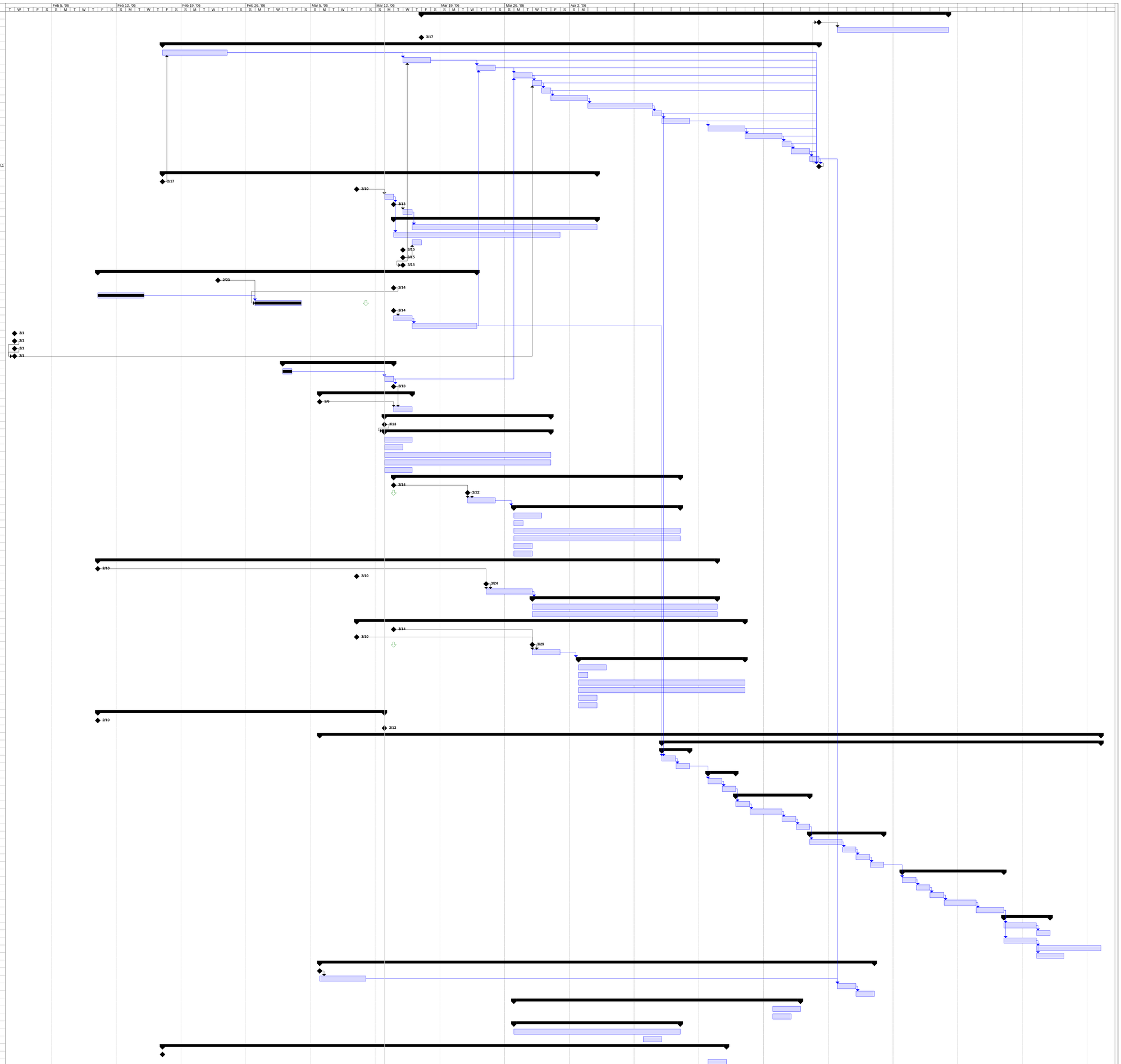
ID		Task Name	Duration	Start	Finish	Predecessors
1		**SUT Milestones**	**41 days**	**Fri 3/17/06**	**Fri 5/12/06**	
2		SUT Assembly Complete	0 days	Fri 4/28/06	Fri 4/28/06	21
3		Short term tests complete	10 days	Mon 5/1/06	Fri 5/12/06	2
4		Detailed SUT test plan complete	0 days	Fri 3/17/06	Fri 3/17/06	
5		**Assemble SUT**	**51 days**	**Fri 2/17/06**	**Fri 4/28/06**	
6		Install fixed support	5 days	Fri 2/17/06	Thu 2/23/06	23
7		Install connecting plates	3 days	Wed 3/15/06	Fri 3/17/06	6,33
8		Install Cams	2 days	Thu 3/23/06	Fri 3/24/06	7,42
9		Install girder	2 days	Mon 3/27/06	Tue 3/28/06	8,49
10		Install translation stages	1 day	Wed 3/29/06	Wed 3/29/06	9,46
11		Install undulator	1 day	Thu 3/30/06	Thu 3/30/06	10
12		Install measurement hardware	2 days	Fri 3/31/06	Mon 4/3/06	11
13		Perform segment replacement testings	5 days	Tue 4/4/06	Mon 4/10/06	12
14		Remove measurement hardware	1 day	Tue 4/11/06	Tue 4/11/06	13
15		Install and align vacuum support	3 days	Wed 4/12/06	Fri 4/14/06	14
16		Install vacuum chamber	4 days	Mon 4/17/06	Thu 4/20/06	15
17		Install BPM support	2 days	Fri 4/21/06	Mon 4/24/06	16
18		Install BPM	1 day	Tue 4/25/06	Tue 4/25/06	17
19		Install BFW support	2 days	Wed 4/26/06	Thu 4/27/06	18
20		Install BFW	1 day	Fri 4/28/06	Fri 4/28/06	19
21		SUT Assembly Complete	0 days	Fri 4/28/06	Fri 4/28/06	6,7,8,9,10,11,14,1
22		**Fixed Support [Rusthoven]**	**33 days**	**Fri 2/17/06**	**Tue 4/4/06**	
23	✓	Delivery	0 days	Fri 2/17/06	Fri 2/17/06	
24		Vibration monitoring system delivered	0 days	Fri 3/10/06	Fri 3/10/06	
25		Vibration monitoring system installed	1 day	Mon 3/13/06	Mon 3/13/06	24FS+1 day
26	✓	Thermocouples delivered	0 days	Mon 3/13/06	Mon 3/13/06	25
27		Thermocouples installed	1 day	Wed 3/15/06	Wed 3/15/06	26FS+1 day
28		**Tests**	**16 days**	**Tue 3/14/06**	**Tue 4/4/06**	
29		Thermal Expansion	14 days	Thu 3/16/06	Tue 4/4/06	27
30		Vibration and stability	14 days	Tue 3/14/06	Fri 3/31/06	25
31		Check and document adjustability	1 day	Thu 3/16/06	Thu 3/16/06	33FS+1 day
32		**Interface and Connecting plates [Rusthoven]**	**0 days**	**Wed 3/15/06**	**Wed 3/15/06**	
33		Delivery	0 days	Wed 3/15/06	Wed 3/15/06	
34		Tests	0 days	Wed 3/15/06	Wed 3/15/06	33
35		**Cam Mover Calibration [Collins]**	**29 days**	**Fri 2/10/06**	**Wed 3/22/06**	
36	✓	Motor Delivery [Stein]	0 days	Thu 2/23/06	Thu 2/23/06	
37	✓	Gear box Delivery [Trakhtenberg]	0 days	Tue 3/14/06	Tue 3/14/06	
38	✓	Design	3 days	Fri 2/10/06	Tue 2/14/06	
39	✓	Assemble calibration fixture	5 days	Mon 2/27/06	Fri 3/3/06	37,36,38
40		New Cam rings delivered	0 days	Tue 3/14/06	Tue 3/14/06	
41		Install new Cam rings	2 days	Tue 3/14/06	Wed 3/15/06	40
42		Calibrate cams	5 days	Thu 3/16/06	Wed 3/22/06	41
43		**Translation Stage [Trakhtenberg]**	**0 days**	**Wed 2/1/06**	**Wed 2/1/06**	
44	✓	Stages delivered	0 days	Wed 2/1/06	Wed 2/1/06	
45	✓	Motors delivered	0 days	Wed 2/1/06	Wed 2/1/06	
46		Stages ready for installation	0 days	Wed 2/1/06	Wed 2/1/06	44,45
47		**Girder [Trakhtenberg]**	**8 days**	**Thu 3/2/06**	**Mon 3/13/06**	
48	✓	Holes specified	1 day	Thu 3/2/06	Thu 3/2/06	
49		Holes drilled	1 day	Mon 3/13/06	Mon 3/13/06	48FS+6 days
50		Girder Ready	0 days	Mon 3/13/06	Mon 3/13/06	49
51		**Vacuum Support [Walters]**	**8 days**	**Mon 3/6/06**	**Wed 3/15/06**	
52		Prototype Delivery	0 days	Mon 3/6/06	Mon 3/6/06	
53		Assembly	2 days	Tue 3/14/06	Wed 3/15/06	52,50
54		**Vacuum Chamber [Walters]**	**14 days**	**Mon 3/13/06**	**Thu 3/30/06**	
55		Ersatz Delivery	0 days	Mon 3/13/06	Mon 3/13/06	
56		**Tests**	**14 days**	**Mon 3/13/06**	**Thu 3/30/06**	**55**
57		Alignment of chamber to undulator window tolerance checks	3 days	Mon 3/13/06	Wed 3/15/06	
58		Fidicucial placement tests	2 days	Mon 3/13/06	Tue 3/14/06	
59		Thermal Expansion	14 days	Mon 3/13/06	Thu 3/30/06	
60		Vibration and stability	14 days	Mon 3/13/06	Thu 3/30/06	
61		Flange compression vs. component position	3 days	Mon 3/13/06	Wed 3/15/06	
62		**BFW [Walters]**	**23 days**	**Tue 3/14/06**	**Thu 4/13/06**	
63		Ersatz BFW Delivery	0 days	Tue 3/14/06	Tue 3/14/06	
64	!	Prototype Stand ready	0 days	Wed 3/22/06	Wed 3/22/06	
65		Install and align	3 days	Wed 3/22/06	Fri 3/24/06	64,63
66		**Tests**	**14 days**	**Mon 3/27/06**	**Thu 4/13/06**	**65**
67		Position adjustability	3 days	Mon 3/27/06	Wed 3/29/06	
68		Fidicucial placement	1 day	Mon 3/27/06	Mon 3/27/06	
69		Thermal Expansion	14 days	Mon 3/27/06	Thu 4/13/06	
70		Vibration and stability	14 days	Mon 3/27/06	Thu 4/13/06	
71		Thermal effects	2 days	Mon 3/27/06	Tue 3/28/06	
72		Magnetic effects	2 days	Mon 3/27/06	Tue 3/28/06	
73		**Quad [White]**	**47 days**	**Fri 2/10/06**	**Mon 4/17/06**	
74		Ersatz Delivery	0 days	Fri 2/10/06	Fri 2/10/06	
75		Stand ready	0 days	Fri 3/10/06	Fri 3/10/06	
76		Vacuum spool piece delivered	0 days	Fri 3/24/06	Fri 3/24/06	
77		Install and align	3 days	Fri 3/24/06	Tue 3/28/06	74,76
78		**Tests**	**14 days**	**Wed 3/29/06**	**Mon 4/17/06**	**77**
79		Thermal expansion (girder and quad)	14 days	Wed 3/29/06	Mon 4/17/06	
80		Vibration and stability	14 days	Wed 3/29/06	Mon 4/17/06	
81		**BPM [Walters]**	**30 days**	**Fri 3/10/06**	**Thu 4/20/06**	
82	✓	Ersatz Delivery	0 days	Tue 3/14/06	Tue 3/14/06	
83	✓	Wave Guide ready	0 days	Fri 3/10/06	Fri 3/10/06	
84	!	Prototype Stand ready	0 days	Wed 3/29/06	Wed 3/29/06	
85		Install and align	3 days	Wed 3/29/06	Fri 3/31/06	82,83,84
86		**Tests**	**14 days**	**Mon 4/3/06**	**Thu 4/20/06**	**85**
87		Position adjustability	3 days	Mon 4/3/06	Wed 4/5/06	
88		Fidicucial placement	1 day	Mon 4/3/06	Mon 4/3/06	
89		Thermal Expansion	14 days	Mon 4/3/06	Thu 4/20/06	
90		Vibration and stability	14 days	Mon 4/3/06	Thu 4/20/06	
91		Thermal effects	2 days	Mon 4/3/06	Tue 4/4/06	
92		Magnetic effects	2 days	Mon 4/3/06	Tue 4/4/06	
93		**Undulator [White]**	**21 days**	**Fri 2/10/06**	**Mon 3/13/06**	
94	✓	Ersatz Delivery	0 days	Fri 2/10/06	Fri 2/10/06	
95		First Article Delivery	0 days	Mon 3/13/06	Mon 3/13/06	
96		**Controls [Xu/Collins/Stein]**	**60.5 days**	**Mon 3/6/06**	**Mon 5/29/06**	
97		**Motion testing [Collins/Xu]**	**33.5 days**	**Wed 4/12/06**	**Mon 5/29/06**	
98		**X translation tests**	**3 days**	**Wed 4/12/06**	**Fri 4/14/06**	
99		X-translation cyclic point-to-point repeatability	1.5 days	Wed 4/12/06	Thu 4/13/06	42,14
100		X-translation cyclic repeatibility testing about a center point position	1.5 days	Thu 4/13/06	Fri 4/14/06	99
101		**Y translation tests**	**3 days**	**Mon 4/17/06**	**Wed 4/19/06**	
102		Y-translation cyclic point-to-point repeatability	1.5 days	Mon 4/17/06	Tue 4/18/06	100
103		Y-translation cyclic repeatibility testing about a center point position	1.5 days	Tue 4/18/06	Wed 4/19/06	102
104		**Pitch tests**	**6 days**	**Thu 4/20/06**	**Thu 4/27/06**	
105		Upstream pitch cyclic point-to-point repeatability tests	1.5 days	Thu 4/20/06	Fri 4/21/06	103
106		Upstream pitch cyclic repeatibility testing about a center point position	1.5 days	Fri 4/21/06	Mon 4/24/06	105
107		Downstream pitch cyclic point-to-point repeatability tests	1.5 days	Tue 4/25/06	Wed 4/26/06	106
108		Downstream pitch cyclic repeatibility testing about a center point position	1.5 days	Wed 4/26/06	Thu 4/27/06	107
109		**Roll tests**	**6 days**	**Fri 4/28/06**	**Fri 5/5/06**	
110		Inboard roll cyclic point-to-point repeatability tests	1.5 days	Fri 4/28/06	Mon 5/1/06	108
111		Inboard roll cyclic repeatibility testing about a center point position	1.5 days	Mon 5/1/06	Tue 5/2/06	110
112		Outboard roll cyclic point-to-point repeatability tests	1.5 days	Wed 5/3/06	Thu 5/4/06	111
113		Outboard roll cyclic repeatibility testing about a center point position	1.5 days	Thu 5/4/06	Fri 5/5/06	112
114		**Yaw tests**	**9 days**	**Mon 5/8/06**	**Thu 5/18/06**	
115		Upstream Yaw cyclic point-to-point repeatability tests	1.5 days	Mon 5/8/06	Tue 5/9/06	113



Project: SUT
Date: Mon 3/13/06