

For Comments Only

BUREAU OF INDIAN STANDARDS

DRAFT FOR COMMENTS ONLY

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भारतीय मानक मसौदा

**अंतरिक्ष पद्धतियाँ — लघु अंतरिक्ष यान और इकाइयों की
डिजाइन अर्हता और स्वीकृति परीक्षण**

Draft Indian Standard

**Space Systems Design Qualification and Acceptance Tests of
Small Spacecraft and Units**

ICS: 49.140

**Air and Space Vehicles Sectional Committee, TED 14 Last date for receipt of comments is
28/08/2024**

NATIONAL FOREWORD

(Identical Clause to be added later)

This Indian Standard which is identical with ISO 19683 : 2017 'Space Systems Design Qualification and Acceptance Tests of Small Spacecraft and Units' issued by International Organization for Standardization (ISO), was adopted by the Bureau of Indian Standards on the recommendations of Air and Space Vehicles Sectional Committee and approval of the Transport Engineering Division Council.

The text of ISO standard has been approved as suitable for publication as an Indian Standard without deviations. Certain terminologies and conventions are, however, not identical to those used in Indian Standards. Attention is particularly drawn to the following:

- Wherever the words 'International Standard' appear referring to this standard, they should be read as 'Indian Standard'.
- Comma (,) has been used as a decimal marker, while in Indian Standards, the current practice is to use a point (.) as the decimal marker.

In this adopted standard, reference appears to certain International Standards for which Indian Standards also exist. The corresponding Indian Standards, which are to be substituted in their respective places, are listed below along with their degree of equivalence for the editions indicated:

<i>International Standard</i>	<i>Corresponding Indian Standard</i>	<i>Degree of Equivalence</i>
ISO 14302	Doc (22924) / ISO 14302 : 2022	Identical under dual numbering

<i>International Standard</i>	<i>Corresponding Indian Standard</i>	<i>Degree of Equivalence</i>
Space systems — Electromagnetic compatibility requirements	Space systems — Electromagnetic compatibility requirements (<i>under development</i>)	
ISO 15864 : 2004 Space systems — General test methods for space craft, subsystems and units	Doc (22939) / ISO 15864 : 2021 Space systems — General test methods for space craft, subsystems and units (<i>under development</i>)	Identical under dual numbering

The technical committee has reviewed the provisions of following International Standards referred in this adopted standard and has decided that they are acceptable for use in conjunction with this standard:

<i>International Standard</i>	<i>Title</i>
ISO 11221 : 2011	Space systems — Space solar panels — Spacecraft charging induced electrostatic discharge test methods
ISO 17566 : 2011	Space systems — General test documentation

Attention is drawn to the possibility that some of the elements of this standard may be the subject of patent rights. The Bureau of Indian Standards shall not be held responsible for identifying any or all such patent rights.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 2022 ‘Rules for rounding off numerical values (*second revision*)’. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

SCOPE

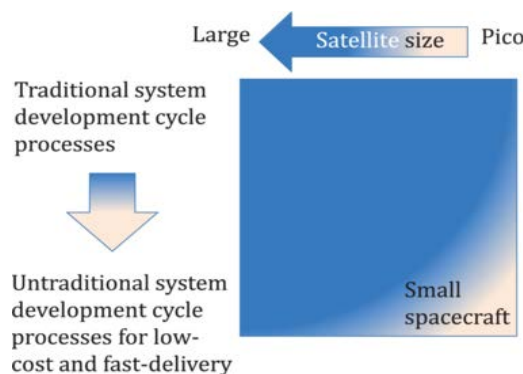
This document provides test methods and test requirements for design qualification and/or acceptance of small spacecraft or units. It provides the minimum test requirements and test methods to qualify the design and manufacturing methods of commercial small spacecraft and their units and to accept the final products.

This document places emphasis on achieving reliability against infant mortality after satellite launch to orbit while maintaining low cost and fast delivery.

This document is applied to satellites whose development methods are different from the ones used for traditional satellites that have little room for risk tolerance, as shown in Figure 1. The scope of this document encompasses different categories of small spacecraft, so-called mini-, micro-, nano-, pico- and femto-, as well as CubeSat, spacecraft. Therefore, for the sake of convenience, the term “small spacecraft” is used throughout this document as a generic term.

This document includes CubeSat, as long as it is developed with the untraditional processes.

Figure 1 — Applicability of this document



This document does not cover satellite deployment mechanisms, such as POD, as the verification requirements are defined in the Interface Control Document (ICD) with the launcher, such as ISO 26869.

This document does not cover software testing, although some tests such as functional test, mission test and end-to-end test are inherently used to test the software installed in the hardware being tested. General requirements and processes of satellite software testing can be found in various references, such as ECSS-E-ST40.

This document does not cover requirements regarding safety nor debris mitigation. Appropriate documents such as ISO 14620-1 or ISO 24113 can be referred to. Other common requirements for small spacecraft can be found in Reference.

FOR COMPLETE TEXT OF THE DOCUMENT KINDLY REFER ISO 19683: 2017 or CONTACT:

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