

Functional Test Procedure

IMAGE FUV GEO subsystem

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1. GENERAL

1.1 Scope

This procedure is intended for functional testing during the thermal vacuum testing of IMAGE GEO flight equipment in the UCB/SSL Thermal Vacuum Chamber.

1.2 Test equipment and vacuum feed-throughs.

This procedure involves operating the GEO instrument sense head in the vacuum chamber and monitoring of the performance remotely by test equipment located outside.

1.3 Acronyms and Definitions

GEO	Part of the FUV instrument complement incorporating three Lyman alpha photometers and the FUV sun sensor.
OGSE	Optical GSE including a lamp suitable of inducing counts in the GEO photo tubes. A mercury “pen ray lamp”. High intensity “solar simulator” lamp for triggering the sun sensor.
EGSE	Electrical GSE. Power supply unit to power GEO and GEO high voltage power supply. Line receiver amplifier, oscilloscope, pulse counter, and computer logger (optional). GSE to measure sun sensor function.

2. FUNCTIONAL TEST PROCEDURES

2.1 Preparation

1. Make connection EGSE between power supplies and GEO and GEO high voltage power supply through vacuum feed throughs. Connect one of GEO pulse outputs in teurn to pulse counter
2. Install GEO detector hardware, and OGSE stim lamps into the chamber. All hardware, including cables and fixtures, should be precleaned and have suitable materials that meet outgassing requirements for space flight hardware. Arrange that EGSE can be safely switched from one GEO output to another.

2.2. Test Flow

1. Turn on low voltage external power supply to power GEO and GEO HV supply **with HV supply in th inhibit mode**. Note current.
2. If pressure has been $<10^{-5}$ for at least two hours turn on GEO high voltage power supply. Take count rates for background with stimulus light source off for all three detectors.
3. Using one detector tube at a time take count rates for pen ray lamp on.
4. Take count rates when “solar simulator “ is on.
5. Select another detector tube and repeat 2,3 and 4
6. Turn both lamps off and verify that sunsensor is off
7. Verify that sun sensor is on when solar simulator is on.
8. Select the other sunsensor and repeat test step 7.
9. Turn off High Voltage
10. Record results of functional on data sheets.
11. Turn all electronics OFF.

