N→ Δ LIST OF COMPLETED RUNS

Survey Information

Electron Spectrometer

upstream +

date	angle	pointing (mm)	vert. offset (mm)	x offset (mm)	z offset (mm)	valid runs
May 15	18.083°	2.44±0.50	0.23	2.32±0.48	-0.76±0.16	1025-1086
June 6	14.100°	1.19±0.50	-0.20	1.15±0.49	-0.29±0.12	1360-2675
July 6	18.085°	1.91±0.50	0.06	1.82±0.48	-0.59±0.16	2676-2688
Aug. 1	14.102°	0.87±0.50	-0.28	0.84±0.49	-0.21±0.12	2838-4040

Hadron Spectrometer

upstream +

date	angle	pointing (mm)	vert. offset (mm)	x offset (mm)	z offset (mm)	valid runs
May 17	47.100°	1.09±0.50	0.69	-0.74±0.34	-0.80±0.37	1025-1086
June 5	49.725°	0.82±0.50	0.58	-0.53±0.32	-0.63±0.38	1761-2033
July 5 (1st)	47.101°	0.34±0.50	0.58	-0.23±0.34	-0.25±0.37	2678-2688
July 5 (2nd)	16.010°	-1.15±0.50	-0.29	1.11±0.48	0.32±0.14	2720-2733
Aug. 2	54.204°	0.90±0.50	1.20	-0.53±0.29	-0.73±0.41	4035-4040

Target

downstream +

date	before pump solid targ z	and cool down dummy targ z	after pump solid targ z	and cool down dummy targ z	valid runs
May 16	1.57±0.50 mm	1.04±0.50 mm	1.01±0.50 mm	0.58±0.50 mm	1025-1340
May 26	1.14±0.50 mm	0.59±0.50 mm	0.46±0.50 mm	0.09±0.50 mm	1346-2688
June 30			1.14±0.50 mm	0.59±0.50 mm	2720-4040

LVDT Results

Electron Arm

θ_{cm}	run	angle	pointing (mm)	xoffset (mm)	yoffset (mm)	zoffset (mm)
	1061	18.082°	2.32	2.207	0.003	-0.721
0°	1216	14.092°	1.22	1.180	-0.097	-0.296
25°	1240	14.092°	1.19	1.156	-0.102	-0.290
25°	1271	14.092°	1.20	1.162	-0.128	-0.292
−25°	1273	14.092°	1.22	1.185	-0.102	-0.298
−25°	1274	14.092°	1.22	1.185	-0.101	-0.298
−25°	1310	14.092°	1.22	1.188	-0.117	-0.298
50°	1311	14.093°	1.18	1.142	-0.157	-0.287
50°	1390	14.092°	1.11	1.079	-0.152	-0.271
−50°	1399	14.092°	1.15	1.114	-0.089	-0.280
−50°	1420	14.098°	0.21	0.201	-0.069	-0.050
−90°	1427	14.091°	1.17	1.132	-0.049	-0.284
−90°	1459	14.098°	0.21	0.208	-0.014	-0.052
90°	1467	14.092°	1.09	1.059	-0.105	-0.266
90°	1547	14.092°	1.10	1.070	-0.131	-0.269
135°	1562	14.092°	1.10	1.068	-0.129	-0.268
135°	1658	14.092°	1.11	1.073	-0.156	-0.270
−135°	1660	14.091°	1.18	1.144	-0.072	-0.287
−135°	1687	14.091°	1.18	1.147	-0.062	-0.288
155°	1696	14.092°	1.13	1.099	-0.178	-0.276
155°	1758	14.092°	1.13	1.101	-0.155	-0.276
−155°	1761	14.091°	1.18	1.141	-0.095	-0.287
−155°	1796	14.091°	1.18	1.143	-0.059	-0.287
−155°	1831	14.096°	1.11	1.081	-0.128	-0.271
−155°	2012	14.093°	1.15	1.112	-0.096	-0.279
−155°	2014	14.093°	1.15	1.111	-0.095	-0.279
−135°	2041	14.093°	1.16	1.123	-0.055	-0.282
−135°	2252	14.093°	1.18	1.140	-0.130	-0.286
−90°	2260	14.093°	1.16	1.125	-0.120	-0.283
−90°	2429	14.093°	1.16	1.122	1.653	-0.282
−50°	2432	14.093°	1.15	1.118	1.641	-0.281
−50°	2498	14.093°	1.16	1.126	1.645	-0.283
0°	2500	14.093°	1.13	1.097	1.619	-0.276
25°	2628	14.093°	1.13	1.095	1.605	-0.275
	2688	18.087°	2.02	1.922	1.783	-0.628
	2722	56.867°	1.77	0.965	0.597	-1.478
50°	2838	14.096°	0.74	0.720	1.519	-0.181
135°	3308	14.095°	0.82	0.798	-0.240	-0.200
135°	3311	14.095°	0.82	0.798	-0.240	-0.200
155°	3648	14.095°	0.84	0.810	-0.148	-0.203
180°	3936	14.095°	0.85	0.828	-0.174	-0.208
	4035	14.094°	0.89	0.868	-0.122	-0.218

Hadron Arm

θ_{cm}	run	angle	pointing (mm)	xoffset (mm)	yoffset (mm)	zoffset (mm)
	1061	47.091°	1.22	-0.829	0.879	-0.892
0°	1216	42.307°	-2.53	1.868	0.907	1.700
25°	1240	38.121°	-3.00	2.364	0.976	1.854
25°	1271	38.120°	-2.99	2.356	0.956	1.847
−25°	1273	46.335°	0.90	-0.618	0.671	-0.648
−25°	1274	46.334°	1.08	-0.748	0.780	-0.783
−25°	1310	46.334°	1.10	-0.761	0.736	-0.797
50°	1311	34.289°	-3.43	2.835	0.721	1.932
50°	1390	34.293°	-3.41	2.818	0.803	1.920
−50°	1399	50.164°	0.48	-0.306	0.747	-0.367
−50°	1420	50.163°	0.50	-0.319	0.765	-0.382
−90°	1427	54.787°	0.78	-0.449	0.996	-0.636
−90°	1459	54.787°	0.82	-0.475	1.068	-0.673
90°	1467	29.814°	-3.71	3.222	0.519	1.845
90°	1547	29.814°	-3.69	3.201	0.542	1.833
135°	1562	30.810°	-3.03	2.603	0.550	1.551
135°	1658	30.810°	-3.12	2.681	0.456	1.598
−135°	1660	53.639°	0.49	-0.288	0.708	-0.392
−135°	1687	53.639°	0.55	-0.325	0.757	-0.441
155°	1696	34.734°	-3.38	2.779	0.683	1.925
155°	1758	34.732°	-3.40	2.797	0.724	1.938
−155°	1761	49.724°	0.81	-0.521	0.618	-0.616
−155°	1796	49.724°	0.91	-0.589	0.728	-0.695
−155°	1831	49.724°	0.93	-0.601	0.696	-0.710
−155°	2012	49.724°	0.86	-0.558	0.712	-0.659
−155°	2014	49.724°	0.87	-0.564	0.717	-0.666
−135°	2041	53.645°	0.00	0.002	0.804	0.003
−135°	2252	53.644°	0.03	-0.019	0.699	-0.026
−90°	2260	54.789°	0.21	-0.120	0.841	-0.170
−90°	2429	54.789°	0.25	-0.145	0.847	-0.205
−50°	2432	50.182°	-2.45	1.572	0.658	1.884
−50°	2498	50.183°	-2.54	1.629	0.668	1.954
0°	2500	42.309°	-2.91	2.152	0.745	1.957
25°	2628	38.117°	-3.09	2.432	0.723	1.907
	2688	47.096°	0.48	-0.326	0.555	-0.351
	2722	16.010°	-1.26	1.208	0.108	0.346
50°	2838	34.293°	-3.95	3.262	0.398	2.223
90°	3046	29.816°	-3.90	3.382	0.139	1.937
135°	3308	30.810°	-3.06	2.626	0.226	1.565
135°	3311	30.810°	-3.05	2.616	0.236	1.559
155°	3648	34.706°	0.32	-0.265	0.605	-0.184
180°	3936	42.286°	0.28	-0.210	0.449	-0.191
	4035	54.204°	0.62	-0.361	0.591	-0.500

May 19 - June 5 Run Period

- Runs 1019-1024 - HARP scans

Hadron Arm Optics Check

Runs 1025-1038: Prescales 1, 1, 1, 1, 65535
Runs 1039-1044: Prescales 1, 1, 1000, 1000, 65535

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
1025	1.7820	47.087	3.6597	18.065	carbon	6msr/sieve	wrong HRSE Q2
1026					4cm dum		wrong HRSE Q2
1027					15cm dum		wrong HRSE Q2
1028					10cm dum		wrong HRSE Q2
1029					carbon	6msr/6msr	wrong HRSE Q2
1030					15cm dum		wrong HRSE Q2
1031					10cm dum		wrong HRSE Q2
1032					4cm dum		wrong HRSE Q2
1033	0.0000				LH2	sieve/sieve	raster 0.5*0.5 HRSH field changing redo HRSE optics
1034	0.5222				carbon		no raster
1035	0.0000				4cm dum		
1036					4cm dum		
1037					4cm dum		raster 0.5*0.5
1038	1.0383				15cm dum		
1039	1.1033				15cm dum		
1040	1.3228				10cm dum		
1041	1.4475				10cm dum	sieve/6msr	no raster
1042	1.4709				15cm dum		
1043	1.5043				4cm dum		
1044	1.5190				carbon		

- Run 1045 - HARP scan #875
- Run 1046 - HARP scan #876
- Run 1047 - HARP scan #878
- Run 1048 - HARP scan #879
- Run 1049 - HARP scan #880
- Run 1050 - HARP scan #881
- Run 1051 - HARP scan #882
- Run 1052 - HARP scan #883
- Run 1053 - HARP scan #884
- Run 1054 - HARP scan #885

$Q^2 = 1.64$ GeV

Spectrometer $\vec{q}$ pointing check, $Q^2 = 1.64$ GeV

Run 1055: Prescales 10, 10, 160, 1000, 1
Run 1056: Prescales 1000, 80, 100, 40, 1
Runs 1057-1061: Prescales 1, 80, 1, 40, 1

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
1055	1.5521	47.087	3.6597	18.065	LH2	6msr/sieve	spot 2*4
1056					LH2	6msr/6msr	
1057					10cm dum		raster off
1058					15cm dum		
1060					4cm dum		raster off
1061					carbon		

Run 1059 - JUNK

Hydrogen elastic δscan in the HRSE, $Q^2 = 1.64$ GeV

Runs 1063-1065: Prescales 10, 80, 1, 40, 1
Run 1066: Prescales 10, 80, 10, 40, 1
Run 1067, 1070-1075: Prescales 65535, 65535, 65535, 65535, 1
Run 1076: Prescales 2, 1, 1, 1, 1
Runs 1077-1079: Prescales 1, 1, 1, 1, 1
Runs 1080-1085: Prescales 65535, 65535, 65535, 65535, 1

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
1063	1.5521	47.087	3.8064	18.06	LH2	6msr/6msr	delta +4%
1064					LH2	6msr/open	
1065					LH2	6msr/sieve	wrong prescales
1066			3.7332		LH2		delta +2%
1067					LH2		only T5s
1070					LH2	6msr/6msr	
1071					LH2	6msr/open	
1072			3.8064		LH2	6msr/sieve	delta +4% (redo 1065)
1073			3.660		LH2		delta 0%
1074					LH2	6msr/6msr	
1075					LH2	6msr/open	
1076					carbon		singles only
1077					4cm dum		singles only
1078					15cm dum		singles only
1079					10cm dum		singles only
1080			3.5868		LH2		delta -2%
1081					LH2	6msr/6msr	
1082					LH2	6msr/sieve	
1083			3.5136		LH2		delta -4%
1084					LH2	6msr/6msr	
1085					LH2	6msr/open	

Run 1062 - JUNK, CODA problem
Runs 1068-1069 - JUNK - CODA died

BCM callibration

Run 1086: Prescales 65535, 65535, 65535, 65535, 1

run	p_h	θ_h	p_e	θ_e	target	H/E
1086	1.4150	47.087	3.8039	18.069	LH2	6msr/6msr

$Q^2 = 1.37$ GeV

Pointing reference measurement, $Q^2 = 1.37$ GeV

Runs 1087-1089: Prescales 65535, 65535, 65535, 65535, 1
Run 1090: Prescales 1, 1, 1, 1, 1

run	p_h	θ_h	p_e	θ_e	target	H/E
1087	1.3780	50.326	3.8067	16.149	carbon	6msr/6msr
1088					4cm dum	
1089					15cm dum	
1090					15cm dum	

Hydrogen elastic check, $Q^2 = 1.37$ GeV

Runs 1091-1093: Prescales 1000, 70, 150, 20, 1

run	p_h	θ_h	p_e	θ_e	target	H/E
1091	1.3780	50.326	3.8067	16.149	LH2	6msr/6msr
1092					LH2	6msr/open
1093					LH2	6msr/sieve

Runs 1094-1095 - JUNK, test raster

- Run 1096 - HARP scan #887

Target luminosity current scan, $Q^2 = 1.37$ GeV

Runs 1097-1102: Prescales 1, 1, 1, 1, 1
Runs 1103-1105: Prescales 4, 1, 1, 1, 1
Run 1106: Prescales 10, 10, 4, 10, 1
Run 1107: Prescales 20, 20, 8, 20, 1
Run 1108: Prescales 30, 30, 16, 30, 1
Run 1109: Prescales 45, 45, 24, 45, 1
Run 1110: Prescales 55, 55, 32, 55, 1
Run 1111: Prescales 4, 4, 1, 4, 1
Runs 1112-1113: Prescales 50, 50, 24, 50, 1
Runs 1114-1119: Prescales 1, 10, 1, 10, 1

run	p_h	θ_h	p_e	θ_e	target	H/E	current	comments
1097	1.3780	50.326	3.8067	16.149	LH2	6msr/6msr	0.9582	fast feedback off
1098					LH2		0.9867	fast feedback on
1099					carbon		1.0436	
1100					carbon		0.8961	
1101					carbon		2.3558	
1102					LH2		2.4688	
1103					LH2		4.3960	
1104					LH2		4.4001	
1105					LH2		4.8509	
1106					LH2		8.4060	
1107					LH2		19.2013	
1108					LH2		27.7506	
1109					LH2		31.9160	
1110					LH2		50.7433	
1111					LH2		49.8218	wrong prescales
1112					LH2		43.8214	
1113					carbon		48.5898	
1114					carbon		45.9860	
1115					carbon		33.7819	40 μA
1116					carbon		23.2026	30 μA
1117					carbon		16.8305	20 μA
1118					carbon		9.1746	10 μA
1119					carbon		2.6923	5 μA

*Note for Run 1119: The target was moved to LH2 at about event 150,000.

Trigger efficiency check, $Q^2 = 1.37$ GeV

Run 1120: Prescales 1, 1, 1, 1, 10000
Run 1121: Prescales 20, 20, 20, –, 10000
Run 1122: Prescales 20, 20, 20, 20, 10000
Run 1123: Prescales 10, 10, 10, 10, 10000
Run 1124: Prescales 40, 40, 40, 40, 1
Run 1125: Prescales 400, 400, 40, 40, 2

run	p_h	θ_h	p_e	θ_e	target	H/E	current	comments
1120	1.3780	50.326	3.8067	16.149	LH2	6msr/6msr	4.8632	
1121					LH2		43.4292	wrong ps4
1122					LH2		46.2890	
1123					LH2		44.2627	
1124					LH2		48.0819	
1125					LH2		48.0175	adjusting prescales

Run 1126 - JUNK - CODA problem

Target luminosity raster scan, $Q^2 = 1.37$ GeV

Runs 1127-1130: Prescales 500, 500, 500, 500, 1
Runs 1131-1134: Prescales 20, 5, 10, 5, 1

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
1127	1.3780	50.326	3.8067	16.149	LH2	6msr/6msr	raster 4*4 / HARP 888
1128					LH2		raster 3*3 / HARP 889
1129					LH2		raster 2*2 / HARP 890
1130					LH2		raster 1*1 / HARP 891
1131					carbon		raster 1*1 / HARP 892
1132					carbon		raster 2*2 / HARP 893
1133					carbon		raster 3*3 / HARP 894
1134					carbon		raster 4*4 / HARP 895

$Q^2 = 1.88$ GeV

Pointing reference measurement, $Q^2 = 1.88$ GeV

Runs 1135-1138: Prescales 1, 1, 1, 1, 1

run	p_h	θ_h	p_e	θ_e	target	H/E
1135	1.6981	44.609	3.5330	19.689	carbon	6msr/6msr
1136					4cm dum	
1137					15cm dum	
1138					10cm dum	

Hydrogen elastic check, $Q^2 = 1.88$ GeV

Runs 1139-1141: Prescales 50, 10, 20, 7, 1

run	p_h	θ_h	p_e	θ_e	target	H/E
1139	1.6981	44.609	3.5330	19.689	LH2	6msr/6msr
1140					LH2	6msr/open
1141					LH2	6msr/sieve

$Q^2 = 2.65$ GeV

Hydrogen elastic, $Q^2 = 2.65$ GeV

Run 1143: Prescales 50, 10, 20, 7, 1

run	p_h	θ_h	p_e	θ_e	target	H/E
1143	2.1568	37.726	3.1217	24.966	LH2	6msr/6msr

Run 1142 - JUNK, wrong trigger

Pointing reference measurement, $Q^2 = 2.65$ GeV

Runs 1144-1147: Prescales 1, 1, 1, 1, 1

run	p_h	θ_h	p_e	θ_e	target	H/E
1144	2.1568	37.726	3.1217	24.966	10cm dum	6msr/6msr
1145					15cm dum	
1146					4cm dum	
1147					carbon	

$Q^2 = 3.48$ GeV

Pointing reference measurement, $Q^2 = 3.48$ GeV

Runs 1148-1151: Prescales 1, 1, 1, 1, 1

run	p_h	θ_h	p_e	θ_e	target	H/E
1148	2.6283	31.739	2.6830	30.966	carbon	6msr/6msr
1149					4cm dum	
1150					15cm dum	
1151					10cm dum	

Hydrogen elastic, $Q^2 = 3.48$ GeV

Run 1152: Prescales 10, 10, 10, 10, 1

run	p_h	θ_h	p_e	θ_e	target	H/E
1152	2.6283	31.739	2.6830	30.966	LH2	6msr/6msr

$Q^2 = 4.13$ GeV

Hydrogen elastic, $Q^2 = 4.13$ GeV

Run 1153: Prescales 10, 10, 10, 10, 1

run	p_h	θ_h	p_e	θ_e	target	H/E
1153	2.9708	31.740	2.3583	30.966	LH2	6msr/6msr

Pointing reference measurement, $Q^2 = 4.13$ GeV

Runs 1154-1157: Prescales 1, 1, 1, 1, 1

run	p_h	θ_h	p_e	θ_e	target	H/E
1154	2.9708	27.831	2.3583	35.967	carbon	6msr/6msr
1155					4cm dum	
1156					15cm dum	
1157					10cm dum	

BCM Calibrations

Runs 1158-1159: Prescales 1, 1, 1, 1, 1

run	p_h	θ_h	p_e	θ_e	target	H/E
1158	0.000	27.831	3.5625	35.97	LH2	6msr/6msr
1159	2.6854	27.799	3.8067		LH2	

Sieve slit run on carbon

Run 1160: Prescales 1, 1, 1, 1, 1

run	p_h	θ_h	p_e	θ_e	target	H/E
1160	2.4929	50.322	3.8067	16.154	carbon	6msr/sieve

FPP straight throughs

Run 1161: Prescales 1000000, 1000000, 1, 1000000, 1

run	p_h	θ_h	p_e	θ_e	target	H/E
1161	1.3780	50.322	3.8067	16.154	LH2	6msr/sieve

False asymmetry and A_c for $p_h = 1.378\,\mathrm{GeV}$

Runs 1162-1175, 1177-1204: Prescales 22000, 1400, 5400, 400, 1

run	p_h	θ_h	p_e	θ_e	target	H/E
1162-1174	1.3780	50.322	3.8067	16.154	LH2	open/6msr
1175	0.000				LH2	
1177-1204	1.3780				LH2	

Run 1176 - JUNK - high deadtime

Pointing reference measurement

Runs 1205-1209: Prescales 1, 1400, 1, 400, 1

run	p_h	θ_h	p_e	θ_e	target	H/E
1205	1.3780	50.322	3.8067	16.154	10cm dum	open/6msr
1206					10cm dum	
1207					15cm dum	
1208					4cm dum	
1209					carbon	

- Run 1210 - HARP scan #898

Transitional Kinematics Setting - hadron arm at H elastic 1.37 GeV^2 setting, electron arm at N-delta thcm=0 setting

Run 1211: Prescales 1, 1, 1, 1, 1
Runs 1212-1214: Prescales 10, 1, 1, 1, 1
Run 1215: Prescales 300, 65535, 10, 65535, 1

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
1211	1.3780	50.322	3.6683	14.075	carbon	6msr/6msr	pointing ref
1212					4cm dum		pointing ref
1213					15cm dum		pointing ref
1214					10cm dum		pointing ref
1215					LH2		real measurement for rate-luminosity bootstrapping

$\theta_{cm} = 0^\circ$

Pointing reference, $\theta_{cm} = 0^\circ$

Run 1216: Prescales 1, 1, 1, 1, 1
Runs 1217-1219: Prescales 10, 1, 1, 1, 1

run	p_h	θ_h	p_e	θ_e	target	H/E
1216	1.3780	42.303	3.6683	14.075	carbon	6msr/6msr
1217					4cm dum	
1218					15cm dum	
1219					10cm dum	

Trigger efficiency studies, $\theta_{cm} = 0^\circ$

Run 1220: Prescales 1, 1, 1, 1, 65535
Runs 1221-1222: Prescales 10, 1, 1, 1, 65535

run	p_h	θ_h	p_e	θ_e	target	H/E
1220	1.3780	42.303	3.6683	14.075	LH2	6msr/6msr
1221					LH2	
1222					LH2	

Production point, $\theta_{cm} = 0^\circ$

Runs 1223, 1225-1238: Prescales 65535, 3000, 9000, 500, 1

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
1223	1.3780	42.303	3.6683	14.075	LH2	6msr/6msr	
1225					LH2		
1226					LH2		run ended BPM ioc off
1227-1238					LH2		

Runs 1224, 1239 - Cosmics

$\theta_{cm} = 25^\circ$, $\phi_{pq} = 0^\circ$

Pointing reference, $\theta_{cm} = 25^\circ$, $\phi_{pq} = 0^\circ$

Runs 1240-1242: Prescales 2, 3000, 1, 500, 1
Runs 1243-1244: Prescales 4, 3000, 1, 500, 1
Run 1245: Prescales 8, 3000, 2, 500, 1

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
1240	1.3501	38.117	3.6683	14.075	carbon	6msr/6msr	raster off
1241					carbon		raster on
1242					15cm dum		
1243					15cm dum		
1244					10cm dum		
1245					4cm dum		

Efficiency studies, $\theta_{cm} = 25^\circ$, $\phi_{pq} = 0^\circ$

Run 1246: Prescales 65535, 3000, 9000, 500, 1
Runs 1247-1248: Prescales 65, 30, 30, 5, 65535
Run 1249: Prescales 65, 3, 30, 1, 65535

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
1246	1.3501	38.117	3.6683	14.075	LH2	6msr/6msr	6" door out
1247-1249							

Production point, $\theta_{cm} = 25^\circ$, $\phi_{pq} = 0^\circ$

Runs 1250-1268: Prescales 65535, 3000, 9000, 500, 1

run	p_h	θ_h	p_e	θ_e	target	H/E
1250-1268	1.3501	38.117	3.6683	14.075	LH2	6msr/6msr

Pointing reference, $\theta_{cm} = 25^\circ$, $\phi_{pq} = 0^\circ$

Runs 1269-1272: Prescales 8, 3000, 2, 500, 1

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
1269	1.3501	38.117	3.6683	14.075	10cm dum	6msr/6msr	
1270					15cm dum		
1271					carbon		raster off
1272					4cm dum		

$\theta_{cm} = 25^\circ$, $\phi_{pq} = 180^\circ$

Pointing reference, $\theta_{cm} = 25^\circ$, $\phi_{pq} = 180^\circ$

Run 1273: Prescales 8, 3000, 2, 500, 1
Run 1274: Prescales 1, 3000, 1, 500, 1
Runs 1275-1277: Prescales 2, 3000, 1, 500, 1

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
1273	1.3501	46.330	3.6683	14.075	carbon	6msr/6msr	raster off, short run
1274					carbon		
1275					4cm dum		
1276					15cm dum		
1277					10cm dum		

Production point, $\theta_{cm} = 25^\circ$, $\phi_{pq} = 180^\circ$

Runs 1278-1279: Prescales 2000, 3000, 100, 500, 1
Runs 1280-1293, 1295-1296, 1298-1303: Prescales 65535, 3000, 4500, 500, 1

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
1278	1.3501	46.330	3.6683	14.075	LH2	6msr/6msr	check raster and rates
1279					LH2		
1280					LH2		
1281-1293					LH2		
1295-1296					LH2		
1298-1303					LH2		

Run 1294 - JUNK, no beam
Run 1297 - JUNK, CODA problem

Move position at target +/- 2mm horizontal

Runs 1304-1305: Prescales 65535, 3000, 4500, 500, 1

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
1304	1.3501	46.330	3.6683	14.075	LH2	6msr/6msr	x=+2mm
1305							x=-2mm

Pointing reference, $\theta_{cm} = 25^\circ$, $\phi_{pq} = 180^\circ$

Runs 1306-1310: Prescales 5, 3000, 1, 500, 1

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
1306	1.3501	46.330	3.6683	14.075	10cm dum	6msr/6msr	
1307					15cm dum		
1308					4cm dum		
1309					carbon		raster on
1310					carbon		raster off

$\theta_{cm} = 50^\circ$, $\phi_{pq} = 0^\circ$

Pointing reference, $\theta_{cm} = 50^\circ$, $\phi_{pq} = 0^\circ$

Runs 1311-1313: Prescales 5, 3000, 1, 500, 1
Runs 1314-1315: Prescales 3, 3000, 3, 500, 1

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
1311	1.2700	34.285	3.6683	14.075	carbon	6msr/6msr	raster off
1312					carbon		raster on
1313					4cm dum		
1314					15cm dum		
1315					10cm dum		

Production point, $\theta_{cm} = 50^\circ$, $\phi_{pq} = 0^\circ$

Runs 1322-1323: Prescales 15000, 3000, 9000, 500, 1

run	p_h	θ_h	p_e	θ_e	target	H/E
1322-1323	1.2700	34.29	3.6683	14.075	LH2	6msr/6msr

Runs 1316-1321 - JUNK, wrong carbon thickness

Trigger efficiency, $\theta_{cm} = 50^\circ$, $\phi_{pq} = 0^\circ$

Run 1324: Prescales 200, 20, 200, 10, 65535

run	p_h	θ_h	p_e	θ_e	target	H/E
1324	1.2700	34.29	3.6683	14.075	LH2	6msr/6msr

Continue Production point, $\theta_{cm} = 50^\circ$, $\phi_{pq} = 0^\circ$

Runs 1325-1340: Prescales 15000, 3000, 9000, 500, 1

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
1325-1326	1.2700	34.29	3.6683	14.075	LH2	6msr/6msr	
1327					LH2		ROC14 crash
1328-1334					LH2		
1335					LH2		
1336-1340					LH2		

Runs 1342-1343 - checking target position - target assembly shifted

- Run 1341 - HARP scan #907

Checks after target fix

Runs 1346-1352: Prescales 1, 1, 1, 1, 65535
Runs 1353-1355, 1357: Prescales 65535, 65535, 65535, 65535, 1
Run 1358: Prescales 1, 1, 1, 1, 65535
Run 1360: Prescales 50, 10, 1, 10, 65535
Run 1361: Prescales 1, 10, 1, 10, 65535
Runs 1362-1363: Prescales 10, 10, 1, 10, 65535
Runs 1366-1369: Prescales 1, 1, 1, 1, 65535
Run 1370: Prescales 200, 20, 200, 10, 65535
Run 1371: Prescales 20, 2, 20, 1, 65535

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
1346	1.5520	34.286	3.6600	18.067	carbon	6msr/6msr	singles studies
1347					15cm dum		”
1348					10cm dum		”
1349					4cm dum		”
1350		47.090			4cm dum		”
1351					15cm dum		”
1352					10cm dum		”
1353					LH2		coincidence
1354					LH2		”
1355					LH2	6msr/sieve	”
1357					LH2		”
1358					carbon	6msr/6msr	singles
1360				14.074	carbon		”
1361					4cm dum		”
1362					LH2		”
1363					LH2		”
1366	1.2700	34.285			carbon		”
1367					4cm dum		”
1368					15cm dum		”
1369					10cm dum		”
1370					LH2		high prescales
1371					LH2		”

Runs 1344, 1356, 1365 - JUNK
Run 1359 - JUNK, high deadtime, short run

- Run 1345 - HARP scan #909
- Run 1364 - HARP scan #910

Continue Production point, $\theta_{cm} = 50^\circ$, $\phi_{pq} = 0^\circ$

Runs 1372-1386: Prescales 15000, 3000, 9000, 500, 1

run	p_h	θ_h	p_e	θ_e	target	H/E
1372-1386	1.2700	34.285	3.6600	14.074	LH2	6msr/6msr

Runs 1387-1388 - JUNK, started by accident

- Run 1389 - HARP scan #911

Pointing reference, $\theta_{cm} = 50^\circ$, $\phi_{pq} = 0^\circ$

Run 1390: Prescales 2, 1, 2, 1, 1
Run 1391: Prescales 10, 1, 10, 1, 1
Run 1392: Prescales 7, 1, 7, 1, 1
Run 1393: Prescales 10, 1, 10, 1, 1

run	p_h	θ_h	p_e	θ_e	target	H/E
1390	1.2700	34.285	3.6600	14.074	carbon	6msr/6msr, raster on
1391					15cm dum	
1392					4cm dum	
1393					10cm dum	

$\theta_{cm} = 50^\circ$, $\phi_{pq} = 180^\circ$

Pointing reference, $\theta_{cm} = 50^\circ$, $\phi_{pq} = 180^\circ$

Run 1394: Prescales 10, 1, 10, 1, 1
Runs 1395-1398: Prescales 15, 1, 1, 1, 1
Run 1399: Prescales 5, 1, 1, 1, 1

run	p_h	θ_h	p_e	θ_e	target	H/E
1394	1.2700	50.160	3.6600	14.074	10cm dum	6msr/6msr
1395					10cm dum	
1396					15cm dum	
1397					4cm dum	
1398					carbon	raster on
1399					carbon	raster on

Trigger efficiency, $\theta_{cm} = 50^\circ$, $\phi_{pq} = 180^\circ$

Run 1400: Prescales 1, 1, 1, 1, 65535

run	p_h	θ_h	p_e	θ_e	target	H/E
1400	1.2700	50.160	3.6600	14.074	LH2	6msr/6msr

Production point, $\theta_{cm} = 50^\circ$, $\phi_{pq} = 180^\circ$

Runs 1401-1404, 1406-1418: Prescales 8000, 800, 400, 40, 1

run	p_h	θ_h	p_e	θ_e	target	H/E
1401-1404	1.2700	50.160	3.6600	14.074	LH2	6msr/6msr
1406-1418					LH2	

- Run 1405 - HARP scan #912
- Run 1419 - HARP scan #915

Pointing reference, $\theta_{cm} = 50^\circ$, $\phi_{pq} = 180^\circ$

Run 1420: Prescales 1, 1, 1, 1, 1
Run 1421: Prescales 5, 1, 1, 1, 1
Runs 1422-1423: Prescales 10, 1, 1, 1, 1

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
1420	1.2700	50.160	3.6600	14.074	carbon	6msr/6msr	raster off
1421					4cm dum		
1422					15cm dum		
1423					10cm dum		

$\theta_{cm} = 90°$, $\phi_{pq} = 180°$

Pointing reference, $\theta_{cm} = 90°$, $\phi_{pq} = 180°$

Runs 1424-1426: Prescales 10, 10, 2, 5, 1
Run 1427: Prescales 3, 1, 1, 1, 1

run	p_h	θ_h	p_e	θ_e	target	H/E
1424	1.0660	54.783	3.6600	14.074	10cm dum	6msr/6msr
1425					15cm dum	
1426					4cm dum	
1427					carbon	raster on

Trigger efficiency, $\theta_{cm} = 90°$, $\phi_{pq} = 180°$

Run 1428: Prescales 1, 1, 1, 1, 65535

run	p_h	θ_h	p_e	θ_e	target	H/E
1428	1.0660	54.783	3.6600	14.074	LH2	6msr/6msr

Production point, $\theta_{cm} = 90°$, $\phi_{pq} = 180°$

Runs 1429-1440, 1442-1456: Prescales 6000, 500, 500, 40, 1

run	p_h	θ_h	p_e	θ_e	target	H/E
1429-1440	1.0660	54.783	3.6600	14.074	LH2	6msr/6msr
1442-1456					LH2	

Run 1457 - JUNK, spot moved during HARP scan

- Run 1441 - HARP scans #916-917
- Run 1458 - HARP scan #918

Pointing reference, $\theta_{cm} = 90°$, $\phi_{pq} = 180°$

Run 1459: Prescales 1, 1, 1, 1, 1
Runs 1460-1461: Prescales 3, 10, 1, 10, 1
Run 1462: Prescales 600, 30, 40, 10, 1
Run 1463: Prescales 8, 10, 2, 10, 1

run	p_h	θ_h	p_e	θ_e	target	H/E
1459	1.0660	54.783	3.6600	14.074	carbon	6msr/6msr
1460					4cm dum	
1461					15cm dum	
1462					15cm dum	
1463					10cm dum	

$\theta_{cm} = 90°$, $\phi_{pq} = 0°$

Pointing reference, $\theta_{cm} = 90°$, $\phi_{pq} = 0°$

Runs 1464-1466: Prescales 10, 30, 40, 50, 1
Run 1467: Prescales 4, 10, 4, 10, 1

run	p_h	θ_h	p_e	θ_e	target	H/E
1464	1.0660	29.811	3.6600	14.074	10cm dum	6msr/6msr
1465					15cm dum	
1466					4cm dum	
1467					carbon	raster on

Production point, $\theta_{cm} = 90°$, $\phi_{pq} = 0°$

Runs 1468-1469: Prescales 6500, 500, 20000, 45, 1
Runs 1470-1471: Prescales 6500, 500, 20000, 450, 1

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
1468-1470	1.0660	29.811	3.6600	14.074	LH2	6msr/6msr	
1471					LH2		15 μA

Trigger efficiency, $\theta_{cm} = 90°$, $\phi_{pq} = 0°$

Run 1472: Prescales 20, 2, 20, 1, 65535

run	p_h	θ_h	p_e	θ_e	target	H/E
1472	1.0660	29.811	3.6600	14.074	LH2	6msr/6msr

Continue Production point, $\theta_{cm} = 90°$, $\phi_{pq} = 0°$

Runs 1473-1477, 1486-1511, 1520-1529, 1531: Prescales 6500, 500, 20000, 450, 1

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
1473-1477	1.0660	29.811	3.6600	14.074	LH2	6msr/6msr	
1486-1511					LH2		
1520-1529					LH2		
1531					LH2		5 μA

Runs 1478-1479, 1481, 1532-1533 - Cosmic
Runs 1480, 1483, 1485, 1512-1513, 1530, 1538 - JUNK
Run 1482 - Pedestal run
Run 1515 - JUNK, ROC14 disconnected at beginning of run
Runs 1516-1517 - JUNK, checks of electron VDC hv local controls
Runs 1518-1519 - Carbon to check raster
Runs 1534-1537, 1539-1543 - Trigger tests due to double peaking in HRSH

- Run 1484 - HARP scan #920

Pointing reference, $\theta_{cm} = 90°$, $\phi_{pq} = 0°$

Run 1544: Prescales 10, 30, 40, 50, 1
Runs 1545-1547: Prescales 10, 30, 20, 50, 1

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
1544	1.0660	29.811	3.6600	14.074	10cm dum	6msr/6msr	raster on
1545					15cm dum		raster on
1546					4cm dum		raster on
1547					carbon		raster off

Trigger efficiency, $\theta_{cm} = 90°$, $\phi_{pq} = 0°$

Run 1548: Prescales 6500, 500, 20000, 450, 1

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
1548	1.0660	29.811	3.6600	14.074	LH2	6msr/6msr	trigger reloaded

Runs 1549-1561 - Cosmics, fixing trigger problem

$\theta_{cm} = 135^\circ$, $\phi_{pq} = 0^\circ$

Pointing reference, $\theta_{cm} = 135^\circ$, $\phi_{pq} = 0^\circ$

Runs 1562, 1565-1567: Prescales 1, 500, 1, 450, 1

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
1562	0.8188	30.806	3.6600	14.074	carbon	6msr/6msr	50 μA
1565					4cm dum		5 μA
1566					15cm dum		5 μA
1567					10cm dum		5 μA

Run 1563 - JUNK

- Run 1564 - HARP scan

Trigger efficiency, $\theta_{cm} = 135^\circ$, $\phi_{pq} = 0^\circ$

Run 1568: Prescales 1, 1, 1, 1, 20000

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
1568	0.8188	30.806	3.6600	14.074	LH2	6msr/6msr	50 μA

Production point, $\theta_{cm} = 135^\circ$, $\phi_{pq} = 0^\circ$

Runs 1569-1577: Prescales 6500, 500, 20000, 450, 1
Runs 1578-1581: Prescales 6500, 500, 20000, 450, 2
Runs 1582-1590: Prescales 6500, 500, 20000, 450, 1
Runs 1594-1602, 1604-1618, 1621-1654: Prescales 6500, 600, 20000, 500, 1

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
1569	0.8188	30.806	3.6600	14.07	LH2	6msr/6msr	50 μA
1570					LH2		
1571					LH2		FPP multiplex bad
1572-1577					LH2		FPP okay now
1578-1579					LH2		
1580					LH2		
1581					LH2		
1582-1585					LH2		
1586					LH2		high deadtime
1587-1590					LH2		
1591-1593					LH2		high deadtime
1594-1601					LH2		
1602					LH2		
1604-1616					LH2		
1617					LH2		high deadtime
1618					LH2		
1621-1639					LH2		
1640					LH2		high deadtime
1641-1644					LH2		
1645					LH2		high deadtime
1646					LH2		
1647					LH2		high deadtime
1648-1654					LH2		

Runs 1603, 1620 - JUNK, CODA problem
Run 1619 - JUNK, changing HV on FPP

Pointing reference, $\theta_{cm} = 135^\circ$, $\phi_{pq} = 0^\circ$

Runs 1655-1657: Prescales 1, 500, 1, 450, 1
Run 1658: Prescales 1, 1, 2, 1, 1

run	p_h	θ_h	p_e	θ_e	target	H/E
1655	0.8188	30.806	3.6600	14.074	10cm dum	6msr/6msr
1656					15cm dum	
1657					4cm dum	
1658					carbon	

- Run 1659 - HARP scan #922

$\theta_{cm} = 135°$, $\phi_{pq} = 180°$

Pointing reference, $\theta_{cm} = 135°$, $\phi_{pq} = 180°$

Run 1660: Prescales 1, 1, 2, 1, 1
Runs 1661-1666: Prescales 1, 500, 1, 450, 1

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
1660	0.8188	53.635	3.6600	14.074	carbon	6msr/6msr	
1661					4cm dum		
1662					15cm dum		
1663					10cm dum		high deadtime
1664					10cm dum		
1665					10cm dum		
1666					15cm dum		

Trigger efficiency, $\theta_{cm} = 135°$, $\phi_{pq} = 180°$

Run 1667: Prescales 1, 500, 1, 450, 1
Run 1668: Prescales 1, 1, 1, 1, 65535

run	p_h	θ_h	p_e	θ_e	target	H/E
1667	0.8188	53.635	3.6600	14.074	LH2	6msr/6msr
1668					LH2	

Production point, $\theta_{cm} = 135°$, $\phi_{pq} = 180°$

Runs 1669-1683: Prescales 5000, 500, 1400, 100, 1

run	p_h	θ_h	p_e	θ_e	target	H/E
1669-1683	0.8188	53.635	3.6600	14.074	LH2	6msr/6msr

Pointing reference, $\theta_{cm} = 135°$, $\phi_{pq} = 180°$

Runs 1684-1687: Prescales 4, 1, 4, 1, 1

run	p_h	θ_h	p_e	θ_e	target	H/E
1684	0.8188	53.635	3.6600	14.074	10cm dum	6msr/6msr
1685					15cm dum	
1686					4cm dum	
1687					carbon	

Runs 1689-1692 - Timing tests
Runs 1693-1694 - Cosmics

- Run 1688 - HARP scan #923

$\theta_{cm} = 155^\circ$, $\phi_{pq} = 0^\circ$

Pointing reference, $\theta_{cm} = 155^\circ$, $\phi_{pq} = 0^\circ$

Runs 1695-1699: Prescales 1, 1, 4, 1, 1

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
1695	0.7418	34.731	3.6600	14.074	carbon	6msr/6msr	raster on
1696					carbon		raster off
1697					4cm dum		
1698					15cm dum		
1699					10cm dum		

Trigger efficiency, $\theta_{cm} = 155^\circ$, $\phi_{pq} = 0^\circ$

Run 1700: Prescales 1, 1, 1, 1, 1

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
1700	0.7418	34.731	3.6600	14.074	LH2	6msr/6msr	5 μA

Production point, $\theta_{cm} = 155^\circ$, $\phi_{pq} = 0^\circ$

Run 1701: Prescales 5000, 500, 1400, 100, 1
Runs 1702-1733: Prescales 5000, 500, 14000, 500, 1
Runs 1734-1752: Prescales 10000, 1000, 30000, 1000, 1

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
1701-1702	0.7418	34.731	3.6600	14.074	LH2	6msr/6msr	50 μA, S/N not good
1703-1732					LH2		25 μA, S/N okay
1733					LH2		50 μA, short run
1734-1752					LH2		50 μA

Pointing reference, $\theta_{cm} = 155^\circ$, $\phi_{pq} = 0^\circ$

Run 1753: Prescales 10, 20, 40, 20, 1
Runs 1755-1756: Prescales 5, 20, 20, 20, 1
Runs 1758, 1760: Prescales 1, 20, 4, 20, 1

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
1753	0.7418	34.731	3.6600	14.07	10cm dum	6msr/6msr	5 μA, raster off
1755					15cm dum		5 μA, raster off
1756					4cm dum		5 μA, raster off
1758					carbon		5 μA, raster off
1760					carbon	6msr/sieve	changing HRSH angle

Runs 1754, 1757 - JUNK

- Run 1759 - HARP scan #924

$\theta_{cm} = 155^\circ$, $\phi_{pq} = 180^\circ$

Pointing reference, $\theta_{cm} = 155^\circ$, $\phi_{pq} = 180^\circ$

Run 1761: Prescales 3, 20, 5, 20, 1
Runs 1762-1764: Prescales 1, 20, 2, 20, 1

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
1761	0.7418	49.720	3.6600	14.074	carbon	6msr/6msr	20 μA, raster off
1762					4cm dum		5 μA, raster off
1763					15cm dum		5 μA, raster off
1764					10cm dum		5 μA, raster off

Production point, $\theta_{cm} = 155^\circ$, $\phi_{pq} = 180^\circ$

Runs 1765-1766, 1768: Prescales 6700, 1400, 5450, 400, 1
Runs 1769-1775, 1777-1795: Prescales 6700, 1400, 2000, 400, 1

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
1765-1766	0.7418	49.720	3.6600	14.074	LH2	6msr/6msr	
1768-1775					LH2		
1777-1778					LH2		
1779					LH2		ROC14 crash
1780-1785					LH2		
1786					LH2		short run
1787-1795					LH2		

Run 1767 - JUNK

- Run 1776 - HARP scan #925

Pointing reference, $\theta_{cm} = 155^\circ$, $\phi_{pq} = 180^\circ$

Runs 1796-1797: Prescales 2, 65535, 4, 65535, 1
Run 1798: Prescales 4, 65535, 2, 65535, 1
Runs 1799-1800: Prescales 4, 65535, 8, 65535, 1

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
1796	0.7418	49.720	3.6600	14.074	carbon	6msr/6msr	5 μA, raster off
1797					4cm dum		5 μA, raster off
1798					15cm dum		5 μA, raster off
1799					10cm dum		5 μA, raster off fast feedback off
1800					10cm dum		5 μA, raster off

- Run 1801 - HARP scan #926

Continue Production point, $\theta_{cm} = 155^\circ$, $\phi_{pq} = 180^\circ$

Runs 1802-1805: Prescales 6700, 1400, 2000, 400, 1

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
1802	0.7418	49.720	3.6600	14.074	LH2	6msr/6msr	ROC14 crash
1803-1805					LH2		

June 8 - July 1 Run Period

Runs 1823-1829 - Cosmics

- Run 1830 - HARP scan #927

$\theta_{cm} = 155°$, $\phi_{pq} = 180°$

Pointing reference, $\theta_{cm} = 155°$, $\phi_{pq} = 180°$

Runs 1831-1834: Prescales: 2, 65535, 2, 65535, 65535

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
1831	0.7418	49.721	3.6600	14.074	carbon	6msr/6msr	H scintillator paddle s1-6 in wrong position
1832					4cm dum		
1833					15cm dum		
1834					10cm dum		

Runs 1835-1836 - LH2 target, raster checks

Luminosity scan

(Hadron scintillator paddle s1-6 in wrong position)
Runs 1837-1838: Prescales 30, 65535, 65535, 65535, 65535
Run 1839: Prescales 60, 65535, 65535, 65535, 65535
Runs 1840-1841: Prescales 90, 65535, 65535, 65535, 65535
Run 1842: Prescales 100, 65535, 65535, 65535, 65535
Runs 1843-1844: Prescales 115, 65535, 65535, 65535, 65535

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
1837	0.7418	49.721	3.6600	14.074	LH2	6msr/6msr	20 μA
1838					LH2		40 μA
1839					LH2		40 μA
1840					LH2		60 μA
1841					LH2		60 μA
1842					LH2		70 μA
1843					LH2		80 μA
1844					LH2		80 μA

Production point, $\theta_{cm} = 155^\circ$, $\phi_{pq} = 180^\circ$

Runs 1852-1855: Prescales 11200, 1100, 8800, 240, 1
Runs 1856-1915, 1918-1956, 1958-1988: Prescales 13000, 1300, 14000, 240, 1

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
1852	0.7418	49.721	3.6600	14.08	LH2	6msr/6msr	beam off 5 min
1853					LH2		
1854-1861		49.720			LH2	open/open	
1862					LH2		electron Q3 quench
1863-1866					LH2		
1867					LH2		electron Q3 quench
1868-1872					LH2		
1873					LH2		electron Q3 quench
1874-1875					LH2		
1876					LH2		RF cavity problems beam off some during run
1877					LH2		
1878					LH2		RF cavity problems
1879-1890					LH2		
1891					LH2		electron Q3 quench
1892-1894					LH2		
1895					LH2		electron Q3 quench
1896-1915					LH2		
1918					LH2		high deadtime
1919					LH2		
1920					LH2		frequent beam trips
1921-1922					LH2		
1923-1924					LH2		frequent beam trips
1925-1928					LH2		
1929					LH2		beam off for a while
1930					LH2		
1931					LH2		high deadtime
1932					LH2		
1933					LH2		electron Q3 quench
1934-1944					LH2		
1945					LH2		electron Q3 quench
1946-1950					LH2		
1951					LH2		electron Q3 quench
1952					LH2		
1953					LH2		electron Q3 quench
1954					LH2		
1955-1956					LH2		electron Q3 quench
1958-1960					LH2		
1961-1962					LH2		electron Q3 quench
1963-1975					LH2		
1976-1977					LH2		high deadtime
1978-1987					LH2		
1988					LH2		electron Q3 quench

Runs 1845-1851, JUNK, hadron scintillator paddle in wrong position
Runs 1916-1917 - JUNK, empty target
Run 1957 - JUNK, short run
Run 1989 - JUNK

Continue Production Point, $\theta_{cm} = 155^\circ$, $\phi_{pq} = 180^\circ$

Runs 1990-1992, 1994-2011: Prescales 13000, 1300, 14000, 240, 1

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
1990-1991	0.7418	49.720	3.6600	14.079	LH2	open/open	
1992					LH2		electron Q3 quench
1994					LH2		
1995-1996					LH2		electron Q3 quench
1997-2000					LH2		
2001					LH2		electron Q3 quench
2002-2003					LH2		fast feedback off
2004-2011					LH2		

Run 1993 - JUNK

Pointing reference, $\theta_{cm} = 155^\circ$, $\phi_{pq} = 180^\circ$

Run 2012: Prescales 2, 1300, 4, 240, 1
Runs 2014-2016: Prescales 1, 1300, 1, 240, 1

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
2012	0.7418	49.720	3.6600	14.079	carbon	open/open	5 μA, raster off
2014					carbon		5 μA, raster off
2015					4cm dum		5 μA, raster off
2016					10cm dum		5 μA, raster off

- Run 2013 - HARP scan #929

Continue Production point, $\theta_{cm} = 155^\circ$, $\phi_{pq} = 180^\circ$

Runs 2017-2033: Prescales 13000, 1300, 14000, 240, 1

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
2017-2020	0.7418	49.720	3.6600	14.079	LH2	open/open	
2021					LH2		electron Q3 quench
2022-2032					LH2		
2033					LH2		electron Q3 quench

$\theta_{cm} = 135°$, $\phi_{pq} = 180°$

- Run 2037 - HARP scan #930

Pointing reference, $\theta_{cm} = 135°$, $\phi_{pq} = 180°$

Runs 2040-2043: Prescales 1, 1300, 1, 200, 1

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
2040	0.8188	53.640	3.6600	14.079	15cm dum	open/open	correct θ_h
2041					carbon		
2042					4cm dum		
2043					10cm dum		

Runs 2034-2039 - JUNK, wrong θ_h

Trigger efficiency, $\theta_{cm} = 135°$, $\phi_{pq} = 180°$

Run 2045: Prescales 1, 1, 1, 200, 65535

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
2045	0.8188	53.640	3.6600	14.074	LH2	6msr/6msr	5 μA

Run 2044 - JUNK, spot check

Production point, $\theta_{cm} = 135°$, $\phi_{pq} = 180°$

Runs 2051-2112, 2114-2128: Prescales 13000, 1400, 3800, 15, 1
Runs 2129-2141, 2143-2149, 2151-2171: Prescales 13000, 1400, 3800, 1000, 1

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
2051-2058	0.8188	53.640	3.6600	14.079	LH2	open/open	
2059					LH2		fast feedback off part of run
2060-2067					LH2		
2068					LH2		comm. prob w/ adaq
2069-2098					LH2		
2099-2100					LH2		beam off lots
2101-2112					LH2		
2114-2123					LH2		
2124					LH2		ROC14 problem
2125-2128					LH2		
2129					LH2		new T4 definition
2130-2140					LH2		
2141					LH2		beam off lots
2143-2148					LH2		
2149					LH2		ROC14 crash
2151-2163					LH2		
2164-2165					LH2		50 μA, RF problem
2166-2167					LH2		60 μA
2168-2171					LH2		

Runs 2046-2049 - JUNK, FPP voltage trip
Runs 2050, 2113 - JUNK
Run 2142 - JUNK, raster check
Run 2150 - JUNK, CODA problem

Continue Production point, $\theta_{cm} = 155°$, $\phi_{pq} = 180°$

Runs 2172-2193: Prescales 13000, 1400, 3800, 1000, 1
Runs 2194, 2196: Prescales 1, 1400, 1, 65535, 1
Runs 2197-2210: Prescales 13000, 1400, 3800, 1000, 1
Run 2213: Prescales 1, 1, 1, 1000, 1
Runs 2214-2247: Prescales 13000, 1400, 3800, 1000, 1

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
2172	0.8188	53.640	3.6600	14.079	LH2	open/open	hadron Q1 trip
2173-2192					LH2		
2193-2194					LH2		short run
2196					LH2		short run
2197-2210					LH2		
2213					LH2		
2214-2216					LH2		normal prescales
2217					LH2		target IOC crash
2218-2236					LH2		
2237					LH2		unstable beam
2238-2247					LH2		

Runs 2195, 2211-2212 - Cosmics

Pointing reference, $\theta_{cm} = 135°$, $\phi_{pq} = 180°$

Runs 2249-2252: Prescales 3, 1400, 3, 1000, 1

run	p_h	θ_h	p_e	θ_e	target	H/E
2249	0.8188	53.640	3.6600	14.074	10cm dum	6msr/6msr
2250					15cm dum	
2251					4cm dum	
2252					carbon	

Runs 2248, 2258 - JUNK
Runs 2253-2254 - JUNK, beam trips during HARP scan
Run 2257 - JUNK, OTR in during HARP scan

- Run 2255 - HARP scan #933, two peaks
- Run 2256 - HARP scan #934, one peak, but worse than #933
- Run 2259 - HARP scan #937

$\theta_{cm} = 90^\circ$, $\phi_{pq} = 180^\circ$

Pointing reference, $\theta_{cm} = 90^\circ$, $\phi_{pq} = 180^\circ$

Runs 2260-2263: Prescales 3, 1400, 3, 1000, 1

run	p_h	θ_h	p_e	θ_e	target	H/E
2260	1.0660	54.785	3.6600	14.074	carbon	6msr/6msr
2261					4cm dum	
2262					15cm dum	
2263					10cm dum	

Runs 2264-2269 - JUNK, mysql database tests
Run 2270 - JUNK, spot check

Trigger efficiency check, $\theta_{cm} = 90^\circ$, $\phi_{pq} = 180^\circ$

Run 2271: Prescales 1, 1, 1, 1, 65535

run	p_h	θ_h	p_e	θ_e	target	H/E
2271	1.0660	54.785	3.6600	14.074	LH2	6msr/6msr

Production point, $\theta_{cm} = 90°$, $\phi_{pq} = 180°$

Runs 2272-2292: Prescales 13000, 1400, 3800, 1000, 1
Runs 2296-2297: Prescales 1, 1400, 3800, 1000, 1
Runs 2298-2305: Prescales 13000, 1400, 3800, 1000, 1
Runs 2306-2335: Prescales 6000, 500, 500, 1500, 1
Runs 2348-2351: Prescales 1800, 200, 200, 200, 1
Runs 2352-2393, 2398-2414: Prescales 18000, 2000, 2000, 4000, 1
Runs 2415-2424: Prescales 9000, 1000, 1000, 2000, 1
Runs 2425: Prescales 9, 1, 1, 20, 1

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
2272-2273	1.0660	54.785	3.6600	14.08	LH2	6msr/6msr	
2274-2292					LH2	open/open	
2296					LH2		high deadtime
2297					LH2		
2298					LH2		high deadtime
2299-2305					LH2		
2306-2316					LH2		
2317					LH2		frequent beam trips
2318-2335					LH2		
2348-2349					LH2		
2350					LH2		frequent beam trips
2351					LH2		ROC1,2,3 error message
2352-2363					LH2		
2364					LH2		short run
2365-2366					LH2		
2367					LH2		frequent beam trips
2368-2373					LH2		
2374					LH2		ROC14 crash
2375-2393					LH2		
2398-2423					LH2		
2424-2425					LH2	6msr/open	5 μA to check elec. VDC eff.

Runs 2293-2294 - Unknown, maybe cosmics, 10cm dum
Runs 2295, 2297 - JUNK
Run 2336 - trigger tests, empty target
Runs 2337-2344 - Cosmics
Runs 2345-2346 - JUNK, beam trips during HARP scans
Runs 2394-2397 - JUNK, run numbers lost when rebooting CODA

- Run 2347 - HARP scan #942

Pointing reference, $\theta_{cm} = 90°$, $\phi_{pq} = 180°$

Runs 2426-2429: Prescales 3, 1, 1, 10, 1

run	p_h	θ_h	p_e	θ_e	target	H/E
2426	1.0660	54.785	3.6600	14.074	10cm dum	6msr/6msr
2427					15cm dum	
2428					4cm dum	
2429					carbon	

- Run 2430 - HARP scan #943, 4by bad

$\theta_{cm} = 50^\circ$, $\phi_{pq} = 180^\circ$

Pointing reference, $\theta_{cm} = 50^\circ$, $\phi_{pq} = 180^\circ$

Runs 2432-2435: Prescales 3, 1, 1, 10, 1

run	p_h	θ_h	p_e	θ_e	target	H/E
2432	1.2700	50.178	3.6600	14.074	carbon	6msr/6msr
2433					4cm dum	
2434					15cm dum	
2435					10cm dum	

Run 2431 - JUNK
Run 2436 - JUNK, raster check

Trigger efficiency check, $\theta_{cm} = 50^\circ$, $\phi_{pq} = 180^\circ$

Run 2437: Prescales 1, 1, 1, 1, 65535

run	p_h	θ_h	p_e	θ_e	target	H/E
2437	1.2700	50.178	3.6600	14.074	LH2	6msr/6msr

Production point, $\theta_{cm} = 50^\circ$, $\phi_{pq} = 180^\circ$

Runs 2438-2441: Prescales 5000, 40, 20, 1500, 1
Runs 2442, 2444-2492: Prescales 5000, 600, 400, 1500, 1

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
2438-2439	1.2700	50.18	3.6600	14.08	LH2	6msr/6msr	
2440-2441					LH2	open/open	
2442					LH2		CODA crash
2444-2453					LH2		
2454					LH2		target IOC reboot
2455-2456					LH2		
2457					LH2		30 min. interruption
2458-2466					LH2		
2467					LH2		ROC14 crash
2468-2474					LH2		
2475					LH2		lots of beam trips
2476					LH2		
2477-2478					LH2		unstable beam
2479					LH2		
2480					LH2		unstable beam
2481-2492					LH2		

Run 2443 - JUNK, beam died before data taking began

Pointing reference, $\theta_{cm} = 50^\circ$, $\phi_{pq} = 180^\circ$

Runs 2494-2495, 2497: Prescales 3, 50, 1, 200, 1
Run 2498: Prescales 1, 50, 1, 200, 1

run	p_h	θ_h	p_e	θ_e	target	H/E
2494	1.2700	50.179	3.6600	14.079	10cm dum	open/open
2495					15cm dum	
2497					4cm dum	
2498					carbon	

Run 2493 - JUNK, wrong prescales
Run 2496 - JUNK, CODA problems

- Run 2499 - HARP scan #944

$\theta_{cm} = 0^\circ$

Pointing reference, $\theta_{cm} = 0^\circ$

Runs 2500-2503: Prescales 1, 50, 1, 200, 1

run	p_h	θ_h	p_e	θ_e	target	H/E
2500	1.3782	42.305	3.6600	14.079	carbon	open/open
2501					4cm dum	
2502					15cm dum	
2503					10cm dum	

Trigger efficiency, $\theta_{cm} = 0^\circ$

Run 2504: Prescales 1, 1, 1, 1, 10000

run	p_h	θ_h	p_e	θ_e	target	H/E
2504	1.3782	42.305	3.6600	14.079	LH2	6msr/6msr

Production point, $\theta_{cm} = 0^\circ$

Runs 2505-2537, 2565-2597, 2600-2613, 2617-2625: Prescales 5000, 500, 800, 1800, 1

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
2505-2506	1.3782	42.305	3.6600	14.079	LH2	6msr/6msr	
2507-2537					LH2	open/open	
2565-2566					LH2		
2567					LH2	6msr/open	ROC14 crash
2569-2584					LH2		
2585					LH2		high deadtime
2586-2590					LH2		
2591					LH2		high deadtime
2592-2597					LH2		
2600-2613					LH2		
2617					LH2		ET server down
2618-2625					LH2		

Runs 2538-2546 - Cosmics
Runs 2547, 2556-2564 - JUNK, FPP gas problems
Runs 2549-2555 - JUNK, testing FPP and VDC efficiency
Run 2568 - JUNK, does not exist
Runs 2626-2627 - JUNK
Run 2598 - JUNK, DAQ freezes
Run 2599 - JUNK, short run to test DAQ
Runs 2614-2616 - JUNK, DAQ problems

- Run 2548 - HARP scan #945

$\theta_{cm} = 25^\circ$, $\phi_{pq} = 0^\circ$

Pointing reference, $\theta_{cm} = 25^\circ$, $\phi_{pq} = 0^\circ$

Runs 2628-2631: Prescales 1, 500, 1, 1800, 1

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
2628	1.3501	38.117	3.6600	14.074	carbon	6msr/6msr	HARP 948
2629					4cm dum		
2630					15cm dum		
2631					10 cm dum		

Trigger efficiency, $\theta_{cm} = 25^\circ$, $\phi_{pq} = 0^\circ$

Runs 2632-2633: Prescales 1, 1, 1, 1, 65535

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
2632	1.3501	38.114	3.6600	14.074	LH2	6msr/6msr	5 μA
2633					LH2		10 μA

Production point, $\theta_{cm} = 25^\circ$, $\phi_{pq} = 0^\circ$

Run 2634: Prescales 6000, 250, 2500, 2500, 1
Runs 2635-2636: Prescales 5000, 500, 2000, 2000, 1
Run 2637: Prescales 6000, 600, 2400, 2400, 1
Runs 2638-2663, 2665-2675: Prescales 7000, 700, 3000, 2400, 1

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
2634-2635	1.3501	38.114	3.6600	14.08	LH2	6msr/6msr	
2636-2640					LH2	open/open	
2641					LH2		ROC14 crash
2642					LH2		target IOC reboot
2643-2663					LH2		
2665-2675					LH2		

Run 2664 - JUNK, DAQ problem

Spectrometer $\overrightarrow{q}$ Pointing and Optics checks

Singles data

Runs 2676-2677: Prescales 23, 70000, 80, 240000, 10000

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
2676	1.3501	38.114	3.6600	18.070	LH2	open/open	brief beam outages
2677					LH2		

Electron optics & hadron $\overrightarrow{q}$ pointing

Runs 2678-2680: Prescales 23, 70000, 80, 240000, 10000
Run 2681: Prescales 1, 65535, 65535, 65535, 1

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
2678	1.552	47.09	3.8064	18.07	LH2	open/sieve	electron Q3 trip
2679					LH2		delta -4%
2680			3.7332		LH2		delta -2%
2681			3.6600		LH2	6msr/sieve	delta 0% hadron $\overrightarrow{q}$ pointing

Coincidence elastic cross section

Run 2682: Prescales 3, 65535, 3, 65535, 1
Run 2683: Prescales 10, 65535, 3, 65535, 1
Run 2684: Prescales 20, 65535, 6, 65535, 2

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
2682	1.5520	47.090	3.6600	18.070	LH2	6msr/6msr	high deadtime
2683					LH2		high deadtime
2684					LH2		optics, q pointing

Quasielastic carbon run

Run 2685: Prescales 200, 65535, 200, 65535, 1

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
2685	1.5520	47.090	3.6600	18.070	carbon	6msr/6msr	quasielastic

Single arm optics

Runs 2686-2687: Prescales 1, 65535, 65535, 65535, 1

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
2686	1.5520	47.090	3.5868	18.070	LH2	6msr/sieve	delta 2%
2687			3.5135		LH2		delta 4%

More coincidence elastic cross section

Run 2688: Prescales 1, 65535, 1, 65535, 1

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
2688	1.5520	47.090	3.5136	18.070	carbon	6msr/6msr	no raster

July 8 - July 9 Facility Development Time

HRSH Detector Offsets

- All runs with spectrometers in reverse polarity.

Runs 2712-2718 - JUNK, fast feedback problems

Delta scan

Runs 2720-2721: Prescales 2, 1, 10, 100, 1, 20
Run 2722: Prescales 2, 1, 1, 100, 1, 20

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
2720	2.9940	16.006	1.1000	56.846	carbon	sieve/6msr	electron HV off
2721	2.9450				carbon		electron HV off
2722					carbon		electron HV off

Target scan

Runs 2723-2725: Prescales 2, 1, 1, 100, 1, 20

run	p_h	θ_h	p_e	θ_e	target	H/E
2723	2.9450	16.006	1.1000	56.846	15cm dum	6msr/6msr
2724					4cm dum	
2725					10cm dum	

(ee'p) measurements

First point

Run 2727: Prescales 300, 5, 50, 1000, 1, 20
Runs 2728-2730: Prescales 50, 1, 8, 130, 1, 20
Run 2733: Prescales 500, 8, 1000, 2000, 1, 20

run	p_h	θ_h	p_e	θ_e	target	H/E
2727	2.9940	16.006	0.9860	56.846	10cm dum	6msr/6msr
2728					carbon	
2729					4cm LH2	sieve/6msr
2730					4cm LH2	6msr/6msr
2733					15cm LH2	

Run 2726, 2731 - JUNK, high deadtime, wrong prescales
Run 2732 - JUNK

Second point

Run 2735: Prescales 500, 8, 1000, 2000, 1, 20
Runs 2737-2738: Prescales 150, 4, 40, 500, 1, 20

run	p_h	θ_h	p_e	θ_e	target	H/E
2735	2.8020	19.997	1.2385	50.668	15cm LH2	6msr/6msr
2737					10cm dum	
2738					carbon	

Run 2734, 2739 - JUNK
Run 2736 - JUNK, wrong prescales

Third point

Runs 2741, 2755: Prescales 1, 4, 1, 500, 1, 20

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
2741	2.0772	34.621	2.0765	34.610	carbon	6msr/6msr	fast feedback off
2755					15cm LH2		4x1 raster

Run 2740 - JUNK, test run
Runs 2742-2754 - JUNK, test run, fast feedback off

Fourth point

Runs 2757-2758: Prescales 1, 4, 1, 500, 1, 20

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
2757	1.8452	40.000	2.2387	30.625	carbon	6msr/6msr	wrong p_e, should have been 2.3287
2758					15cm LH2		wrong p_e

Run 2756 - JUNK

Fifth point

Runs 2759-2761: Prescales 1, 4, 1, 500, 1, 20

run	p_h	θ_h	p_e	θ_e	target	H/E
2759	1.4852	50.021	2.7129	24.770	carbon	6msr/6msr
2761					15cm LH2	

Run 2760 - JUNK

July 11 - July 31 Run Period

$\theta_{cm} = 50°$, $\phi = 0°$

Pointing reference, $\theta_{cm} = 50°$, $\phi = 0°$

- Run 2837 - HARP scan #955

Runs 2838-2841: Prescales 1, 100, 1, 65535, 1, 65535

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
2838	1.2700	34.289	3.6600	14.079	carbon	6msr/6msr	
2839					4cm dum		
2840					15cm dum		
2841					10cm dum		

Trigger efficiency, $\theta_{cm} = 50°$, $\phi = 0°$

Run 2842: Prescales 1, 1, 1, 1, 65535, 65535

run	p_h	θ_h	p_e	θ_e	target	H/E
2842	1.2700	34.289	3.6600	14.079	LH2	6msr/6msr

Production point, $\theta_{cm} = 50°$, $\phi = 0°$

Runs 2843-2850, 2853-2859: Prescales 2000, 50, 2000, 100, 1, 65535
Runs 2860-2868: Prescales 2000, 50, 2000, 100, 1, 2000

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
2843	1.2700	34.289	3.6600	14.08	LH2	6msr/6msr	adjusting raster
2844					LH2		CODA problem
2845					LH2		changing current from 5 μA to 40 μA
2846					LH2		40 μA
2847					LH2		
2849					LH2	open/open	fast feedback off
							unstable beam
2850					LH2		fast feedback off
2853-2855					LH2		
2856					LH2		no beam for 15 min
2857-2858					LH2		
2859					LH2		aerogel in trigger
2860					LH2		no beam for 10 min
2861					LH2		
2862					LH2		no beam for 10 min
2863-2864					LH2		
2865					LH2		CODA crash
2866					LH2		31 μA
2867					LH2		high deadtime
2868					LH2		

Runs 2848, 2851 - JUNK
Run 2852 - JUNK, unstable beam, short run

Continue Production point, $\theta_{cm} = 50^\circ$, $\phi = 0^\circ$

Runs 2869-2872: Prescales 2000, 50, 2000, 100, 1, 2000
Runs 2873-2884, 2886: Prescales 758, 50, 897, 308, 1, 2000
Run 2899: Prescales 758, 42, 884, 314, 1, 65535
Runs 2900-2922: Prescales 10000, 1000, 13000, 4000, 1, 65535
Runs 2923-2924: Prescales 10000, 1000, 7000, 4000, 1, 6000
Run 2925: Prescales 10000, 1000, ??, 4000, 1, 65535
Runs 2926-2933, 2935-2943, 2945-2946, 2948, 2950-3030, 3032-3037: Prescales 10000, 1000, 13000, 4000, 1, 65535

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
2869	1.2700	34.289	3.6600	14.08	LH2	open/open	no aerogel in trigger
2870-2884					LH2		
2886					LH2		
2899-2901					LH2		new injector gun
2902-2903					LH2		unstable beam
2904-2906					LH2		
2907					LH2		file split
2908-2912					LH2		
2913-2914	1.2700	34.289	3.6600	14.08	LH2	open/open	file split
2915-2922					LH2		
2923-2924					LH2		no aerogel in trigger
2925-2933					LH2		normal trigger
2935-2939					LH2		
2940					LH2		hel dep chrg asy 1.0 %
2941					LH2		hel dep chrg asy -1.2%
2942					LH2		hel dep chrg asy 0.9%
2943					LH2		hel dep chrg asy 0.5%
2945					LH2		hel dep chrg asy 0.23%
2946					LH2		hel dep chrg asy 0.14%
2948					LH2		hel dep chrg asy 4.6e-4
2950-2953					LH2		
2954					LH2		bpm problem
2955-2960					LH2		
2962-2971					LH2		
2972					LH2		high deadtime at end
2973-2974					LH2		
2976-2991					LH2		
2992					LH2		CODA crash
2993-3018					LH2		
3019					LH2		high deadtime at end
3020-3030					LH2		
3032					LH2		fastfeedback off 10 min
3033-3037					LH2		

Run 2885, 2947, 2949 - JUNK, short run, beam trip
Runs 2887, 2897, 2934, 2944 - JUNK
Runs 2888-2896 - Cosmics
Runs 2961, 3031 - JUNK, unstable beam, short run

- Run 2898 - HARP scan #956

$\theta_{cm} = 90^\circ$, $\phi = 0^\circ$

Run 3038 - Cosmic
Runs 3039, 3042-3043 - JUNK
Run 3040 - HARP scan #958 (bpm x=0, y=0)
Run 3041 - HARP scan #959 (bpm x=-1, y=-1)
Run 3044 - HARP scans #960 (bpm x=-1, y=+1)
and #961 (bpm x=+1, y=+1)
Run 3045 - HARP scan #962 (bpm x=+1, y=-1), may be junk

Pointing reference, $\theta_{cm} = 90^\circ$, $\phi = 0^\circ$

Runs 3046-3049: Prescales 1, 10000, 1, 20000, 1, 65535

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
3046	1.0660	29.812	3.6600	14.078	carbon	6msr/6msr	5 μA, raster off
3047					4cm dum		"
3048					15cm dum		"
3049					10cm dum		"

Trigger efficiency, $\theta_{cm} = 90^\circ$, $\phi = 0^\circ$

Run 3050: Prescales 1, 1, 1, 1, 65535, 65535

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
3050	1.0660	29.812	3.6600	14.078	LH2	6msr/6msr	aerogel in trigger

Production point, $\theta_{cm} = 90^\circ$, $\phi = 0^\circ$

Run 3051: Prescales 4000, 100, 7000, 2300, 1, 65535
Runs 3052-3053: Prescales 4000, 200, 7000, 2300, 1, 10200
Runs 3054-3103, 3105-3141: Prescales 4500, 400, 9000, 2500, 1, 14000
Run 3142: Prescales 4500, 400, 100, 2500, 14000
Runs 3143-3154, 3156-3224: Prescales 4500, 400, 9000, 2500, 1, 14000
Runs 3236-3263, 3297-3306: Prescales 4500, 400, 9000, 2500, 1, 14000

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
3051	1.0660	29.812	3.6600	14.078	LH2	6msr/6msr	aerogel in trigger high deadtime
3052					LH2		
3053-3102					LH2	open/open	
3103					LH2		old trigger
3105-3141					LH2		aerogel in trigger
3142					LH2		old trigger
3143-3154					LH2		aerogel in trigger
3156					LH2		
3157					LH2		elec scint HV adjusted prior to this run
3158					LH2		
3159					LH2		beam unstable ROC15 reset during run
3160-3179					LH2		
3180					LH2		coda problem
3181-3208					LH2		
3209					LH2		26 μA, deadtime check
3210-3223					LH2		
3224					LH2		10.8 μA, deadtime check
3226-3234					LH2		
3236-3238					LH2		
3239					LH2		no end run
3240-3263					LH2		
3297					LH2		5 μA
3298					LH2		10 μA
3299					LH2		21 μA
3300					LH2		47 μA
3301-3306					LH2		

Runs 3155, 3235, 3307 - JUNK, run does not exist
Run 3225 - JUNK
Runs 3264-3266, 3269-3296 - Cosmics
Runs 3267-3268 - Pulser

$\theta_{cm} = 135°,\ \phi = 0°$

Pointing reference, $\theta_{cm} = 135°,\ \phi = 0°$

Runs 3308, 3311-3316: Prescales 1, 4000, 2, 12500, 1, 14000

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
3308	0.8188	30.806	3.6600	14.074	carbon	6msr/6msr	HARP #963
3311					carbon		HARPs #964-965
3312-3313					4cm dum		
3314-3315					15cm dum		
3316					10cm dum		

Runs 3309-3310 - JUNK, RF trips during HARP scans

Trigger efficiency, $\theta_{cm} = 135°,\ \phi = 0°$

Run 3317: Prescales 1, 1, 1, 1, 65535, 1

run	p_h	θ_h	p_e	θ_e	target	H/E
3317	0.8188	30.806	3.6600	14.074	LH2	???/6msr

Production point, $\theta_{cm} = 135°,\ \phi = 0°$

Runs 3318-3321: Prescales 4000, 50, 80000, 2800, 1, 15000
Runs 3322-3323: Prescales 4000, 200, 10000, 2800, 1, 15000
Runs 3324-3335, 3337-3411, 3417-3419, 3421-3422, 3424-3465: Prescales 4385, 334, 12931, 2677, 1, 20664

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
3318	0.8188	30.806	3.6600	14.074	LH2	6msr/6msr	5 μA
3319					LH2		10 μA
3320					LH2		20 μA
3321					LH2		40 μA
3322				14.079	LH2	open/open	48 μA file split
3323-3328					LH2		
3329					LH2		25 μA eff. test
3330					LH2		44 μA
3331					LH2		
3332					LH2		file split 2x
3333					LH2		file split
3334					LH2		
3335					LH2		high deadtime
3337-3372					LH2		
3373					LH2		file split
3374-3411					LH2		
3417					LH2		ROC14 crash
3418-3419					LH2		old trigger
3421					LH2		
3422					LH2		high deadtime
3424-3465					LH2		

Run 3336 - JUNK, does not exist
Run 3420 - JUNK, unknown trigger

Continue Production point, $\theta_{cm} = 135^\circ$, $\phi = 0^\circ$

Run 3466: Prescales 4385, 334, 12931, 2677, 1, 20664
Runs 3496-3510, 3513-3517, 3527-3552, 3554-3564, 3566-3578, 3579, 3582-3633: Prescales 4407, 297, 13322, 2718, 1, 21190

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
3466	0.8188	30.806	3.6600	14.079	LH2	open/open	high deadtime
3496-3509					LH2		different T0
3510					LH2		high deadtime different T0
3512					LH2		file split different T0
3513-3517	0.8188	30.806	3.6600	14.079	LH2	open/open	different T0, TDC problem
3527					LH2		spot check
							fast feedback off
3528-3534					LH2		
3535					LH2		CODA crash
3536-3549					LH2		
3550-3551					LH2		fast feedback off
3552					LH2		
3554-3555					LH2		
3556					LH2		unstable beam
3557-3558					LH2		
3559					LH2		TDC fixed
3560					LH2		high deadtime, ER back up
3561-3563					LH2		
3564					LH2		high deadtime, due to ER
3566-3578					LH2		
3579					LH2		high deadtime, due to ER
3582-3622					LH2		
3623					LH2		2 μA for Compton
3624-3633					LH2		

Runs 3467-3482 - JUNK, DAQ problems
Runs 3483-3485 - JUNK, tc_cor shifted to lower side by 50
Runs 3486-3492 - JUNK, test runs
Runs 3493-3495, 3518-3526 - Cosmics
Run 3553 - JUNK, short run, beam off
Runs 3565, 3580 - JUNK, does not exist
Run 3581 - JUNK, DAQ problems

Electron Arm Optics

Run 3634-3640: Prescales 1, 65535, 65535, 65535, 65535, 65535

run	p_h	θ_h	p_e	θ_e	target	H/E
3634	0.8188	30.806	3.6600	14.075	LH2	open/sieve
3635	0.7919				LH2	??/sieve
3636	0.7499	34.703			LH2	6msr/sieve
3637	0.7485				LH2	
3638	0.7477				LH2	
3639	0.7408				LH2	
3640	0.7418				LH2	open/sieve

$\theta_{cm} = 155°$, $\phi = 0°$

Pointing reference, $\theta_{cm} = 155°$, $\phi = 0°$

Runs 3641-3642: Prescales 1, 65535, 1, 65535, 65535, 65535
Run 3643: Prescales 3, 65535, 10, 65535, 65535, 65535
Runs 3644-3646: Prescales 2, 65535, 8, 65535, 65535, 65535
Runs 3647-3648: Prescales 1, 65535, 4, 65535, 65535, 65535

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
3641	0.7418	34.709	3.6600	14.074	10cm dum	6msr/6msr	
3642					10cm dum		HARP #966
3643					10cm dum		HARP #967
3644					10cm dum		
3645					15cm dum		
3646-3647					4cm dum		
3648					carbon		

Trigger efficiency, $\theta_{cm} = 155°$, $\phi = 0°$

Runs 3649-3650: Prescales 1, 1, 1, 1, 65535, 1

run	p_h	θ_h	p_e	θ_e	target	H/E
3649-3650	0.7418	34.703	3.6600	14.074	LH2	6msr/6msr

Production point, $\theta_{cm} = 155^\circ$, $\phi = 0^\circ$

Runs 3651-3696, 3698-3726: Prescales 4407, 297, 13322, 2718, 1, 21190
Runs 3727-3776, 3778-3833: Prescales 5234, 394, 14661, 2845, 1, 21040
Runs 3835-3894, 3896-3927: Prescales 5234, 394, 14661, 2845, 1, 21040

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
3651	0.7418	34.703	3.6600	14.074	LH2	6msr/6msr	
3652-3669				14.079	LH2	open/open	
3670					LH2		ROC14 crash
3671					LH2		no bpm info. for part of run
3672-3677					LH2		
3678					LH2		beam off last 5 min
3679					LH2		unstable beam
3680					LH2		beam off for 10 min
3681					LH2		
3682					LH2		unstable beam
3683					LH2		some pulsed beam
3684-3695					LH2		
3696					LH2		ER back up
3698-3704	0.7418	34.703	3.6600	14.079	LH2	open/open	
3705					LH2		ER back up
3708-3762					LH2		
3763					LH2		5 μA for deadtime study
3764					LH2		10 μA
3765					LH2		20 μA
3766-3767					LH2		40 μA
3768-3775					LH2		
3776					LH2		high deadtime
3778-3785					LH2		
3786					LH2		beam off for 5 min
3787-3798					LH2		
3799					LH2		unstable beam
3800					LH2		
3801					LH2		unstable beam
3802-3833					LH2		
3835-3840					LH2		
3841					LH2		70 % deadtime
3842-3858					LH2		
3859					LH2		high deadtime
3860-3893					LH2		
3894					LH2		DAQ problem
3896-3925					LH2		
3926-3927					LH2		old trigger

Run 3697 - JUNK Runs 3706-3707, 3777, 3895 - JUNK
Run 3834 - Spot check

Deadtime study

Runs 3928-3930, 3932: Prescales 7500, 50, 44000, 5200, 1, 21040
Runs 3933-3934: Prescales 7500, 500, 50000, 6000, 3, 21040

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
3928-3929	0.7031	27	3.6600	14.079	LH2	open/open	old trigger raster off hadron strobe = 820 kHz
3930		21			LH2		old trigger hadron strobe = 1 MHz
3932-3934					LH2		same as 3930

Run 3931 - JUNK

$\theta_{cm} = 180^\circ$

Pointing reference, $\theta_{cm} = 180^\circ$

Runs 3936-3940: Prescales 1, 500, 3, 6000, 1, 21040

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
3936	0.7031	42.282	3.6600	14.079	carbon	open/open	raster off
3937					4cm dum		HARP #971
3938					4cm dum		HARP #972
3939					15cm dum		
3940					10cm dum		

Run 3935 - JUNK, wrong prescales

Trigger efficiency, $\theta_{cm} = 180^\circ$

Run 3941: Prescales 1, 1, 1, 1, 65535, 21040

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
3941	0.7031	42.282	3.6600	14.079	LH2	open/open	aerogel in trigger

Production point, $\theta_{cm} = 180^\circ$

Run 3942: Prescales 7500, 50, 20000, 3000, 1, 21040
Run 3943: Prescales 7500, 500, 20000, 3000, 1, 21040
Runs 3944-3968: Prescales 6968, 488, 18592, 3078, 1, 21040
Runs 3969-3970: Prescales 6968, 4888, 18592, 3078, 1, 19900
Runs 3971-4000, 4005-4034: Prescales 4912, 337, 9979, 2042, 1, 13163

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
3942-3945	0.7031	42.282	3.6600	14.079	LH2	open/open	aerogel in trigger
3946-3949					LH2		old trigger
3950					LH2		aerogel in trigger 42 μA
3951					LH2		30 μA
3952					LH2		20 μA
3953					LH2		10 μA
3954					LH2		5 μA
3955					LH2		41 μA
3956-3958				14.074	LH2	6msr/6msr	
3959-3961					LH2		old trigger
3962					LH2		beam off >10 min
3963-3964					LH2		
3965					LH2		beam off >10 min
3966					LH2		
3967-3997				14.079	LH2	open/open	aerogel in trigger
3998					LH2		ROC14 crash
3999-4000					LH2		
4005					LH2		CODA problem
4006-4013					LH2		
4014					LH2		stack trace error (coda?)
4015					LH2		
4016					LH2		high deadtime
4017-4021					LH2		
4022					LH2		unstable beam
4023-4028					LH2		
4029					LH2		unstable beam
4030-4034					LH2		

Elastic e'p

Run 4035: Prescales 1, 65535, 1, 65535, 1, 65535
Runs 4036-4037: Prescales 2000, 50, 200, 600, 1, 65535
Runs 4038-4040: Prescales 1866, 54, 141, 498, 1, 65535

run	p_h	θ_h	p_e	θ_e	target	H/E	comments
4035	1.1880	54.201	3.9540	14.077	carbon	6msr/6msr	10 μA
4036					LH2		high deadtime
4037					LH2		electron Q2 fault
4038-4039					LH2		
4040					LH2		electron Q2 fault

Charge Summary

θ_{cm}	C w/ 6msr col.	+	C w/o col.	*	gain with open col.	=	total C w/ col.	% done
-155.0	3.477	+	8.030	*	1.255	=	13.555 C	87.4 %
-135.0	2.419	+	17.837	*	1.41	=	27.569 C	101.4 %
-90.0	3.375	+	10.287	*	1.63	=	20.142 C	101.7 %
-50.0	3.500	+	7.035	*	1.33	=	12.857 C	100.4 %
-25.0	4.644					=	4.644 C	74.9 %
0.0	2.814	+	13.923	*	1.66	=	25.926 C	114.2 %
25.0	2.325	+	3.871	*	1.44	=	7.899 C	59.8 %
50.0	3.215	+	9.782	*	1.60	=	18.866 C	79.6 %
90.0	2.305	+	9.680	*	1.36	=	15.470 C	64.7 %
135.0	2.373	+	8.716	*	1.40	=	14.575 C	69.4 %
155.0	2.209	+	8.987	*	1.30	=	13.892 C	67.1 %
	C w/		C w/o					
	6msr col.		col.					
180.0	0.507		3.201					