Geometry Update

- Spacecraft model
- LAT electronics
- LAT mass

Spacecraft

Plan: replace monolithic "spacecraft" cylinder with a collection of the more massive volumes, including

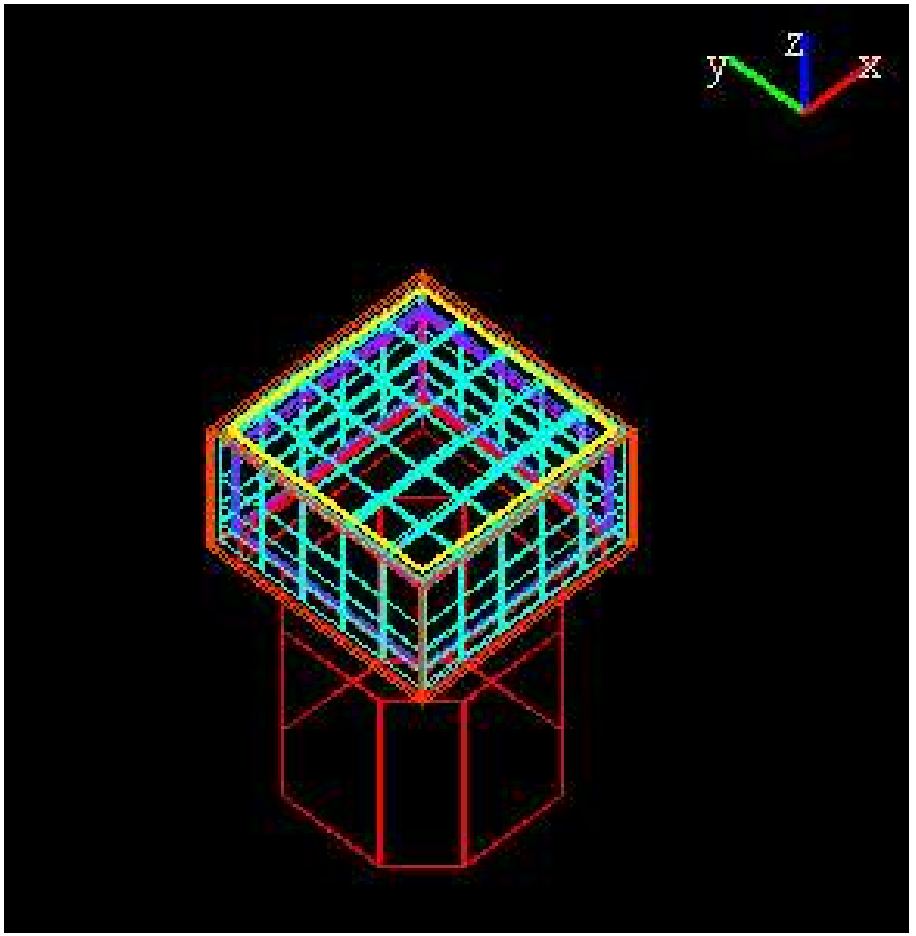
Primary structure, skirt, optical bench, propellant & tank, batteries, electronics boxes, reaction wheels, GBM detectors.

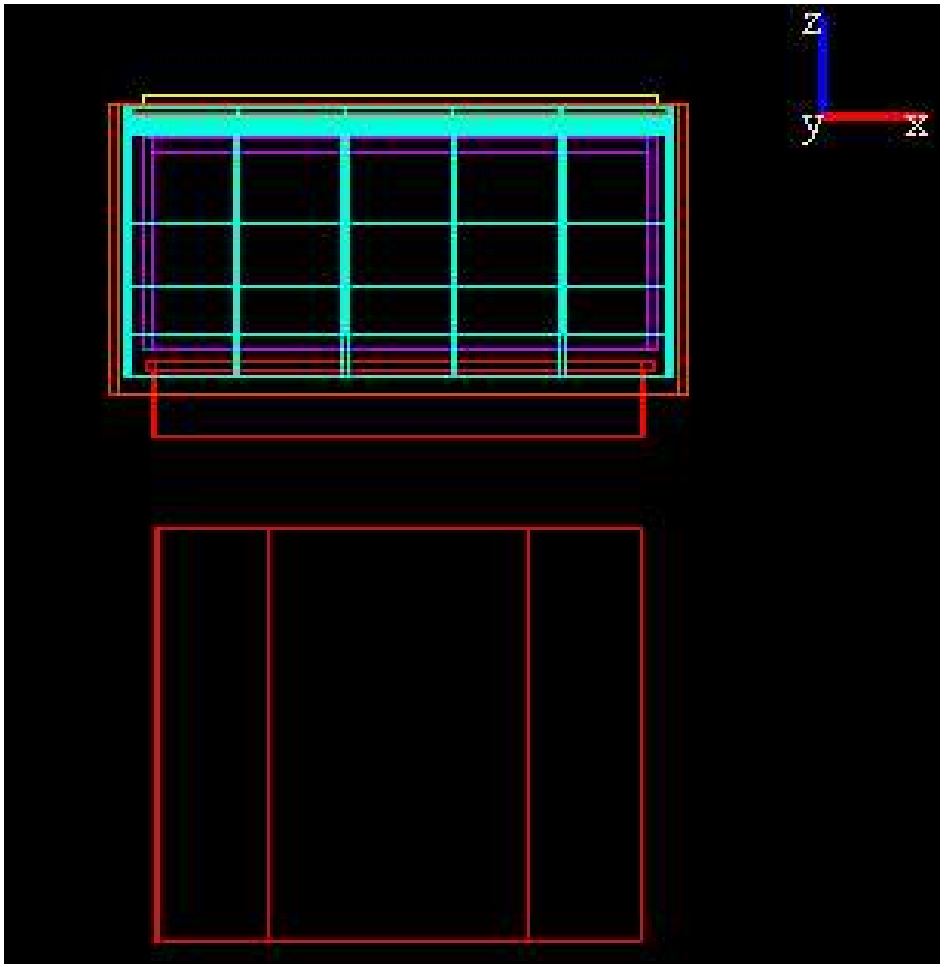
Spacecraft (cont'd)

Status: have enough information to make a stab at incorporating most of the components. Size and position information for some (e.g. reaction wheels) is very vague, but good enough to start with. Need to do something about GBM support material.

So far only primary structure volumes exist in xml description but most other volumes will follow quickly.

LAT + Primary Structure

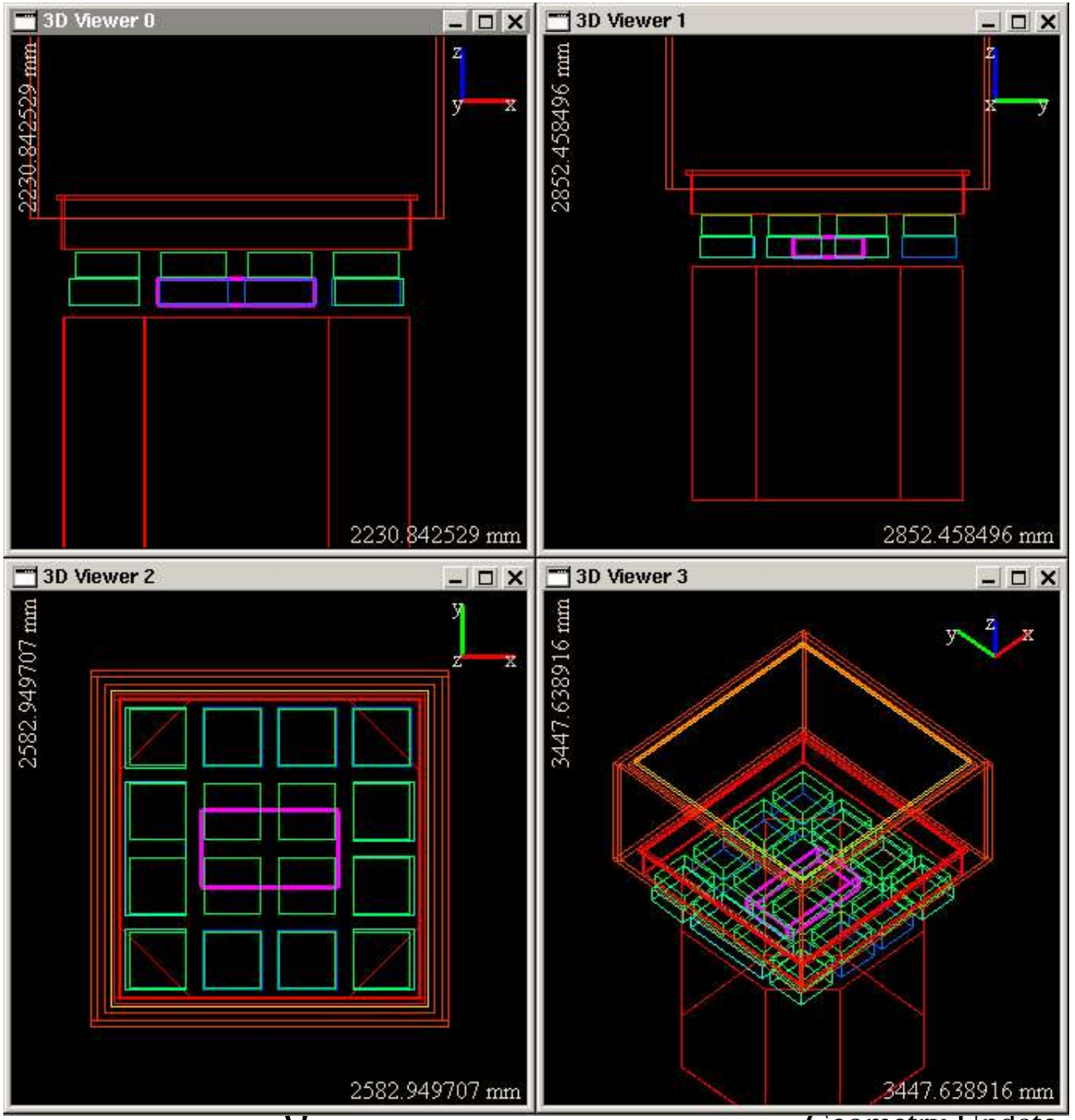




LAT Electronics

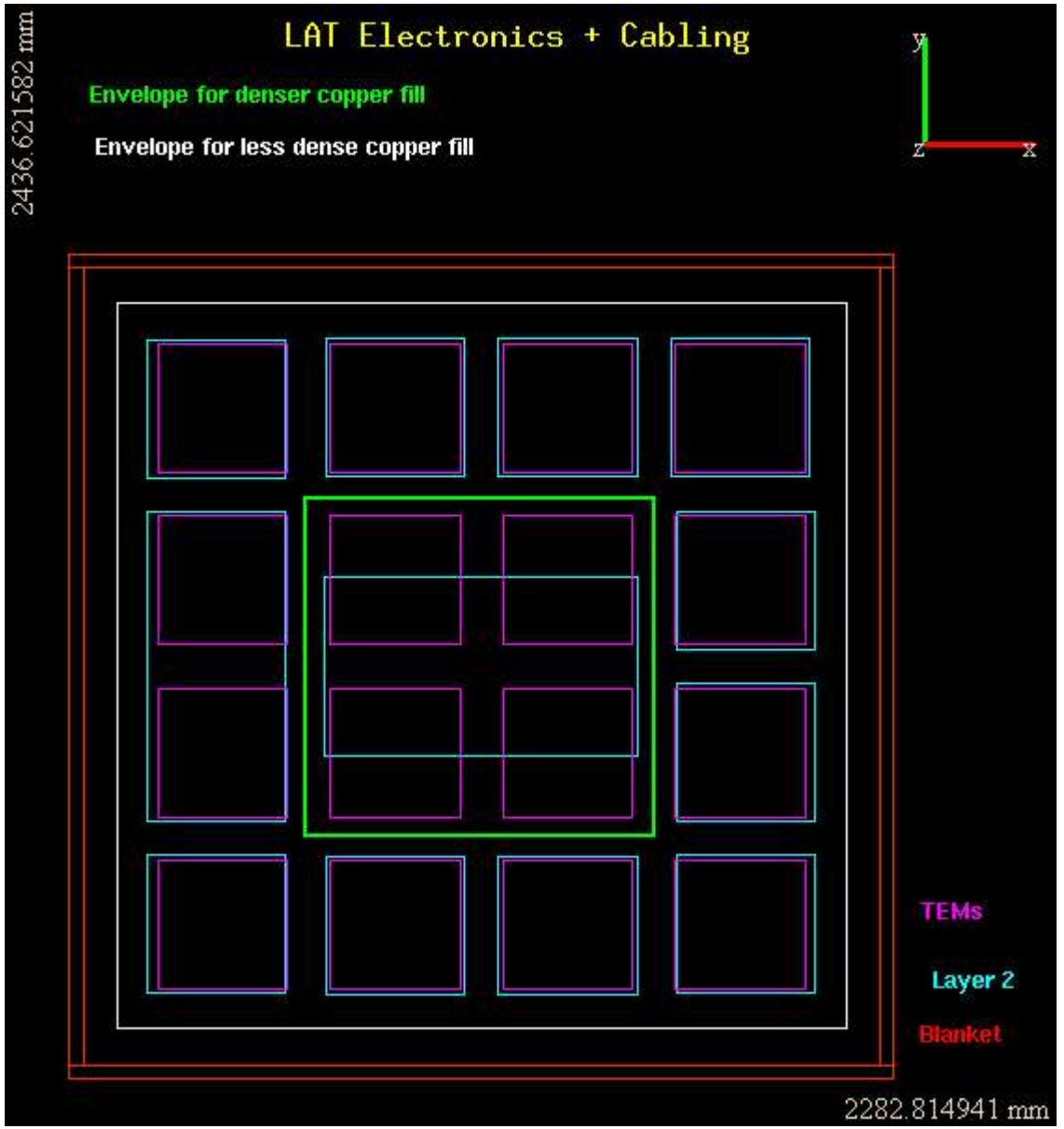
With the spacecraft properly located it became obvious that something had to be done about the LAT electronics. Mike Huffer referred me to LAT-TD-00564, which had all the information required to quickly position boxes of the proper dimensions and masses in our model.

LAT shell
+ electronics
+ prim. struct.



LAT Electronics Improvements

- Model boxes as an aluminum shell of proper thickness containing Cu/Si mixture (will be different densities for different boxes to make up correct total mass).
- Add the copper cabling which runs from and between the boxes. Engineers estimate about half the mass is near the center (GASU) so will use 2 copper “materials” of appropriate densities.



Modeling Electronics Cables

(planned; not yet in the model)

Mass Comparison

Subsystem	Measured/calc mass	Simulated mass	Meas - Sim	% Diff
TKR	524.487	453.701	70.786	13.5
CAL	1381.731	1310.580	71.151	5.1
ACD	281.633	153.839	127.794	45.4
Mech	351.546	121.316	230.230	65.5
DAQ Elec	242.469	189.224	53.245	22.0
TOTAL	**2788.966**	**2228.660**	**560.306**	**20.0**

Known missing

BEA

radiators (80 kg)

cabling (30 kg)

See also
http://www.slac.stanford.edu/exp/glast/ground/LATSoft/geometry/notes/massSummary.shtml

Work estimates

- LAT electronics refinement:
  - 1-2 days
- Spacecraft
  - a few days for most of the requested components
  - GBM detectors could take longer
- Missing mass
  - ??