STEREO/IMPACT/SIT
Limited Performance Test
Test Procedure
Ver. 2.0 10/11/04

1. PURPOSE

This document specifies the procedure for performing the SIT Limited Performance Test (LPT) whenever needed. The LPT is designed to test as much of the sensor as possible without use of an external pulser.   Access to the instrument is not required, but it IS NECESSARY THAT THE HV DISABLE PLUG BE INSTALLED for the duration of this test. Therefore it is not suitable for late testing of SIT after the HV disable plug has been removed. The only exception to this requirement is that the test MAY be performed during the portion of thermal vacuum testing in which conditions are suitable for SIT HV to be on. The test does not verify the performance of the telescope or the calibration of the analog electronics but it does allow "quiet" and "noisy" mode testing of SIT as well as demonstrating the operation of the MISC.

2. REQUIREMENTS

2.1 HV Disable Plug – The SIT HV Disable plug must be installed during this test OR the test must be conducted in high vacuum condition suitable for operating the SIT HVPS.

3. PROCEDURE

3.1 Instrument Power On and Initialization

      a) Verify SIT HV LIMIT Plug is installed on rear panel of SIT electronics box.(P8)

      b) Power up SIT and verify it has properly booted. Begin login of SIT data into a dated file.

      c) Send the SIT Commands   "IMMED 1"
                                      "Limhi 100"

      d) Verify data packets arriving in range 605-619, and that sequence counts are reasonable and that the major frame number advances.

      e) After at least 2 minutes, verify incoming data:

Hardware rates	all 0
Matrix Rates	all 0
Beacon Rates	all 0
Pulse Height Events	all 0

e) After 3-5 minutes verify the following status information has been returned and matches expected values:

Software Version Number	0903
Software Checksum	927143
Software Error	0 = no error
Junk Events	0 = junk events ignored
EOnly Status	0 = ET coincidence required
HV Status	0 = off
HV Level	0
TOF Error	1 = error events processed
Limhi	256
TOF Calibrate Gain	9-11
TOF Calibrate Offset	-14 to –65, should settle at -15

f) Verify Analog Housekeeping

HV	0-100v
TOF Temperature	25-35 C
SSD Temperature	20-25 C
Foil Temperature	20-25 C
+3.3v monitor	3.3v
+2.5v monitor	2.5v
+5v monitor	5v
+6v monitor	6v

3.3 Quiet Mode Test
   a) Execute SIT Quiet Mode Procedure
   b) Turn on external noise sources as appropriate to test.
   c) Monitor Events and Hardware Rates
      a. Events should be fewer than 100/sec
      b. Hardware rates:
         i. START   <50/sec
         ii. STOP   <400/sec
         iii. VS   <10/sec
         iv. SSD   <100/sec
         v. Event   <100/sec
   d) Turn off external noise sources as appropriate.

3.4 Noisy Mode Test
   a) Set up to monitor SIT noise as appropriate to test
   b) Execute SIT Noisy Test Mode
   c) Monitor Events and Hardware Rates
      a. Events should be fewer than 100/sec
      b. Hardware rates:
         i. START

      ii. STOP   <400/sec
     iii. VS   <10/sec
     iv. SSD   <100/sec
      v. Event   <100/sec

d) At end of desired noisy mode or 10 minutes, whichever comes last execute
SIT Normal Mode (HV Off) Procedure

3.5 End of Test

a) SIT may be left powered or powered down as needed.