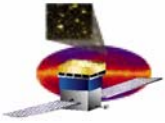


GLAST Large Area Telescope:

Electronics, Data Acquisition & Flight Software W.B.S 4.1.7

June Monthly Review

Gunther Haller
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(650) 926-4257

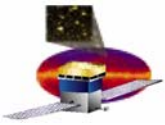


TEM/TPS Status & Schedule

- **Status**
 - Qual unit used for FM CAL testing was sent back to SLAC (to be discussed what do with it)
 - A & B at I&T on tower A and B
 - #1 thru #5 delivered to I&T
 - #6, #7: ready to be reviewed and handed to I&T
 - #8, #9: finished TV, need final test and review
 - #10, #11: started TV, rdy for I&T next Tuesday
 - #12: rdy for TV
 - #13-#19: in works

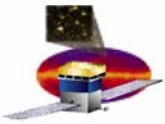
 - **TEM Module status:**
 - Last pre-coat TEM was received at SLAC, tested, sent back to GT
 - Remaining work is
 - Two Crystek connector problems already being repaired
 - One Crystek connector problem to be repaired

 - **TPS Modules:**
 - Last TPS pre-coat module was received at SLAC, is being modified and will be sent back to assembler this week.



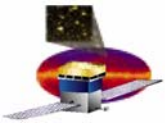
PDU Status and Schedule 2

- **Schedule for first unit**
 - **Operated in thermal chamber over temperature, worked**
 - **Shipped back to assembler**
 - **Removed internal EGSE harness**
 - **Conformal coated boards**
 - **Mounted boards in enclosure**
 - **Flight harness is being assembled in enclosure**
 - **Put on side box is much ahead of GASU/LCB/SIB/CPS (bottle-neck)**
 - **Should get back to PDU July 9 (once GASU, LCB, SIB, LCB are shipped, plus there is 1 week shut-down at assembler for inventory)**
 - **Estimated delivery to SLAC Jul 25**
 - **Estimated delivery to I&T Sept 5**
 - **2nd unit lags by 6 weeks**



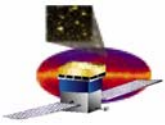
GASU Status and Schedule

- **First Unit**
 - Surface-mount assembly (SMT and manual) completed
 - Flying-probe testing completed
 - GASU power supply and GASU DQ boards (2 each) integrated into enclosure
 - EGSE harness being assembled into enclosure
 - Scheduled ship date (pre-coat): June 30
 - Estimated Delivery of final box at SLAC: Sept 15
 - Estimated delivery to I&T: September 27
- **Schedule for 2nd unit**
 - Estimated delivery to I&T: 6 weeks after delivery of first unit



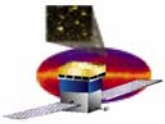
SIU/EPU Status and Schedule

- **Status**
 - Issues with voids in cCPI connector assembly joints
 - Assembled one each (SIB, LCB, CPS) plug-in board
 - 3 backplanes assembled
 - Pre-coat boards are to be sent to GSFC for X-ray early next week
 - Then boards go into functional testing and crate assembly/testing
 - The SIB is guaranteed non-flight since it contains “contaminated” EEPROM’s
 - In parallel SLAC will perform some qual testing (vib/TC) of LCB/CPS, backplanes to show that >60% fill is sufficient
 - In parallel some blank test-boards were sent to SAI to assemble connectors
 - Results not in yet
- **EEPROM for SIB:**
 - Have now enough approved parts for 5 boards (fly 5)
 - Any additional ones required new parts, not schedule from Austin
- **Schedule**
 - Oct 14 for first crate, but not flight
 - Nov 16 first flight crate to I&T, Dec 14 for 5th
 - Assumes Aug 4 start date for connector assembly on flight boards



Harness & heater Control Box

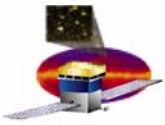
- **Harness in assembly, close to be complete**
- **Heater Control box PCB's received (passed coupon testing)**
- **Assembly contract placed**
- **Part kit sent to assembler**
 - **Bottle-neck with other jobs (overall issue due to effort put in cCPI assembly tests)**



Thermo-testing support

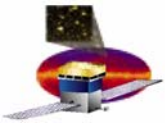
- Estimated completion for the whole package is next Friday. The whole package includes:
 - Completing FSW interface, LATTE interface, Power interface (DONE)
 - Completing assembly of test stand as standalone unit (done by 6/29 AM)
 - Completing documentation package:
 - Interface test (done by 6/28 PM)
 - Acceptance test procedure (done by 7/1 PM)
 - User's manual (done by 7/6 PM)
 - Complete signoff on documentation (done by 7/7 PM)
 - Running acceptance test with Lockheed "witness" (scheduled for 7/8)
 - Then, we just need to ship it to Lockheed and re-test it when it gets off the truck (7/12).





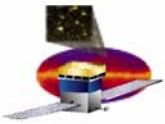
VSC

- Six prototypes up and running in the dataflow lab
- In use by FSW and FSW/Test (they are executing actual test-scripts)
- Work on VSC has halted (since 2 weeks ago) pending GASU flight setup, LCB flight setup and TV testing
- Main Focus is (was) on:
 - 1) production (cables, science interface and checkout of analog monitoring)
 - 2) usage of GPS system (last item to provide *stable* timing, doesn't add functionality)
 - 3) specification of new 1553 driver to support timing (done and coded by Dan as of Monday)
- 3) resolution of issues concerning fidelity of VSC simulation with respect to real space-craft
- Currently, none of these items are impacted the ability of VSC users to get on with their jobs, however, 3) is a big ticket item , as the lack of information about the spacecraft has lead to an inadequate simulation and will necessitate both a re-design and re-coding of the VSC and Proxy software. Mike H, in his spare cycles, worked out the re-design and has been communicating closely with all affected users and we are working out a migration plan. First step is an upgrade of the document, which is almost complete

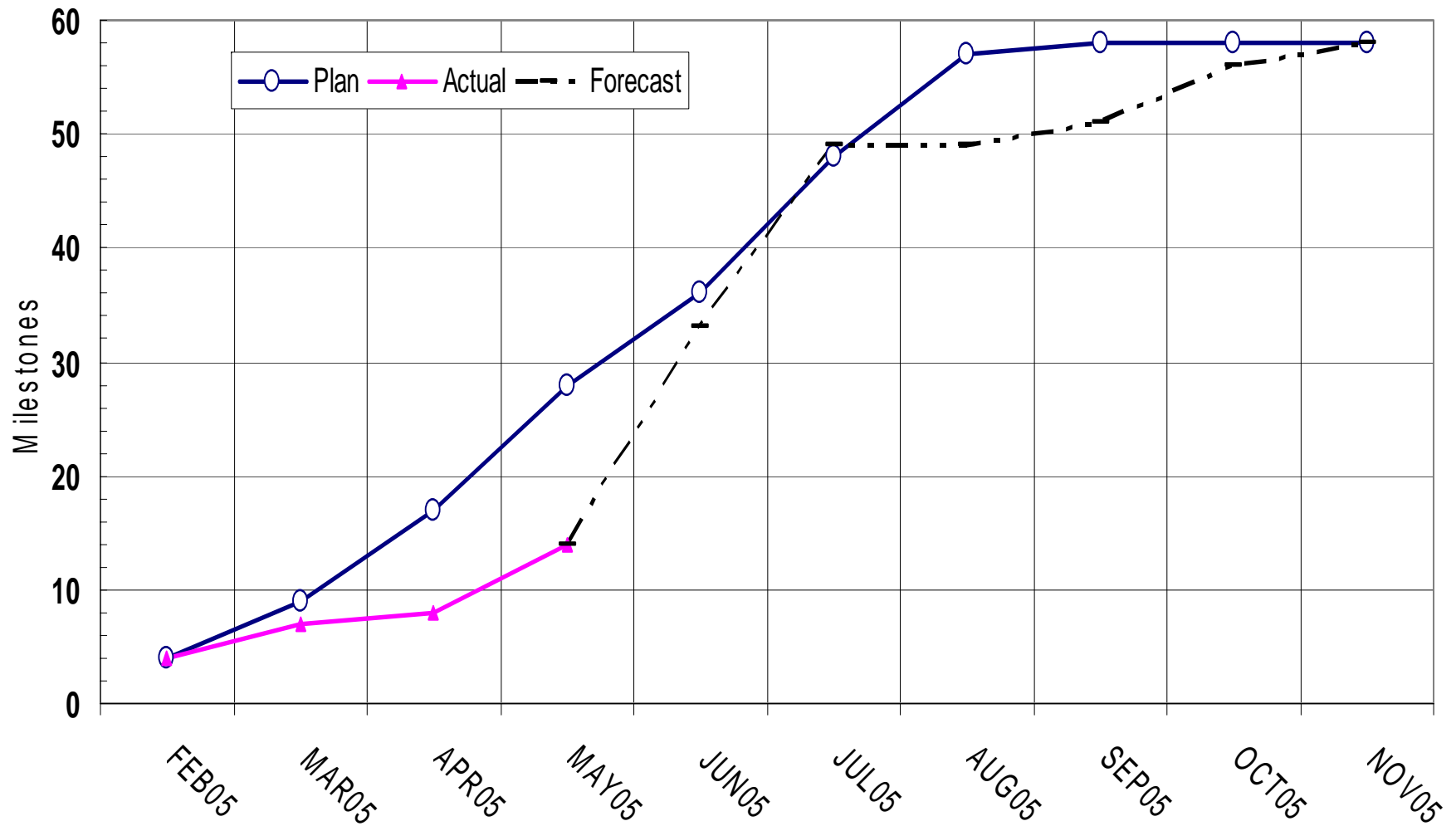


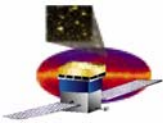
Tech Issues

- Larger TPS ripple issue resolved, potentially have small ripple at certain loads/voltage settings (could also be removed with resistor change, to be decided)
- AUSTIN EEPROM DPA problems
 - Received parts for 5 boards (and parts passed DPA)
 - No schedule yet for additional parts
- Qualification of cCPI press-fit connector assembly using solder process
- Need to work on closing open FPGA review items



Level 3 Milestone Count





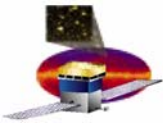
Level 3 Milestone List

Activity Description	Baseline Finish	-2m Var	-1m Var	Bsln Var	Early Finish	2005												2006							
						F	E	M	A	M	J	J	A	S	E	O	N	D	E	J	A	F	E	M	A
4.1.7 Electronics																									
Elx Ground Support Equipment																									
Final EGSE incl S/C Sim, FSW-Elec	04/01/05	-20	-41	-60	06/27/05																				
TEM/PS A																									
Flight TEM Assy A: Elec to I&T	02/17/05	0	0	0	02/17/05A	▼																			
Flight TEM PS Assy A: Elec to I&T	02/17/05	0	0	0	02/17/05A	▼																			
TEM/PS B																									
Flight TEM Assy B: Elec to I&T	03/07/05*	-2	-2	-2	03/09/05A	▼																			
Flight TEM PS Assy B: Elec to I&T	03/07/05*	-2	-2	-2	03/09/05A	▼																			
TEM/PS 1																									
Flight TEM Assy 1: Elec to I&T	04/22/05	0	-17	-19	05/19/05A		▼	▼																	
Flight TEM PS Assy 1: Elec to I&T	04/22/05	0	-17	-19	05/19/05A		▼	▼																	
TEM/PS 2																									
Flight TEM Assy 2: Elec to I&T	04/29/05	0	-12	-14	05/19/05A		▼	▼																	
Flight TEM PS Assy 2: Elec to I&T	04/29/05	0	-12	-14	05/19/05A		▼	▼																	
TEM/PS 3																									
Flight TEM Assy 3: Elec to I&T	05/06/05	0	-12	-18	06/02/05		▼	▼																	
Flight TEM PS Assy 3: Elec to I&T	05/06/05	0	-12	-18	06/02/05		▼	▼																	
TEM/PS 4																									
Flight TEM Assy 4: Elec to I&T	05/13/05	0	-7	-15	06/06/05		▼	▼																	
Flight TEM PS Assy 4: Elec to I&T	05/13/05	0	-7	-15	06/06/05		▼	▼																	

Run Date 06/23/05 16:47
 Data Date 06/01/05
 © Primavera Systems, Inc.

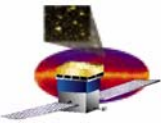
GLAST LAT PROJECT
Level 3 Milestones
Baseline Variance (Organized by Subsystem)

LT-DZ: Baseline Variance
 FL-D4: AV: Level 3 Milestones
 Report #10
 Sheet 6



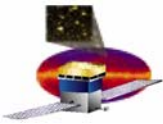
Level 3 Milestone List

Activity Description	Baseline Finish	-2m Var	-1m Var	Bsln Var	Early Finish	2005						2006				
						F	M	A	M	J	J	A	S	O	N	D
TEM/PS 5																
Flight TEM Assy 5: Elec to I&T	05/20/05	0	-7	-10	06/06/05				▼							
Flight TEM PS Assy 5: Elec to I&T	05/20/05	0	-7	-10	06/06/05				▼							
TEM/PS 6																
Flight TEM Assy 6: Elec to I&T	05/27/05	0	-2	-10	06/13/05				▼							
Flight TEM PS Assy 6: Elec to I&T	05/27/05	0	-2	-10	06/13/05				▼							
TEM/PS 7																
Flight TEM Assy 7: Elec to I&T	06/06/05	0	-2	-9	06/17/05				▼							
Flight TEM PS Assy 7: Elec to I&T	06/06/05	0	-2	-9	06/17/05				▼							
TEM/PS 8																
Flight TEM Assy 8: Elec to I&T	06/13/05	0	3	-4	06/17/05				▼							
Flight TEM PS Assy 8: Elec to I&T	06/13/05	0	3	-4	06/17/05				▼							
TEM/PS 9																
Flight TEM Assy 9: Elec to I&T	06/20/05	0	3	-4	06/24/05				▼							
Flight TEM PS Assy 9: Elec to I&T	06/20/05	0	3	-4	06/24/05				▼							
TEM/PS 10																
Flight TEM Assy 10: Elec to I&T	06/27/05	0	8	1	06/24/05				▼							
Flight TEM PS Assy 10: Elec to I&T	06/27/05	0	8	1	06/24/05				▼							
TEM/PS 11																
Flight TEM Assy 11: Elec to I&T	07/05/05	0	8	1	07/01/05				▼							
Flight TEM PS Assy 11: Elec to I&T	07/05/05	0	8	1	07/01/05				▼							



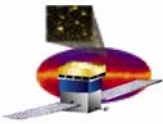
Level 3 Milestone List

Activity Description	Baseline Finish	-2m Var	-1m Var	Bsln Var	Early Finish	2005												2006					
						F	M	A	M	J	J	A	S	O	N	D	E	J	A	F	M	A	M
TEM/PS 12																							
Flight TEM Assy 12: Elec to I&T	07/12/05	0	13	6	07/01/05							▼											
Flight TEM PS Assy 12: Elec to I&T	07/12/05	0	13	6	07/01/05							▼											
TEM/PS 13																							
Flight TEM Assy 13: Elec to I&T	07/19/05	0	13	6	07/11/05							▼											
Flight TEM PS Assy 13: Elec to I&T	07/19/05	0	13	6	07/11/05							▼											
TEM/PS 14																							
Flight TEM Assy 14: Elec to I&T	07/26/05	0	18	11	07/11/05							▼											
Flight TEM PS Assy 14: Elec to I&T	07/26/05	0	18	11	07/11/05							▼											
TEM/PS 15																							
Flight TEM Assy 15: Elec to I&T	08/02/05	0	18	11	07/18/05							▼											
Flight TEM PS Assy 15: Elec to I&T	08/02/05	0	18	11	07/18/05							▼											
TEM/PS 16																							
Flight TEM Assy 16: Elec to I&T	08/09/05	0	23	16	07/18/05							▼											
Flight TEM PS Assy 16: Elec to I&T	08/09/05	0	23	16	07/18/05							▼											
Elex Global Items																							
Flight PDU Box-Elec to I&T	07/01/05	-13	-36	-64	10/03/05							▼								▼			
Flight Harness-Elec to I&T	07/05/05	0	0	-8	07/15/05							▼											
Flight GASU Box-Elec to I&T	07/19/05	-19	-36	-42	09/16/05							▼								▼			
LCB Flight Units - Elec to Elec	07/20/05	-16	-18	-44	09/21/05							▼								▼			
Flight Event Processor Units-Elec to	08/19/05	-16	-11	-43	10/20/05							▼								▼			
Run Date 06/23/05 16:47						GLAST LAT PROJECT Level 3 Milestones Baseline Variance (Organized by Subsystem)						LT-DZ: Baseline Variance						Report #10					
Data Date 06/01/05												FL-D4: AV: Level 3 Milestones						Sheet 8					



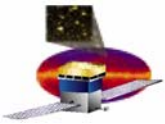
Level 3 Milestone List

Activity Description	Baseline Finish	-2m Var	-1m Var	Bsln Var	Early Finish	2005												2006						
						F	E	M	A	M	J	J	A	S	E	O	N	D	E	J	A	F	E	M
Elex Global Items																								
1st Flight EPU/SIU-Elec to I&T	08/19/05	-16	-11	-38	10/13/05																			
2nd Flight EPU/SIU-Elec to I&T	08/24/05	-16	-11	-40	10/20/05																			
3rd Flight EPU/SIU-Elec to I&T	08/26/05	-15	-10	-41	10/25/05																			
4th Flight EPU/SIU-Elec to I&T	08/30/05	-16	-11	-44	11/01/05																			
5th Flight EPU/SIU-Elec to I&T	09/02/05	-14	-9	-46	11/08/05																			
Flight Software																								
Demo: Spacecraft Interfaces	02/14/05	0	0	0	02/14/05A	▼																		
Demo: Thermal Control	02/16/05	0	0	0	02/16/05A	▼																		
Demo: Inter-task Communications	03/11/05	-25	-25	-25	04/15/05A		▼																	
Demo: Housekeeping	03/18/05	-30	-37	-37	05/10/05A			▼																
Demo: Event Filtering	03/23/05	9	9	9	03/10/05A				▼															
Demo: Watchdog	04/15/05	-5	-15	-15	05/06/05A					▼														
Demo: Mode Control	04/22/05	-20	-29	-44	06/24/05						▼													
Demo: Charge Injection Calibration	04/29/05	-20	-29	-44	07/01/05							▼												
Demo: Event Integrity and Delivery	05/06/05	-19	-29	-24	06/10/05								▼											
Demo: Diagnostics	05/06/05	-19	-29	-47	07/14/05									▼										
Demo: GRB Detection and Response	05/20/05	-14	-48	-48	07/29/05										▼									

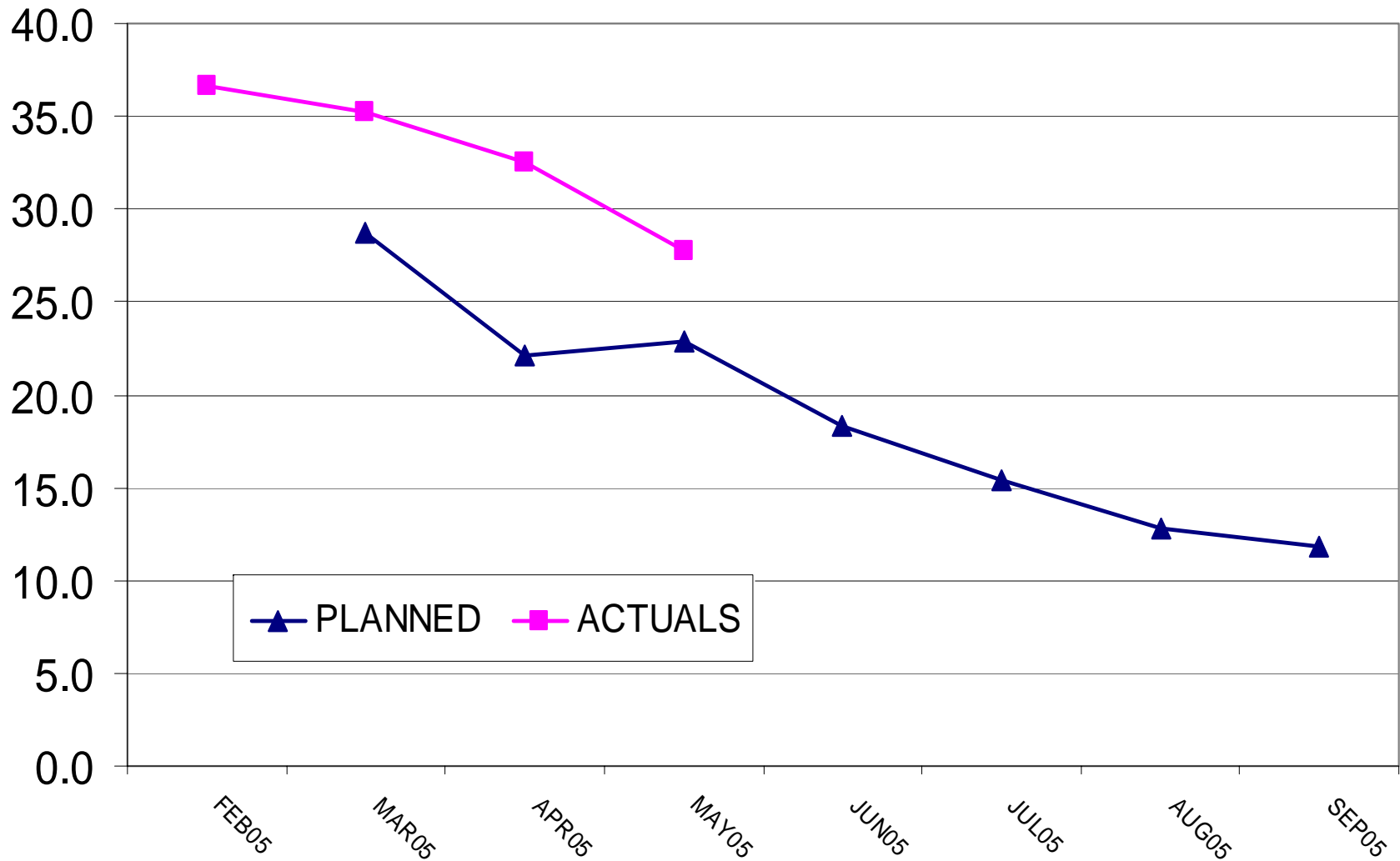


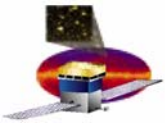
Cost Report

Reporting Category	Cost Incurred				Estimated Cost			Estimated Final Cost		Unfilled Orders Outstanding
	During Month		Cum. to Date		Detail		Balance of Contract	Contractor Estimate	Contract Value	
	Actual	Planned	Actual	Planned	JUN05	JUL05				
4.1.7 ELECTRONICS										
4.1.7 ELECTRONICS	0	0	353	354	0	0	1	354	354	0
4.1.7.1 ELECTRONICS MANAGEMENT	39	46	1,919	1,879	49	44	57	2,069	2,069	0
4.1.7.2 RELIABILITY & QUALITY ASSURANCE	0	0	223	220	0	0	-3	220	220	0
4.1.7.3 ELECTRONICS SYSTEM DESIGN	0	0	733	733	0	0	0	733	733	0
4.1.7.4 DATAFLOW ELECTRONICS (TEMs + PROCESSOR FAR	152	338	10,043	10,263	183	170	402	10,797	10,797	342
4.1.7.5 SPACECRAFT INTERFACE UNIT	29	286	1,670	1,933	178	66	341	2,256	2,256	202
4.1.7.6 POWER CONDITIONING	68	126	2,055	2,289	82	4	234	2,375	2,375	183
4.1.7.7 ENCLOSURES	13	0	679	643	0	0	-37	643	643	7
4.1.7.8 CABLE HARNESS	24	106	333	593	49	7	260	649	649	253
4.1.7.9 FLIGHT SOFTWARE	230	188	5,505	5,413	178	98	54	5,835	5,835	8
4.1.7.A EGSE & OPERATIONS	0	0	2,491	2,573	0	0	81	2,573	2,573	17
4.1.7.C INSTRUMENT INTEGRATION & TEST	44	46	144	202	49	44	155	392	392	17
CAPW[3]Totals:	597	1,137	26,148	27,094	767	434	1,546	28,894	28,894	1,029



FTE Report (DOE/NASA-funded only)





FTE Variance Explanation

- **In general delays at flight assembler, caused mainly by unexpected large effort put into cPCI assembly tests**
- **Caused delays of all modules at that assembler since resources were concentrated on connector tests**
- **Because of delays man-power to test can not be reduced at this time, since tests are still outstanding**
- **Impact in schedule and cost**