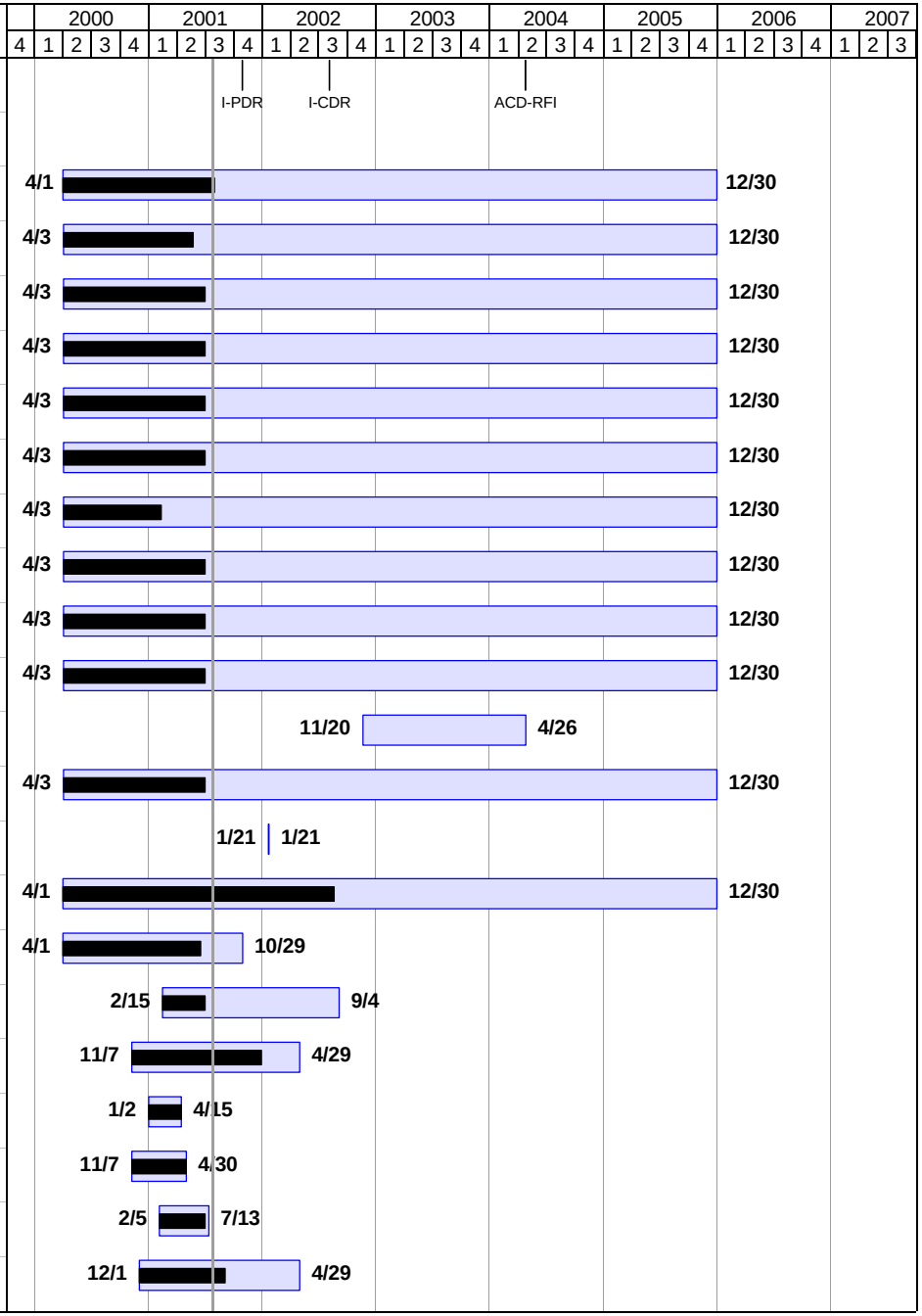
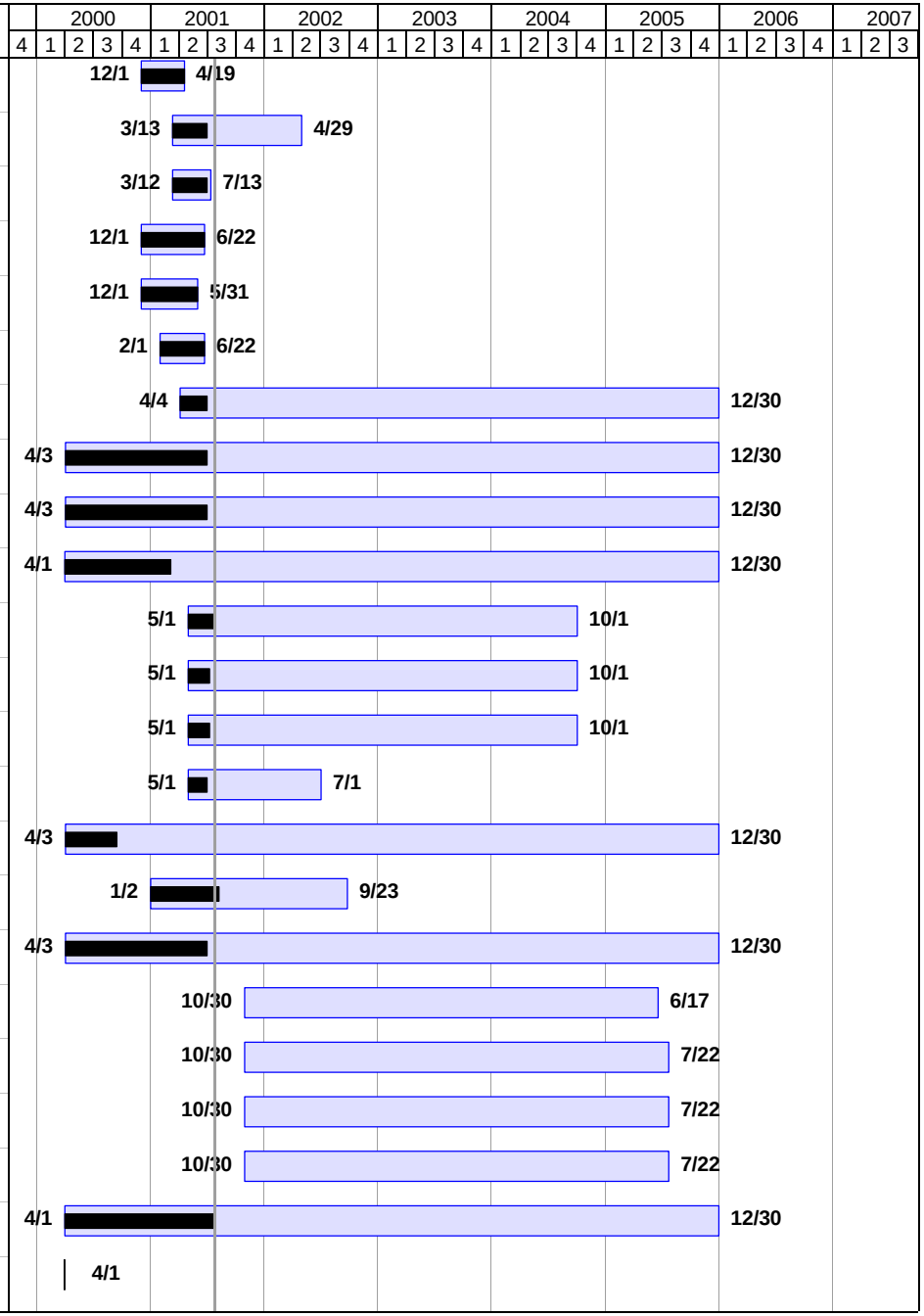
Anti-Coincidence Detector Subsystem Schedule (Preliminary)

ID	WBS	Task Name		
1		**GLAST LAT Project-Level Control Milestones**		
11	**4.1.6**	**Anti-Coincidence Detector (ACD) Subsystem**		
12	**4.1.6.1**	**ACD Project Management / Subsystem Engineering**	**4/1**	**12/30**
13	**4.1.6.1.1**	**Project Management**	**4/3**	**12/30**
14	4.1.6.1.1.1	Project Administration / Support	**4/3**	**12/30**
15	4.1.6.1.1.2	Contracts / Procurement	**4/3**	**12/30**
16	4.1.6.1.1.3	Project Control	**4/3**	**12/30**
17	4.1.6.1.1.4	Project Scheduling	**4/3**	**12/30**
18	**4.1.6.1.1.5**	**Configuration & Data Management**	**4/3**	**12/30**
23	4.1.6.1.1.6	GSFC Code Taxes	**4/3**	**12/30**
24	4.1.6.1.1.7	Travel	**4/3**	**12/30**
25	4.1.6.1.1.8	ADP & Computer Support	**4/3**	**12/30**
26	**4.1.6.1.1.9**	**ACD Shipping**	**11/20**	**4/26**
34	4.1.6.1.1.A	Program Review Support	**4/3**	**12/30**
35	4.1.6.1.1.A	Shell Peer Review	**1/21**	**1/21**
36	**4.1.6.1.2**	**System / Subsystems Engineering**	**4/1**	**12/30**
37	**4.1.6.1.2.1**	**System / Subsystem Requirements and Specifications**	**4/1**	**10/29**
39	**4.1.6.1.2.2**	**System / Subsystem Interface Definition & Control**	**2/15**	**9/4**
42	**4.1.6.1.2.3**	**Subsystems Analyses and Trade Studies**	**11/7**	**4/29**
43	4.1.6.1.2.3	6.3.1.1.2 Decision on the Tile material and thickness	**1/2**	**4/15**
44	4.1.6.1.2.3	6.3.2.1 Technical requirements, decision on the HV distribution approach	**11/7**	**4/30**
45	4.1.6.1.2.3	PMT Specification and Selection	**2/5**	**7/13**
46	**4.1.6.1.2.3**	**Fibers**	**12/1**	**4/29**



Anti-Coincidence Detector Subsystem Schedule (Preliminary)

ID	WBS	Task Name		
47	4.1.6.1.2.3	Fiber Specification and Selection (by 660)	12/1	4/19
48	4.1.6.1.2.3	Fiber Tiedown Design	3/13	4/29
49	4.1.6.1.2.3	Fiber to Tile Installation Design (Groove Spacing & Detail)	3/12	7/13
50	**4.1.6.1.2.3**	**Tiles**	12/1	6/22
51	4.1.6.1.2.3	Segmentation Definition (By 660)	12/1	5/31
52	4.1.6.1.2.3	Tile Fabrication Study (By 660 w/Mech Support)	2/1	6/22
53	**4.1.6.1.2.4**	**System / Subsystem Engineering**	4/4	12/30
55	4.1.6.1.3	Science Support	4/3	12/30
56	4.1.6.1.4	Simulations	4/3	12/30
57	**4.1.6.2**	**Reliability and Quality Assurance**	4/1	12/30
58	**4.1.6.2.1**	**Reliability**	5/1	10/1
59	**4.1.6.2.1**	**Failure Modes Effects Analysis (FMEA) and Critical item List (CIL)(CDRL 318)**	5/1	10/1
63	**4.1.6.2.1**	**Limited Life List (CDRL 319)**	5/1	10/1
67	4.1.6.2.1	Parts Stress Analysis (LAT MAR Addendum B)(CDRL in Follow-On Contract)	5/1	7/1
68	**4.1.6.2.2**	**Safety**	4/3	12/30
69	**4.1.6.2.2**	**Hazard Analyses (CDRL 304)**	1/2	9/23
72	4.1.6.2.2	Safety Non-Compliance Reports (CDRL 305)	4/3	12/30
73	**4.1.6.2.2**	**Operating & Support Hazard Analysis (LAT MAR Addendum B)(CDRL in Follow-On Contract)**	10/30	6/17
76	**4.1.6.2.2**	**Hazard Control Verification Log (LAT MAR Addendum B)(CDRL on Follow-On Contract)**	10/30	7/22
78	**4.1.6.2.2**	**Safety Assessment Report (LAT MAR Addendum B)(CDRL on Follow-On Contract)**	10/30	7/22
80	4.1.6.2.2	Ground Operations Plan (LAT MAR Addendum B)(CDRL on Follow-On Contract)	10/30	7/22
81	**4.1.6.2.3**	**Flight Assurance**	4/1	12/30
82	4.1.6.2.3	Contract Start	4/1	



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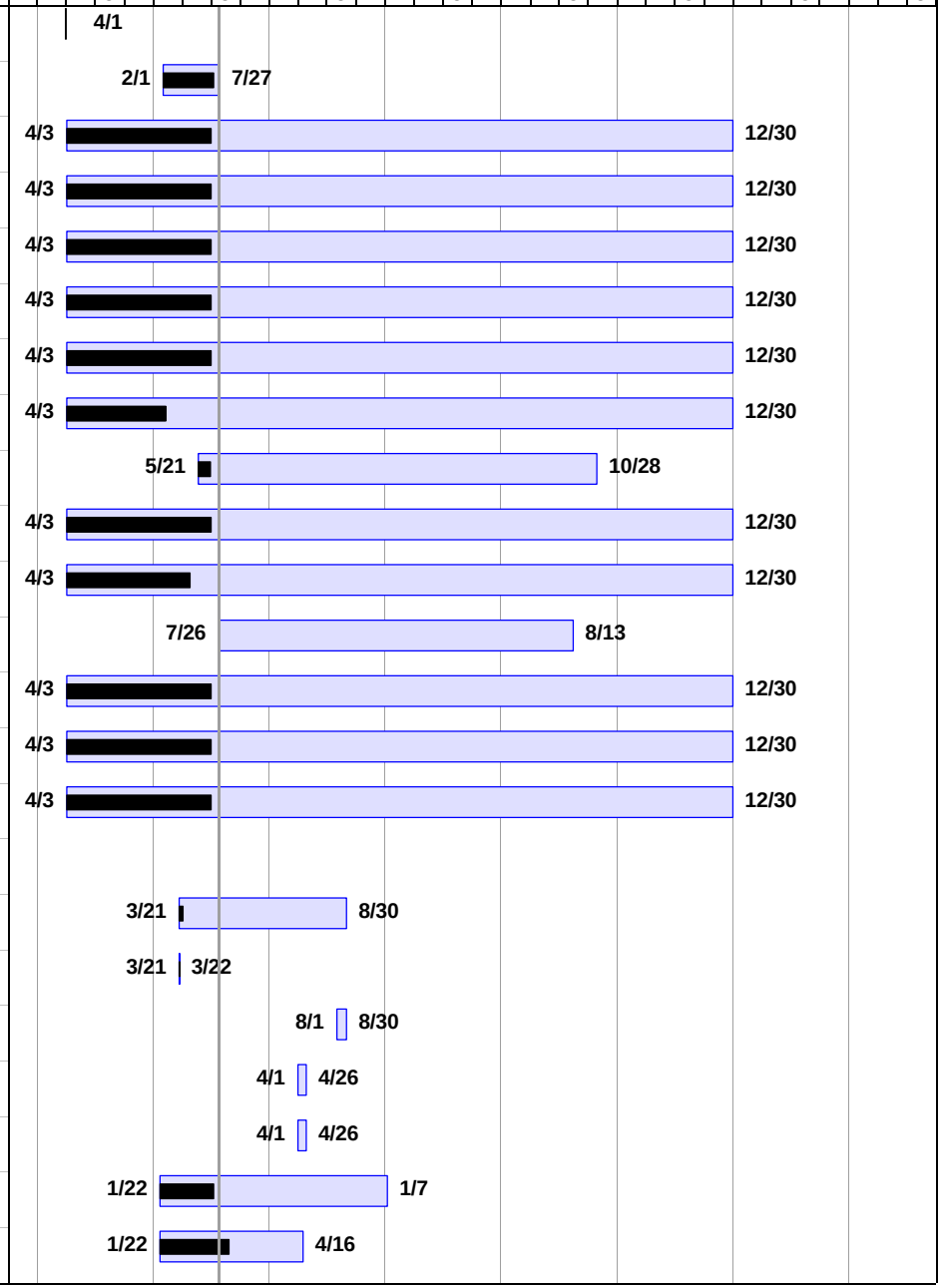
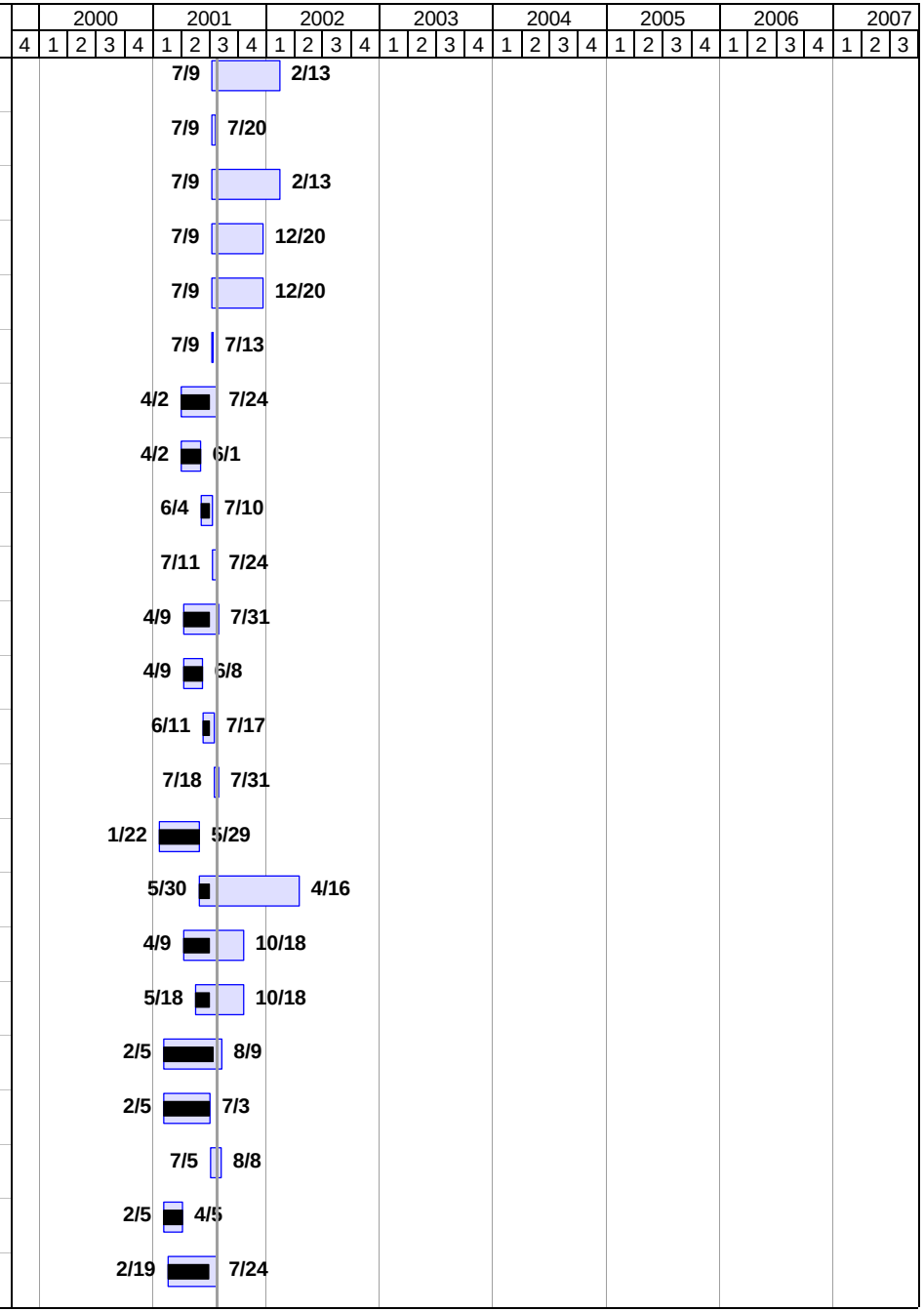
ID	WBS	Task Name	
83	4.1.6.2.3	Launch + 4 months	4/1
84	**4.1.6.2.3**	**Quality Plan (CDRL 301)**	2/1 – 7/27
89	**4.1.6.2.3**	**Quality Manual (CDRL 320)**	4/3 – 12/30
91	**4.1.6.2.3**	**Non-Conformance Reports (NCRs) (CDRL 321)**	4/3 – 12/30
93	4.1.6.2.3	Analyse Requirements Documents (CDRL 302)	4/3 – 12/30
94	4.1.6.2.3	Action Items/Peer review Minutes (CDRL 306)	4/3 – 12/30
95	4.1.6.2.3	Information to Prepare PRA, FTA, & Risk Assessments (CDRL 324,325,326)	4/3 – 12/30
96	**4.1.6.2.4**	**Parts Control**	4/3 – 12/30
97	**4.1.6.2.4**	**Parts Identification List (PIL)(CDRL 310)**	5/21 – 10/28
101	4.1.6.2.4	Alert/Advisory Responses (CDRL 311)	4/3 – 12/30
102	**4.1.6.2.5**	**Materials**	4/3 – 12/30
103	**4.1.6.2.5**	**Materials, Process & Lubrication Lists (CDRL 314, 315, 316)**	7/26 – 8/13
106	4.1.6.2.5	Material Usage Agreements (CDRL 313)	4/3 – 12/30
107	4.1.6.2.5	Materials Processes (CDRL 317)	4/3 – 12/30
108	**4.1.6.2.5**	**PWB Coupons Test Reports (LAT MAR Addendum B)(CDRL on Follow-On Contract)**	4/3 – 12/30
110	**4.1.6.3**	**Tile Shell Assembly (TSA)**	
111	**4.1.6.3.1**	**Tile Shell Assembly (TSA) Analysis / Design**	3/21 – 8/30
112	4.1.6.3.1	ACD SRR	3/21 – 3/22
113	4.1.6.3.1	TSA Integration & Test and Handling Procedures	8/1 – 8/30
114	**4.1.6.3.1**	**TDA Installation on TDA Tiedown**	4/1 – 4/26
115	4.1.6.3.1	Installation Drawing & Procedure	4/1 – 4/26
116	**4.1.6.3.2**	**Tile Detector Assemblies (TDAs)**	1/22 – 1/7
117	**4.1.6.3.2.1**	**Tile Detector Assembly (TDA) Analysis / Design**	1/22 – 4/16



Anti-Coincidence Detector Subsystem Schedule (Preliminary)

ID	WBS	Task Name		
118	**4.1.6.3.2.1**	**Tile Detector Assys (TDAs)**	**7/9**	**2/13**
119	4.1.6.3.2.1	TDA Assembly Procedure	**7/9**	**7/20**
120	4.1.6.3.2.1	Prototype TDA Assembly	**7/9**	**2/13**
121	**4.1.6.3.2.1**	**Prototype TDA Acceptance Testing**	**7/9**	**12/20**
122	4.1.6.3.2.1	Performance Testing by 660	**7/9**	**12/20**
123	4.1.6.3.2.1	Thermal Vacuum Cycling on at Least One Unit	**7/9**	**7/13**
124	**4.1.6.3.2.1**	**PMT/Fiber Connector - Prototype**	**4/2**	**7/24**
125	4.1.6.3.2.1	Design & Procedure	**4/2**	**6/1**
126	4.1.6.3.2.1	Fabrication of Prototype Connector	**6/4**	**7/10**
127	4.1.6.3.2.1	Acceptance Testing - Light Yield, repeatability, thermal	**7/11**	**7/24**
128	**4.1.6.3.2.1**	**WSF/Clear Fiber Connector - Prototype**	**4/9**	**7/31**
129	4.1.6.3.2.1	Design & Procedure	**4/9**	**6/8**
130	4.1.6.3.2.1	Fabrication of Prototype Connector	**6/11**	**7/17**
131	4.1.6.3.2.1	Acceptance Testing - Light Yield, repeatability, thermal	**7/18**	**7/31**
132	4.1.6.3.2.1	Tile Layout & Fiber Routing Design	**1/22**	**5/29**
133	4.1.6.3.2.1	Individual Tile Design & Drawings (Test,ETU, & Flight)	**5/30**	**4/16**
134	4.1.6.3.2.1	Tile Test Unit Fabrication & Inspection (20 Tiles)	**4/9**	**10/18**
135	4.1.6.3.2.1	Tile Test Unit Delivery (Different Tiles @ Diff Times)	**5/18**	**10/18**
136	**4.1.6.3.2.1**	**Tile and Fiber Wrapping**	**2/5**	**8/9**
137	4.1.6.3.2.1	Design	**2/5**	**7/3**
138	4.1.6.3.2.1	Tile and Fiber Wrap Installation Procedure	**7/5**	**8/8**
139	4.1.6.3.2.1	Material Evaluation and Selection	**2/5**	**4/5**
140	**4.1.6.3.2.1**	**Material Testing**	**2/19**	**7/24**



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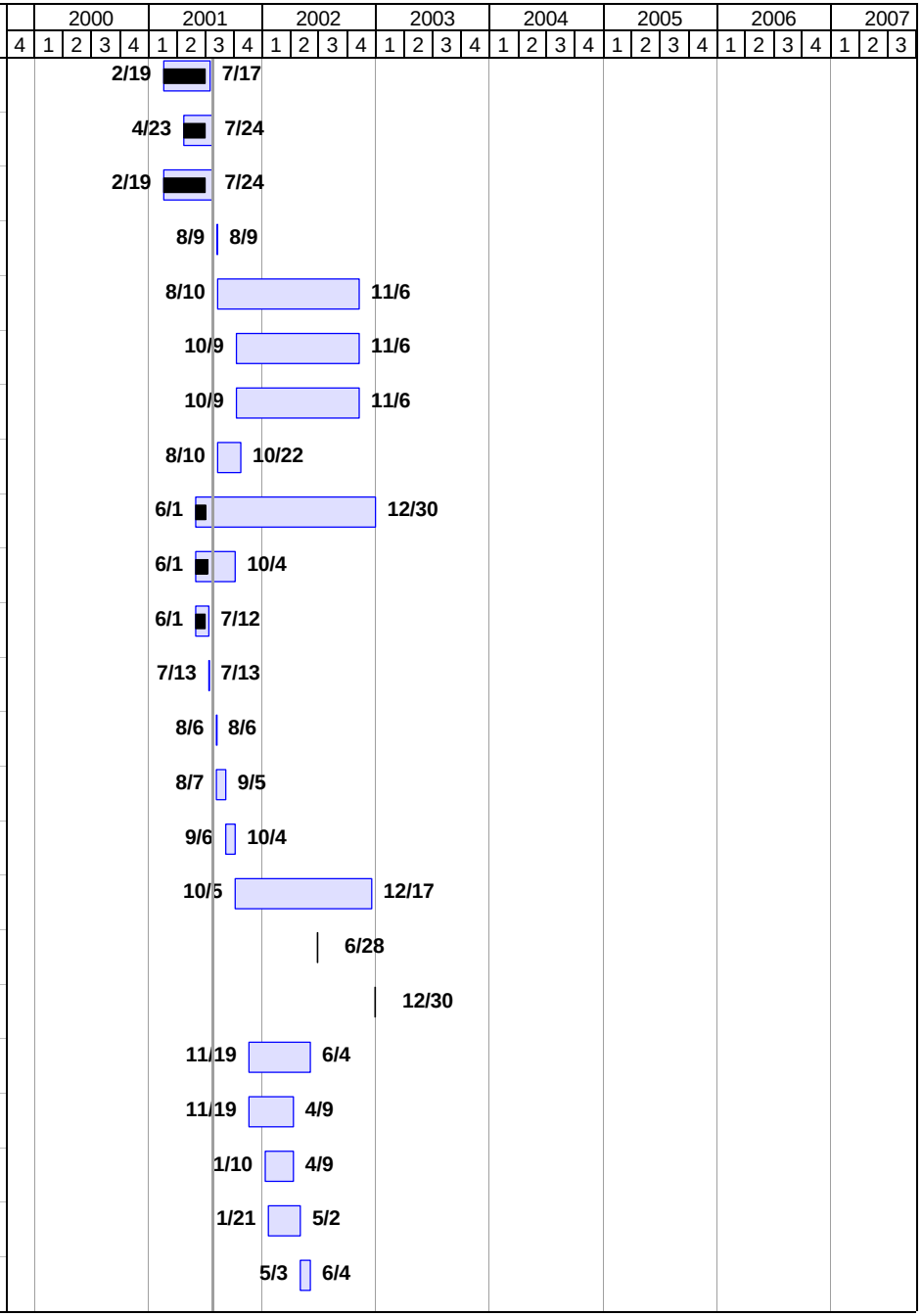
ID	WBS	Task Name		
141	4.1.6.3.2.1	Adhesive Testing	2/19	7/17
142	4.1.6.3.2.1	Opaque Testing	4/23	7/24
143	4.1.6.3.2.1	Outgassing Testing	2/19	7/24
144	4.1.6.3.2.1	Material Selection Review	8/9	8/9
145	**4.1.6.3.2.2**	**Wave Shifting Fibers Procurement**	8/10	11/6
146	**4.1.6.3.2.2**	**Fiber/Fiber Thermal Coupling (Ferilabs Design & Fab)**	10/9	11/6
147	4.1.6.3.2.2	Assembly & Test (4.5 days to cut,polish,splice, & test)	10/9	11/6
148	**4.1.6.3.2.2**	**Procure Tile & Fiber Wrapping Materials**	8/10	10/22
152	**4.1.6.3.2.3**	**Photo-Multiplier Tube (PMT) and Divider Assembly Procurement**	6/1	12/30
153	**4.1.6.3.2.3**	**Procurement Process**	6/1	10/4
154	4.1.6.3.2.3	Prepare Procurement Package	6/1	7/12
155	4.1.6.3.2.3	Issue Procurement Synopsis for PMTs	7/13	7/13
156	4.1.6.3.2.3	Issue RFP for PMTs	8/6	8/6
157	4.1.6.3.2.3	Vendors Respond to RFP for PMTs	8/7	9/5
158	4.1.6.3.2.3	Vendor Selection and PMT Contract Award	9/6	10/4
159	4.1.6.3.2.3	Vendor Fabricate/Test PMTs	10/5	12/17
160	4.1.6.3.2.3	Receive ETU PMTs		6/28
161	4.1.6.3.2.3	Receive Flight PMTs		12/30
162	**4.1.6.3.2.5**	**Tile Detector Assy (TDA) Proc/Fab/Assy/Test for DAQ I/F, Full Scale EM (Qual), & Calibration Units**	11/19	6/4
163	4.1.6.3.2.5	ETU Tile Fabrication & Inspection (20 Tiles)	11/19	4/9
164	4.1.6.3.2.5	ETU Tile Delivery	1/10	4/9
165	4.1.6.3.2.5	ETU TDA Assembly (20 TDA's)	1/21	5/2
166	4.1.6.3.2.5	ETU TDA Acceptance Testing by 660	5/3	6/4



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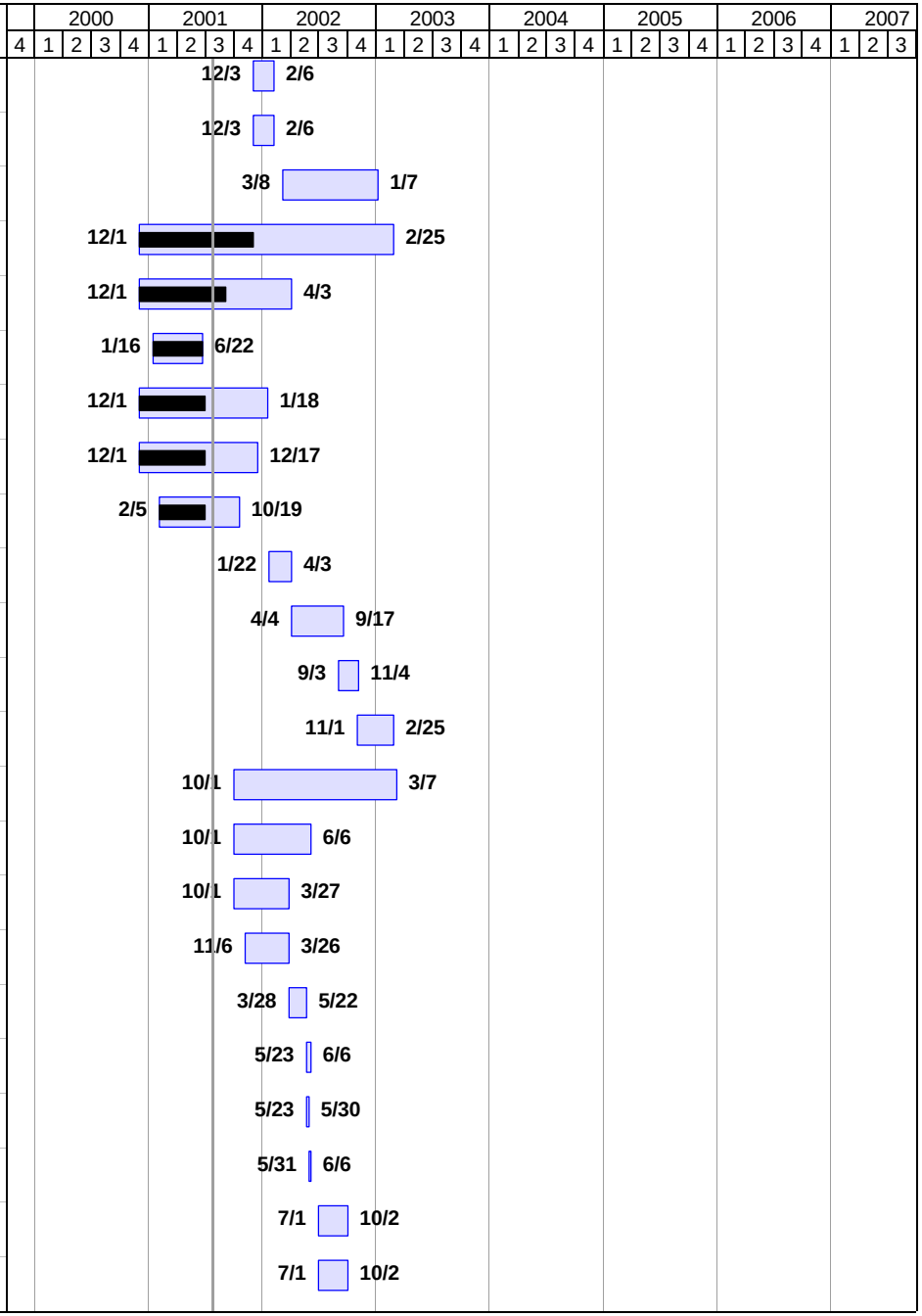
ID	WBS	Task Name		
167	**4.1.6.3.2.5**	**Clear Fiber Extension Cable - PMT/Fiber Connector - ETU**	**12/3**	**2/6**
169	**4.1.6.3.2.5**	**Clear Fiber Extension Cable - WSF/Clear Fiber Connector - ETU**	**12/3**	**2/6**
171	**4.1.6.3.2.7**	**Tile Detector Assy (TDA) Proc/Fab/Assy/Test for Flight Unit**	**3/8**	**1/7**
180	**4.1.6.3.3**	**Shell Subassembly**	**12/1**	**2/25**
181	**4.1.6.3.3.1**	**Shell Subassembly Analysis / Design**	**12/1**	**4/3**
182	4.1.6.3.3.1	Requirements Definition	**1/16**	**6/22**
183	4.1.6.3.3.1	Design	**12/1**	**1/18**
184	4.1.6.3.3.1	Analysis	**12/1**	**12/17**
185	4.1.6.3.3.1	Material Studies	**2/5**	**10/19**
186	4.1.6.3.3.1	Procurement Specification and Award	**1/22**	**4/3**
187	**4.1.6.3.3.3**	**Shell Subassembly Proc/Fab/Assy/Test for Full Scale EM (Qual) Unit**	**4/4**	**9/17**
191	**4.1.6.3.3.4**	**Shell Subassembly Proc/Fab/Assy/Test for DAQ I/F and Calibration Units**	**9/3**	**11/4**
194	**4.1.6.3.3.5**	**Shell Subassembly Proc/Fab/Assy/Test for Flight Unit**	**11/1**	**2/25**
198	**4.1.6.3.4**	**Tile Mounting Hardware & Assemblies**	**10/1**	**3/7**
199	**4.1.6.3.4.1**	**TDA Tiedown Prototype**	**10/1**	**6/6**
200	4.1.6.3.4.1	Design	**10/1**	**3/27**
201	4.1.6.3.4.1	Analysis	**11/6**	**3/26**
202	4.1.6.3.4.1	Fabrication & Assembly	**3/28**	**5/22**
203	**4.1.6.3.4.1**	**Testing**	**5/23**	**6/6**
204	4.1.6.3.4.1	Static Load/Thermal	**5/23**	**5/30**
205	4.1.6.3.4.1	Vibration	**5/31**	**6/6**
206	**4.1.6.3.4.3**	**Tile Mounting Hardware & Assembly Proc/Fab/Assy/Test for Full Scale EM (Qual) Unit**	**7/1**	**10/2**
207	**4.1.6.3.4.3**	**TDA Tiedown - ETU**	**7/1**	**10/2**



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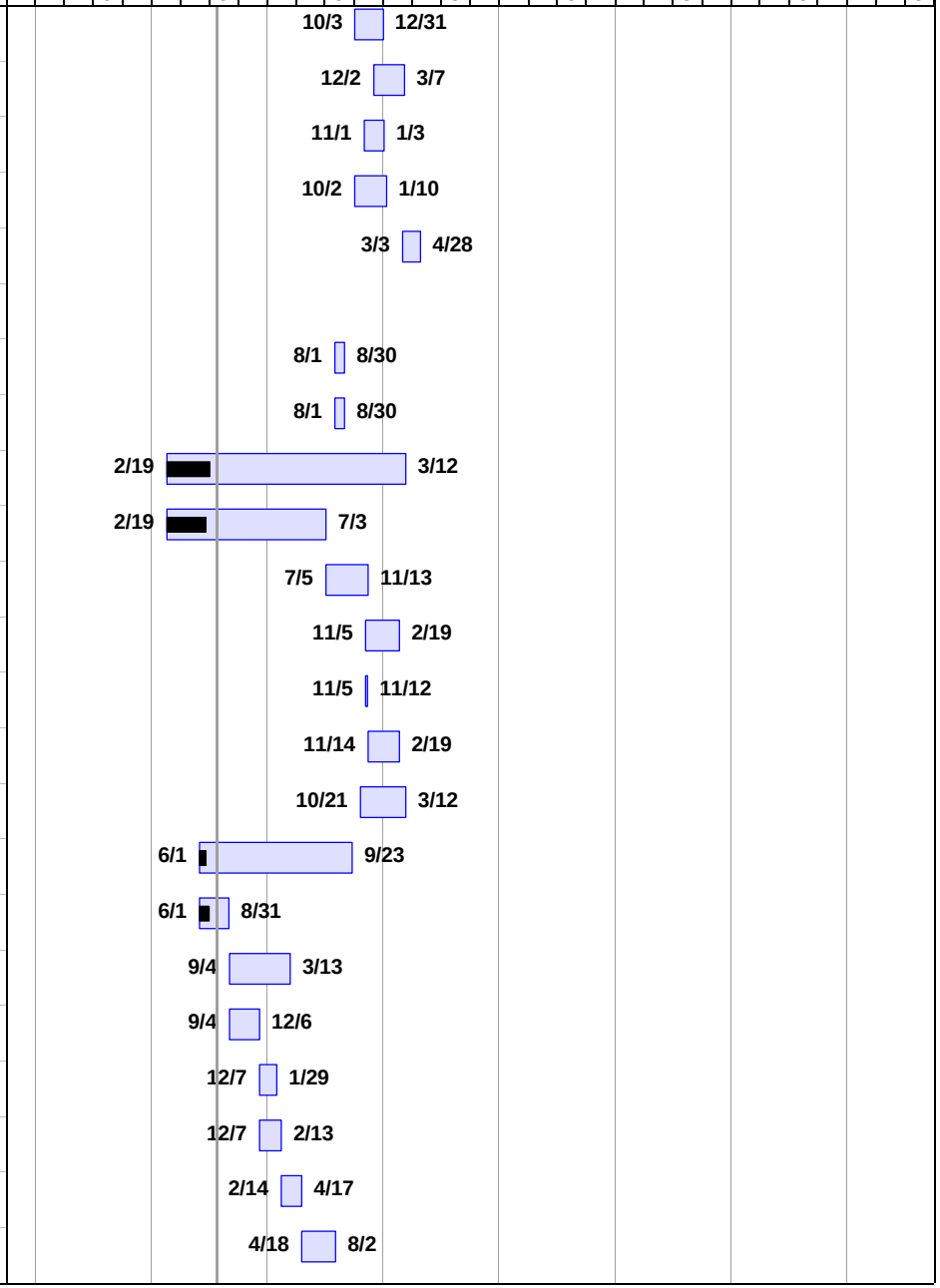
ID	WBS	Task Name		
209	**4.1.6.3.4.4**	**Tile Mounting Hardware & Assembly Proc/Fab/Assy/Test for DAQ I/F and Calibration Units**	**10/3**	**12/31**
211	**4.1.6.3.4.5**	**Tile Mounting Hardware & Assembly Proc/Fab/Assy/Test for Flight Unit**	**12/2**	**3/7**
214	**4.1.6.3.6**	**Tile Shell Assembly (TSA) Full Scale EM Unit Integration & Test**	**11/1**	**1/3**
216	**4.1.6.3.7**	**Tile Shell Assembly (TSA) DAQ I/F and Calibration Unit Integration & Test**	**10/2**	**1/10**
221	**4.1.6.3.8**	**Tile Shell Assembly (TSA) Flight Unit Integration & Test**	**3/3**	**4/28**
223	**4.1.6.4**	**Base Electronics Assembly (BEA)**		
224	**4.1.6.4.1**	**Base Electronics Assembly (BEA) Analysis / Design**	**8/1**	**8/30**
225	4.1.6.4.1	BEA Integration & Test and Handling Procedures	**8/1**	**8/30**
226	**4.1.6.4.2**	**Base Frame Assembly**	**2/19**	**3/12**
227	**4.1.6.4.2.1**	**Base Frame Assembly Analysis / Design**	**2/19**	**7/3**
230	**4.1.6.4.2.3**	**Base Frame Assembly - Proc/Fab/Assy/Test for Full Scale EM (Qual) Unit**	**7/5**	**11/13**
233	**4.1.6.4.2.4**	**Base Frame Assembly - Proc/Fab/Assy/Test for DAQ I/F and Calibration Units**	**11/5**	**2/19**
234	4.1.6.4.2.4	DAQ I/F Unit Assembly	**11/5**	**11/12**
235	4.1.6.4.2.4	Cal Unit Assembly	**11/14**	**2/19**
236	**4.1.6.4.2.5**	**Base Frame Assembly - Proc/Fab/Assy/Test for Flight Unit**	**10/21**	**3/12**
239	**4.1.6.4.3**	**High Voltage Power Supply Analysis & In-House Build**	**6/1**	**9/23**
240	4.1.6.4.3	Electrical Design & Breadboard	**6/1**	**8/31**
241	4.1.6.4.3	Parts Procurement & Screening	**9/4**	**3/13**
242	4.1.6.4.3	Flight Electrical & Mechanical Design	**9/4**	**12/6**
243	4.1.6.4.3	Develop Test Procedures	**12/7**	**1/29**
244	4.1.6.4.3	Engineering Unit Fabrication	**12/7**	**2/13**
245	4.1.6.4.3	Engineering Unit Test	**2/14**	**4/17**
246	4.1.6.4.3	Flight Unit A Fabrication	**4/18**	**8/2**



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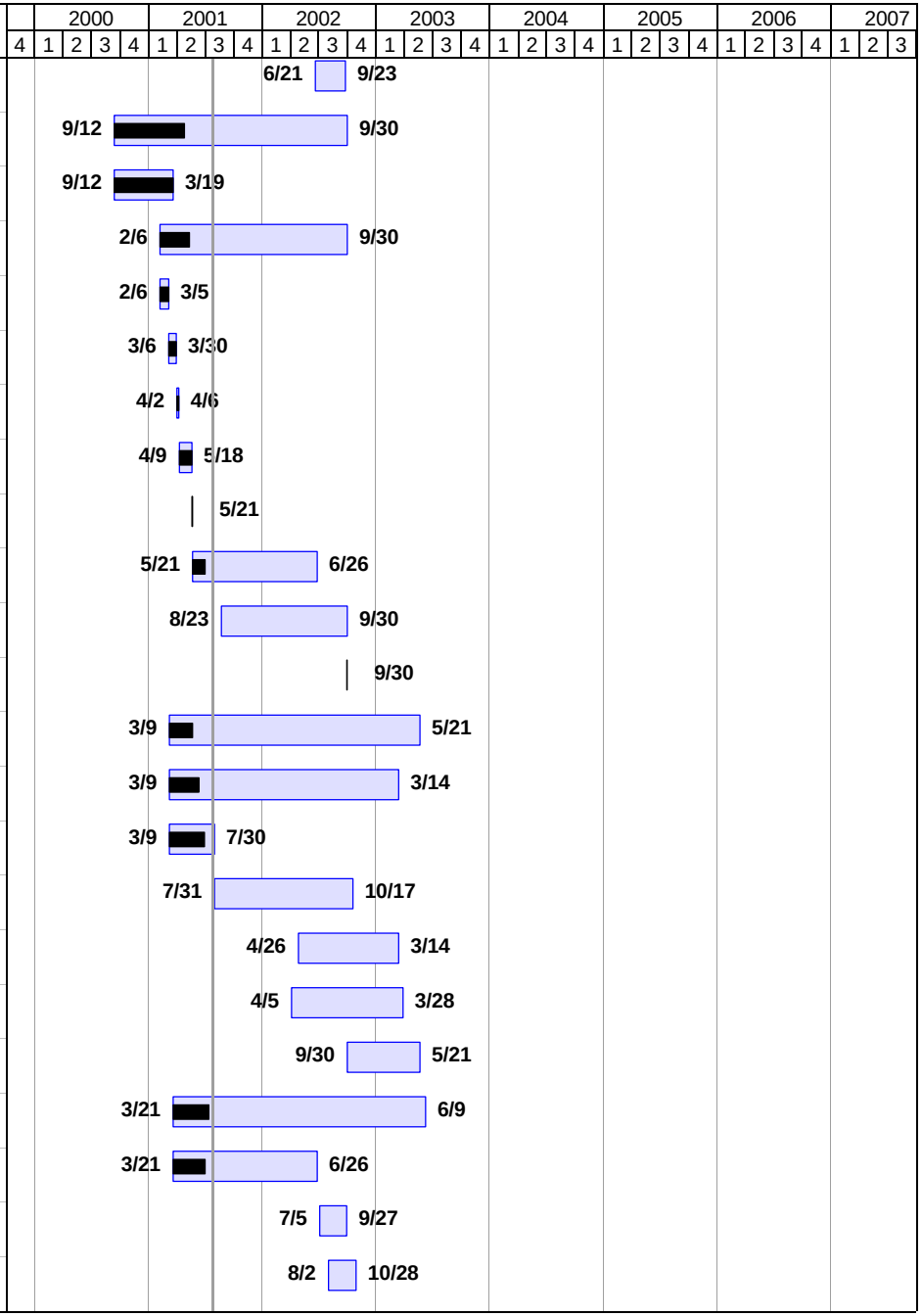
ID	WBS	Task Name		
247	4.1.6.4.3	Flight Unit A Test	6/21	9/23
248	**4.1.6.4.4**	**Analog ASIC Design / Procurement**	9/12	9/30
249	**4.1.6.4.4**	**1st Analog Test ASIC**	9/12	3/19
260	**4.1.6.4.4**	**2nd Analog Test ASIC**	2/6	9/30
261	4.1.6.4.4	Addition of features	2/6	3/5
262	4.1.6.4.4	Block diagram	3/6	3/30
263	4.1.6.4.4	Pre Layout simulations	4/2	4/6
264	4.1.6.4.4	Design Layout	4/9	5/18
265	4.1.6.4.4	Change to Agilent Process	5/21	
266	4.1.6.4.4	Submit Designs to Foundry (Monthly)	5/21	6/26
267	4.1.6.4.4	Receive ASIC's (3 Month After Submittal to Foundry	8/23	9/30
268	4.1.6.4.4	Receive Flight ASICs	9/30	
269	**4.1.6.4.6**	**Front-End Electronics and Event (FREE) Circuit Card Assembly (CCA)**	3/9	5/21
270	**4.1.6.4.6.1**	**FREE CCA Analysis / Design**	3/9	3/14
271	**4.1.6.4.6.1**	**Subsystem Definition of FREE Boards**	3/9	7/30
278	**4.1.6.4.6.1**	**Design Process for FREE Boards**	7/31	10/17
313	**4.1.6.4.6.1**	**Layout FREE PCB**	4/26	3/14
335	**4.1.6.4.6.3**	**FREE CCA - Proc/Fab/Assy/Test for DAQ I/F Unit and Full Scale EM**	4/5	3/28
351	**4.1.6.4.6.5**	**FREE CCA - Proc/Fab/Assy/Test for Flight Unit & Spares**	9/30	5/21
356	**4.1.6.4.9**	**BEA Electronics Mounting Hardware and Assemblies**	3/21	6/9
357	**4.1.6.4.9.1**	**BEA Electronics Mounting Hardware & Assembly Analysis / Design**	3/21	6/26
359	**4.1.6.4.9.3**	**BEA Electronics Mounting Hardware & Assembly Proc/Fab/Assy/Test for Full Scale EM (Qual) Unit**	7/5	9/27
362	**4.1.6.4.9.4**	**BEA Electronics Mounting Hardware & Assembly Proc/Fab/Assy/Test for DAQ I/F and Calibration Units**	8/2	10/28



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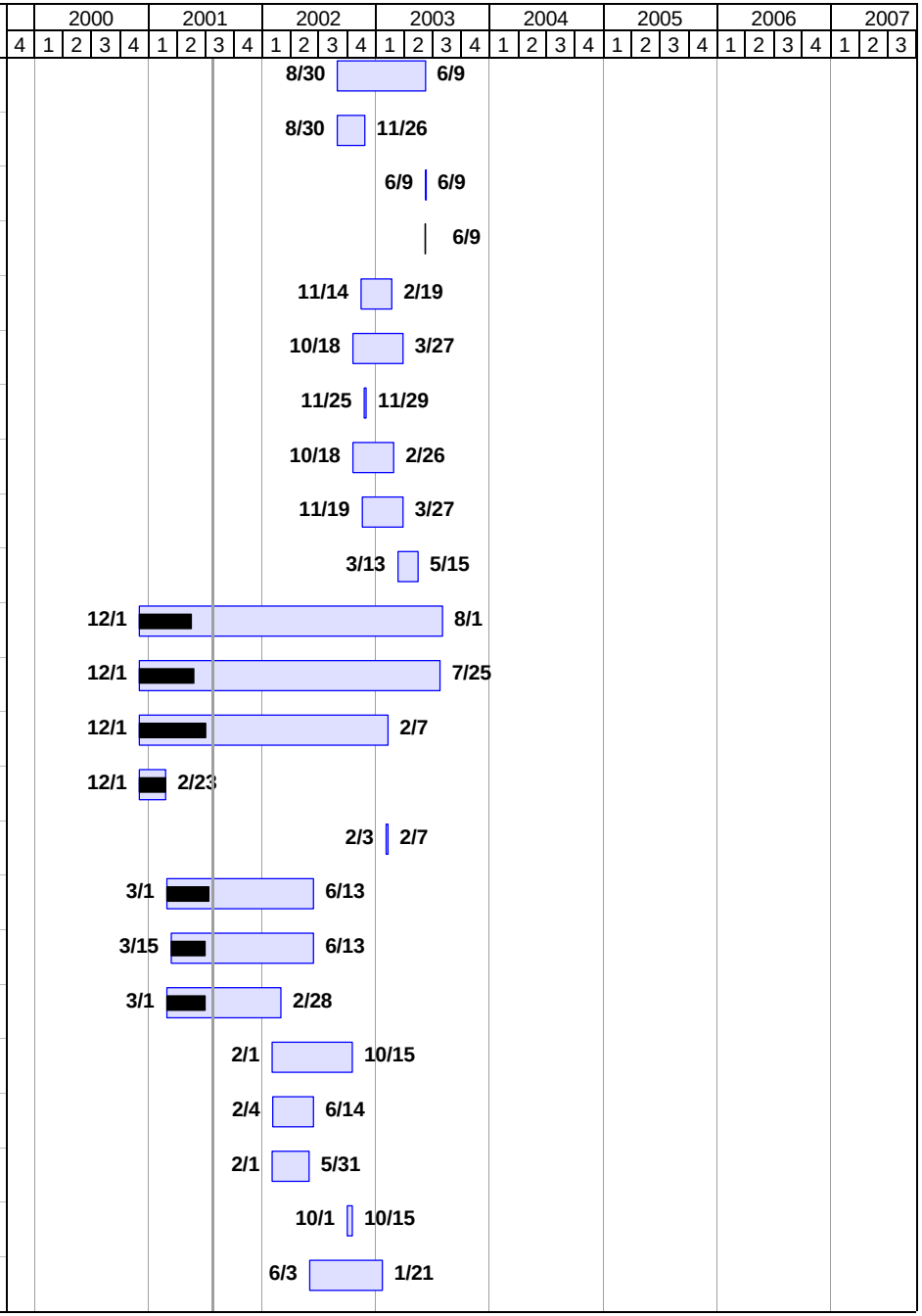
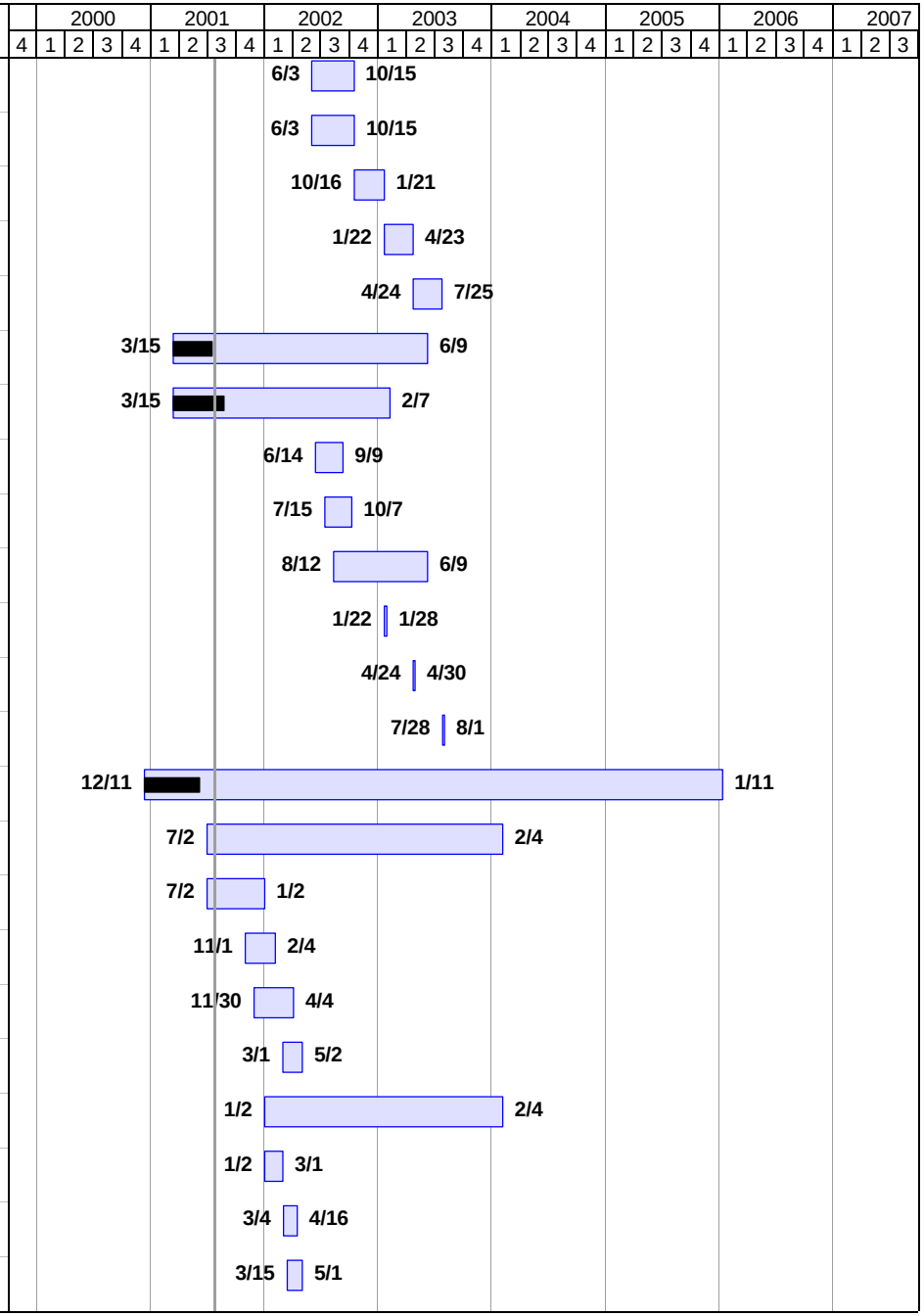
ID	WBS	Task Name		
364	**4.1.6.4.9.5**	**BEA Electronics Mounting Hardware & Assembly Proc/Fab/Assy/Test for Flight Unit**	**8/30**	**6/9**
365	4.1.6.4.9.5	Proc/Fab Mounting & Assy Pieces	**8/30**	**11/26**
366	4.1.6.4.9.5	FREE Board Mounting Hardware Kits	**6/9**	**6/9**
367	4.1.6.4.9.5	Last Flight Hardware Available		**6/9**
368	**4.1.6.4.B**	**Base Electronics Assembly (BEA) Full Scale EM (Qual) Unit Integration & Test**	**11/14**	**2/19**
371	**4.1.6.4.C**	**Base Electronics Assembly (BEA) for DAQ I/F and Calibration Unit Integration & Test**	**10/18**	**3/27**
372	4.1.6.4.C	DAQ I/F Test Unit Assembly	**11/25**	**11/29**
373	**4.1.6.4.C**	**Cal Unit Assembly**	**10/18**	**2/26**
376	4.1.6.4.C	Cal Unit Integration & Test	**11/19**	**3/27**
377	**4.1.6.4.D**	**Base Electronics Assembly (BEA) Flight Unit Integration & Test**	**3/13**	**5/15**
380	**4.1.6.5**	**Micrometeoroid Shield / Thermal Blanket Assembly**	**12/1**	**8/1**
381	**4.1.6.5.1**	**Micrometeoroid Shield / Thermal Blanket**	**12/1**	**7/25**
382	**4.1.6.5.1.1**	**Micrometeoroid Shield / Thermal Blanket Analysis / Design**	**12/1**	**2/7**
383	4.1.6.5.1.1	Design Requirements and Specifications	**12/1**	**2/23**
384	4.1.6.5.1.1	Installation Drawing	**2/3**	**2/7**
385	**4.1.6.5.1.1**	**Design Micrometeorite Shield**	**3/1**	**6/13**
386	4.1.6.5.1.1	Micrometeorite Shield Design	**3/15**	**6/13**
387	4.1.6.5.1.1	Material Selection and Testing	**3/1**	**2/28**
388	**4.1.6.5.1.1**	**Design Thermal Blanket**	**2/1**	**10/15**
389	4.1.6.5.1.1	Incorporate Thermal Blanket with Micrometeorite Shield	**2/4**	**6/14**
390	4.1.6.5.1.1	Material Selection	**2/1**	**5/31**
391	4.1.6.5.1.1	Fabrication Procedure	**10/1**	**10/15**
392	**4.1.6.5.1.3**	**Micrometeoroid Shield / Thermal Blanket Proc/Fab/Assy/Test for Full Scale EM (Qual) Unit**	**6/3**	**1/21**



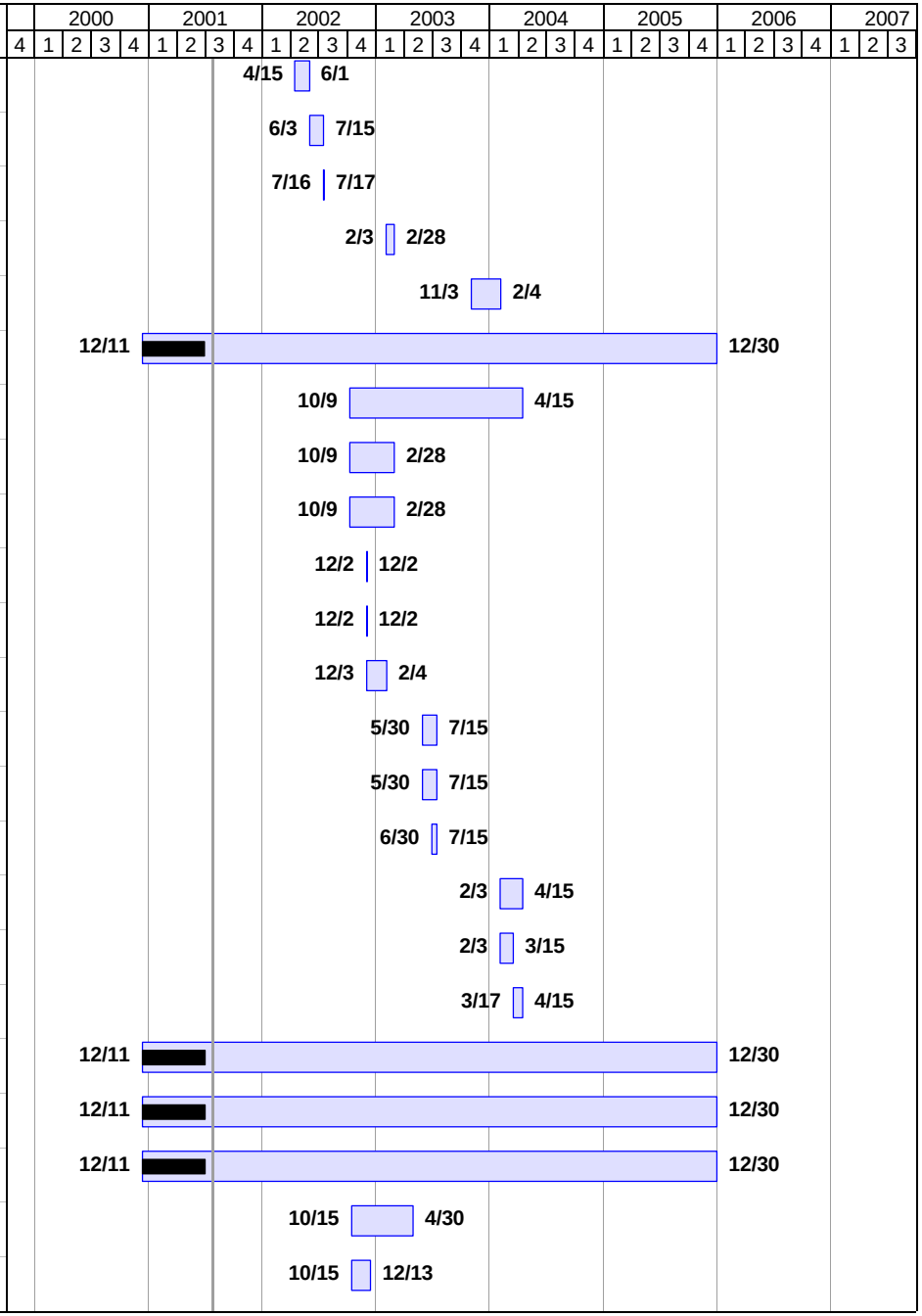
Anti-Coincidence Detector Subsystem Schedule (Preliminary)

ID	WBS	Task Name	Start	Finish
393	4.1.6.5.1.3	Shield Material Procurement	6/3	10/15
394	4.1.6.5.1.3	Blanket Material Procurement	6/3	10/15
395	**4.1.6.5.1.3**	**Fabrication of Micrometeorite Shield/Thermal Blanket**	10/16	1/21
397	**4.1.6.5.1.4**	**Micrometeoroid Shield / Thermal Blanket Proc/Fab/Assy/Test for Calibration Units**	1/22	4/23
399	**4.1.6.5.1.5**	**Micrometeoroid Shield / Thermal Blanket Proc/Fab/Assy/Test for Flight Unit**	4/24	7/25
401	**4.1.6.5.2**	**Micrometeoroid Shield / Thermal Blanket Mounting and Assembly Hardware**	3/15	6/9
402	**4.1.6.5.2.1**	**Micrometeoroid Shield / Thermal Blanket Mounting and Assembly Hardware Analysis / Design**	3/15	2/7
405	4.1.6.5.2.3	Micrometeoroid Shield / Thermal Blanket Mounting Hardware & Assembly Proc/Fab/Assy/Test for Full Scale EM (Qual) Unit	6/14	9/9
406	4.1.6.5.2.4	Micrometeoroid Shield / Thermal Blanket Mounting Hardware & Assembly Proc/Fab/Assy/Test for DAQ I/F and Calibration Units	7/15	10/7
407	**4.1.6.5.2.5**	**Micrometeoroid Shield / Thermal Blanket Mounting Hardware & Assembly Proc/Fab/Assy/Test for Flight Unit**	8/12	6/9
411	4.1.6.5.4	Micrometeoroid Shield / Thermal Blanket Full Scale EM (Qual) Unit Integration & Test	1/22	1/28
412	4.1.6.5.5	Micrometeoroid Shield / Thermal Blanket Calibration Unit Integration & Test	4/24	4/30
413	4.1.6.5.6	Micrometeoroid Shield / Thermal Blanket Flight Unit Integration & Test	7/28	8/1
414	**4.1.6.6**	**Flight Software Development**	12/11	1/11
415	**4.1.6.6.1**	**ACD Flight Software Design**	7/2	2/4
416	**4.1.6.6.1**	**Requirements Specification/Definition**	7/2	1/2
423	**4.1.6.6.1**	**Requirements Specification of ACD Electronics Simulator**	11/1	2/4
426	**4.1.6.6.1**	**Requirements Specification to Spacecraft Interface**	11/30	4/4
430	**4.1.6.6.1**	**Requirements Specification to Spacecraft Simulator**	3/1	5/2
433	**4.1.6.6.1**	**Software Architecture Design**	1/2	2/4
434	4.1.6.6.1	ACD Electronics Interface Code Design	1/2	3/1
435	4.1.6.6.1	ACD Electronics Simulator Design	3/4	4/16
436	4.1.6.6.1	Spacecraft Interface Code Design	3/15	5/1



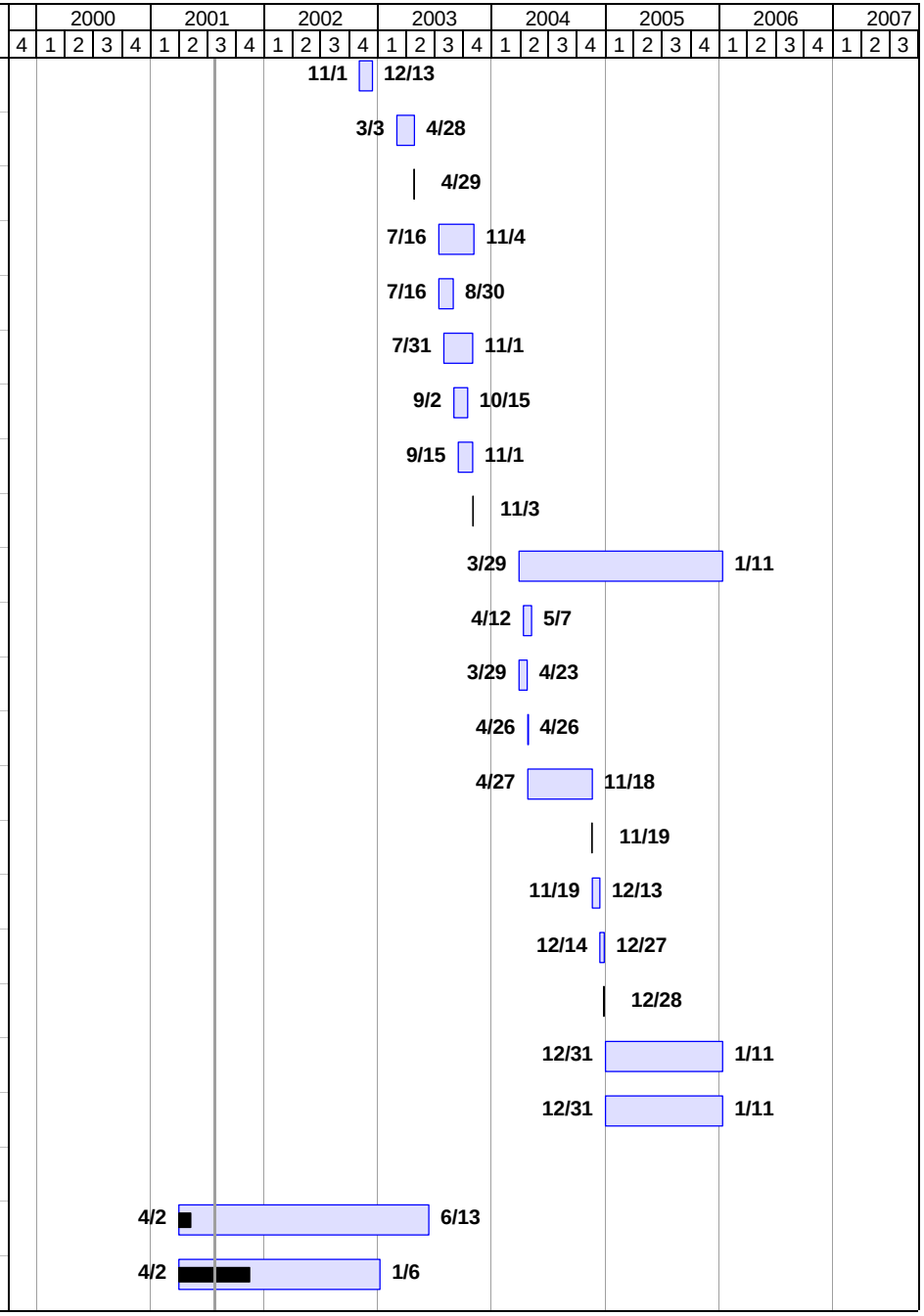
Anti-Coincidence Detector Subsystem Schedule (Preliminary)

ID	WBS	Task Name		
437	4.1.6.6.1	Spacecraft Simulator Code Design	4/15	6/1
438	4.1.6.6.1	ACD Engineering Software Architecture Design Document	6/3	7/15
439	4.1.6.6.1	Delivery of ACD Engineering Software Architecture Document	7/16	7/17
440	**4.1.6.6.1**	**Full Scale EM (Qual) & Calibration Unit Design**	2/3	2/28
443	**4.1.6.6.1**	**Flight Code Design**	11/3	2/4
447	**4.1.6.6.2**	**ACD TEM Operating System**	12/11	12/30
453	**4.1.6.6.3**	**ACD Application Software Code & Unit Test**	10/9	4/15
454	**4.1.6.6.3**	**DAQ I/F Test Unit**	10/9	2/28
455	4.1.6.6.3	ACD Software Coding	10/9	2/28
456	4.1.6.6.3	Receive ACD Electronics prototype board	12/2	12/2
457	4.1.6.6.3	Receive ACD TEM board from Stanford	12/2	12/2
458	4.1.6.6.3	ACD DAQ I/F Test Unit Testing	12/3	2/4
459	**4.1.6.6.3**	**Full Scale EM and Calibration (Cal) Unit**	5/30	7/15
460	4.1.6.6.3	Implement Code Changes	5/30	7/15
461	4.1.6.6.3	Regression Testing w/ Simulator and EM Electronics	6/30	7/15
462	**4.1.6.6.3**	**Flight Code**	2/3	4/15
463	4.1.6.6.3	Coding of Flight Software	2/3	3/15
464	4.1.6.6.3	Regression Testing of S/W w/ Simulators and Available Electronics	3/17	4/15
465	**4.1.6.6.4**	**ACD Support Software**	12/11	12/30
466	**4.1.6.6.4.1**	**Bench Test Equipment Software Development**	12/11	12/30
473	**4.1.6.6.4.2**	**Configuration Management S/W**	12/11	12/30
476	**4.1.6.6.6**	**DAQ I/F Test Unit Software Integration & Test**	10/15	4/30
477	4.1.6.6.6	ACD Functional Testing with Simulators	10/15	12/13



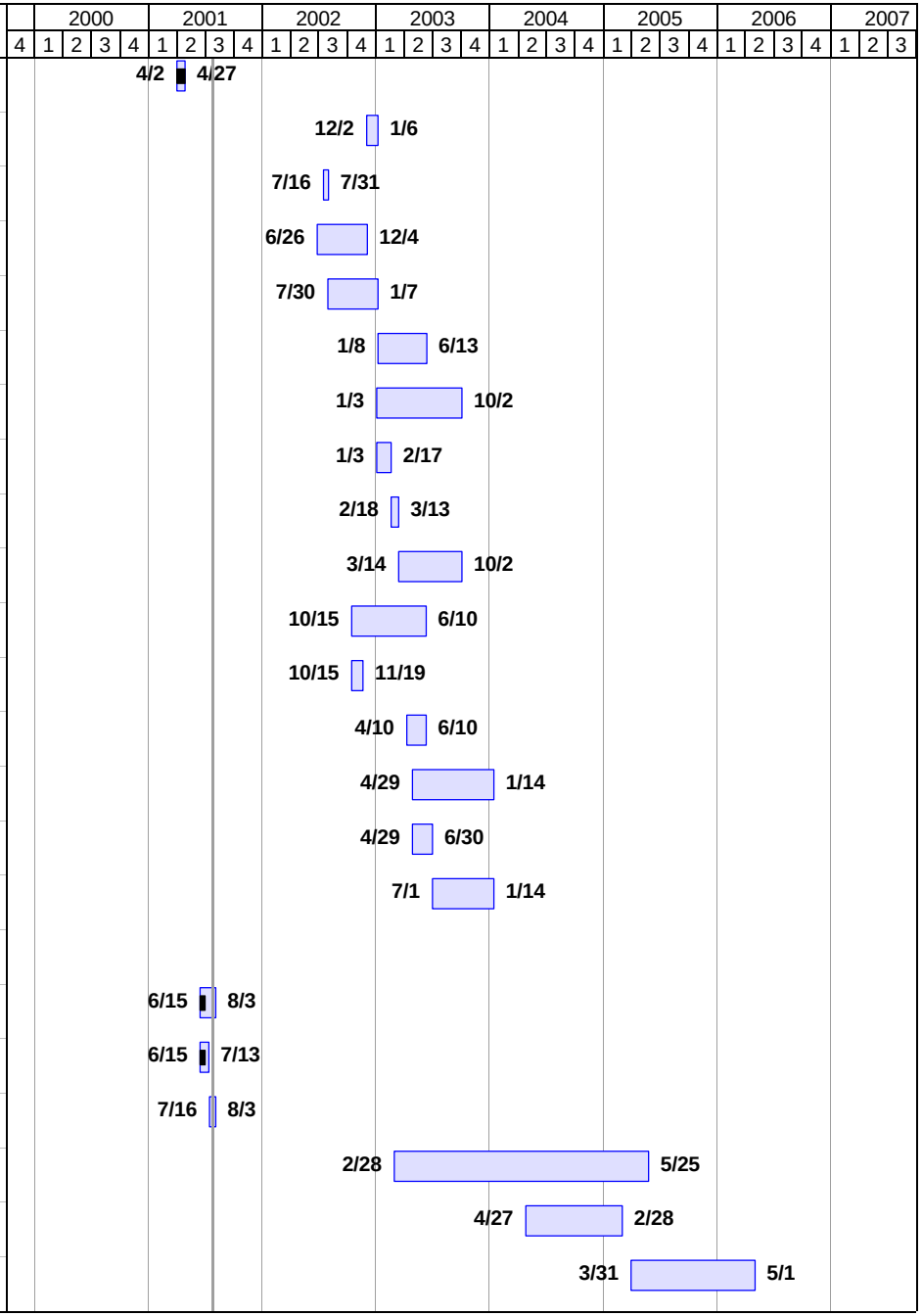
Anti-Coincidence Detector Subsystem Schedule (Preliminary)

ID	WBS	Task Name		
478	4.1.6.6.6	ACD M Functional Testing with EM electronics boards	11/1	12/13
479	4.1.6.6.6	ACD S/W Documentation	3/3	4/28
480	4.1.6.6.6	Delivery of DAQ I/F Test Documentation	4/29	
481	**4.1.6.6.7**	**Full Scale EM & Calibration Unit Software Integration & Test**	7/16	11/4
482	4.1.6.6.7	ACD Full Scale EM & Cal Unit Calibration	7/16	8/30
483	4.1.6.6.7	Integration of ACD Electronics Simulator into SC Telemetry Simulator	7/31	11/1
484	4.1.6.6.7	Performance Testing of Code	9/2	10/15
485	4.1.6.6.7	ACD S/W Documentation	9/15	11/1
486	4.1.6.6.7	Delivery of ACD S/W Documentation	11/3	
487	**4.1.6.6.8**	**Flight Unit Software Integration & Test**	3/29	1/11
488	4.1.6.6.8	Calibration of ACD Flight Code	4/12	5/7
489	4.1.6.6.8	Testing with Electronics/SC Simulators at SLAC	3/29	4/23
490	4.1.6.6.8	ACD Flight Hardware Initial Software Delivered to SLAC	4/26	4/26
491	4.1.6.6.8	Integration Testing with Spacecraft S/W at SLAC	4/27	11/18
492	4.1.6.6.8	Generate Test Results	11/19	
493	4.1.6.6.8	Integration Testing at SC Assembly Location	11/19	12/13
494	4.1.6.6.8	Prep Final Flight Software for Delivery	12/14	12/27
495	4.1.6.6.8	Delivery of Final Flight Software	12/28	
496	4.1.6.6.8	Post Delivery Maintenance/Repair/Changes	12/31	1/11
497	4.1.6.6.9	Flight Software Independent Verification & Validation (IV&V) Support	12/31	1/11
498	**4.1.6.7**	**Hardware / Software Integration & Test**		
499	**4.1.6.7.1**	**Miscellaneous LAT Interface / Assembly Hardware**	4/2	6/13
500	**4.1.6.7.1.1**	**Miscellaneous LAT Interface / Assembly Hardware Analysis / Design**	4/2	1/6



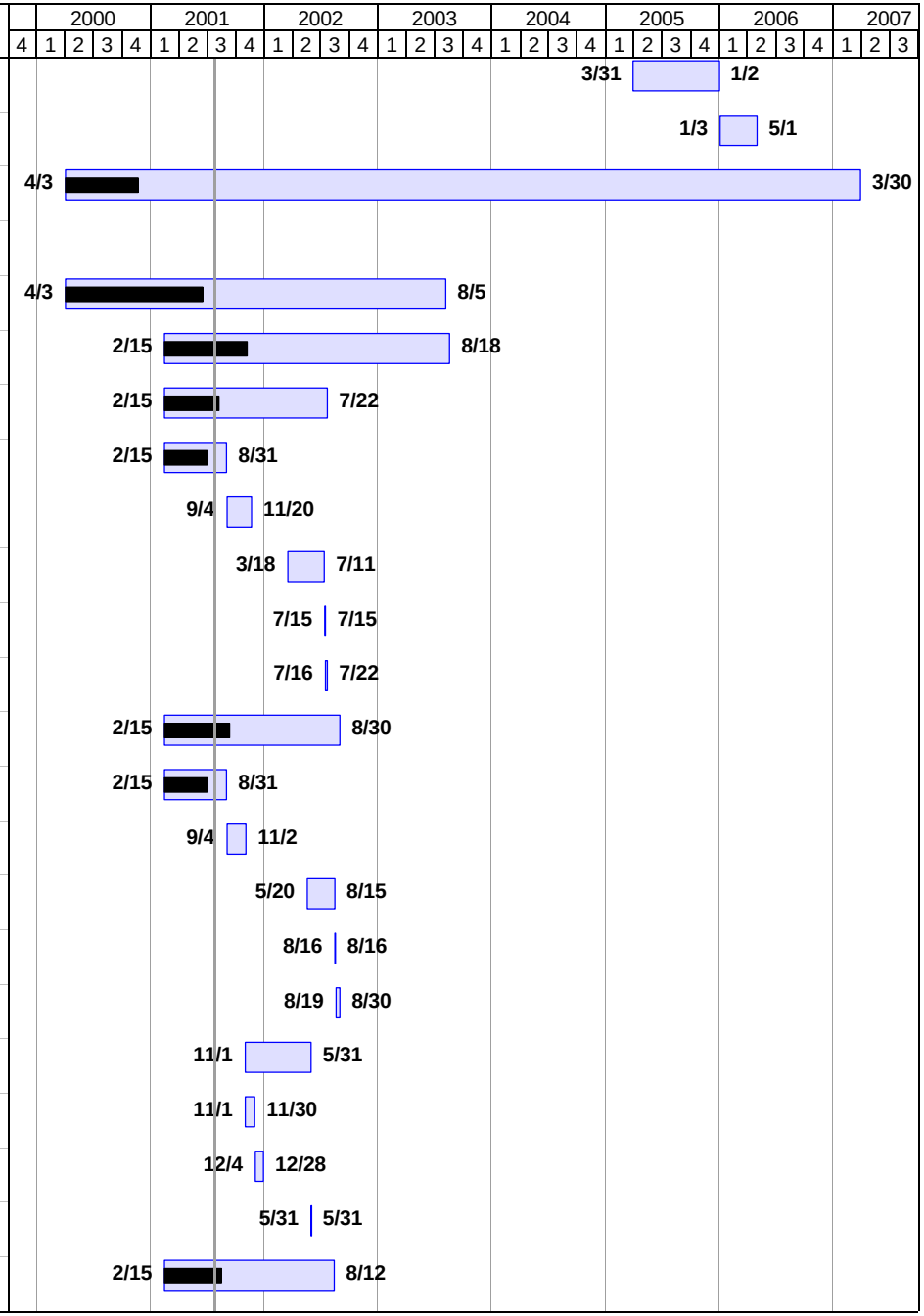
Anti-Coincidence Detector Subsystem Schedule (Preliminary)

ID	WBS	Task Name		
501	4.1.6.7.1.1	Develop ACD Mechanical Verification Test Plan	4/2	4/27
502	4.1.6.7.1.1	Develop ACD Mechanical Integration Procedure	12/2	1/6
503	4.1.6.7.1.1	Develop ACD Handling Procedure	7/16	7/31
504	**4.1.6.7.1.3**	**Miscellaneous LAT Interface / Assembly Hardware Proc/Fab/Assy/Test for Full Scale EM (Qual) Unit**	6/26	12/4
507	**4.1.6.7.1.4**	**Miscellaneous LAT Interface / Assembly Hardware Proc/Fab/Assy/Test for DAQ I/F Test and Calibration Units**	7/30	1/7
509	**4.1.6.7.1.5**	**Miscellaneous LAT Interface / Assembly Hardware Proc/Fab/Assy/Test for Flight Unit**	1/8	6/13
511	**4.1.6.7.3**	**Full Scale EM (Qual) Unit Hardware / Software Integration & Test**	1/3	10/2
512	4.1.6.7.3	ETU-ACD Mechanical Integration	1/3	2/17
513	4.1.6.7.3	ETU Mechanical Verification Test Program	2/18	3/13
514	4.1.6.7.3	Replace Active Tiles from EM w/Mass Models & Replace Electronics w/Dummy Heat Loads	3/14	10/2
515	**4.1.6.7.4**	**DAQ I/F Test and Calibration Unit Hardware / Software Integration & Test**	10/15	6/10
516	4.1.6.7.4	DAQ I/F Test Unit Assembly & Test	10/15	11/19
517	**4.1.6.7.4**	**Calibration Unit**	4/10	6/10
529	**4.1.6.7.5**	**Flight Unit Hardware / Software Integration & Test**	4/29	1/14
530	4.1.6.7.5	Flight ACD Mechanical Integration	4/29	6/30
531	4.1.6.7.5	Flight Verification Test Program	7/1	1/14
532	**4.1.6.8**	**LAT Instrument Integration & Test Support**		
533	**4.1.6.8.1**	**BFEM ACD Integration & Test Support (Balloon Flight)**	6/15	8/3
534	4.1.6.8.1	ACD Suborbital Integration @ GSFC	6/15	7/13
535	4.1.6.8.1	Suborbital Flight Campaign	7/16	8/3
536	**4.1.6.8.3**	**DAQ I/F Test, Full Scale EM, and Calibration Unit ACD Integration & Test Support @ SLAC**	2/28	5/25
539	**4.1.6.8.4**	**Flight Unit Integration & Test Support (Flight LAT I&T)**	4/27	2/28
541	**4.1.6.9**	**Mission Integration & Test Support**	3/31	5/1



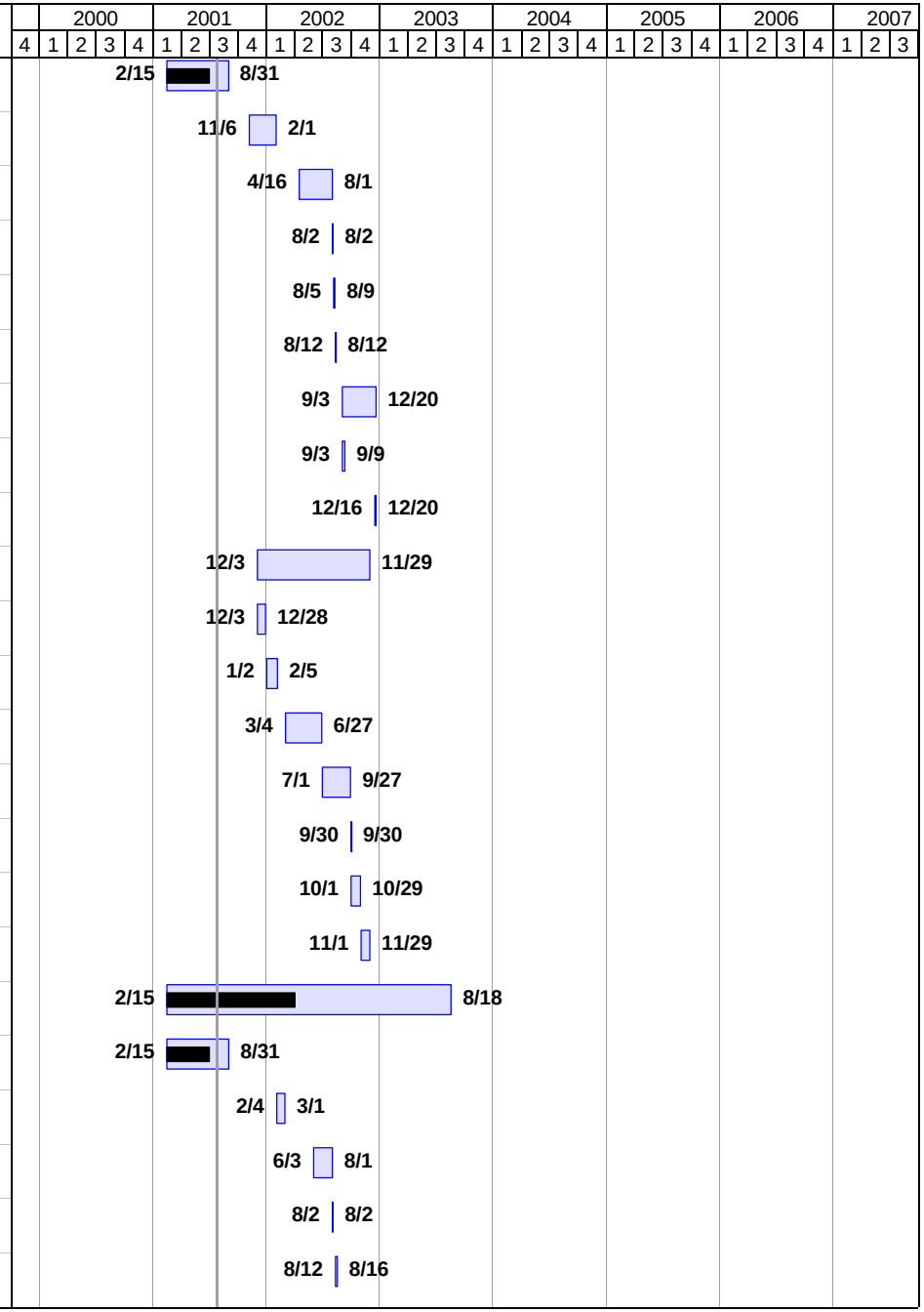
Anti-Coincidence Detector Subsystem Schedule (Preliminary)

ID	WBS	Task Name		
542	**4.1.6.9.1**	**Provide ACD Subsystem Support during Flight LAT I&T w/Spacecraft**	3/31	1/2
545	**4.1.6.9.2**	**Provide ACD Subsystem Support during Launch Site / Launch Operations**	1/3	5/1
547	**4.1.6.A**	**Mission Operations & Data Analysis (MO&DA)**	4/3	3/30
558	**4.1.6.B**	**Ground Support Facilities and Equipment**		
559	4.1.6.B.1	Ground Support Facilities / Facility Modifications	4/3	8/5
560	**4.1.6.B.2**	**Mechanical Ground Support Equipment**	2/15	8/18
561	**4.1.6.B.2.1**	**ACD Turnover / Assembly Dolly**	2/15	7/22
562	4.1.6.B.2.1	Requirements Definition	2/15	8/31
563	4.1.6.B.2.1	Design and Analysis	9/4	11/20
564	4.1.6.B.2.1	Fabrication	3/18	7/11
565	4.1.6.B.2.1	Delivery	7/15	7/15
566	4.1.6.B.2.1	Functional and Proof Testing	7/16	7/22
567	**4.1.6.B.2.2**	**Shell Handling Assembly**	2/15	8/30
568	4.1.6.B.2.2	Requirements Definition	2/15	8/31
569	4.1.6.B.2.2	Design and Analysis	9/4	11/2
570	4.1.6.B.2.2	Fabrication	5/20	8/15
571	4.1.6.B.2.2	Delivery	8/16	8/16
572	4.1.6.B.2.2	Functional and Proof Testing	8/19	8/30
573	**4.1.6.B.2.3**	**TDA Handling Cases**	11/1	5/31
574	4.1.6.B.2.3	Design Specification	11/1	11/30
575	4.1.6.B.2.3	Procurement Specification	12/4	12/28
576	4.1.6.B.2.3	Delivery	5/31	5/31
577	**4.1.6.B.2.4**	**Base Frame Handling Assembly**	2/15	8/12



Anti-Coincidence Detector Subsystem Schedule (Preliminary)

ID	WBS	Task Name		Start	Finish
578	4.1.6.B.2.4	Requirements Definition		2/15	8/31
579	4.1.6.B.2.4	Design and Analysis		11/6	2/1
580	4.1.6.B.2.4	Fabrication		4/16	8/1
581	4.1.6.B.2.4	ETU & Flight Delivery		8/2	8/2
582	4.1.6.B.2.4	Functional and Proof Testing		8/5	8/9
583	4.1.6.B.2.4	ETU & Flight Base Frame Handling Dolly Available		8/12	8/12
584	**4.1.6.B.2.5**	**Grid Interface Template**		9/3	12/20
585	4.1.6.B.2.5	Receive from SLAC		9/3	9/9
586	4.1.6.B.2.5	Return to SLAC		12/16	12/20
587	**4.1.6.B.2.6**	**ACD Shipping Container w/Nitrogen Purge**		12/3	11/29
588	4.1.6.B.2.6	Transportation Specification Document		12/3	12/28
589	4.1.6.B.2.6	Shipping Container Selection		1/2	2/5
590	4.1.6.B.2.6	Shipping Container Interface Design and Analysis		3/4	6/27
591	4.1.6.B.2.6	Interface Fabrication		7/1	9/27
592	4.1.6.B.2.6	Interface Delivery		9/30	9/30
593	4.1.6.B.2.6	Shipping Container Integration		10/1	10/29
594	4.1.6.B.2.6	Shipping Container Testing		11/1	11/29
595	**4.1.6.B.2.7**	**ACD Lifting Slings**		2/15	8/18
596	4.1.6.B.2.7	Requirements Definition		2/15	8/31
597	4.1.6.B.2.7	Design and Analysis		2/4	3/1
598	4.1.6.B.2.7	Fabrication		6/3	8/1
599	4.1.6.B.2.7	Delivery of ETU & Flight Lifting Slings		8/2	8/2
600	4.1.6.B.2.7	Initial Proof Testing and NDE		8/12	8/16



Anti-Coincidence Detector Subsystem Schedule (Preliminary)

ID	WBS	Task Name	2000	2001	2002	2003	2004	2005	2006	2007
			4 1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3
601	4.1.6.B.2.7	Annual Proof Testing and NDE				8/11 8/15				
602	4.1.6.B.2.7	ETU & Flight GSE Lifting Slings				8/18 8/18				
603	**4.1.6.B.3**	**Electrical Ground Support Equipment**			5/3 9/24					
604	**4.1.6.B.3.4**	**FREE Board-Level GSE**			5/3 9/24					