INTERNATIONAL STANDARD

ISO 14953

First edition
2000-05-01

Space systems — Structural design — Determination of loading levels for static qualification testing of launch vehicles

Systèmes spatiaux — Conception des structures — Détermination des niveaux de chargement pour un essai statique de qualification des véhicules lanceurs

Reference number
ISO 14953:2000(E)

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 734 10 79
E-mail copyright@iso.ch
Web www.iso.ch

Printed in Switzerland

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 3.

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 International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 14953 was prepared by Technical Committee ISO/TC 20, *Aircraft and space vehicles*, Subcommittee SC 14, *Space systems and operations*.

Space systems — Structural design — Determination of loading levels for static qualification of launch vehicles

1 Scope

This International Standard specifies a procedure for determining the loading level of a qualification test of a launch vehicle structure and takes into account all the minimum allowable strength characteristics necessary for these structures.

This International Standard establishes the required resistance necessary for all mass-produced items to comply with product assurance criteria.

2 Terms and definitions

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

2.1
external mechanical loading
system of forces and moments external to a structure and brought to bear on that structure

2.2
safety factor
J
coefficient by which a limit load is multiplied

2.2.1
yield strength safety factor
J_E
ratio of the yield load of the material to the limit load

NOTE This coefficient is applicable only to metal structures.

2.2.2
ultimate safety factor
J_R
ratio of the allowable ultimate load to the limit load

2.3
overload
excess of internal distributed load used for certain calculations to account for design

3 Design of loading levels

3.1 General

Qualification tests shall be conducted on a flight-type structure. Because such structures are unlikely to include minimum values for all allowable characteristics, the loads used for design shall be corrected before use in