STEREO/IMPACT/SIT
Comprehensive Performance Test
Test Procedure
Ver. 2.1 10/15/04

Unit: _____   Test: _____   Date:_____

1. PURPOSE

This document specifies the procedure for performing the SIT Comprehensive Performance Test (CPT) whenever needed. The CPT is designed to provide as large as possible, but not total, test of the performance capabilities of the SIT sensor. It is intended for use in all environments in which access to the instrument is possible. Certain portions of the sensor, e.g. the HVPS, and certain aspects of performance, e.g. calibration, are not tested because this can only be done in limited environments: the HVPS can only be turned on in high vacuum and the calibration requires significant amounts of bench test equipment. The CPT should be performed whenever the full operation of SIT needs to be verified, as opposed to simple liveness checks.

2. REQUIREMENTS

2.1 Equipment – A battery-powered SIT Test Pulser is required for this test, to be connected to the test connectors.

3. PROCEDURE

NOTE: It is unnecessary to repeat commands between procedures if they would simply put SIT in the state it is already in.

3.1 Check Test Pulser and Install

NOTE: This section may be performed independently of the state of SIT power.

  a) Switch Test Pulser ON/OFF Switch to ON
  b) Press TEST pushbutton. The green BATTERY LED should light. The red LOW VOLTAGE LED should not light. Absence of green LED or presence of red LED indicates a worn out battery, so replace it.
  c) Switch ON/OFF switch to OFF
  d) Verify that the SIT telescope cover is closed.
  e) Ground the Test Pulser chassis to the test setup and place the pulser in a stable location within the pulser's 1 meter cable length of the SIT instrument.
  f) Connect the three signal coax's from the pulser to the SIT test inputs. See Fig 1.

NOTE: IN CASE TEST PULSER NOT AVAILABLE – connect bench pulsers as in Fig 1A. The DG535 should be powered off for the beginning of the test.

3.2 Instrument Power On and Initialization and Quiet Mode Test

    a) Execute SIT Turn On Procedure
    b) Send command "Limhi 100". Verify LIMHI goes to 256.
    c) Execute SIT Quiet Mode Procedure

3.3 Noisy Mode

    a) Execute SIT Noisy Mode Procedure
    b) Execute SIT Normal Mode Procedure

3.4 Pulser Test

    a) Turn Pulser ON/OFF switch to ON (or turn DG535 power ON)
    b) After 2-3 minutes verify data as follows:

Hardware rates:		
	START	720
	STOP	6000
	VS	6000
	SSD	6000-6020
	EVENT	~6000
	Artificial Stop	0-5
	Error	0-5

Pulse Height Events:

Matrix Rates:

Beacon Rates: all 0s

    c) After about 10 minutes of stable data observation, turn pulser ON/OFF switch to OFF.

3.5 End of Test
    a) Disconnect Test Pulser from SIT and store.

DG535

BH1

EXT

Minimum
Delay

0.02   2.5

50

50ohm Term (2)

BNC to Nanohex

To Energy

Green BNC (3)

START

DG535 Setup:
Trig   Internal, 100 Hz
Delay: A=T+0
          B=A+3ns
          C=A+20ns
          D=C+3ns
Output:AB 50ohm,var,+1,-1
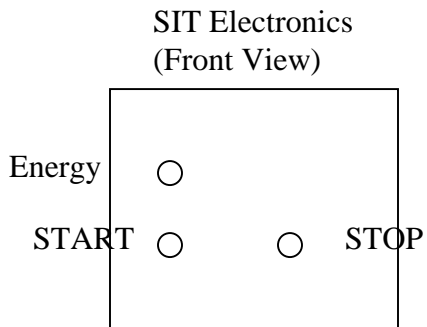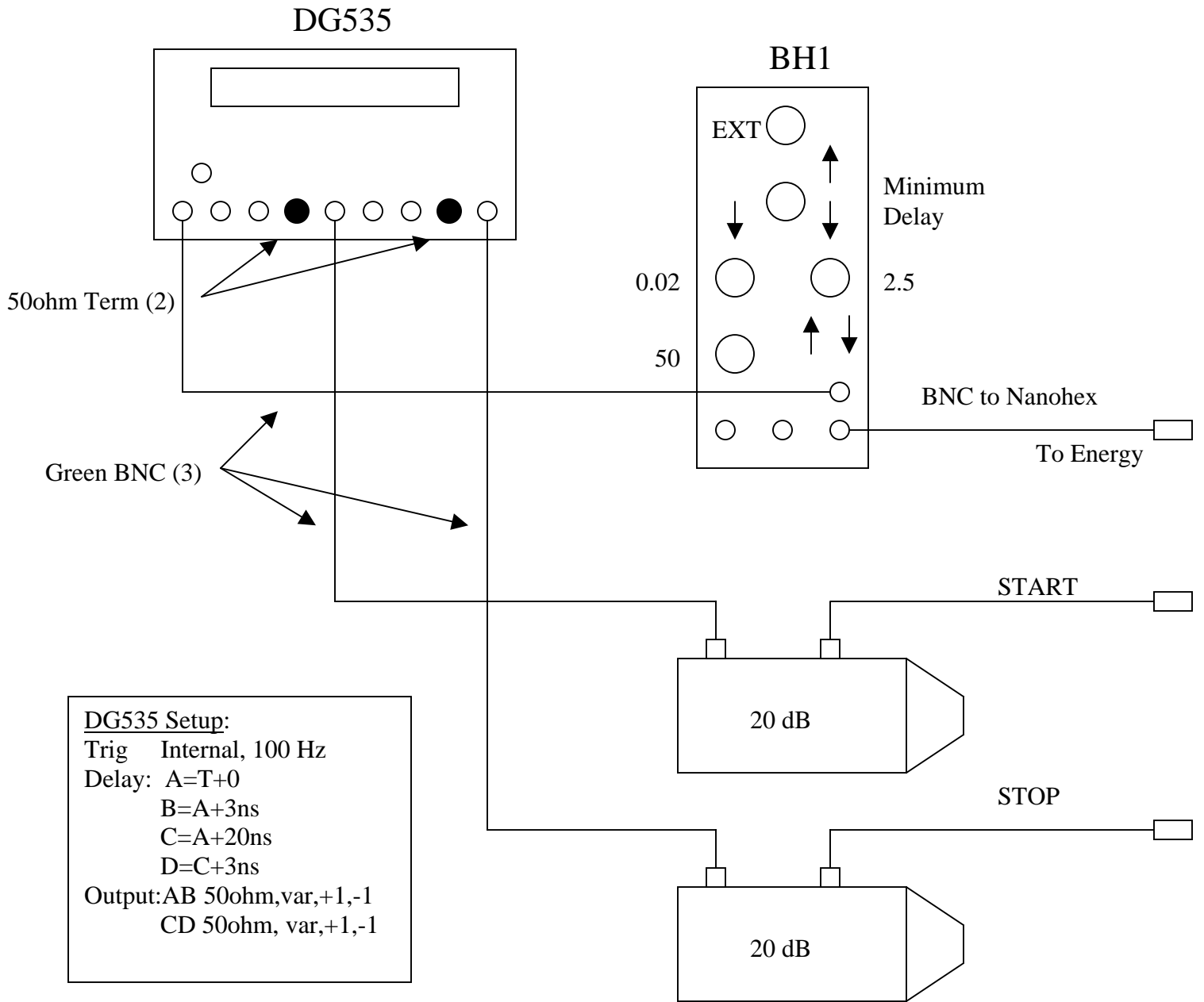   CD 50ohm, var,+1,-1

20 dB

STOP

20 dB

SIT Electronics
(Front View)

Fig.1a Bench Pulser Setup

Energy

START   STOP