
Space systems — Electromagnetic compatibility requirements

*Systèmes spatiaux — Exigences relatives à la compatibilité
électromagnétique*



PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

This document is a preview generated by EVS

© ISO 2002

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms, definitions and abbreviated terms	1
3.1 Terms and definitions	1
3.2 Abbreviated terms	3
4 Requirements	4
4.1 General system requirements	4
4.2 Specific system requirements	7
4.3 Equipment-level EMI requirements	10
5 Verification	13
5.1 General system requirements	13
5.2 Specific system requirements	14
5.3 Equipment-level EMI testing	17
Annex A (informative) Rationale behind requirements and tests	20
Bibliography	49

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 14302 was prepared by Technical Committee ISO/TC 20, *Aircraft and space vehicles*, Subcommittee SC 14, *Space systems and operations*.

Introduction

This International Standard addresses the equipment-level requirements, verification and rationale of system-level compatibility concerns used in the development and procurement of complete space systems.

This International Standard includes requirements at all the following levels:

- general system requirements;
- specific system requirements;
- equipment-level electromagnetic interference requirements.

The equipment-level requirements are summarized in Tables 1 and 2.

This International Standard does not include detailed design requirements. Instead, engineering issues to be addressed during execution of the electromagnetic compatibility (EMC) control programme are presented. Requirements in this International Standard may be tailored based on contractual agreements.

This International Standard references civilian equipment-level electromagnetic interference (EMI) test methods to minimize cost and allow the use of standard test methods. This International Standard does not contain EMI test limits. Test limits should be developed based on the environment, power quality definition and operational requirements.

Annex A presents the rationale behind each requirement/test technique, guidance for meeting requirements and test procedures where an acceptable reference is not available. Use of Annex A is advised in order to allow for optimal tailoring of this International Standard for individual programmes.

This document is a preview generated by EVS

Space systems — Electromagnetic compatibility requirements

1 Scope

This International Standard establishes performance requirements for the purpose of ensuring space systems electromagnetic compatibility (EMC). The engineering issues to be addressed in order to achieve system-level EMC are identified herein, with guidance and rationale towards achieving specification conformance. The method for the derivation of typical equipment-level requirements from a space-system-level requirement is illustrated.

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 7137:1995, *Aircraft — Environmental conditions and test procedures for airborne equipment*

IEC 61000-4-2, *Electromagnetic compatibility (EMC) — Part 4-2: Testing and measurement techniques — Electrostatic discharge immunity test*

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

break-out box

non-flight piece of test support equipment that is connected in-line with a cable that accommodates external connection (usually binding posts) of instrumentation or series/parallel test networks to the wiring in that cable

3.1.2

complete space system

normally the spacecraft or launch vehicle itself, but more generally a suite of equipment, subsystems, skills, and techniques capable of performing or supporting an operational role

NOTE A complete system includes related facilities, equipment, subsystems, materials, services, and personnel required for its operation to the degree that it can be considered self-sufficient within its operational or support environment.

3.1.3

dead-facing

removal of power from a circuit prior to mating/de-mating of the circuit interface (usually to prevent arcing or inadvertent short circuits)