

1 ACRONYMS AND DEFINITIONS

1.1 ACRONYMS

ACD	The LAT Anti-Coincidence Detector Subsystem
ADC	Analog-to-Digital Converter
AEM	ACD Electronics Module
ANSI/AIAA	American National Standards Institute/Aerospace Institute of Aeronautics and Astronautics
ASIC	Application Specific Integrated Circuits
BEA	Base Electronics Assembly
BFEM	Balloon Flight Engineering Model
BTEM	Beam Test Engineering Model
CAL	The LAT Calorimeter Subsystem
CIL	Critical Items List
CMOS	Complementary Metal Oxide Semiconductor
COS-B	European Gamma-ray Astronomy Satellite
CTE	Coefficient of Thermal Expansion
DAQ	Data Acquisition
DOF	Degrees of Freedom
EEE	Electrical, Electronic, and Electromechanical
EGRET	Energetic Gamma-Ray Experiment Telescope
EGSE	Electrical Ground Support Equipment
EMC	Electromagnetic Compatibility
EMI	Electromagnetic Interference
ESD	Electrostatic Discharge
FEM	Fine Element Model
FM	Flight Module
FMEA	Failure Mode Effect Analysis
FREE	Front End Electronics
GAFE	GLAST ACD Front End – Analog ASIC
GARC	GLAST ACD Readout Controller – Digital ASIC
GEVS	General Environmental Verification Specification
GLAST	Gamma-ray Large Area Space Telescope

GOLF	Global Oscillations at Low Frquencies
GUI	Graphic User Interface
HEPA	High Efficiency Particle Air
HLD	High Level Discriminator
HVBS	High Voltage Bias Supply
IC	Integrated Circuit
ICD	Interface Control Document
IDT	Instrument Development Team
I&T	Integration and Test
IRD	Interface Requirements Document
JSC	Johnson Space Center
LAT	Large Area Telescope
MECO	Main Engine Cut-off
MIP	Minimum Ionizing Particle
MGSE	Mechanical Ground Support Equipment
MLI	Multi-Layer Insulation
MOSIS	Metal Oxide Semiconductor Implementation System
MPLS	Multi-purpose Lift Sling
NPSL	NASA Parts Selection List
PAIP	Performance Assurance Implementation Plan
PAPL	Program Approved Parts List
PCB	Printed Circuit Board
PDR	Preliminary Design Review
PHA	Pulse Height Analysis
PMT	Photomultiplier Tube
PPCP	Parts Program Control Plan
PPL	Preferred Parts List
P&SA	Performance and Safety Assurance
PVM	Performance Verification Matrix
QA	Quality Assurance
RXTE	Rossi X-Ray Timing Explorer
SAM	Safety Assurance Manager
SAS	Science Analysis Software
SCL	Spacecraft Command Language

SEL	Single Event Latch-up
SEU	Single Event Upset
SINDA	Systems Improved Numerical Differencing Analyzer
SLAC	Stanford Linear Accelerator Center
S&MA	Safety and Mission Assurance
SOHO	Solar and Heliospheric Observatory
SRD	Science Requirements Document
SRR	System Requirements Review
SSC	Science Support Center
SSPP	System Safety Program Plan
TACK	Trigger Acknowledge
TDA	Tile Detector Assembly
T&DF	Trigger and Data Flow Subsystem (LAT)
TID	Total Ionizing Dose
TBD	To Be Determined
TBR	To Be Resolved
TQFP	Thin Quad Flat Package
TSA	Tile Shell Assembly
TSS	Thermal Synthesizer System
TKR	The LAT Tracker Subsystem
VME	Versa Module Eurocard
WBS	Work Breakdown Structure
WSB	Wave Shifting Bars
WSF	Wave Shifting Fibers
WOA	Work Order Authorization

1.2 Definitions

γ	Gamma Ray
μsec , μs	Microsecond, 10^{-6} second
A_{eff}	Effective Area
Analysis	A quantitative evaluation of a complete system and /or subsystems by review/analysis of collected data.
Background Rejection	The ability of the instrument to distinguish gamma rays from charged particles.
Backsplash	Secondary particles and photons originating from very high-energy gamma-

	ray showers in the calorimeter giving unwanted ACD signals.
Beam Test	Test conducted with high energy particle beams
cm	centimeter
Cosmic Ray	Ionized atomic particles originating from space and ranging from a single proton up to an iron nucleus and beyond.
Dead Time	Time during which the instrument does not sense and/or record gamma ray events during normal operations.
Demonstration	To prove or show, usually without measurement of instrumentation, that the project/product complies with requirements by observation of results.
eV	Electron Volt
Field of View	Integral of effective area over solid angle divided by peak effective area.
g	unit of gravitational acceleration, $g = 9.81 \text{ m/s}^2$
Geometric factor	Field of View times Effective Area
GeV	Giga Electron Volts. 10^9 eV
Inspection	To examine visually or use simple physical measurement techniques to verify conformance to specified requirements.
MeV	Million Electron Volts, 10^6 eV
ph	photons
s, sec	seconds
Simulation	To examine through model analysis or modeling techniques to verify conformance to specified requirements
Testing	A measurement to prove or show, usually with precision measurements or instrumentation, that the project/product complies with requirements.
Validation	Process used to assure the requirement set is complete and consistent, and that each requirement is achievable.
Verification	Process used to ensure that the selected solutions meet specified requirements and properly integrate with interfacing products.