


**Gamma-ray Large  
Area Space  
Telescope**



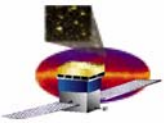
# **GLAST Large Area Telescope**

**Instrument Flight Software  
Quick Look Review  
21 November 2003**

## **Schedule**

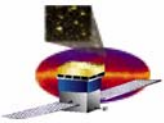
**Presenting for the FSW group:  
Gunther Haller  
Stanford Linear Accelerator Center  
Manager, Electronics, DAQ & FSW  
LAT Chief Electronics Engineer**

**[haller@slac.stanford.edu](mailto:haller@slac.stanford.edu)  
(650) 926-4257**



# Schedule (1 of 10)

Activity ID	Activity Description	Early Start	Early Finish	Schedule											
				FY03 Q4	FY04 Q1	FY04 Q2	FY04 Q3	FY04 Q4	FY05 Q1	FY05 Q2	FY05 Q3	FY05 Q4	FY06 Q1		
<b>4 GLAST INSTRUMENTS</b>															
<b>4.1 GLAST LAT PROJECT</b>															
<b>4.1.7 ELECTRONICS</b>															
<b>4.1.7.9 FLIGHT SOFTWARE</b>															
<b>4.1.7.9.3 ENGINEERING MODEL 1</b>															
<b>4.1.7.9.3.8 EM1 CODE DESIGN/DEVELOP</b>															
7EN9380000	iN: EM1 Hardware Specification		07OCT02A												
7EN9381000	SIU/EPU Common Application Code	22JAN03A	06OCT03												
7EN9381010	(PBS) Basic Services	22JAN03A	06OCT03												
7EN9381020	(LIO) LAT LCB I/O driver	22JAN03A	01OCT03												
7EN9382000	SIU Specific Application Code	22JAN03A	20OCT03												
7EN9382030	(LCP) LAT Commanding (EM1)	22JAN03A	20OCT03												
7EN9382040	(SOP) Event Output	22JAN03A	20OCT03												
7EN9382050	(SMP) Event Monitoring	22JAN03A	20OCT03												
7EN9382060	(HSK) Housekeeping (EM1)	22JAN03A	06OCT03												
7EN9382070	(MSG) Error Reporting (EM1)	22JAN03A	14OCT03												
7EN9383000	FSW Ready for CDR Review		28FEB03A												
7EN9383100	iA: EM1 Code Design/Develop Complete		20OCT03												
7EN9383110	iN: EM1 Code Design/Develop Complete		20OCT03												
<b>4.1.7.9.3.9 EM1 CODE DEVELOP/TEST</b>															
7EN9390000	iN: EM1 Hardware for Develop/Test (Early)		30SEP03*												
7EN9390010	iN: EM1 Hardware for Develop/Test (Late)		20OCT03*												
7EN9391000	SIU/EPU Common Application Code	01OCT03	13NOV03												
7EN9391005	(PBS) Basic Services	07OCT03	13NOV03												
7EN9391010	(LIO) LAT LCB I/O driver	02OCT03	30OCT03												
7EN9392000	SIU Specific Application Code	21OCT03	24NOV03												
7EN9392010	(GNAT) LAT DAQ command/response	21OCT03	30OCT03												
7EN9392020	(GCFG) DAQ Configuration (EM1)	21OCT03	30OCT03												
7EN9392030	(LCP) LAT Commanding (EM1)	21OCT03	24NOV03												
7EN9392040	(SOP) Event Output	21OCT03	24OCT03												
7EN9392050	(SMP) Event Monitoring	21OCT03	24NOV03												
7EN9392060	(HSK) Housekeeping (EM1)	21OCT03	30OCT03												
7EN9392070	(MSG) Error Reporting (EM1)	15OCT03	05JAN04												
7EN9393100	iA: EM1 Code Develop/Test Complete		05JAN04												
7EN9393110	EM1 Final Code Release		05JAN04												



# Schedule (2 of 10)

Activity ID	Activity Description	Early Start	Early Finish	FY03 - FY06													
				FY03				FY04				FY05				FY06	
				Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
<b>4.1.7.9.3.A EM1 UNIT TEST</b>																	
7EN93A0000	EM1 Unit Testing Start	27OCT03															
7EN93A1000	EM1 Unit Testing	27OCT03	07JAN04														
7EN93A1010	(PBS) Basic Services	14NOV03	17NOV03														
7EN93A1020	(LIO) LAT LCB I/O driver	31OCT03	03NOV03														
7EN93A1030	(LCP) LAT Commanding (EM1)	25NOV03	26NOV03														
7EN93A1040	(SOP) Event Output	27OCT03	28OCT03														
7EN93A1050	(SMP) Event Monitoring	25NOV03	26NOV03														
7EN93A1060	(HSK) Housekeeping (EM1)	31OCT03	03NOV03														
7EN93A1070	(MSG) Error Reporting (EM1)	06JAN04	07JAN04														
7EN93A3100	iA: EM1 Unit Testing Complete		07JAN04														
7EN93A3110	EM1 Unit Testing Complete		07JAN04														
<b>4.1.7.9.3.B EM1 FORMAL TESTING</b>																	
7EN93B0000	ND: EM1 Mini-Tower (from I&T)		01DEC03*														
7EN93B0050	Write Test Scripts	01OCT03*	11DEC03														
7EN93B1000	EM1 Formal Test	08JAN04	22JAN04														
7EN93B1010	Narrowband Telemetry Verification	08JAN04	14JAN04														
7EN93B1020	SIU/EPU CPU-to-CPU Comms Functional Test	08JAN04	14JAN04														
7EN93B1030	SIU/EPU Internal Configuration Test	08JAN04	14JAN04														
7EN93B1040	DAQ Internal Configuration Test	08JAN04	14JAN04														
7EN93B1050	TKR Internal Configuration Test	08JAN04	14JAN04														
7EN93B1060	CAL Internal Configuration Test	08JAN04	14JAN04														
7EN93B1070	Event Filtering Algorithm Verification	08JAN04	14JAN04														
7EN93B1080	Electronic Verification	08JAN04	14JAN04														
7EN93B1090	FSW & LAT Verification	08JAN04	14JAN04														
7EN93B3100	iA: EM1 Formal Test Complete		14JAN04														
7EN93B3110	EM1 Formal Test Complete		22JAN04														
<b>4.1.7.9.3.C EM1 DOCUMENTATION</b>																	
7EN93C0000	EM1 Documentation Start	01OCT03*															
7EN93C1000	EM1 Documentation	01OCT03	22JAN04														
7EN93C1010	Version Description Document	01OCT03	07OCT03														
7EN93C1020	EM1 Test Report	01OCT03	07OCT03														
7EN93C1030	Design Document	01OCT03	07OCT03														
7EN93C3100	iA: EM1 Documentation Complete		07OCT03														
7EN93C3110	EM1 Documentation Complete		22JAN04														

Start Date 03APR00  
 Finish Date 29SEP06  
 Data Date 01OCT03  
 Run Date 14NOV03 10:23

LAT4 - 7ELE

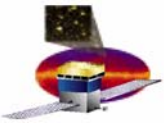
## FSW Schedule

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LT-DW: jd/Flight Software Schedule  
 FL-DW

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# Schedule (4 of 10)

Activity ID	Activity Description	Early Start	Early Finish	Schedule													
				FY03 Q4	FY04				FY05				FY06 Q1				
7EN94D2040	(ELC) Calibration (slave) (EM2)	22DEC03	19MAR04			▲	▼										
7EN94D2050	(ECP) Command/control (EM2)	24NOV03	28JAN04			▲	▼										
7EN94D3000	SIU Specific Application Code	10OCT03	14MAY04			▲	▼										
7EN94D3020	(GCFG) DAQ Configuration (EM2)	20NOV03	11DEC03			▲	▼										
7EN94D3030	(LCP) LAT Commanding (EM2)	04DEC03	10DEC03			▲	▼										
7EN94D3040	(SOP) Event Output (EM2)	10NOV03	21NOV03			▲	▼										
7EN94D3050	(SMP) Event Monitoring (EM2)	21NOV03	05JAN04			▲	▼										
7EN94D3060	(SCL) Calibration (master) (EM2)	20NOV03	22JAN04			▲	▼										
7EN94D3070	(HSK) Housekeeping (EM2)	07JAN04	03MAR04			▲	▼										
7EN94D3080	(THP) Trends/bounds check (EM2)	15OCT03	28OCT03			▲	▼										
7EN94D3090	(MCP) Mode control (EM2)	13OCT03	22OCT03			▲	▼										
7EN94D4010	iA: EM2 Code Develop/Test Complete		19MAR04														
7EN94D4020	EM2 Final Code Release		14MAY04														
<b>4.1.7.9.4.E EM2 UNIT TESTING</b>																	
7EN94E0000	EM2 Unit Testing Start	21OCT03				◆											
7EN94E1000	EM2 Unit Testing	21OCT03	23MAR04			▲	▼										
7EN94E1010	(FMP) File Management	24NOV03	25NOV03			▲	▼										
7EN94E1020	(CHP) CPU Housekeeping (EM2)	21OCT03	22OCT03			▲	▼										
7EN94E1030	(SWD) Software Watchdog Timer (EM2)	29OCT03	30OCT03			▲	▼										
7EN94E1040	(HUT) Histogram Utility (EM2)	31OCT03	03NOV03			▲	▼										
7EN94E1050	(EDP) Event Dispatcher (EM2)	26NOV03	01DEC03			▲	▼										
7EN94E1060	(EOP) Event Output (EM2)	04NOV03	05NOV03			▲	▼										
7EN94E1070	(EMP) Event Monitoring (EM2)	04DEC03	05DEC03			▲	▼										
7EN94E1080	(ELC) Calibration (client) (EM2)	22MAR04	23MAR04														
7EN94E1090	(ECP) Command/control (EM2)	29JAN04	30JAN04														
7EN94E1100	(SSR) SSR services (EM2)	21OCT03	22OCT03			▲	▼										
7EN94E1110	(GCFG) DAQ Configuration (EM2)	12DEC03	15DEC03			▲	▼										
7EN94E1120	(LCP) LAT Commanding (EM2)	11DEC03	12DEC03			▲	▼										
7EN94E1130	(SOP) Event Output	24NOV03	25NOV03			▲	▼										
7EN94E1140	(SMP) Event Monitoring	06JAN04	07JAN04			▲	▼										
7EN94E1150	(SCL) Calibration (server) (EM2)	23JAN04	26JAN04			▲	▼										
7EN94E1160	(HSK) Housekeeping (EM2)	04MAR04	05MAR04														
7EN94E1170	(THP) Trends/bounds check (EM2)	29OCT03	30OCT03			▲	▼										
7EN94E1180	(MCP) Mode control (EM2)	23OCT03	24OCT03			▲	▼										
7EN94E3100	iA: EM2 Unit Testing Complete		23MAR04														
7EN94E3110	EM2 Unit Testing Complete		23MAR04														

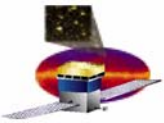
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 Finish Date 29SEP06  
 Data Date 01OCT03  
 Run Date 14NOV03 10:23

LAT4 - 7ELE

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LT-DW: jd/Flight Software Schedule  
 FL-DW

## FSW Schedule



# Schedule (5 of 10)

Activity ID	Activity Description	Early Start	Early Finish	FY03 FY04 FY05 FY06												
				FY03				FY04				FY05				FY06
				Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1			
<b>4.1.7.9.4.F EM2 FORMAL TEST</b>																
7EN94F0050	Write Test Scripts	17FEB04*	16APR04													
7EN94F1000	EM2 Formal Test (19 tests/FSW Test Plan)	17MAY04	15JUL04													
7EN94F3100	EM2 Formal Test Complete		15JUL04													
<b>4.1.7.9.4.G EM2 DOCUMENTATION</b>																
7EN94G0000	EM2 Documentation Start	01OCT03*														
7EN94G1000	EM2 Documentation	01OCT03	15JUL04													
7EN94G1010	Verify Description Document	01OCT03	07OCT03													
7EN94G1020	EM2 Test Report	01OCT03	07OCT03													
7EN94G1030	Design Document	01OCT03	07OCT03													
7EN94G3100	iA: EM2 Documentation Complete		07OCT03													
7EN94G3110	EM2 Documentation Complete		15JUL04													
<b>4.1.7.9.6 FLIGHT UNIT</b>																
<b>4.1.7.9.6.1 FU CODE DESIGN/DEVELOP</b>																
7EN9610000	iN: Flight Code Inputs Available		30SEP03													
7EN9610010	iN: Test Bed for FSW Use		02FEB04*													
7EN9611000	SIU/EPU Common Application Code	03FEB04	19OCT04													
7EN9611010	(CHP) CPU Housekeeping	03FEB04	13FEB04													
7EN9611020	(SWD) Software Watchdog Timer	03FEB04	10FEB04													
7EN9611030	(HUT) Histogram Utility	03FEB04	04MAR04													
7EN9612000	EPU Specific Application Code	03FEB04	19OCT04													
7EN9612010	(EDP) Event Dispatcher	03FEB04	10FEB04													
7EN9612020	(EOP) Event Output	03FEB04	23MAR04													
7EN9612030	(EMP) Event Monitoring	03FEB04	04MAR04													
7EN9612040	(ELC) Calibration (client)	03FEB04	10FEB04													
7EN9612050	(ECP) Command/control	03FEB04	09FEB04													
7EN9613000	SIU Specific Application Code	03FEB04	19OCT04													
7EN9613010	(SSR) SSR services	03FEB04	10FEB04													
7EN9613020	(GCFG) DAQ Configuration	03FEB04	11FEB04													
7EN9613030	(LCP) LAT Commanding	03FEB04	06FEB04													
7EN9613040	(SOP) Event Output	03FEB04	03FEB04													
7EN9613050	(SMP) Event Monitoring	03FEB04	06FEB04													
7EN9613060	(SCL) Calibration (server)	03FEB04	06FEB04													
7EN9613070	(HSK) Housekeeping	03FEB04	17FEB04													
7EN9613080	(THP) Trends/bounds check	03FEB04	17FEB04													
7EN9613090	(MCP) Mode control	03FEB04	12FEB04													
7EN9614000	iA: FU Code Design/Develop Complete		23MAR04													

Start Date  
Finish Date  
Data Date  
Run Date

03APR00  
29SEP06  
01OCT03  
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LAT4 - TELE

## FSW Schedule

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LT-DW: jd/Flight Software Schedule  
FL-DW

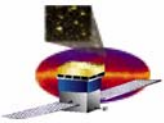
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Activity ID	Activity Description	Early Start	Early Finish	Fiscal Year Breakdown												
				FY03 Q4	FY04 Q1	FY04 Q2	FY04 Q3	FY04 Q4	FY05 Q1	FY05 Q2	FY05 Q3	FY05 Q4	FY06 Q1			
7EN9900050	Data-set management	01OCT03	25NOV03		▲											
7EN9903000	Front End Simulator Complete		03MAR04			◆										

Start Date	03APR00	LAT4 - 7ELE	Sheet 10 of 10	LT-DW: jd/Flight Software Schedule
Finish Date	29SEP06			FL-DW
Data Date	01OCT03			
Run Date	14NOV03 10:23			

**FSW Schedule**

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