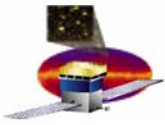


GLAST Large Area Telescope:

TKR Flex Cable Status

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TKR Flex Cable Activities

Weekly meetings on Grid – Flex Cable clearance (Martin Nordby),
next meeting only Thursday, instead of today

Lack of final solution to Grid / Flex cable issues is delaying finishing cable layout:

we decided on routing at TEM end,

need to finalize cable layout by today the latest!

Close many action items

Work on issues:

Connector Saver Use -> proposal

Supply of MCM – Cables to DAQ -> proposal

Mini-Tower cables -> proposal

Cable tester

Routing, Grid clearance

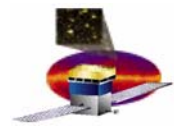
Need close to Spares Qty: cables, connectors,



TKR Flex Cable PRR Preparedness Meeting Issues

(Issues used as basis for discussion at Engineering Meeting 8/26/03)

Action Item ID	Actionee	Description	Status
8-25-03-001	D. Nelson	Ground plane cross hatched	CLOSED: Completed per J. Clinton
8-25-03-002	N. Virmani	1 oz Cu	CLOSED: Completed per J. Clinton
8-25-03-003	J. Clinton	Testing –Assembly - Bending – Sequence	CLOSED: Completed per J. Clinton
8-25-03-004	D. Nelson	Stiffener at connector (30um)	CLOSED: Completed per J. Clinton
8-25-03-005	D. Nelson	Multiple vias	OPEN: In process; ECD?
8-25-03-006	D. Nelson	Cu clearance on edges	CLOSED: Completed per J. Clinton
8-25-03-007	D. Nelson/BJ	No vias at bend: move via away from J1	CLOSED: Completed per J. Clinton
8-25-03-008	BJ	Bend radius, Grid clearance	CLOSED: Completed per J. Clinton
8-25-03-009	N. Virmani	25 x Folding / Bending during testing	CLOSED: Specs call out for 25x on qualification unit.
8-25-03-010	BJ/D. Nelson	Pads for Thermistors, location in ink layer	CLOSED; The location of body and terminals has been incorporated inot the specification.
8-25-03-011	J. Tice	Spares: cables, connectors	OPEN: Qty of cables and connectors are being identified
8-25-03-012	J. Tice	Connector savers	CLOSED; Connector savers on order.
8-25-03-013	J. Clinton	Vendor agreeing with SoW	OPEN: In process. ECD?
8-25-03-014	H. Sadrozinski	Schedule for PRR	CLOSED; PRR scheduled for September 26



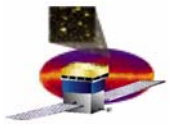
Action Item ID	Actionee	Description	Status
8-25-03-015	J. Clinton/R. Johnson	Need for flight-like cables of DAQ/INFN group	OPEN: In process; ECD?



TKR Flex Cable PRR Preparedness Meeting Action Items

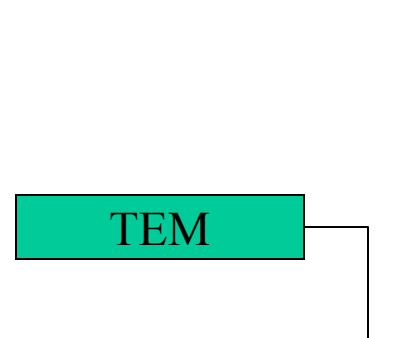
(Meeting held during
Engineer Meeting 8/26/03)

Action Item ID	Actionee	Description	Status
8-26-03-001	BJ	List of changes to I&T between old and proposed version of mini-tower cables	OPEN: ECD 27 August: BJ to meet with Eric to look at the fit
8-26-03-002	Hartmut	Need to resolve the proposal by Task group for Cable-MCMs to address the need for extra cables	OPEN: ECD ?
8-26-03-003	BJ	Update the assembly drawings to include the exact bends after the Grid modifications are completed	OPEN: ECD ?
8-26-03-004	Jeff Tice	Label all cables "Flight" or "Non-Flight"	CLOSED: Jeff Tice will label non-flight cables as "Non-Flight" which will be on-going. There is an established procedure for receiving and labeling "Flight" cables.
8-26-03-005	Jerry Clinton	Determine responsibility for bending tools to support drawings for bending tools and the required procedures for using them.	OPEN: ECD ?
8-26-03-006	BJ/Marc Campell	Verify the Grid "Stay Clear" has more than adequate clearance for the latest version of the cables. Verify length of cables.	OPEN: ECD ?
8-26-03-007	BJ/Eric Gawehn/Marc Campell	Finalize drawings for Grid Modifications	OPEN: ECD ?
8-26-03-008	Dave Nelson	Cables will be fixed at the grid during thermal cycles. Is there a CTE mismatch concern for the cable, tower and grid?	OPEN: ECD ?
8-26-03-009	Dave Nelson	Compare electrical performance with and without connector savers, in particular MCM side.	OPEN: ECD ?

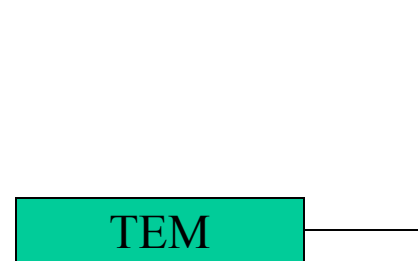


TKR Flex Routing at TEM

Old Routing

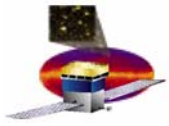


New Routing



Requires more Care in Determination of Flex cable Length

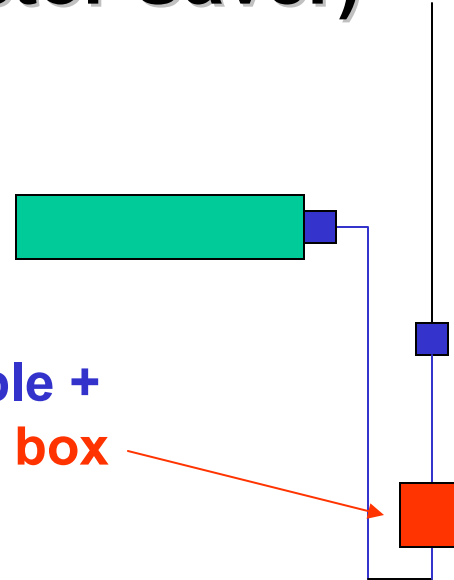
“Cetera censeo: need to finalize cable length by today the latest!” Cato, ~150 BC



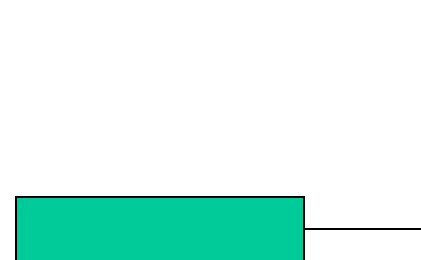
Connector Saver Proposal: FCS (Flexible Connector Saver)

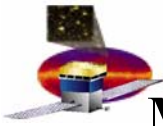
During Test:

Flexible Cable +
Breakout box



Flight:





Mini-Tower Flex Cable Set matching the Flight Design

2 sets of mini-tower flex cables to be made on 18” panels

Reasons and Use for the mini-tower set:

Verify the new cable electrical layout on mini-tower

Verify the new mechanical clearances with minitower

Verify the new cable length and mating to TEM and trays

Supply DAQ group with test cable

The assumption is that this minitower flex cable set is followed soon by the flight cables and that blank (un-assembled) cables could be procured and assembled at SLAC and used for testing requiring full-length cables if the delivery of flight cables is delayed. An additional assumption is that full length flight-like cables could be used for readout both of the (4 tray) mini-tower and the 36 MCM set-up of the DAQ group.

Given that interface issues are a most important part of the use, we propose to make them in 18” length starting from the bottom (51 pin D connector) and include as many cactus arms as possible.

BJ could modify the flight cable drawings after resolution of the length issue.

Action:

Mike Foss to define cable lengths

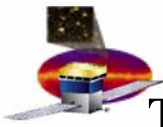
BJ to modify drawings

Thien (or Sergei) to make layout

Dave to order

Lupe to assemble

“Cetera censeo: need to finalize cable length by today the latest!” Cato, ~150 BC



TKR Flex Cable – MCM Proposal

Hartmut Sadrozinski, Robert Johnson, Mike Huffer, David Nelson (& Elliot Bloom as kibitzer)

2 Needs:

TKR: get new layout cables fab'd asap and tested

DAQ: get 36 MCMs and set of cables for system test.

Proposal:

Cables:

Fab 2 sets of 8 Minitower cables, new design

immediately

Fab 4 sets of 2 (C0 and C1) flight-like fullsize cables without assembly,

immediately

Fab full set of flight cables

according to
the 8/26 schedule

MCMs:

Start to populate 9 MCM (non-flight)

immediately

R. Johnson will look at the parts availability (connectors, ASICs).

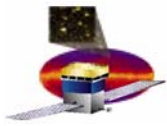
and within one week report on status to plan the next 30 MCMs.

Decide on fab of next 30 MSMs (non-flight)

9/2 ?

There are 50 MCMs (rejected because of pitch-adaptor fault which can be used for another 30 MCMs).

Potential exposure to LAT is a later ASIC run if there are not enough flight ASICs after dicing and lapping.



Schedule to PRR

- | | | | |
|---|-------|----------------|----------|
| • LAT signoff on Specs | | Aug. 26, 2003 | done |
| • LAT signoff on Drawings | | Aug. 26, 2003 | Sept 11 |
| • LAT signoff on Layout, Gerber | | Aug. 29, 2003 | Sept. 11 |
| • LAT signoff on SOW | | Sept. 2, 2003 | Sept. 16 |
| – Resolve Testing, Bending, Assembly issues | | | |
| • Contact Paralex | | Sept. 2, 2003 | Aug 27 |
| • Incorporate Paralex comments | | Sept. 16, 2003 | |
| • PRR | after | Sept. 22, 2003 | |
| » Date | | Sept. 26, 2003 | ? |

“Cetere censeo: need to finalize cable length by today the latest!” Cato, ~150 BC