

EEE Parts and Electronic Packaging Program Status

- All EEE parts STD, commercial, and flight heritage parts shall meet the requirements of LAT-MD-00099-03, parts program control plan based on 311-INST-001, quality level 2.
- Parts engineering and parts control board to verify quality level, radiation tolerance, operating temperature, derating and stress analysis.
- Plastic Encapsulated Microcircuits (ADC, DAC, ASICs) (not listed in 311-INST-001) are allowed provided they meet GSFC approved flow diagram requirements.
 - Plastic parts to be tested as per EEE parts plan and flow diagram, which includes acoustic microscopy, DPA, temperature cycling, burn-in, and highly accelerated stress testing (HAST).

EEE Parts and Electronic Packaging Program

- MCMs shall meet the requirements by use of approved tested printed wiring boards, assembly processes (including wire bonding), use of tested die, functional testing, temperature cycling, burn-in, and life testing as per approved flow diagrams.
- All flight parts will be evaluated for radiation testing which includes TID, SEL, and SEU. Manufacturer supplied data are acceptable. Use existing flight part radiation data where available.
- Held several parts control board (PCB) meetings to review the parts lists submitted so far. All LAT design engineers, subsystem managers, and quality assurance were invited to discuss parts issues, selection, problems, etc.
- The following parts are not approved on the parts lists submitted so far. These parts lists will be constantly updated, reviewed, and approved by the PCB.

LAT ACD HVBS EEE Parts Awaiting PCB Approval

Capacitor	CDR03BXxxxBKUR	Kemet, AVX	Value to be determined
Capacitor	CF2204-1	CFI	Waiting for specification
Capacitor	CF2204-4	CFI	Waiting for specification
Capacitor	CF2204-5	CFI	Waiting for specification
Diode	TBR	SSDI	
Inductor	S311-320-LATACD-01	GSFC	Procurement spec approved, but waiting for build and test
Xfmr, Cm	S311-320-LATACD-02	GSFC	Procurement spec approved, but waiting for build and test
XFMR, Planar	S311-320-LATACD-03	GSFC	Procurement spec approved, but waiting for build and test
Microcircuit	5962-8671101ZA	NS	Awaiting radiation testing data
Diode	TBR	TBR	Parts details required
Connector	TBR	TBR	Parts details required
1/13/03			

ACD PMT TAP NETWORK Parts Awaiting PCB Approval

Resistor	LAT-TBD	MSI	Value to be decided
Resistor	SLIM-MOX102	OHMITE	Details of parts required
Capacitor	CF2204-3	CFI	Waiting for parts specification
Capacitor	CF2204-2	CFI	Waiting for parts specification
Capacitor	CF2204-4	CFI	Waiting for parts specification
Wire	178-8366	REYNOLDS	GIDEP Alert to be reviewed
Pmt	R4443	HAMAMATSU	Waiting for acceptance testing results

ACD FREE BOARD Parts Awaiting PCB Approval

ASIC	SCD	MOSIS	Waiting for detailed spec
ASIC	SCD	MOSIS	Waiting for detailed spec
ADC	MAX145AEUA	MAXIM	Awaiting parts screening
DAC	MAX5121AEEE	MAXIM	Part ordered and awaiting screening
OP AMP	MAX494ESD	MAXIM	Part ordered and awaiting screening
CONNECTOR	TBR	NPSL	Awaiting details
INDUCTOR	3311-320-LATACD-0004B	GSFC	Parts to be built as per spec

CAL FRONT-END ELECTRONICS Parts Awaiting PCB Approval

RESISTOR	H1206CPX506J	SOA	Waiting for approval of spec
ADC	MAX145AEUA	MAXIM	Awaiting screening and testing
DAC	MAX5121AEEE	MAXIM	Awaiting screening and testing
ASIC	GCFE	MOSIS	Awaiting detailed spec
ASIC	GCRC	MOSIS	Awaiting detailed spec
CONNECTOR	4-1589487-2	TYCO	Awaiting design engineer decision
CONNECTOR	3-1589474-5	TYCO	Awaiting design engineer decision
CONNECTOR	MM-312-069-113-4100	AIRBORN	Awaiting design engineer decision
CAPACITOR	1210B563K2500NXHTM	NOVACAP	Spec prepared, part to be ordered and screened

TRACKER FLEX CABLE ASSEMBLY Parts Awaiting PCB Approval

CONNECTOR	MCR-1-061-01B1	CRISTEK
CONNECTOR	SRN1-37P-TB-T	CRISTEK
RESISTOR	S0505CPX151J10	SOA
FLEX CABLE	LAT-DS-00334-01	

TRACKER MCM Parts Awaiting PCB Approval

CAPACITOR	1210B563K2500NXHTM	NOVACAP	SCD prepared, awaiting P.O. to be placed and screened
CONNECTOR	SRN1-37S-TB-T	CRISTEK	Awaiting design engineer decision
FUSE	SMDC014	RAYCHEM	Awaiting GSFC approval on revised spec from SLAC
ASIC	GTFE64D	MOSIS	Awaiting detailed spec
ASIC	GTRC	MOSIS	Awaiting detailed spec
RESISTOR	TBR	TBR	Awaiting detailed spec
PWB	DS-133-0	TBR	Awaiting detailed spec

Awaiting for the following parts lists

- **ACD**

- a. Tile shell assembly
- b. Fiber optic connector
- c. Fiber optic cable
- d. Any other items

- **Tracker**

- a. MCM details (manufacturing specification including PWB, wire bonding, testing, qualification, handling, etc)
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- **Data Acquisition System**

- a. Tower electronic modules TEM.
- b. Power supplies for tower electronics
- c. Event processor units such as event builder, event processor unit (EPU).
- d. Power distribution unit, which contains spacecraft interfaces, LAT power distribution, and LAT health monitoring.
- e. Spacecraft Unit which includes the spacecraft interface control and data. LAT control CPU, LAT command and data interface.
- f. Global – Trigger / ACD – EM / Signal Distribution Unit
- g. RAD 750 CPU or other processor
- H. Harness

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- PIND, per MIL-STD-750, method 2052, required for cavity devices.
 - Impose on manufacturer, if possible
 - When needed, have approved facility for testing
- Source inspection and destructive physical analysis (DPA) should be performed where required.

EEE Parts and Electronic Packaging Program

- EEE Part List
 - Parts Engineer will develop and maintain an EEE parts identification list (PIL)
 - All commercial parts will be serialized prior to screening and lot/date code is required.
 - PIL will contain:
 - Unique assembly name and/or number plus revision level
 - Complete flight procurement part number
 - Functional description
 - Manufacturer's generic part number
 - Approved manufacturer(s)
 - Quantity needed
 - Lot/Date Code (“as built” list only)
 - Reference designators
 - Comments, usually pertaining to lead times, additional testing, etc
 - For additional details see actual parts lists posted on the website

EEE Parts and Electronic Packaging Program

- Parts will be procured from an approved parts list
 - Schedule permitting, common buy is allowed for subsystems
 - Minimum attrition/spares factor of 30% will be applied to flight procurement quantities. Standard devices will have higher spares' factor.
 - Schedule and cost permitting, engineering assemblies will use flight qualified parts. Especially where minimum buy quantities are imposed.
- Flowdown of these EEE parts requirements on all subcontractors is essential.

Parts Upscreening Process for Non-Standard Parts

