

Testing of GLAST Prototype SSD from HPK Dec 2000-January 2001

There will be about 35 SSD available ~ Dec 15, 2000.

We will have 3 places for testing: Hiroshima (20), SLAC (5), INFN Pisa (10).

We need to test both the sensors and the test structures in the "cut-offs".

January 31, 2000 is an important date at which the fabrication of the GLAST flight sensors has to start.

At that time we have to understand the prototypes well enough to give HPK the go-ahead.

Testing philosophy is in the presentation I gave at the meeting with INFN on Nov. 21 and is on the web together with latest specs :

<http://scipp.ucsc.edu/groups/glast/detector/GLAST2000>

Below is of electrical tests with measurement parameters indicated.

They might have to be tuned a bit to get stable results, especially concerning the leakage currents.

I (150V)	[nA]	50uA Compliance, bring to 200V for 5min, go down in 10V steps, 10sec waiting at each step
I (175V)	[nA]	
V (dep)	[V]	Scan Bias, Measure Cs-Rs with both 1kHz and 100Hz, between bias ring and backplane, Plot logC vs. Log V
C (dep)	[pF]	
# of Bad Channels		Re-check manufacturers bad channel list Check one full detector as the minimum
R(Ave)	[MOhm]	Measure I-V between bias ring and DC contact on at least 10 strips, including outside strips
R(High)	[MOhm]	
R(Low)	[MOhm]	
R(Al Strip)	[Ohm]	Measure i-V between outside AC pads on at least 10 strips, including outside strips
R(Int-2neighb.)	[GOhm]	Bias at 150V, keep V1=0 constant on strip and measure i1, scan Voltage V2 on two neighbors from -10 to +10, $R(int) = 0.5 * dV2/di1$
C(Int-4neighbors)	[pF]	C between one strip and it's 4 nearest neighbors (2 on each side) at 1MHz, Cp-Rp
C(Coupling)	[pF]	C between DC pad and AC pad, 100Hz and 1kHz, Cp-Rp