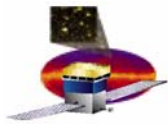


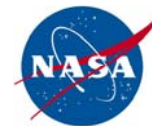
**GLAST Large Area Telescope:  
Face to Face Meeting  
February 16, 2005  
AntiCoincidence Detector (ACD)  
Subsystem  
WBS: 4.1.6**

**David J. Thompson  
Thomas E. Johnson  
NASA Goddard Space Flight Center  
Subsystem Manager/Instrument Manager**

**David.J.Thompson@nasa.gov  
Thomas.E.Johnson@nasa.gov**



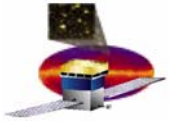
# Significant Accomplishments in January



- ◆ ***Completed installation of 2<sup>nd</sup> side row Tile Detector Assemblies. This brings the total number of installed TDAs to 65. Remaining 24 TDAs are installed after integration of the Electronics Chassis.***



- ◆ ***Completed a performance simulation using “as built” gaps between detectors and “as measured” performance data for the flight detector chain (Tile Detector Assemblies and fiber cables). The ACD efficiency requirement of 0.9997 was met!***
- ◆ ***PMT assembly progressing well. Issues with quality and delivery rate of mechanical housings has impacted final completion date for the PMT assemblies, however all flight PMT assemblies will be completed by the end of February, 2005.***



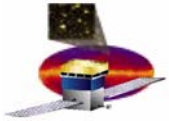
# Significant Accomplishments in January



- ◆ ***Completed the assembly and functional testing of the first and second Electronics Chassis. The first Electronics Chassis has completed vibration testing and started thermal vacuum testing on February 10. Following these two environmental tests, it will be integrated into the ACD. The third flight EC has been assembled and is in functional testing.***



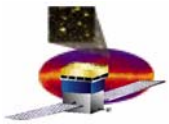
- ◆ ***Completed Thermal Vacuum testing of the Qual/Spare Electronics Chassis. Twelve thermal cycles were completed.***



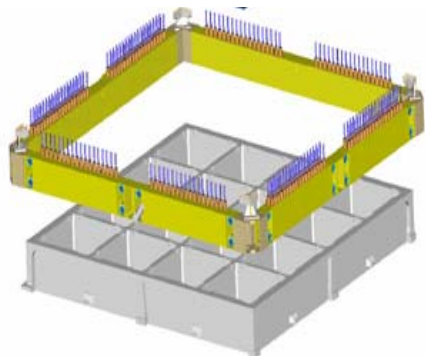
# Near Term Milestones



<b>Milestone Description</b>	<b>Date</b>	<b>New Date</b>	<b>Status/Notes</b>
<b>Complete PMT Assembly</b>	<b>January, 2004</b>	<b><u>2/21/05</u> <u>2/25/05</u></b>	<b><i>Mechanical parts availability and quality has impacted completion.</i></b>
<b>Complete Flight Mechanical Drawings</b>	<b>September</b>	<b><u>12/23/04</u> <u>2/18/05</u></b>	<b><i>One assembly drawings remains. Designer has been focused on problem resolution, revisions, and EOs.</i></b>
<b>Thermal vacuum test Qual/Flight Spare Electronic Chassis using fully functional EGSE</b>	<b>12/15/04</b>	<b><u>TBD</u> <u>1/24/05</u></b>	<b><u><i>COMPLETE. Open liens due to EGSE issues.</i></u></b>
<b>Complete 1<sup>st</sup> Electronic Chassis Assembly and Functional Test</b>	<b>1/26/05</b>	<b><u>2/3/05</u></b>	<b><u><i>COMPLETE. Open liens due to EGSE issues</i></u></b>
<b>Flight TSA integration complete (except 2 bottom rows)</b>	<b>1/28/05</b>		<b><u><i>COMPLETE</i></u></b>
<b>(4) electronic chassis vib/ tvac tested and RFI</b>	<b>3/5/05</b>		<b><u><i>On schedule. Status on next slide.</i></u></b>
<b>(4) electronic chassis vib/ tvac tested and RFI</b>	<b>3/28/05</b>	<b><u>3/12/05</u></b>	<b><u><i>Electonnic Chassis testing descopes accelerated schedule</i></u></b>
<b>ACD Integration Complete</b>	<b>4/6/05</b>	<b><u>3/23/05</u></b>	<b><u><i>Electonnic Chassis testing descopes accelerated schedule</i></u></b>
<b>ACD Functional Test</b>	<b>4/13/05</b>	<b><u>3/30/05</u></b>	<b><u><i>Electonnic Chassis testing descopes accelerated schedule</i></u></b>



# Electronics Chassis Assembly and Test Plan – Completion Dates



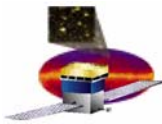
Base Electronics Assembly (1)

8X  
←

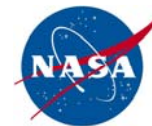


Electronics Chassis (8) (4 double + 4 single)

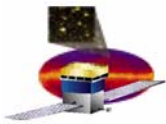
<i>Electronics Chassis</i>	<i>Assembly</i>	<i>EMI/EMC</i>	<i>Vibration</i>	<i>Thermal Vacuum</i>
<i>Qualification / Flight Spare</i>	<i>Complete</i>	<i>Qualification (completed)</i>	<i>Qualification (completed)</i>	<i>12 cycles (completed)</i>
<i>#1</i>	<i>Complete</i>	<i>Not planned</i>	<i>Complete</i>	<i>Complete</i>
<i>#2</i>	<i>Complete</i>	<i>Not planned</i>	<i>2/19/05</i>	<i>2/26/05</i>
<i>#3</i>	<i>Complete</i>	<i>Not planned</i>	<i>2/25/05</i>	<i>3/4/05</i>
<i>#4</i>	<i>2/15/05</i>	<i>Not planned</i>	<i>2/25/05</i>	<i>3/4/05</i>
<i>#5</i>	<i>2/17/05</i>	<i>Not planned</i>	<i>3/2/05</i>	<i>3/10/05</i>
<i>#6</i>	<i>2/23/05</i>	<i>Not planned</i>	<i>3/9/05</i>	<i>Descoped</i>
<i>#7</i>	<i>3/1/05</i>	<i>Not planned</i>	<i>3/11/05</i>	<i>Descoped</i>
<i>#8</i>	<i>3/2/05</i>	<i>Not planned</i>	<i>3/11/05</i>	<i>Descoped</i>



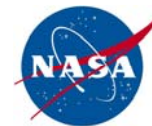
# PMT Assembly - Schedule of Events

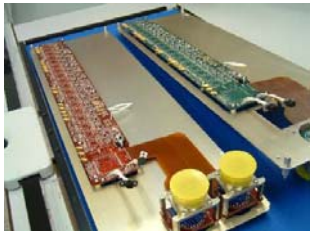




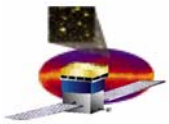
PMT QTY.	Cleaning (Materials)	Mechanical Assembly	Electrical Asm. & Test	Thermal Cycle	Coating & Enclosures	Connector Installation	Light Tight Testing
	IN / OUT	IN / OUT	IN / OUT	IN / OUT	IN / OUT	IN / OUT	IN / OUT
1 - 10	Done	Done	Done	Done	Done	Done	Done
11 - 17	Done	Done	Done	12/3 / 12/6	12/6 / 12/10	12/10 / 12/13	12/13 / 12/13
18 - 33	Done	Done	11/30 / 12/3	12/3 / 12/6	12/6 / 12/10	12/10 / 12/13	12/14 / 12/15
34 - 64	12/1 / 12/2	12/6 / 12/10	12/8 / 12/15	12/15 / 12/16	12/16 / 12/30	1/3 / 1/5	1/6 / 1/8
65 - 95	12/2 / 12/3	12/13 / 12/17	12/15 / 12/21	12/22 / 12/23	12/27 / 1/5	1/5 / 1/6	1/7 / 1/10
96 - 126	12/6 / 12/7	12/20 / 12/30	12/22 / 12/28	12/29 / 12/30	1/3 / 1/10 > 2/1 / 2/8	1/11 / 1/13 > 2/9 / 2/10	1/13 / 1/15 > 2/11 / 2/14
127 - 157 > 127 - 150	12/6 / 12/7	1/3 / 1/7 > 1/31	1/5 / 1/11 > 1/31 / 2/3	1/12 / 1/13 > 2/4 / 2/5	1/13 / 1/1/21 > 2/7 / 2/12	1/24 / 1/25 > 2/14 / 2/14	1/26 / 1/28 > 2/14 / 2/15
158 - 188 > 151 - 174	12/7 / 12/8	1/10 / 1/14 > 2/1 / 2/6	1/12 / 1/19 > 2/7 / 2/10	1/20 / 1/21 > 2/10 / 2/11	1/21 / 1/28 > 2/11 / 2/18	1/28 / 1/31 > 2/18 2/21	2/1 / 2/4 > 2/22 / 2/23
189 - 209 > 175 - 200	12/7 / 12/8	1/18 / 1/21 > 2/7 / 2/16	1/20 / 1/26 > 2/14 - 2/17	1/27 / 1/28 > 2/17 / 2/18	1/31 / 2/4 > 2/19 / 2/24	2/7 / 2/8 > 2/24 / 2/24	2/9 / 2/11 > 2/24 / 2/25



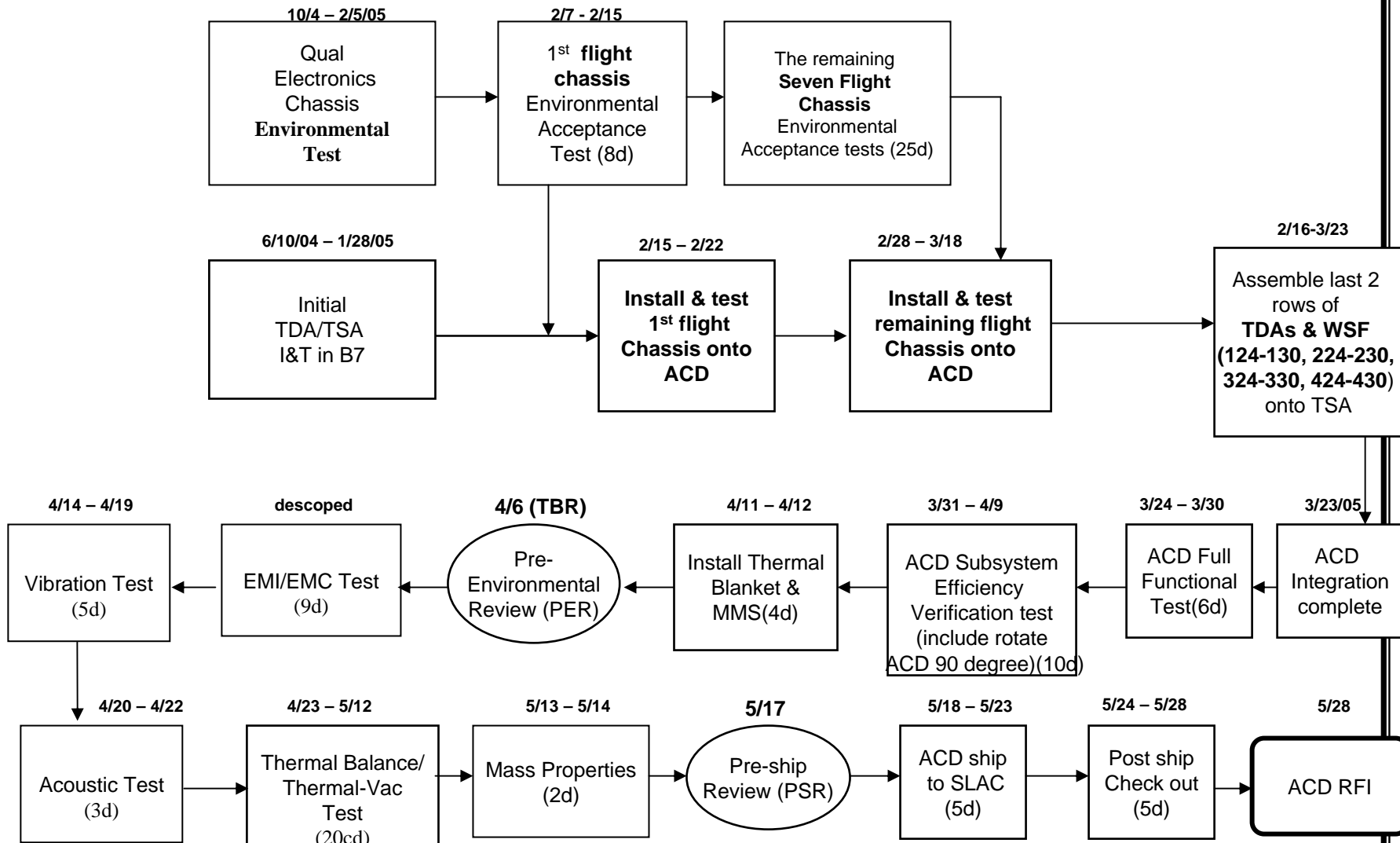
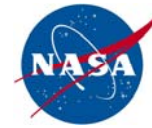
# Electronic Component Status



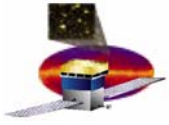
<b>ITEM</b>	<b>Quantity Required Flight (Spare)</b>	<b>Assembly Complete</b>	<b>Functional Testing</b>	<b>Conformal Coating</b>	<b>Thermal Testing</b>	<b>Ready for next assembly</b>
<b>Front End Electronics Boards</b> 	<b>12 (4)</b>	<b>16</b>	<b>16</b>	<b>16</b>	<b>16</b>	<b>16</b>
<b>High Voltage Bias Supply</b> 	<b>24 (6)</b>	<b>30</b>	<b>30</b>	<b>30</b>	<b>30</b>	<b>30</b>
<b>Photomultiplier Tube Assembly</b> 	<b>194 (40)</b>	<b>178</b>	<b>140</b>	<b>140</b>	<b>178</b>	<b>140</b>



# Schedule Flow



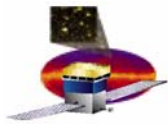




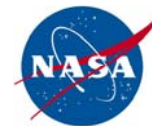
# Threats to Schedule



- **Testing.** The ACD schedule from here to delivery is dominated by testing of electronics chassis and then the full ACD. We do not yet have all the test scripts we need, due to a long series of problems with script development, some of our own making and some due to issues with LATTE (two updates delivered in January) and the test stand hardware (ACD has four different models of the GASU).
- **EMI Waivers.** Two aspects:
  - The ACD qualification chassis did not meet all the EMI/EMC requirements. There are no simple fixes. We will be requesting a waiver on these emissions requirements.
  - The principal ACD descope is to eliminate EMI testing at the full ACD level. This change requires a waiver of this test requirement.



## ACD Problem /Failure Report Status



As of 2/4/05 a total of 144 PR's have been generated.

- ▶ 131 PR's have been closed
- ▶ 13 PR's open

A total of 12 PFR's have been generated.

- ▶ 2 PFR's are open.
  - ▶ 2 Yellow
- ▶ 10 PFR's closed