GBM Trigger, Calibration and Response Review
Responses of the GBM Team to the Suggestions of the Review Team

1) Need a way to test the trigger algorithms. Particular concern is
trends on background, as for example entering or exiting the SAA. A
closed-loop simulator is very beneficial.

RESPONSE: We intend to use data generated by Data Challenge 2 to
perform such a test. We understand that Jay Norris and David Band have
agreed to generate the GBM data using BATSE archived data.

2)   A GRB rate of 200 yr-1 for GBM seems too large given the 300 yr-1
rate of BATSE.

RESPONSE: We have checked this calculation and find it to be accurate.
We will provide details in a paper that will be posted to the review
website.

3) Need to define the criteria for the on-board decision to perform a
s/c slew for a GRB.

RESPONSE: This is in work with the LAT team and the BWG and will be
presented to the SWG at the next telecon.

4) Need plan for choosing trigger parameters.

RESPONSE: Any parameter changes will be approved by the PI and Co-PI.
Some parameters will require concurrence of the Project Scientist.
Control of commandable changes to operating characteristics of either
the LAT or the GBM is an issue that the SWG should discuss.

5) Investigate if corrections for changing atmospheric scattering
component due to s/c rocks and rolls can improve the GBM localization
performance?

RESPONSE: Only modest improvements can be made without significant
effort. A summary will be posted to the website.

6) Think ahead of flight if the quadratic background fits will improve
the trigger and work on-orbit.

RESPONSE: We intend to test this with simulations, as outlined in the
response to item 1.

7) Please send report on Bayesian trigger classification to S. Ritz.

RESPONSE: This report has been posted to the review website.

8) Consider doing an end-to-end "imaging" test with a radioactive
source burst simulator and multiple detectors.

RESPONSE: We intend to do such a test. We would like to use the Swift
'Burst-o-matic'.

9) Consider having a radioactive source that can be used during
thermal vac testing for ease of instrument characterization.

RESPONSE: We plan to use a radioactive source during TV testing, but to have the source remain outside the vacuum chamber.

10) Investigate if non-linearities at low energies and across the iodine K-edge vary from detector to detector.

RESPONSE: We will perform calibrations at low energies using several detectors, determine the variance between detectors, and then evaluate whether measurements are required on the remaining detectors.

11) Determine what calibrations are really needed.

RESPONSE: The requirements for the low energy beam calibration are under review.

12) Provide documentation on on-board gain stabilization system to S. Ritz.

RESPONSE: A description will be posted to the review website.

13) Consider feeding GRB simulation output into the response simulation software system to check if the output matches the input.

RESPONSE: We plan to do this for both simulated GRB spectra and for simulated monoenergetic lines.

14) Consider effects of continuous roll of GLAST observatory on GBM observations.

RESPONSE: We will do this and will make use of Data Challenge 2 data to evaluate the effects. Slewing affects the following:
    a) background stability,
    b) constructing GRB light curves,
    c) source location calculation (on-board and ground),
    d) TTE data detector selection.
Fortunately, the GBM background rate from 50-500 keV is fairly constant over pointing direction, varying only about 12% from zenith to nadir.

15) It would be nice to see a list of the various parameters, their allowed ranges, and the expected launch-values. This will give me (and others too I suspect) a better feel for how this will work.

RESPONSE: This refers to parameters used for the on-board trigger algorithm. We will produce such a list when Build 2 of the flight software is complete in the spring of 2005.