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GENERAL ENVIRONMENTAL VERIFICATION STANDARD (GEVS)
For GSFC Flight Programs and Projects

Approved By:

Original Signed by:
Chief Engineer
Goddard Space Flight Center

Original Signed by:
Director of Applied Engineering and
Technology
Goddard Space Flight Center

Original Signed by:
Director of Flight Projects
Goddard Space Flight Center

Original Signed by:
Director of Safety and
Mission Assurance
Goddard Space Flight Center

NASA GODDARD SPACE FLIGHT CENTER
Greenbelt, Maryland 20771

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Changes to
GENERAL ENVIRONMENTAL VERIFICATION STANDARD

Change No.	Date	Nature of Change
Baseline	April 2005	
A	4/22/2013	Major update - STS references removed; Reference to Office of Mission Success removed; Added definition of anomaly; Significant updates to the following sections: 1.13; 2.2.5; 2.4.1.2; 2.4.1.4.1; 2.4.2.2; 2.4.2.6; 2.4.4.1; 2.4.4.2; 2.6.2.4; Section 1.14 added; Section 2.5 rewritten; Section 2.7 rewritten CCR Number CCR-D-0071
A	3/28/2018	Extended the document for 1 year from current expiration date.

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SECTION I

GENERAL INFORMATION

Check the GSFC Technical Standards Program website at <http://standards.gsfc.nasa.gov> or contact the Executive Secretary for the GSFC Technical Standards Program to verify that this is the correct version prior to use.

1.1 PURPOSE

This standard provides requirements and guidelines for environmental verification programs for GSFC payloads, subsystems and components and describes methods for implementing those requirements. It contains a baseline for demonstrating by test or analysis the satisfactory performance of hardware in the expected mission environments, and that minimum workmanship standards have been met. It elaborates on those requirements, gives guideline test levels, provides guidance in the choice of test options, and describes acceptable test and analytical methods for implementing the requirements.

This standard shall be used by GSFC projects and contractors. This standard shall be tailored to create a project specific verification plan and verification specification as discussed in section 2.1. GSFC projects must select from the options to fulfill the specific payload (spacecraft) requirements in accordance with the launch vehicle to be used, Atlas, Delta, Pegasus, etc., or to cover other mission-specific considerations.

1.2 APPLICABILITY AND LIMITATIONS

This standard applies to GSFC hardware and associated software that is to be launched on an ELV. Hardware launched by balloons and sounding rockets is not included. The specification applies to the following:

- a. All space flight hardware, including interface hardware, that is developed as part of a payload managed by GSFC, whether developed by (1) GSFC or any of its contractors, (2) another NASA center, or (3) an independent agency; and
- b. All space flight hardware, including interface hardware that is developed by GSFC or any of its contractors and that is provided to another NASA installation or independent agency as part of a payload that is not managed by GSFC.

The provisions herein are generally limited to the verification of ELV payloads and to those activities (with emphasis on the environmental verification program) that are closely associated with such verification, such as workmanship and functional testing.

The standard is written in accordance with the current GSFC practice of using a single protoflight payload for both qualification testing and space flight (see definition of hardware, 1.8). The protoflight verification program, therefore, is given as the nominal test program.

1.3 THE GSFC VERIFICATION APPROACH

Goddard Space Flight Center endorses the full systems verification approach in which the entire payload is tested or verified under conditions that simulate the flight operations and flight environment as realistically as possible. The standard is written in accordance with that view. However, it is recognized that there may be unavoidable exceptions, or conditions which make it preferable to perform the verification activities at lower levels of assembly. For example, testing at lower levels of assembly may be necessary to produce sufficient environmentally induced stresses to uncover design and workmanship flaws. These test requirements should be tailored for each specific space program. For some projects, tailoring might relax the requirements in this standard; however, for other projects the requirements may be made more stringent to demonstrate more robustness or greater confidence in the system performance.

Check the GSFC Technical Standards Program website at <http://standards.gsfc.nasa.gov> or contact the Executive Secretary for the GSFC Technical Standards Program to verify that this is the correct version prior to use.