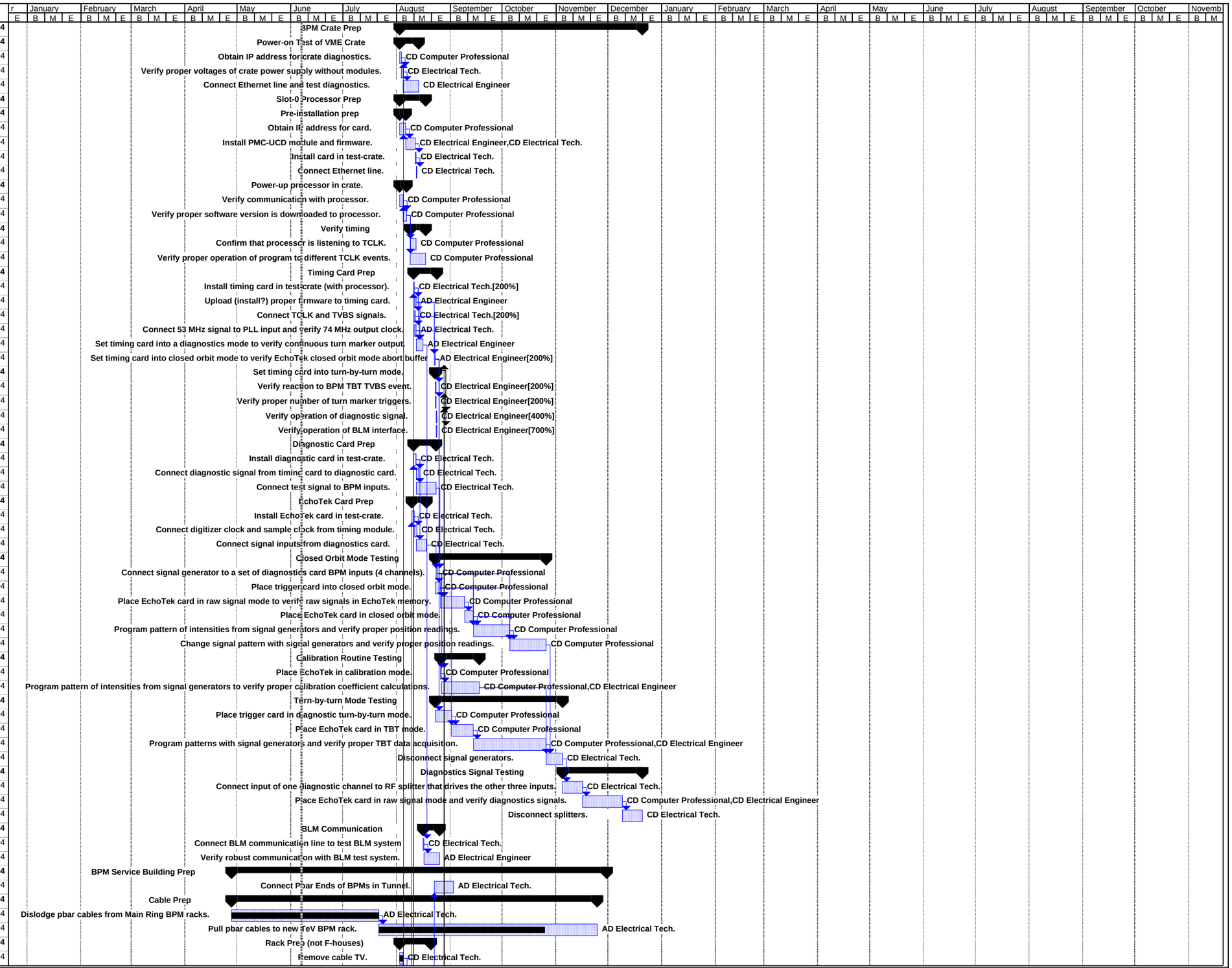
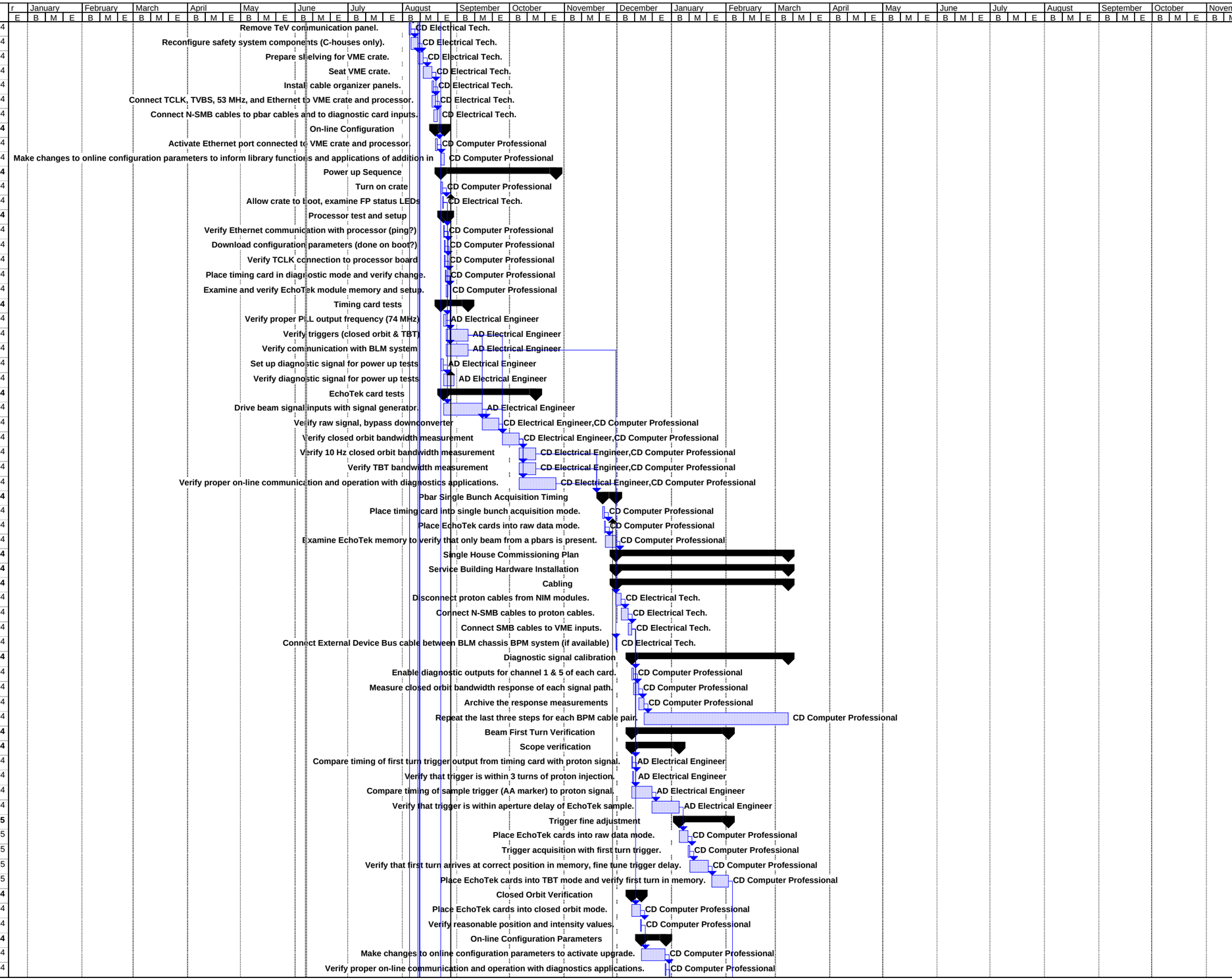
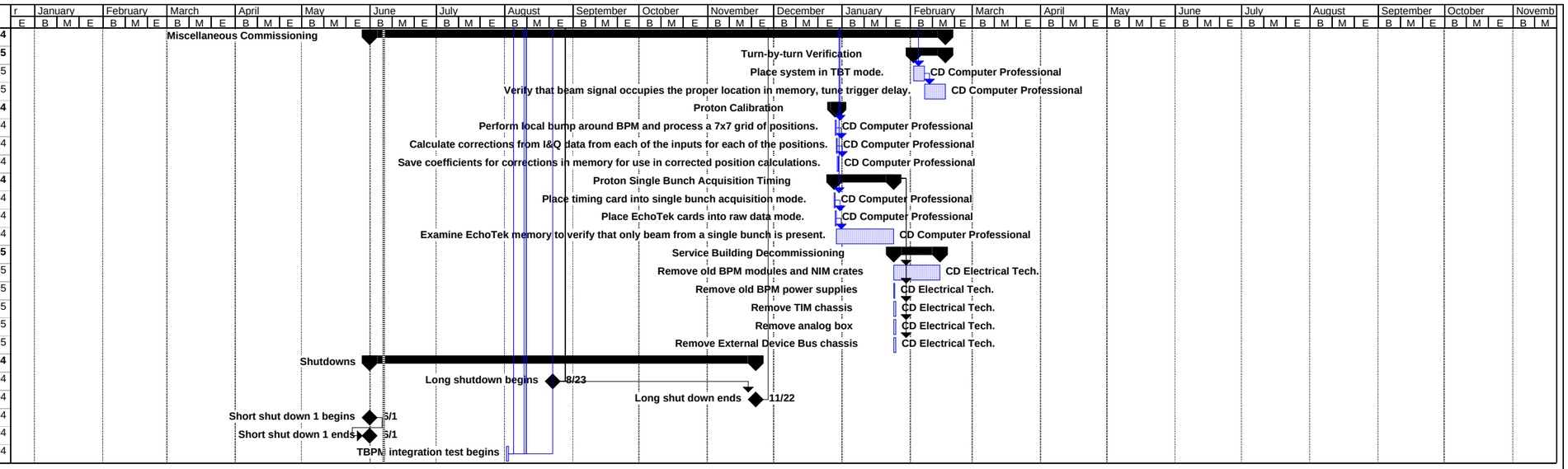
Uniq	WBS	Name	Dur	Start
1	**1**	**BPM Crate Prep**	**97 d**	**8/3/04**
2	**1.1**	**Power-on Test of VME Crate**	**9 d**	**8/3/04**
3	1.1.1	Obtain IP address for crate diagnosti	1 d	8/3/04
4	1.1.2	Verify proper voltages of crate power	1 d	8/4/04
5	1.1.3	Connect Ethernet line and test diagn	7 d	8/5/04
6	**1.2**	**Slot-0 Processor Prep**	**11 d**	**8/3/04**
7	**1.2.1**	**Pre-installation prep**	**3.5 d**	**8/3/04**
8	1.2.1.1	Obtain IP address for	3.5 d	8/3/04
9	1.2.3	Install PMC-UCD module and firmwa	3.5 d	8/6/04
10	1.2.4	Install card in test-crate.	0.5 d	8/12/04
11	1.2.5	Connect Ethernet line.	0.5 d	8/12/04
12	**1.2.6**	**Power-up processor in crate.**	**4 d**	**8/3/04**
13	1.2.6.1	Verify communication	2 d	8/3/04
14	1.2.6.2	Verify proper softwar	2 d	8/5/04
15	**1.2.7**	**Verify timing**	**7 d**	**8/9/04**
16	1.2.7.1	Confirm that process	3.5 d	8/9/04
17	1.2.7.2	Verify proper operati	7 d	8/9/04
18	**1.3**	**Timing Card Prep**	**9.5 d**	**8/11/04**
19	1.3.1	Install timing card in test-crate (with p	0.5 d	8/11/04
20	1.3.2	Upload (install?) proper firmware to t	1 d	8/11/04
21	1.3.3	Connect TCLK and TVBS signals.	0.5 d	8/11/04
22	1.3.4	Connect 53 MHz signal to PLL input	1 d	8/11/04
23	1.3.5	Set timing card into a diagnostics mo	2 d	8/12/04
24	1.3.6	Set timing card into closed orbit mod	0.5 d	8/23/04
25	**1.3.7**	**Set timing card into turn-by-turn n**	**0.5 d**	**8/23/04**
26	1.3.7.1	Verify reaction to BPI	0.5 d	8/23/04
27	1.3.7.2	Verify proper number	0.5 d	8/23/04
28	1.3.8	Verify operation of diagnostic signal.	0.5 d	8/24/04
29	1.3.9	Verify operation of BLM interface.	0.5 d	8/24/04
30	**1.4**	**Diagnostic Card Prep**	**9 d**	**8/11/04**
31	1.4.1	Install diagnostic card in test-crate.	1.5 d	8/11/04
32	1.4.2	Connect diagnostic signal from timing	1.5 d	8/12/04
33	1.4.3	Connect test signal to BPM inputs.	7.5 d	8/12/04
34	**1.5**	**EchoTek Card Prep**	**6.5 d**	**8/10/04**
35	1.5.1	Install EchoTek card in test-crate.	1.5 d	8/10/04
36	1.5.2	Connect digitizer clock and sample c	1.5 d	8/11/04
37	1.5.3	Connect signal inputs from diagnosti	4 d	8/12/04
38	**1.6**	**Closed Orbit Mode Testing**	**45 d**	**8/23/04**
39	1.6.1	Connect signal generator to a set of	1 d	8/24/04
40	1.6.2	Place trigger card into closed orbit m	3 d	8/23/04
41	1.6.3	Place EchoTek card in raw signal mo	9 d	8/26/04
42	1.6.4	Place EchoTek card in closed orbit n	3 d	9/9/04
43	1.6.5	Program pattern of intensities from s	15 d	9/14/04
44	1.6.6	Change signal pattern with signal ge	15 d	10/5/04
45	**1.7**	**Calibration Routine Testing**	**15.5 d**	**8/26/04**
46	1.7.1	Place EchoTek in calibration mode.	0.5 d	8/26/04
47	1.7.2	Program pattern of intensities from s	15 d	8/27/04
48	**1.8**	**Turn-by-turn Mode Testing**	**52.5 d**	**8/23/04**
49	1.8.1	Place trigger card in diagnostic turn-b	7.5 d	8/23/04
50	1.8.2	Place EchoTek card in TBT mode.	7.5 d	9/2/04
51	1.8.3	Program patterns with signal generat	30 d	9/14/04
52	1.8.4	Disconnect signal generators.	7.5 d	10/26/04
53	**1.9**	**Diagnostics Signal Testing**	**30 d**	**11/5/04**
54	1.9.1	Connect input of one diagnostic char	7.5 d	11/5/04
55	1.9.2	Place EchoTek card in raw signal mo	15 d	11/16/04
56	1.9.3	Disconnect splitters.	7.5 d	12/9/04
57	**1.10**	**BLM Communication**	**7.5 d**	**8/16/04**
58	1.10.1	Connect BLM communication line to	0.5 d	8/16/04
59	1.10.2	Verify robust communication with BL	7 d	8/17/04
60	**2**	**BPM Service Building Prep**	**149.5 d**	**4/28/04**
61	2.1	Connect Pbar Ends of BPMs in Tunnel.	9 d	8/23/04
62	**2.2**	**Cable Prep**	**148 d**	**4/28/04**
63	2.2.1	Dislodge pbar cables from Main Ring	59 d	4/28/04
64	2.2.2	Pull pbar cables to new TeV BPM ra	89 d	7/22/04
65	**2.3**	**Rack Prep (not F-houses)**	**14 d**	**8/3/04**
66	2.3.1	Remove cable TV.	2 d	8/3/04



Uniq	WBS	Name	Dur	Start
67	2.3.2	Remove TeV communication panel.	1 d	8/5/04
68	2.3.3	Reconfigure safety system compone	2 d	8/6/04
69	2.3.4	Prepare shelving for VME crate.	3 d	8/10/04
70	2.3.5	Seat VME crate.	3 d	8/13/04
71	2.3.6	Install cable organizer panels.	1 d	8/18/04
72	2.3.7	Connect TCLK, TVBS, 53 MHz, and	2 d	8/18/04
73	2.3.8	Connect N-SMB cables to pbar cable	2 d	8/19/04
74	**2.4**	**On-line Configuration**	**3 d**	**8/20/04**
75	2.4.1	Activate Ethernet port connected to \	1 d	8/20/04
76	2.4.2	Make changes to online configuratio	2 d	8/23/04
77	**2.5**	**Power up Sequence**	**46.5 d**	**8/23/04**
78	2.5.1	Turn on crate	1 d	8/23/04
79	2.5.2	Allow crate to boot, examine FP statu	0.5 d	8/24/04
80	**2.5.3**	**Processor test and setup**	**2.5 d**	**8/24/04**
81	2.5.3.1	Verify Ethernet comn	0.5 d	8/24/04
82	2.5.3.2	Download configurati	0.5 d	8/25/04
83	2.5.3.3	Verify TCLK connect	0.5 d	8/25/04
84	2.5.3.4	Place timing card in (	0.5 d	8/25/04
85	2.5.3.5	Examine and verify E	1 d	8/26/04
86	**2.5.4**	**Timing card tests**	**10.5 d**	**8/23/04**
87	2.5.4.1	Verify proper PLL ou	1.5 d	8/24/04
88	2.5.4.2	Verify triggers (close	7.5 d	8/26/04
89	2.5.4.3	Verify communicatio	7.5 d	8/26/04
90	2.5.4.4	Set up diagnostic sig	1.5 d	8/23/04
91	2.5.4.5	Verify diagnostic sigr	4 d	8/24/04
92	**2.5.5**	**EchoTek card tests**	**37.5 d**	**8/24/04**
93	2.5.5.1	Drive beam signal inp	15 d	8/24/04
94	2.5.5.2	Verify raw signal, byp	7.5 d	9/15/04
95	2.5.5.3	Verify closed orbit ba	7.5 d	9/27/04
96	2.5.5.4	Verify 10 Hz closed c	7.5 d	10/6/04
97	2.5.5.5	Verify TBT bandwidth	7.5 d	10/6/04
98	2.5.6	Verify proper on-line communication	15 d	10/6/04
99	**2.6**	**Pbar Single Bunch Acquisition Timing**	**3.5 d**	**11/23/04**
100	2.6.1	Place timing card into single bunch a	1 d	11/23/04
101	2.6.2	Place EchoTek cards into raw data n	0.5 d	11/24/04
102	2.6.3	Examine EchoTek memory to verify	2 d	11/24/04
103	**3**	**Single House Commissioning Plan**	**65 d**	**11/30/04**
104	**3.1**	**Service Building Hardware Installation**	**65 d**	**11/30/04**
105	**3.1.1**	**Cabling**	**65 d**	**11/30/04**
106	3.1.1.1	Disconnect proton ca	3 d	11/30/04
107	3.1.1.2	Connect N-SMB cabl	2 d	12/3/04
108	3.1.1.3	Connect SMB cables	2 d	12/7/04
109	3.1.1.4	Connect External De	0.5 d	11/30/04
110	**3.1.1.5**	**Diagnostic signal c**	**58 d**	**12/9/04**
111	3.1.1.5.1	Enable diagnostic	1 d	12/9/04
112	3.1.1.5.2	Measure closed o	1 d	12/10/04
113	3.1.1.5.3	Archive the respo	3 d	12/13/04
114	3.1.1.5.4	Repeat the last th	53 d	12/16/04
115	**3.2**	**Beam First Turn Verification**	**34 d**	**12/9/04**
116	**3.2.1**	**Scope verification**	**15 d**	**12/9/04**
117	3.2.1.1	Compare timing of fir	0.5 d	12/9/04
118	3.2.1.2	Verify that trigger is v	0.5 d	12/10/04
119	3.2.1.3	Compare timing of sa	7.5 d	12/9/04
120	3.2.1.4	Verify that trigger is v	7.5 d	12/21/04
121	**3.2.2**	**Trigger fine adjustment**	**19 d**	**1/5/05**
122	3.2.2.1	Place EchoTek cards	3 d	1/5/05
123	3.2.2.2	Trigger acquisition w	1 d	1/10/05
124	3.2.2.3	Verify that first turn a	7.5 d	1/11/05
125	3.2.2.4	Place EchoTek cards	7.5 d	1/24/05
126	**3.4**	**Closed Orbit Verification**	**3.5 d**	**12/9/04**
127	3.4.1	Place EchoTek cards	3 d	12/9/04
128	3.4.2	Verify reasonable po	0.5 d	12/14/04
129	**3.5**	**On-line Configuration Parameters**	**8 d**	**12/15/04**
130	3.5.1	Make changes to onl	7.5 d	12/15/04
131	3.5.2	Verify proper on-line	0.5 d	12/28/04



Uniq	WBS	Name	Dur	Start
132	**4**	**Miscellaneous Commissioning**	**178 d?**	**6/1/04**
133	**4.1**	**Turn-by-turn Verification**	**10.5 d**	**2/2/05**
134	4.1.1	Place system in TBT mode.	3 d	2/2/05
135	4.1.2	Verify that beam signal occupies the	7.5 d	2/7/05
136	**4.2**	**Proton Calibration**	**1.5 d**	**12/29/04**
137	4.2.1	Perform local bump around BPM anc	0.5 d	12/29/04
138	4.2.2	Calculate corrections from I&Q data	0.5 d	12/29/04
139	4.2.3	Save coefficients for corrections in m	0.5 d	12/30/04
140	**4.3**	**Proton Single Bunch Acquisition Timir**	**16 d**	**12/28/04**
141	4.3.1	Place timing card into single bunch a	0.5 d	12/28/04
142	4.3.2	Place EchoTek cards into raw data n	0.5 d	12/29/04
143	4.3.3	Examine EchoTek memory to verify	15 d	12/29/04
144	**4.4**	**Service Building Decommissioning**	**15 d**	**1/24/05**
145	4.4.1	Remove old BPM modules and NIM	15 d	1/24/05
146	4.4.2	Remove old BPM power supplies	0.5 d	1/24/05
147	4.4.3	Remove TIM chassis	1 d	1/24/05
148	4.4.4	Remove analog box	1 d	1/24/05
149	4.4.5	Remove External Device Bus chassi	1 d	1/24/05
222	**5**	**Shutdowns**	**123 d?**	**6/1/04**
150	5.1	Long shutdown begins	0 d	8/23/04
151	5.2	Long shut down ends	0 d	11/22/04
152	5.3	Short shut down 1 begins	0 d	6/1/04
153	5.4	Short shut down 1 ends	0 d	6/1/04
224	5.4	TBPM integration test begins	1 d?	8/2/04