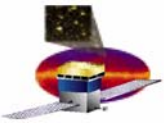


GLAST Large Area Telescope:

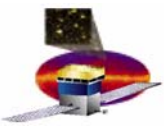
LAT System Engineering
LAT Quality Assurance

Pat Hascall
Joe Cullinan



Topics

- **NCR Metrics**
- **Significant NCRs**
- **NCR List**



LAT NCR Metrics 1/05/06

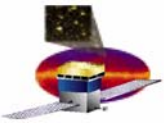
Subsystem	Open NCRs	Closed NCRs last 30 days	NCRs Open 30 days or more	NCRs open 90 days or more	NCRs ready to close (disposition complete; need final QA/MRB review to close)
DAQ	59	10	43	22	20
Tracker	7	18	7	7	7
Mechanical	6	1	4	3	6
CAL	0	0	0	0	0
ACD*	12*	0	10	0	0
I&T	45	5	26	19	19

* includes 5 open ACD PRs and PFRs from GSFC



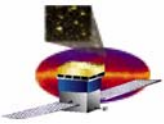
I&T NCR Metrics

Open I&T NCRs	45
NCRs Ready to Close (analysis complete, need final QA/MRB review to close)	19
NCRs with Analysis in Progress	24
NCRs to remain open to monitor trend or performance	2



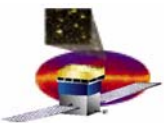
NCR 783

- **Anomaly Description**
 - Sweep events (essentially solicited events) do not complete as expected in the redundant configuration
- **Investigation**
 - Traced to the TEM in Bay 8 holding the busy flag high after power on and configuration to the redundant side
 - A reset clears the problem and event data flows normally
 - DAQ team has generated two theories as to the cause
- **Resolution Plan**
 - Review detailed sequence of events
 - Use spare GASU and TEM/TPS to examine the POR circuit
 - Determine best methods to examine interface between the GASU and bay 8



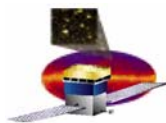
NCR 684

- **Anomaly Description**
 - **Tracker modules have occasional out-of-spec noise occupancy in isolated layers**
- **Investigation**
 - **Analysis showed similar noise at INFN**
 - **Occupancy still within spec**
- **Resolution Plan**
 - **Perform extended testing on Tracker module 8 to further characterize**



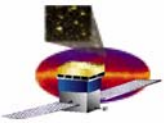
Open I&T NCR List

NCR	Opened	Affected Hardware	Problem Description	Status
297	1/29/05	TKR	High trigger jitter observed on some channels on Tower A	Final MRB required
443	4/27/05	TKR	CAL FLE trigger threshold < 250 Hz requirement, Towers 0, 4	Final MRB required
458	5/10/05	TEM/TPS	Observed GTCC and GTRC phasing errors within the TEM	Final MRB required
447	5/23/05	TEM/TPS	TEM FIFO errors observed during FMA and FMB	Final MRB required
487	5/23/05	TEM/TPS	Failed CAL script register test	Disposition required
529	6/16/05	TKR	TEM register test on PDU1 and GASU redundant failed, Twr 3	Monitor
532	6/16/05	TEM/TPS	TEM register test (Trigger Interface Controller) failed.	Final MRB required
535	6/20/05	TKR	Monitor trend data for Tower 4 thru LAT testing (spin-off NCR)	Monitor
549	6/27/05	TKR	Temperature alarm and setpoints, Bay 1	Final MRB required
550	6/27/05	TKR	TEM FIFO full errors were observed during TE704 test, Twr 5	Final MRB required
562	7/14/05	TEM/TPS	Remove GLAT 1752, 1753 from LAT for scheduled rework	QA to close
579	7/20/05	Grid	Installation of nut on shear plate studs	QA to close
592	7/29/05	Grid	TKR, CAL thermistors misorientation in odd numbered bays	QA to close
604	8/11/05	TKR	Bay 4 TkrReadingConfigurationTest failure on x0, FE0	Final MRB Required
607	8/12/05	CAL	LAT CPT- CAL section, data acquisition TEM errors	QA to Close



Open I&T NCR List

NCR	Opened	Affected Hardware	Problem Description	Status
608	8/12/05	CAL	LAT CPT - CAL, intermittent range discriminator scan failure.	QA to Close
617	8/17/05	TKR	LAT CPT- TKR section, bay 12 TkrLayerTriggerRate failure	MRB Required
648	9/13/05	ACD	I&T ACD Receiving Test - AcdGafeNoise test algorithm failure	Disposition Required
684	10/3/05	TKR	Noise Occupancy failures due to intermittent hot strips.	Disposition Required
690	10/6/05	PDU	NCR to trend LPT failures observed in box level NCR #00631.	Disposition Required
700	10/18/05	TKR	TKR FM15 failed TKR Noise Occupancy and Trigger Rate.	MRB Required
732	11/3/05	Integration	Spider surface should be flush surface of the TPS.	QA to Close
741	11/11/05	Integration	HIB Cables to short or wrong orientation.	QA to Close
743	11/13/05	Integration	EMI shield mechanical tolerances not met.	Disposition Required
744	11/13/05	Integration	X-LAT plate mechanical hole tolerances not met.	Disposition Required
753	11/23/05	Integration	LAT Instrument Assy ACD #6 screws not torqued or striped.	QA to Close
765	12/5/05	Integration	X-LAT Heat pipe shims bonding fixture cannot be removed.	MRB Required
767	12/6/05	Integration	Doghouse +X panel incorrect PEM not spacing.	QA to Close
768	12/6/05	Integration	Cannot mate ACD cable assy to RF shield.	MRB Required
769	12/6/05	Integration	ACD cable assy to temp sensor clocking is incorrect.	MRB Required
772	12/7/05	Integration	Flight cables not labelled correctly.	QA to Close



Open I&T NCR List

NCR	Opened	Affected Hardware	Problem Description	Status
774	12/8/05	Integration	Cannot mate harness LAT-DS-02092-53.	MRB Required
775	12/9/05	Integration	DAQ-ACD external cable assy to chiller plate interference.	QA to Close
777	12/13/05	Integration	DAQ-ACD Internal RF shield to GASU cable rework.	MRB Required
783	12/15/05	ACD	ACD data taking sweep event errors	MRB Required
785	12/20/05	GASU	GASU register test, GEM cr_statistics intermittent failure.	Disposition Required
787	12/20/05	ACD	ACD CPT crashes run control	Disposition Required
788	12/21/05	GASU	GASU AEM temperature alarm	Disposition Required
789	12/21/05	TKR	TKR test software isn't reading in bad channel lists	Disposition Required
790	12/21/05	Integration	Cannot mate LAT-DS-02094 harness to +X Doghouse holes.	Disposition Required
791	12/22/05	ACD	ACD CPT script turns off/on all TEMs simultaneously	Disposition Required
793	12/28/05	ACD	GARC digital 3.3V current is slightly below allowed range	Disposition Required
795	12/30/05	ACD	ACD TciRegRange test gives bad linearity fits	Disposition Required
796	12/30/05	ACD	ACD TciHighRange test GARC 0 GAFE 11 Upper Gain slightly below limit.	Disposition Required
797	12/30/05	ACD	ACD long functional run 135005091 had test failures in AcdMaxPha, AcdPhaEnDis, AcdHldCal.	Disposition Required