00	+0.96	-0.89	-0.89
-3/2, 29	-0.75	+11.10	+11.10	+0.10	+1.09	+1.09	-4.00	-4.00	-4.00
	+2.70	+2.70	+2.70	+0.00	+0.00	+0.00	+0.91	-0.95	-0.95
-3/2, 30	+0.14	+11.78	+10.61	+0.73	+2.08	+2.08	-3.69	-3.69	-3.69
	+2.70	+2.70	+2.71	+0.00	+0.00	-0.24	+0.25	-1.60	-2.69

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)

station, chamber	x or ϕ_x	y or ϕ_y	z or ϕ_z
-3/2, 31	-1.54 +9.84 +9.84	-0.83 +0.82 +0.82	-4.00 -4.00 -4.00
	+2.70 +2.70 +2.70	+0.00 +0.00 +0.01	-0.36 -2.22 -2.22
-3/2, 32	-1.61 +9.46 +11.98	-0.72 +1.19 +1.19	-2.59 -2.59 -2.59
	+2.70 +2.70 +2.70	+0.00 -0.00 +0.27	+0.21 -1.64 -3.95
-3/2, 33	-1.21 +9.50 +9.50	+0.60 +2.72 +2.72	-4.00 -4.00 -4.00
	+2.70 +2.70 +2.70	-0.00 -0.00 -0.00	-0.30 -2.15 -2.15
-3/2, 34	-1.39 +8.94 +8.94	-0.62 +1.63 +1.63	-3.69 -3.69 -3.69
	+2.70 +2.70 +2.70	-0.00 +0.00 +0.00	-0.01 -1.86 -1.86
-3/2, 35	-2.33 +7.60 +7.60	-0.59 +1.73 +1.73	-4.00 -4.00 -4.00
	+2.70 +2.70 +2.70	-0.00 +0.00 +0.01	+0.88 -0.97 -0.97
-3/2, 36	-1.32 +8.21 +8.21	-0.22 +2.09 +2.09	-3.69 -3.69 -3.69
	+2.70 +2.70 +2.70	-0.00 -0.00 +0.00	-0.31 -2.16 -2.16
-4/1, 01	-0.04 +2.35 +2.35	-0.07 +4.80 +4.80	-8.49 -8.49 -8.49
	+1.60 +1.60 +1.58	-0.00 +0.00 -0.00	-0.01 -1.58 -1.58
-4/1, 02	-1.27 -0.44 -0.44	+0.36 +4.35 +4.35	-8.49 -8.49 -8.49
	+1.60 +1.60 +1.58	-0.00 -0.00 -0.00	-0.22 -1.79 -1.79
-4/1, 03	-0.16 -0.50 -0.50	-1.35 +1.26 +1.26	-8.49 -8.49 -8.49
	+1.60 +1.60 +1.58	+0.00 -0.00 +0.03	+0.27 -1.30 -1.30
-4/1, 04	+0.50 -0.47 -0.47	-1.23 -0.30 -0.30	-9.39 -9.39 -9.39
	+1.50 +1.50 +1.50	-0.00 +0.00 +0.00	+1.03 -0.54 -0.54
-4/1, 05	+0.29 -0.69 -0.69	-1.48 -2.35 -2.35	-8.49 -8.49 -8.49
	+1.60 +1.60 +1.58	+0.00 -0.00 -0.01	+0.55 -1.02 -1.02
-4/1, 06	+1.93 +1.55 +1.55	-1.55 -4.11 -4.11	-8.49 -8.49 -8.49
	+1.60 +1.60 +1.58	+0.00 +0.00 +0.02	-0.79 -2.36 -2.36

All the values

Jim Pivarski 46/46



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)

station, chamber	x or ϕ_x			y or ϕ_y			z or ϕ_z		
-4/1, 07	+0.34	+1.11	+1.11	-1.40	-5.34	-5.34	-8.49	-8.49	-8.49
	+1.60	+1.60	+1.58	-0.00	-0.00	-0.00	+0.58	-0.98	-0.98
-4/1, 08	+2.98	+5.29	+5.29	-1.18	-6.03	-6.03	-8.49	-8.49	-8.49
	+1.60	+1.60	+1.58	-0.00	-0.00	+0.00	-0.93	-2.50	-2.50
-4/1, 09	+2.43	+6.51	+6.51	+0.61	-4.57	-4.57	-8.49	-8.49	-8.49
	+1.60	+1.60	+1.58	+0.00	+0.00	+0.01	-1.15	-2.72	-2.72
-4/1, 10	+1.62	+7.47	+7.47	+0.36	-4.52	-4.52	-8.49	-8.49	-8.49
	+1.60	+1.60	+1.58	-0.00	+0.00	+0.00	-0.08	-1.64	-1.64
-4/1, 11	+2.04	+9.45	+9.45	+0.79	-3.20	-3.20	-8.49	-8.49	-8.49
	+1.60	+1.60	+1.58	+0.00	-0.00	-0.00	-0.38	-1.95	-1.95
-4/1, 12	+1.93	+10.51	+10.51	+0.89	-1.74	-1.74	-8.49	-8.49	-8.49
	+1.60	+1.60	+1.58	-0.00	+0.00	+0.00	-0.63	-2.19	-2.19
-4/1, 13	+1.43	+10.64	+10.64	+0.80	-0.14	-0.14	-8.49	-8.49	-8.49
	+1.60	+1.60	+1.58	-0.00	-0.00	+0.01	-0.91	-2.47	-2.47
-4/1, 14	+0.69	+9.91	+9.91	+1.00	+1.86	+1.86	-7.49	-7.49	-7.49
	+1.70	+1.70	+1.69	+0.00	-0.00	+0.00	+0.12	-1.45	-1.45
-4/1, 15	+0.60	+9.22	+9.22	-0.36	+2.18	+2.18	-8.49	-8.49	-8.49
	+1.60	+1.60	+1.58	+0.00	-0.00	-0.00	-0.23	-1.79	-1.79
-4/1, 16	-0.44	+7.03	+7.03	+0.13	+4.06	+4.06	-8.49	-8.49	-8.49
	+1.60	+1.60	+1.58	-0.00	-0.00	-0.06	+0.11	-1.45	-1.45
-4/1, 17	+0.85	+6.78	+6.78	+0.22	+5.06	+5.06	-8.49	-8.49	-8.49
	+1.60	+1.60	+1.58	+0.00	-0.00	+0.00	-0.32	-1.88	-1.88
-4/1, 18	+0.44	+4.60	+4.60	+0.73	+5.90	+5.90	-8.49	-8.49	-8.49
	+1.60	+1.60	+1.58	-0.00	+0.00	-0.00	-1.02	-2.59	-2.59