



BSI Standards Publication

Space sustainability — Space debris mitigation requirements

This is a preview of BS EN 16604-10:2023. [Click here to purchase the full version from the ANSI store.](#)

National foreword

This British Standard is the UK implementation of EN 16604-10:2023. It is derived from ISO 24113:2023. It supersedes BS EN 16604-10:2019, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee ACE/68, Space systems and operations.

A list of organizations represented on this committee can be obtained on request to its committee manager.

The UK committee advises users that in the UK, a person or organization intending to procure the launch of, or operate, a space object in orbit, or undertake any other activity in outer space, must be licensed under the Space Industry Act 2018 (SIA) if the activities are to be conducted from within the UK. Such activities conducted from outside the UK must be licensed under the Outer Space Act 1986 (OSA).

As the implementation of debris mitigation measures can have a significant impact on the design and operation of space systems and consequently mission cost, it is in the interest of those applying for a licence to confirm, at an early stage, which debris mitigation measures apply to their specific space system and with which the applicant must demonstrate compliance.

This standard is considered by the UK's Civil Aviation Authority (CAA) during its assessment of proposed space activities prior to granting licences.

Contractual and legal considerations

This publication has been prepared in good faith, however no representation, warranty, assurance or undertaking (express or implied) is or will be made, and no responsibility or liability is or will be accepted by BSI in relation to the adequacy, accuracy, completeness or reasonableness of this publication. All and any such responsibility and liability is expressly disclaimed to the full extent permitted by the law.

This publication is provided as is, and is to be used at the recipient's own risk.

The recipient is advised to consider seeking professional guidance with respect to its use of this publication.

This publication is not intended to constitute a contract. Users are responsible for its correct application.

© The British Standards Institution 2024
Published by BSI Standards Limited 2024

ISBN 978 0 539 26446 3

ICS 49.140

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 January 2024.

This is a preview of BS EN 16604-10:2023. [Click here to purchase the full version from the ANSI store.](#)

Amendments/corrigenda issued since publication

Date	Text affected
------	---------------

This is a preview of BS EN 16604-10:2023. [Click here to purchase the full version from the ANSI store.](#)

EUROPÄISCHE NORM

December 2023

ICS 49.140

Supersedes EN 16604-10:2019

English version

Space sustainability - Space debris mitigation requirements (ISO 24113:2023, modified)

Durabilité des activités spatiales - Exigences relatives à la réduction des débris spatiaux (ISO 24113:2023, modifiée)

Nachhaltigkeit im Weltraum - Anforderungen zur Eindämmung des Weltraummülls (ISO 24113:2023, modifiziert)

This European Standard was approved by CEN on 27 November 2023.

CEN and CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN and CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN and CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN and CENELEC members are the national standards bodies and national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and United Kingdom.



**CEN-CENELEC Management Centre:
Rue de la Science 23, B-1040 Brussels**

This is a preview of BS EN 16604-10:2023. [Click here to purchase the full version from the ANSI store.](#)

Contents	Page
European foreword.....	3
Introduction	5
1 Scope	7
2 Normative references	7
3 Terms and definitions	7
4 Symbols and abbreviated terms	11
4.1 Symbols.....	11
4.2 Abbreviated terms	11
5 General.....	11
6 Protected regions	11
6.1 General.....	11
6.2 LEO protected region	12
6.3 GEO protected region.....	12
7 Technical requirements.....	13
7.1 Restricting the intentional release of space debris into Earth orbit during normal operations.....	13
7.1.1 General.....	13
7.1.2 Space debris from pyrotechnics and solid rocket motors.....	13
7.2 Avoiding break-ups in Earth orbit	13
7.2.1 Intentional break-up	13
7.2.2 Accidental break-up caused by an on-board source of energy	13
7.2.3 Accidental break-up caused by a collision.....	14
7.3 Disposal of a spacecraft or launch vehicle orbital stage after the end of mission so as to minimize interference with the protected regions.....	15
7.3.1 Provisions for successful disposal	15
7.3.2 Disposal to minimize interference with the GEO protected region.....	15
7.3.3 Disposal to minimize interference with the LEO protected region	16
7.3.4 Re-entry.....	17
8 Planning requirements	18
8.1 General.....	18
8.2 Space debris mitigation plan.....	18
Annex A (informative) Post-launch life cycle phases of a launch vehicle or spacecraft.....	19
Bibliography.....	20

This is a preview of BS EN 16604-10:2023. [Click here to purchase the full version from the ANSI store.](#)

European foreword

This document (EN 16604-10:2023) has been prepared by the Joint Technical Committee CEN-CENELEC/JTC 5 “Space”, the secretariat of which is held by DIN.

This standard (EN 16604-10:2023) originates from ECSS-U-AS-10C Rev.2.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2024, and conflicting national standards shall be withdrawn at the latest by June 2024.

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

This document supersedes EN 16604-10:2019.

The main changes with respect to EN 16604-10:2019 are listed below:

- adoption of ISO 24113, Space systems — Space debris mitigation requirements, 4th edition 2023 (referred to as ISO 24113:2023) with following additional changes from ECSS:
 - addition of “Context information” w.r.t. ECSS
 - update of “Scope” with ECSS related information
 - replacement of “operation” by “normal operations” in definition 3.13 “launch vehicle orbital stage”
 - addition of Note 4 to definition 3.20 “probability of successful disposal”
 - modification of requirements 7.1.1.3, 7.1.2.2, 7.2.2.6, 7.2.3.1, 7.3.1.2, 7.3.2.3 and 8.2.2
 - addition of Note to requirement 7.2.1 and 7.3.3.2
 - addition of requirements 7.2.3.5, 7.2.3.6 and 7.3.3.3

This document has been prepared under a standardization request addressed to CEN-CENELEC by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

This document has been developed to cover specifically space systems and has therefore precedence over any EN covering the same scope but with a wider domain of applicability (e.g.: aerospace).

Any feedback and questions on this document should be directed to the users’ national standards body/national committee. A complete listing of these bodies can be found on the CEN and CENELEC websites.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

This is a preview of BS EN 16604-10:2023. [Click here to purchase the full version from the ANSI store.](#)

Context information

This document outlines the clauses and the requirements of the standard ISO 24113, Space systems — Space debris mitigation requirements, 4th edition 2023 (referred to as ISO 24113:2023) with modifications, additions, notes and clarifications implemented for application in ECSS.

The standard ISO 24113, Space systems — Space debris mitigation requirements has been developed by ISO TC20/SC14. The key space debris mitigation requirements have been thoroughly discussed at international level, agreed by the ISO members and published as standard ISO 24113.

Aiming at the development of worldwide implementation standards dealing with space debris mitigation, ECSS has proactively contributed to the preparation of ISO 24113.

ECSS decided to adopt and apply ISO 24133 with a few modifications, identified in the present document, to account for the reference and applicable space debris mitigation documents existing in Europe and for the needs of the ECSS members, with the addition of a set of delta-requirements.

In 2012, ECSS adopted ISO 24113:2011 with a minimum set of modifications (as per ECSS-U-AS-10C), which have been mostly incorporated in ISO 24113:2019. Therefore, in 2019, ECSS decided to adopt and apply ISO 24113:2019 as it was, without any modifications of the requirements. ISO 24113:2023 has recently been published and is adopted with this document. However, in the present document a few modifications and delta-requirements with respect to ISO 24113:2023 are included.