W. W. Hansen Experimental Physics Laboratory

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Gravity Probe B Relativity Mission

Proton Monitor Transient Amplitude Test Procedure

GP-B P0640

19 November, 1999

Prepared by: Peter Rusznyak **STI**	**Date**
Approved by: Awele Ndili **Proton Monitor Product Team Leader**	**Date**
Approved by: S. Buchman **Hardware Manager**	**Date**
Approved by: Dorrene Ross **Quality Assurance**	**Date**

Notes:
1. This procedure was originally written by STI as document No.: GPB-GI-410.
2: All redlines must be approved by QA

Level of QA required during performance of this procedure:
__x__ Stanford QA Representative
____ Government QA Representative

1 Scope

This Document provides information of the functional testing using Amplitude Transients to be performed on the Proton Detectors (FM and FS) specified in contract PR 9071.

2 Personnel Requirements

This test to be conducted only by certified personnel: Peter Rusznyak and Awele Ndili.
Notify ONR 24 hours prior to beginning testing.

Person Contacted: _____ Date and Time: _____

Notify QA 24 hours prior to beginning testing.

Person Contacted: _____ Date and Time: _____

3 Quality Assurance

Operations shall be conducted on a formal basis to approved and released procedures. The QA program office shall be notified of the start of this procedure. A Quality Assurance Representative, designated by D. Ross shall be present during the procedure and shall review any discrepancies noted and approve their disposition. Upon completion of this procedure, the QA Program Engineer, D. Ross or her designate, nominally R. Leese, will certify her concurrence that the effort was performed and accomplished in accordance with the prescribed instructions by signing and dating in the designated place(s) in this document. Discrepancies will be recorded in a D-log or as a DR per Quality Plan P0108.

4 Safety Requirements

4.1 Electrical mating and demating of flight hardware connectors

4.1.1 Place cable connector A only into socket A, etc.

4.1.2 Strain relieve all cables

4.1.3 Connection and disconnection shall be performed only when the equipment involved is in a powered-down state.

4.1.4 Connectors shall be inspected for contamination and for bent, damaged, or recessed pins prior to mating.

4.1.5 Connector savers are to be used on the Proton Monitor connectors.

Note: The mating and demating of all flight connectors must be recorded in a log. This procedure does not require removal or replacement of connector savers onto the flight connectors--they should already be in place.

4.2 Electro Static Discharge (ESD)

4.2.1 No special precautions for ESD are required for this device.

5 General Instructions

This section should include general instructions that apply throughout the procedure and are not covered elsewhere.

5.1 Red-line Authority

5.1.1 Authority to red-line (make minor changes during execution) this procedure is given solely to the PTD or his designate and shall be approved by the QA representative. Additionally, approval by the Hardware Manager shall be required, if in the judgement of the PTD or QA Representative, experiment functionality may be affected.

5.1.2 Any nonconformance or test anomaly should be reported by a Discrepancy Report. Refer to the Quality Plan, P0108, for guidance. Do not alter or break test configuration if a test failure occurs; notify quality assurance.

5.1.3 Only the following persons have the authority to exit/terminate this test or perform a retest: Peter Rusznyak and Awele Ndili

6 Cleanliness requirements

The Proton Detector FM and FS should always be kept in a Class 10,000 or better environment. The units must be handled using gloves. Cleaning of the units is possible using ethanol only. Special precaution has to be made to avoid ethanol getting under the titanium shields.

7 Hardware Required:

Flight Proton Monitor, PN _____

Ground Support Equipment: _____

8 Applicable Documents

PR 9071	Stanford	contract to design, fabricate and deliver the High Energy Proton Monitor
GPB-GI-401	STIL	Functional Testing Specification / Procedures
GPB-GI-820	STIL	PSS User's Guide

9 Installing the Proton Detector

RECORD TEST LOCATION:

The PD under test shall be connected to the GSE via the power, interface and stimuli cables.

Set Up Compete: Test Operator Initial:_____, Date: _____, Time:_____

QA Witness: _____ Date: _____

10 Test Procedure

Test Entry: Test Operator Initial:_____, Date: _____, Time:_____

Step	Action	√ complete
1	LPT (Limited Performance Test) shall be performed on the PD at nominal voltage (28V).	
2	The GSE PSS output shall be disabled, 28V de-selected, 22V selected, the 'spike' function shall be enabled, output re-enabled. LPT shall be performed at 'low' primary bus voltage (22V) with spikes.	
3	The GSE PSS output shall be disabled, 22V de-selected, 35V selected, the 'spike' function shall be enabled, output re-enabled. LPT shall be performed at 'high' primary bus voltage (35V) with spikes.	

The above specified three LPTs must provide identical results (within statistical variations in noise counts, etc.), i.e. no primary bus voltage dependence of instrument performance is allowed. However, the current consumption (measured on the GSE display) shall vary according to the actual voltage setting.

11 Procedure Completed

Test Complete with acceptable results.

Performed by: _____ Date: _____

QA Witness: _____ Date: _____

Discrepancies if any:

Approval. The information obtained under this assembly and test procedure is as represented and the documentation is complete and correct:

Test Director/ PTD: _____ Date: _____

QA Manager: _____ Date: _____