Tevatron Scanner Raw Data

This compilation puts the raw data taken with the Tevatron flying wire scanners in context with the machine conditions. All the data taken during collider commissioning in 1985 are included.

Calculated Values

Emittances and momentum spreads are calculated when sufficient information was at hand according to the techniques given in Appendix B of EXP-129. (Where applicable, an average was taken before the calculations were done.)

-The vertical emittance is calculated when the lattice was conventional or low β.

-The horizontal emittance and momentum spread are calculated when the lattice was conventional or low β when both horizontal scanners were recorded.

-The horizontal emittance is calculated from the HC48 scanner alone in those low β lattice cases when the HE11 scanner was not recorded; these cases are noted in the compilation by "η=0".

The summary does not include an emittance calculation in cases where the lattice was part way in a squeeze or when the lattice was not known for sure. On occasion, the calculation for the momentum spread yields junk due to the finite precision of the beam size measuement, or under some studies conditions. These cases are noted in the compilation by "-ve".

References

The data have been extracted from several references. The abbreviations used in the summary for these references are:

ED = ED logs
EDB = ED data book/binder
FW = flying wire log
FWDB = flying wire data book/binder
fx.y = application page wire file x, data file y

The column labeled W in the summary indicates the type of scanner measurement:

W = E for HE11 horizontal measurement
W = C for HC48 horizontal measurement
W = H for combined HE11 and HC48 measurement
W = V for VC48 vertical measurement

Historical Notes

14 Sep	HC48 and VC48 installed.
19 Sep	C48 pbar paint can moved to proton position.
21 Sep	HC48 is suspected of having a broken wire. The detrimental effects were minimized by the evening by carefully choosing the wire speed.
22 Sep	HE11 dies on day shift.
26 Sep	HE11 fixed on the day shift.
27 Sep	At 0047 at the end of Store 33, the power splitter was removed from the bunch intensity monitor.
2 Oct	HE11 dies on day shift.
8 Oct	C48 paint cans put in p-pbar positions.

Selected Studies Notes

Date	Store	Comment
25 Sep	27	Low β lifetime
26 Sep	31	150 GeV lifetime
26 Sep	32	150 GeV lifetime
27 Sep	34	150 GeV lifetime
27 Sep	37	Low β, then return to step 21
27 Sep	43	Pinger accidentally left on
28 Sep	44	Sextupole experiment at low β
29 Sep	46	Pinger blow up trial, sextupole trial
29 Sep	47	Sextupole experiment at low β
29 Sep	49	Sextupole experiment at low β
30 Sep	50	Low β acceptance experiment
1 Oct	56	Damper blows up beam at 150 GeV
2 Oct	58	Conventional lattice acceptance experiment
3 Oct	59	150 GeV lifetime
8 Oct	71	Step 21 injection

Date Time	Sigma mm	W	ϵ/π mm-mrad	σ_p/p o/oo	Conditions and Comments
15Sep	Store 1				FW p21-22, ED6 p241-242
					800GeV conventional
					T:SMBEAM gives .42E10 x 32 bunches
0425	.2895	V			+ 25 minutes
0429	.313	V			+ 29 minutes
	.3013	V	16.5		average 800 GeV
0433	.3859	V			Beginning squeeze
0434	.3429	V			Step 21
0438	.3362	V			f2.10; Step 21
0443	.2287	V			f2.11, At low β
					0.32E10 x 32 bunches
0444	.2273	V			
	.2280	V	8.3		average
0456	.2533	V			f2.12
0500					Turn off 20 B0 steering dipoles
0502	.1946	V			f2.13
0509	.2056	V			
	.2178	V	7.6		average
0510	.2056	V			
0511	.2091	V			
0512	.1715	V			
0513	.2156	V			
0514	.1715	V			f2.14
0515	.2058	V			
0517					Start chromaticity adjustments
0517	.2172	V			f2.15
	.1995	V	6.4		average
0526	.2153	V	7.4		f2.16
0540	.198	V	6.3		f2.17, after chromaticity put back
	.2085	V	7.0		average low β

Date Time	Sigma mm	W	ϵ/π mm-mrad	σ_p/p o/oo	Conditions and Comments
15Sep	Store 2				FW p24, ED6 p242
0603	.5481	V			f2.18; 150 GeV
0611	.6497	V			f2.19
0616	.6463	V			f2.20
	.6147	V	12.8		average 150 GeV
0623	.2954	V			f2.21, 800 GeV conventional
0627	.2738	V			800 GeV + 4 minutes
	.2846	V	14.7		average 800 GeV
0634	.3198	V			f2.22, Step 21
0635	.2919	V	13.6		Low β
0642	.225	V			f2.23
0646	.2044	V			
	.2147	V	7.4		average
0650	.3648	V			
0652	.358	V			f2.24
0654	.3023	V			
	.3417	V	18.7		average
0702	.3136	V			after orbit correction
0704	.2516	V			
	.2826	V	12.8		average
	.2890	V	13.4		average low β
16Sep					FW p39, ED6 p249 can't get closed orbit noise on dampers to see tunes
0549	1.349	V	61.9		f2.25, 150 GeV, 0.4E10 x 2 bunches
16Sep					FW p42, ED6 p249-250 800 GeV conventional, 9 bunches MR to TeV bunch transfer is bad
0721	.416	V			f2.26
0723	.4582	V			f2.27
	.4371	V	34.7		average

Date Time	Sigma mm	W	ϵ/π mm-mrad	σ_p/p o/oo	Conditions and Comments
17Sep	Store 5				FW p47, ED6 p253
					800 GeV, 1 bunch, ~2E10 on T:SMBEAM
					estimate 1E10/bunch
0248					At low β
0257	.4348	V			f2.28
0257	.3576	V			f2.29
	.3962	V	25.1		average
17Sep	Store 7				FW p49, ED6 p254-255
					2.2E10 on T:SMBEAM
					estimate 1.1E10/bunch
0441					At low β
0444	1.289	E			f4.28
0444	1.41	E			f4.29
	1.350	E			average
0445	.4367	V			f2.31
	.3512	V			f2.32
	.3949	V	24.9		average
0452	.4032	V			
	.3775	V			
	.3711	V			
	.4412	V			
	.4592	V			
	.4104	V	26.9		average
0455	.4526	V			
	.4952	V			f2.33
	.4632	V			f2.34
	.4703	V	35.4		average
0502	1.438	E			f4.31; low β + 20 min
0503	1.473	E			f4.32
0504	1.362	E			f4.33
	1.424	E			average
0507	.4557	V			f2.35
0507	.4079	V			f2.36
	.4318	V	29.8		average

Date Time	Sigma mm	W	ϵ/π mm-mrad	σ_p/p o/oo	Conditions and Comments
17Sep					Store 7 continues
	.4723	V			
	.4019	V			
	.4235	V			
	.3002	V			
	.4345	V			
	.4065	V	26.4		average
0512	.3829	V			f2.37
0512	.4276	V			f2.38
	.4053	V	26.3		average
17Sep	Store 8				FW p52; ED6 p256
0712	.4038	V	29.6		800 GeV conventional; 1 bunch
17Sep	Store 9				FW p52; ED6 p256
0736	.4408	V	35.2		800 GeV conventional; 1 bunch
17Sep	Store 10				FW p52; ED6 p256
0755	.3357	V	20.4		800 GeV conventional; 1 bunch
19Sep	Store 1				FW p58, ED6 p269,274-275
	800GeV; ABC bunches; T:SMBEAM = 5.9E10				
	estimate 1E10/bunch; A & B ~1.1E10;C not working				
					corrected for power splitter
0242					At low β
0249	1.209	E			f4.35
0252	1.217	E			f4.36
	1.213	E			average
0244	.3598	V			f2.39
0245	.3575	V			f2.40
	.3587	V	20.6		average
0307	1.179	E			f4.37
0303	.3547	V	20.1		f2.41
0318	1.213	E			f4.38
0317	.3455	V	19.1		f2.42

Date Time	Sigma mm	W	ϵ/π mm-mrad	σ_p/p o/oo	Conditions and Comments
19Sep					Store 1 continues
0348	1.322	E			f4.39
0342	.3293	V			f2.43
0344	.3556	V			f2.44
	.3245	V	16.8		average
	.3504	V	19.6		average at low β

19Sep Store 2 — FW p59ff, ED6 p269,276-277
800 GeV, ABC bunches; 4.5E10 on T:SMBEAM
54% in principle bunches gives 0.8E10 x 3 bunches

0445					At low β
0604	1.131	E			f4.40
0606	1.708	E			f4.41; large background
0612	.341	V			f2.45
0613	.3402	V			f2.46
	.3406	V	18.5		average
0623	1.152	E			f4.42
0630	.3573	V			f2.47
0632	.3571	V			f2.48
	.3572	V	20.4		average
0640	.3695	V			
	.3702	V			
	.3699	V	21.9		average
0642	.3531	V			
	.3508	V			
	.3520	V	19.8		average
0645	.3371	V			f2.1
	.3465	V			f2.2
	.3418	V	18.7		average
0651	.3402	V			
	.3566	V			
	.3484	V	19.4		average
0657	.318	V			f2.3
	.345	V			f2.4
	.3315	V	17.6		average

Date Time	Sigma mm	W	ϵ/π mm-mrad	σ_p/p o/oo	Conditions and Comments
19Sep					Store 2 continues
0707	1.211	E			f4.43
0712	.3768	V			f2.5
0713	.3627	V			f2.7
	.3698	V	21.9		average
0751	1.219	E			f4.44
0758	1.094	E			f4.46
	1.152	E			average
0755	.3427	V			f2.8
0756	.3551	V			f2.9
	.3489	V	19.5		average
	.3511	V	19.7		average at low β
20Sep	Store 1				FW p64, ED6 p279
					800 GeV, ABC bunches; T:IBEM1 = 1.8E10
					.25E10 in bunch A and B; C not recorded
					corrected for power splitter
					low β
0538	1.47	E			f8.3
0540	1.349	E			f8.4
	1.410	E			average
0556	.345	V			f1 (Wire file 6,7,or 8)
0558	.3448	V			f2
	.3449	V	19.0		average
21Sep	Store 1				FW p65,69, ED6 p288
0645					At low β
0943	.4359	V			f3; + 3 hours
0944	.4098	V			f4
	.4229	V	28.6		average

Date Time	Sigma mm	W	ϵ/π mm-mrad	σ_p/p o/oo	Conditions and Comments
21Sep	Store 2				FW p69, ED6 p290
					800 GeV, low β
1329	.2522	V			+ 10 minutes
1330	.2582	V			f7.6, raw T:SMBEAM = -.79
	.2552	V	10.4		average
1419	1.992	E			f8.10; IBEM1 = 1.686
1421	1.459	C			f6.30; + 1 hour; raw IBEM1 = 1.718
1422	1.298	C			f6.32; raw IBEM1 = 1.587
	1.379	C			average
		H			based on average
1417	.2728	V			f7.7; + 1 hour; raw T:SMBEAM = -.77
1418	.2655	V			f7.9; raw T:SMBEAM = -.76
	.2692	V	11.6		average
21Sep	Store 3				FW p69
					800 GeV; lattice = ?
1547	1.621	E			f8.13
1548	2.245	E			f8.14
	1.933	E			average
1550	1.048	C			f6.33; + 5 min; raw IBEM1 = 4.441
1551	.9269	C			f6.34; raw IBEM1 = 4.316
	.987	C			average
		H			based on average
1549	.3368	V			f7.10; raw T:SMBEAM = -.48
1550	.3143	V			f7.11, raw T:SMBEAM = -.46
	.3256	V			average

Date Time	Sigma mm	W	ϵ/π mm-mrad	σ_p/p o/oo	Conditions and Comments
21Sep	Store 4				FW p67-69
					800GeV; lattice = ?
					estimate 1.3E10 x 3 bunches
1713	1.277	E			f4.47; + 12 minutes
1717	1.214	E			f8.14,+ 14 minutes
	1.246	E			average
1718	.9716	C			f6.35; raw IBEM1 = 6.1
		H			based on average
1716	.366	V			f7.12; T:SMBEAM = -.62
1810	1.403	E			f8.15, + 1 hour
1808	1.011	C			f6.36; raw IBEM1 = 5.713
		H			
1809	.3556	V			f7.13; raw T:SMBEAM = -.63
1910	1.246	C			f6.37, + 2 hours; raw IBEM1 = 5.261
1911	.377	V			f7.14; raw T:SMBEAM = -.74
21Sep	Store 5				FW p67-69, ED6 p293-294, EDB11
			800 GeV, ABC bunches; 1.3E10 x 3 bunches		
					corrected for power splitter
					low β
2051	1.111	C	52.9	η=0	f6.38; raw IBEM1 = 8.442
2052	.3595	V	20.7		f7.15, Store 5 + 1 minute
					raw T:SMBEAM = -.65
22Sep	Store 1 (Crew chief 7)				FW p67-69, ED6 p294
			800GeV; ABC bunches; estimate 1.3E10/bunch		
0148					At low β
0158	1.309	E			f8.16
0154	.8166	C			f6.39; raw IBEM1 = 6.697
0155	.8849	C			f6.40; raw IBEM1 = 2.073
	.8508	C			average
		H	30.9	.300	based on average
0156	.3488	V			f7.16, raw T:SMBEAM = -.75
0156	.3417	V			f7.17 " -.75
	.3453	V	19.1		average

Date Time	Sigma mm	W	ϵ/π mm-mrad	σ_p/p o/oo	Conditions and Comments
22Sep					Store 7 continues
0229	1.174	E			f8.18, + 75 minutes
0230	1.059	E			f8.19
	1.117	E			average
0224	.7488	C			f6.42; raw IBEM1 = 2.158
0224	.9384	C			f6.43; raw IBEM1 = 2.132
	.8436	C			average
		H	30.4	.228	based on average
0225	.3407	V			f7.18, raw T:SMBEAM = -.72
0226	.3341	V			f7.19, raw T:SMBEAM = -.69
	.3374	V	18.2		average
0306	1.227	E			f8.21, + 2 hours
0304	.9038	C			f6.44; raw IBEM1 = 2.151
0304	1.004	C			f6.45; raw IBEM1 = 2.761
	.9539	C			average
		H	38.9	.243	based on average
0305	.3359	V			f7.20; raw T:SMBEAM = -.68
0305	.3474	V			f7.21; raw T:SMBEAM = -.69
	.3417	V	18.7		based on average
22Sep	Store 16				ED7 p8
2200					measuring ξ at low β
2202	.3429	V			f7.22
2202	.3476	V			f7.23
	.3453	V	19.1		average
2214	.3946	V	24.9		f7.24
2226	2.935	C	369	η=0	f6.46; +30 min; raw IBEM1 = 1.954
2238	.3621	V			f7.25; changed tunes lost about half the beam
2242	.3217	V	16.5		f7.26
24Sep	Store 25				ED7 p21
0234			Step 21; using		dampers during tune scans
0344					Low β
0508	.2182	V			f7.27
0508	.2054	V			f7.28
	.2118	V	7.2		average
0512	.1775	V	5.0		f7.29

Date Time	Sigma mm	W	ϵ/π mm-mrad	σ_p/p o/oo	Conditions and Comments
24Sep	Store 26				ED7 p22-26
0628					Low β
					optimizing skew quads
					3 x .45E10; ΣABC/IBEM1 = .27
0924	1.346	C	77.7	η=0	f6.47; end of store 26
0924	.3123	V	15.6		f7.30
25Sep	Store 27				ED7 p29-33
	low β lifetime experiment; τ > 90 hours				
	1E10 x 3bunches; corrected for power splitter				
					ΣABC/T:IBEM1 = 0.27
0330					Low β
0345	1.021	C	44.7	η=0	f6.48; raw IBEM1 = 11.07
0344	.315	V	15.9		f7.31
0636	.9748	C	40.7	η=0	f6.1; raw IBEM1 = 11.0
0636	.3414	V	18.6		f7.32
26Sep	Store 31				ED7 p35-39,43
	150 GeV lifetime experiment				
	ABC bunches, 1E10 x 3; corrected for power splitter				
	ΣABC/T:IBEM1 = 0.25				
	τ ~0.2 hour in first 5 minutes, then τ ~1 hour;				
	major improvevemts to τ came later				
	Beam intensity I estimated as average of T:SMBEAM and IBEM1				
	T:SMBEAM offset = -.0953, T:IBEM1 offset = +.7671 based				
	on VC48 no beam data				
	SMBEAM intensity in E10 = .25x10x(value + .0953)/3				
	IBEM1 intensity in E10 = .25x(value - .7671)/3				
	Area is in units of paint can volts x mm				
0246	1.821	C			f6.2
0248	.9212	V	28.9		f7.33; I = .82, area = 2.389
0250	1.763	C			f6.3
0252	.8916	V	27.0		f7.34; I = .72, area = 2.142
0253	1.763	C			f6.4
0254	.9078	V	28.0		f7.35; I = .68, area = 2.108
0302	1.723	C			f6.5
0301	.8671	V	25.6		f7.36; I = .56, area = 1.775

Date Time	Sigma mm	W	ϵ/π mm-mrad	σ_p/p o/oo	Conditions and Comments
26Sep					Store 31 continues
0309	.8759	V	26.1		f7.37; I = .46, area = 1.605
0311	1.727	C			f6.6
0313	.8539	V	24.8		f7.38; I = .45, area = 1.483
0319	1.622	C			f6.7
0319	.8834	V	26.5		f7.39; I = .37, area = 1.335
0342	1.713	C			f6.8
0342	.8862	V	26.7		f7.40; I = .36, area = 1.134
26Sep	Store 32				ED7 p35-42,43
					150 GeV lifetime
0435	2.082	C			f6.10; IBEM1 = 9.531
0436	1.038	V	36.6		f7.42; I =1.03, area = 3.428
0448	1.82	C			f6.11; IBEM1 = 11.16
0448	.8891	V	26.9		f7.43; I = .89, area = 2.301
0456	1.735	C			f6.12; IBEM1 = 8.705
0457	.8834	V	26.5		f7.44; I = .66, area = 1.89
0506	1.642	C			f6.13; IBEM1 = 7.458
0507	.8413	V	24.1		f7.45; I = .57, area = 1.649
0523	1.586	C			f6.14; IBEM1 = 6.028
0524	.8096	V	22.3		f7.1 ; I = .46, area = 1.333
0534	1.596	C			f6.17; IBEM1 = 5.346
0535	.7817	V	20.8		f7.3 ; I = .40, area = 1.179
0542					turn on damper to see tunes
0545	1.926	C			f6.18; IBEM1 = 3.234
0546	1.141	V	44.3		f7.4 ; I = .21, area = .6915
0546					End of store 32

Date Time	Sigma mm	W	ϵ/π mm-mrad	σ_p/p o/oo	Conditions and Comments
27Sep	Store 34				ED7 p44,52, EDB11
			150 GeV lifetime; τ ~ .47 hour after tune change		
			Bunch monitor 3 x 0.75E10; ΣABC/T:SMBEAM = .21		
0104	2.331	C			f17.11; IBEM1 = 8.403
0105	1.094	V	40.7		f18.22; area = 1.875
0132	1.919	C			f17.12; IBEM1 = 5.018
0133	.984	V	32.9		f18.24; area = .965
0142	2.02	C			f17.13; IBEM1 = 3.509
0144	1.123	V	42.9		f18.25; area = .6765
27Sep	Store 35				ED7 p44-46, EDB11
					150 GeV; 7.1E10 T:SMBEAM
0214	2.486	E			f19.1
0213	2.17	C			f17.14
		H	33.8	.529	
0213	1.036	V	36.5		f18.26; area = 2.988; estimate I = 1.2E10
0219					At 800 GeV
0224	.9505	E			f19.2
0222	.7869	C			f17.15
		H	20.3	.236	
0223	.3985	V	28.8		f18.27
0247					At low β
	1.03	E			f19.3
0248	.9905	C			f17.16
		H	42.0	.130	
0249	.3415	V	18.6		f18.28
27Sep	Store 37				ED7 p47-48
0515					low β
					return to step 21
0604					measuring ξ
0618	2.422	E			f19.4; debunched suspected
0617	1.923	C			f17.17
		H			
0616	.7938	V			f18.29

Date Time	Sigma mm	W	ϵ/π mm-mrad	σ_p/p o/oo	Conditions and Comments
27Sep	Store 43				ED7 p54
		E48 H pinger accidentally left on blowing up beam			
2255					begin Store
2302	1.592	C	109	η=0	f17.18; at low β
2303	.5621	V	50.5		f18.30
2343	2.222	C			f17.19; pinger off
2345	1.998	C			f17.21
	2.110	C	191	η=0	average
2344	.7164	V	82.1		f18.31
28Sep	Store 44				ED7 p55-63, EDB11
		sextupole experiment; ABC bunches			
		30% loss going from 150 to 800 GeV			
0032					Low β
0039	1.179	E			f19.5
0036	1.018	C			f17.22
		H	44.4	.201	
0037	.3698	V	21.9		f18.32
0103	1.077	E			f19.6
0100	1.018	C			f17.23
		H	44.4	.145	
0102	.3836	V	23.5		f18.33
0116					+13 amps sextupoles
0124					0 amps sextupoles
0125					14.9E10 on T:SMBEAM estimate 2.1E10 x 3 bunches
0128					+32 amps sextupoles; losses; large tune plate amplitudes
0132	1.911	E			f19.7
0129	1.29	C			f17.24
		H	71.0	.428	
0130	.4353	V	30.3		f18.34
0144	1.255	E			f19.8; back to 0 amps sextupoles
0142	1.574	C			f17.25
		H	106	-ve	
0143	.4892	V	38.3		f18.35

Date Time	Sigma mm	W	ϵ/π mm-mrad	σ_p/p o/oo	Conditions and Comments
28Sep					Store 44 continues
0155					Bunch intensity monitor working
					1.9E10 x 3 bunches
0159					+32 amps sextupoles
					13.6E10 = T:SMBEAM
					ΣABC/T:SMBEAM = 0.42
0203	1.737	E			f19.9
0201	1.618	C			f17.26
		H	112	.246	
0203	.4681	V	35.0		f18.36
0221	1.523	E			f19.11
0218	1.596	C			f17.27
		H	109	.088	
0220	.4361	V	30.4		f18.37; still +32 amps sextupoles
0237	1.942	E			f19.12; 0 amps sextupoles
0239	1.291	C			f17.28
		H	71.1	.439	
0238	.4575	V	33.5		f18.38
0239					CDF moves Silicon detector too close
0240					get losses; change tunes
0252	1.535	E			
	1.63	C			
		H	114	.053	
	.3763	V	22.6		
0316					+45 amps sextupoles
0322	2.655	E			f19.13
0323	1.796	E			f19.14
	2.226	E			average
0321	1.58	C			f17.29
		H	107	.480	based on average
0321	.4382	V	30.7		f18.39
0323					Store 44 ends on QPM screwup
		At end		11.8E10	on T:SMBEAM; 1.4E10 x 3 bunches
					ΣABC/T:SMBEAM = .36 at end

Date Time	Sigma mm	W	ϵ/π mm-mrad	σ_p/p o/oo	Conditions and Comments
29Sep	Store 46				ED7p67-69, EDB11
			Pinger blow up trial; sextupole tryout		
			B and C deteriorate at 150 GeV		
			800 GeV conventional; A ~2.1E10; B & C ~0.3E10		
0317	1.05	E			
	1.17	C			
		H	78.5	-ve	
	.633	V	72.7		
0319					pinger firing every 5.05 sec
0336	1.68	E			
	1.87	C			
		H	200	-ve	
	.81	V	119		
0339					turn off pinger
0344					low β; abnormal squeeze losses
					A ~1.8E10, B and C ~ 0.1E10
0344	1.93	E			
	1.62	C			
		H	112	.345	
	.53	V	44.9		
0352	1.9	C	155	η=0	losses correlated with pinger
	.56	V	50.1		
0400	2.24	C	215	η=0	losses on T:SMBEAM
	.70	V	78.4		
0403	2.24	C	215	η=0	pinger off, losses stop
	.61	V	59.5		
0409					+45 amps sextupoles, change tunes
0456	1.63	C	114	η=0	
	.624	V	62.3		
0502	1.94	C	161	η=0	
	.75	V	89.9		

Date Time	Sigma mm	W	ϵ/π mm-mrad	σ_p/p o/oo	Conditions and Comments
29Sep	Store 47				ED7 p70-73, 81, EDB11
		Sextupole experiment and pinger blow up			
0625					low β; ABC 3 x 2.6E10
0630	1.138	E			f19.15
0629	.959	C			f17.30
		H	39.4	.202	
0628	.3244	V	16.8		f18.40
0630					+45 amps sextupoles, losses so change tunes
0639					0 amps sextupoles; ABC 3 x 1.7E10
0647	1.118	E			f19.16
0647	1.104	C			f17.31
		H	52.2	.124	
0646	.6413	V	65.8		f18.41, shoulders on profile
0653					+45 amps sextupoles; transient loss
0657	1.369	E			f19.17
0655	1.603	C			f17.32
		H	110	-ve	
0655	.535	V	45.8		f18.42
0704					0.5 KV H pinger, pinger losses
0714	1.756	E			f19.18
0714	1.627	C			f17.33
		H	113	.253	
0714	.5907	V	55.8		f18.43
0723	2.284	E			f19.19
0723	1.934	C			f17.34
		H	160	.403	
0723	.6745	V	72.7		f18.44
0729					turn off pinger; ABC 3 x 0.9E10
0746	2.177	E			f19.20
0747	2.012	C			f17.35
		H	173	.316	
0746	.7337	V	86.1		f18.45
0754					pinger on; SUMXY losses
0811	2.161	C	200	η=0	f17.36
0810	.7229	V	83.6		f18.46; +45 "

Date Time	Sigma mm	W	ϵ/π mm-mrad	σ_p/p o/oo	Conditions and Comments
29Sep					Store 47 continues
0906					pinger off; ABC 3 x 0.3E10
					ΣABC/T:IBEM1 = 0.35
0924	2.837	E			f19.21
0923	2.255	C			f17.37
		H	217	.548	
0922	.8045	V	103		f18.47
1011	2.355	E			f19.22
1008	2.302	C			f17.38
		H	227	.276	
1009	.7581	V	91.9		f18.48
29Sep	Store 49				FW p75, ED7 p80-82, EDB11
	Sextupole experiment				
2155					at low β; ABC 3 x 1.8E10
					ΣABC/T:SMBEAM = 0.54
2333	1.269	E			f19.23
2330	1.137	C			f17.39
		H	55.4	.200	
2332	.4237	V	28.7		f18.1
2340					dampers on to measure tune, losses
2350	2.631	E			f19.24
2350	2.636	E			f19.25
2351	2.68	E			f19.26
	2.649	E			average
0000					30 Sep
0033	2.724	E			
0027	2.487	C			f17.40
		H	265	.409	
0028	.4714	V	35.5		f18.2
0049					+45 amps on sextupoles
0051	2.327	E			f19.27
0051	2.300	C			f17.41
		H	227	.256	
0049	.5275	V	44.5		f18.3
0105	1.832	E			f19.28; Qx,Qy changed
0105	1.678	C			
		H	121	.273	
0105	.6384	V	65.2		f18.4

Date Time	Sigma mm	W	ϵ/π mm-mrad	σ_p/p o/oo	Conditions and Comments
30Sep					Store 49 continues
0108					sextupoles off
0110	1.985	E			f19.29
0109	1.241	C			f17.43
		H	65.6	.465	
0109	.7076	V	80.1		f18.5
0125	2.38	E			f19.30; dampers on; Qx,Qy changed
0124	2.151	C			f17.44
		H	198	.367	
0124	.5177	V	42.9		f18.6
0136	2.267	E			
	2.086	C			
		H	186	.333	
	.514	V	42.2		
0200					ABC 3 x 1.3E10
					ΣABC/T:IBEM1 = 0.39
0237	1.876	E			
	1.801	C			
		H	139	.239	
	.5701	V	52.0		
0257	1.885	E			f19.31
0258	1.908	C			f17.45
		H	156	.176	
0257	.5246	V	44.0		f18.7
0304	.5246	V	44.0		f18.8

30Sep	Store 50				ED7 p83
					low β beam blowup experiment
0811					low β
0855	1.06	E			f14.30
0856	1.118	C			f15.9
		H	53.6	.051	
0858	.3811	V	23.2		f18.9
1025	1.223	E			
	1.054	C			
		H	47.5	.209	
	.3682	V	21.7		more data in ED7

Date Time	Sigma mm	W	ϵ/π mm-mrad	σ_p/p o/oo	Conditions and Comments
30Sep					Store 50 continues
1055	1.592	E			f14.31; blowing up beam
1056	1.613	C			f15.10; blowing up beam
		H	112	.147	
1057	.3811	V	23.2		f18.10; blowing up beam
1330	2.375	E			f14.4; last of beam blow up data
1332	2.417	C			f15.34
		H	250	.211	
1335	.9369	V	140		f16.9
1340					End Store 50
10ct	Store 55				FW p76; ED7 p92
					150 GeV, ABC bunches
0257	2.329	E			f14.5
0258	2.458	C			f15.35
		H	61.0	-ve	
		E			13.5 mm base width: a= .43π mm-mrad
		C			12 mm base width: a= .34π mm-mrad
0258	1.163	V	46.0		f16.10
		V			6 mm base width: a= .32π mm-mrad
10ct	Store 56				FW p76, ED7 p92, EDB11
					150 GeV, ABC bunches; T:SMBEAM = 13E10
					Estimate 2.3E10/bunch
0315	2.364	E			f14.6
0315	2.099	C			f15.36
		H	33.0	.471	
		E			13.5 mm base width
		C			11.5 mm base width
0316	1.124	V	43.0		16.f11
		V			6 mm base width
0319		H damper blows up beam during tune measurement			
giving large beam loss; T:SMBEAM = 5.8E10					
0321	2.78	E			f14.7
0322	2.261	C			f15.37
		H	29.5	.719	
		E			13.5 mm base width
		C			12 mm base width
0323	1.165	V	46.1		f16.12, after H damper blows up beam
		V			6 mm base width

Date Time	Sigma mm	W	ϵ/π mm-mrad	σ_p/p o/oo	Conditions and Comments
20ct	Store 58				ED7 p96
					800 GeV conventional beam blow up
0645	.9257	E			f11.6; before beam blow up
0701	.9369	E			f11.7; "
	.9313	E			average
0646	.8762	C			f12.1; before beam blow up
0657	.9016	C			f12.2; before beam blow up
	.8889	C			average
		H	36.6	.108	based on average
0647	.4623	V			f13.25; before beam blow up
0659	.4511	V			f13.26; before beam blow up
	.4567	V	37.8		average
0836	2.229	E			f11.21; last Store 58 data
0837	2.413	C			f12.16; "
		H	323	-ve	
0837	1.166	V	247		f13.40; last Store 58 data
30ct					ED7 p102-104
0353	1.51	C			f12.17; 150 GeV; measuring ξ
0352	.97	V	32.0		f13.41; 150 GeV; measruing ξ
30ct	Store 59				ED7 p105-110
0708		Start 150 GeV store; 2 bunches; 2 x 1.9E10			
0718	2.168	C			f12.18; 150 GeV lifetime
0719	1.078	V	39.5		f13.42; 150 GeV lifetime
					τ ~2.6 hr bunch; τ ~6.1 hr IBEAM
0733	2.111	C			f12.19; 150 GeV lifetime
0739	1.056	V	37.9		f13.43; 150 GeV lifetime
0809					low β; 2 x 1.1E10
0812	1.102	C	52.1	η=0	f12.20
0813	.3959	V	25.1		f13.44
0946	1.044	C	46.7	η=0	
0948	.4138	V	27.4		f13.45
1030					protons cogged clear around TeV
1125	1.146	C	56.3	η=0	f12.22
1126	.3989	V	25.4		f13.46
1200					2 x 0.93E10
1235	1.068	C	48.9	η=0	f12.23
1236	.4176	V	27.9		f13.47

Date Time	Sigma mm	W	ϵ/π mm-mrad	σ_p/p o/oo	Conditions and Comments
7Oct	Store 70				ED7 p127
					1 bunch
0745					Low β
0749	.5417	V	46.9		f13.48; 2 mm orbit distortions
0758	.4378	V	30.6		f13.2
0805	.4859	V	37.8		f13.3
0955	.4665	V	34.8		f13.4
1002	.4276	V			f13.5
1003	.4342	V			f13.6
	.4309	V	29.7		average
	.4656	V	34.7		average at low β
8Oct					FW p 88, ED7 p132ff
	150 GeV; Step 21				injection study; 2 bunches
0512	1.634	V			f13.7
0513	1.487	V			f13.8
					average
0620					put in proper ξ
0656	2.744	C			f12.33; IBEM1 = 7.989
0657	1.121	V			f13.10
0723					begin Store 71 lifetime
0742	2.528	C			f12.34; IBEM1 = 7.412
0743	1.087	V			f13.11
9Oct	Store 74				ED no info
0351	1.05	C	47.3	η=0	f12.42; low β
0352	.349	V	19.5		f13.20
9Oct	Store 75				ED no info
0542	1.971	C			f12.43; 150 GeV; pbar shot 3
0543	.888	V	26.8		f13.21
11Oct	Store 84				ED no info
0254	1.657	C			f9.5; 150 GeV

Date Time	Sigma mm	W	ϵ/π mm-mrad	σ_p/p o/oo	Conditions and Comments
11Oct	Store 86				ED7 p153
1458					150 GeV store
1504					800 GeV store
1512					Low β
1928	1.026	C	45.1	η=0	f9.6
2235	1.106	C	52.5	η=0	f9.7;
2235	.4161	V	27.7		f10.12
0000					12Oct
0014					9 hours into store
0029	1.144	C	56.1	η=0	f9.8
0030	.4215	V	28.4		f10.13
0040					HB35 found off; turn it on
0105	1.143	C	56.0	η=0	f9.9
0106	.4338	V	30.1		f10.14
	1.105	C	52.4		average low β
	.4238	V	28.7		average low β
12Oct	Store 90				ED7 p155
1529	1.699	C			f9.11; 150 GeV
1530	.5263	C			f9.12; 800 GeV conventional
1534	.5749	C			f9.13
		C			average
1531	.3051	V	16.9		f10.16
1541	.645	C			f9.14
1542	.2809	V	14.3		f10.17
1545	.5988	C			f9.15
1547	.6606	C			f9.16
1548	.621	C			f9.17
1550	.6475	C			f9.18
	.6320	C			average
1546	.3317	V			f10.18
1548	.3034	V			f10.19
1549	.2935	V			f10.20
	.3095	V	17.4		average

Date Time	Sigma mm	W	ϵ/π mm-mrad	σ_p/p o/oo	Conditions and Comments
12Oct					Store 90 continues
1556	.5787	C			f9.19
1600	.5463	C			f9.20
	.5625	C			average
1557	.2708	V			f10.21
1559	.2848	V			f10.22
	.2778	V	14.0		average
1645	.6027	C			f9.21
1647	.7341	C			f9.22
	.6684	C			average
1639	.3463	V			f10.23
1640	.3162	V			f10.24
1643	.2863	V			f10.25
	.3163	V	18.1		average
1700					Q1 trips at step 21; end of store 90
12Oct	Store 91				ED no info
1851	.7165	V	17.5		f10.26; 150 GeV
12Oct	Store 92				ED no info
1907	.7808	V	20.7		f10.27; 150 GeV

Date Time	Sigma mm	W	ϵ/π mm-mrad	σ_p/p o/oo	Conditions and Comments
12Oct	Store 94				ED7 p156-157
					1.9E10 in bunch B
2009	1.816	C			f9.24; 150 GeV
2008	.8669	V	25.6		f10.28
2010					800 GeV conventional
2011	.7126	C			f9.25
2012	.2983	V	16.1		f10.29
2027	.6665	C			f9.26
2022	.3029	V			f10.30
2024	.2958	V			f10.31
	.2994	V	16.3		average
2036	.3272	V			f10.32
2036	.3257	V			f10.33
2037	.3233	V			f10.34
2039	.3456	V			f10.35
	.3305	V	19.8		average
2040	.3211	V			f10.36
2042	.3518	V			f10.37
2044	.3229	V			f10.38
	.3318	V	20.0		average
2103					pbars debunch during cogging
2105	.3485	V			f10.39
2108	.3205	V			f10.40
	.3345	V	20.3		average
2120	1.029	C	45.4	η=0	f9.27; low β
2115	.3932	V			f10.41
2116	.2772	V			f10.42
	.3352	V	18.0		average
12Oct	Store 95				ED7 p157
2220	.8085	V	22.2		f10.44; 150 GeV
2228	.6235	C			f9.28; 800 GeV conventional
2223	.3055	V	16.9		f10.44
2242					Low β
2336	.3187	V			f10.45
2337	.259	V			f10.46
	.2889	V	13.3		average

Date Time	Sigma mm	W	ϵ/π mm-mrad	σ_p/p o/oo	Conditions and Comments
13Oct	Store 97				ED no info
0052	.7327	V			f10.48; 150 GeV
0056	.776	V			f10.1; 150 GeV
	.7544	V	19.4		average
0205	.8552	V	24.9		f10.2
0208	.7532	C			f9.35; 800 GeV conventional
0209	.3176	V	18.3		f10.3
0219	.3482	V	22.0		f10.4; cogged
0224	.9026	C	34.9	η=0	f9.36; low β
0225	.2926	V	13.7		f10.5
0232	.3139	V	15.8		f10.6
13Oct	Store 99				
					store 98 in data base
0319	.8439	V	24.2		f10.7; 150 GeV
0354	.8865	V	26.7		f10.8
0358	.6832	C			f9.40; 800 GeV conventional
0359	.3547	V	22.8		f10.9
0403	.7894	C			f9.41; cogged
0402	.3265	V	19.3		f10.10
0410					at low β
0412	.9737	C	40.7	η=0	f9.42
0411	.3101	V	15.4		f10.11
0548	2.604	C			f1.29; after mystery event
0549	3.849	C			f1.30
	3.227	C	477	η=0	average
0607	.4108	V			f2.10
0607	.4068	V			f2.11
	.4088	V	26.7		average
0620	.4217	V	28.4		f2.22
0759	.5413	V	46.9		f2.23