
**Space systems — Format for spacecraft
launch environment test report**

*Systèmes spatiaux — Format de rapport d'essais d'environnement de
lancement de véhicule spatial*

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 19933 was prepared by Technical Committee ISO/TC 20, *Aircraft and space vehicles*, Subcommittee SC 14, *Space systems and operations*.

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Introduction

This International Standard provides spacecraft (SC) manufacturers with a specific format to write launch environment test reports required to qualify the SC to the launch environment conditions. The format has been applied satisfactorily for many years to most of the commercial launch vehicle (LV) systems in agreement with SC manufacturers worldwide.

The format follows the overall guidelines of ISO 17566 with the objective of generating self-contained documents. Relevant sections of the standard test plan, specification, procedure, and report documents are combined to form the comprehensive and compact SC launch environment test reports requested by LV service providers.

The format for the following sections of the test reports is independent of the nature of the test: introduction, documentation, nomenclature, test objectives, test article configuration, test facility configuration, test description, test result evaluation, test deviations, and test conclusions. For this reason, a unique format is specified for all types of tests in Clauses 4, 5, 6, 7, 8, 9, 10, 12, 13, and 14.

The format for the presentation of test results is specific to the test in question. For this reason, Clause 11 is divided into multiple subclauses, corresponding to all types of tests that are required to qualify SC to the launch environment.

In principle, there is one test report per type of test; however, several test reports may be combined if deemed appropriate.

SC organizations may include additional test topics if required. Conversely, some sections of this test report format may not apply to the launch services in question, in which case it is advisable that they be ignored.

Space systems — Format for spacecraft launch environment test report

1 Scope

This International Standard provides a specific format to report the test process and results of spacecraft (SC) qualification to the launch environment. The following types of tests are considered:

- static load;
- modal survey;
- sine vibration;
- acoustic noise;
- random vibration;
- shock; and
- electromagnetic compatibility (EMC).

The definition of test specifications and test requirements are derived from launch vehicle (LV) user's manuals as defined in ISO 14303. Only those tests that are intended to demonstrate the compliance of a given SC design with its LV environment are taken into consideration.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 14303, *Space systems — Launch-vehicle-to-spacecraft interfaces*

ISO 15863, *Space systems — Spacecraft-to-launch-vehicle interface control document*

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1.1

SC adaptor

structure that mates the SC to the LV and includes the separation system for SC/LV separation