Irish Standard
I.S. EN 16602-70-55:2015

Space product assurance - Microbiological examination of flight hardware and cleanrooms

I.S. EN 16602-70-55:2015

Incorporating amendments/corrigenda/National Annexes issued since publication:

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National Foreword

I.S. EN 16602-70-55:2015 is the adopted Irish version of the European Document EN 16602-70-55:2015, Space product assurance - Microbiological examination of flight hardware and cleanrooms

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 16602-70-55

September 2015

ICS 49.140

English version

Space product assurance - Microbiological examination of flight hardware and cleanrooms

Assurance produit des projets spatiaux - Examen microbiologique des matériels de vol et des salles blanches

Raumfahrtproduktsicherung - Mikorbiologische Prüfung von Flughardware und Reinräumen

This European Standard was approved by CEN on 25 October 2014.

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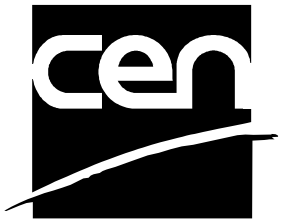
CEN and CENELEC members are the national standards bodies and national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania,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



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European foreword

This document (EN 16602-70-55:2015) has been prepared by Technical Committee CEN/CLC/TC 5 “Space”, the secretariat of which is held by DIN.

This standard (EN 16602-70-55:2015) originates from ECSS-Q-ST-70-55C.

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of an identical text or by endorsement, at the latest by March 2016, and conflicting national standards shall be withdrawn at the latest by March 2016.

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

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

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).

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

Introduction

The UN Outer Space Treaty of 1967 sets up the general principles applicable to the exploration and use of outer space. Article IX of the Outer Space Treaty constitutes the primary statement of international law:

> "States parties shall pursue studies of outer space, including the Moon and other celestial bodies, and conduct exploration of them so as to avoid their harmful contamination and also adverse changes in the environment of the Earth resulting from the introduction of extraterrestrial matter and, when necessary, adopt appropriate measures for this purpose".

Harmful contamination in that sense is defined as biological contamination, including organic-constituents, to protect the environment in order to allow future exobiology research. The Committee On Space Research (COSPAR) has established some planetary protection guidelines, based on the Outer Space Treaty. These guidelines impose requirements on spaceflight missions according to target body/mission type combinations.

The objective of this Standard is to ensure that the proper procedures for establishing the microbiological contamination on flight hardware and controlled environments are in place to meet the planetary protection constraints.

1
Scope

This standard defines test procedures for quantitative and/or qualitative microbiological examination of surfaces of flight hardware and in microbiologically controlled environments (e.g. cleanroom surfaces, cleanroom air, isolator systems).

The following test methods are described:

- Surface and air sampling and detection of biological contaminants with swabs, wipes, contact plates and air samplers, followed by cultivation for bioburden determination.
- Sampling of biological contaminants by DNA analysis from swabs and wipes.

The test methods described in this standard apply to controlling the microbiological contamination on all manned and unmanned spacecraft, launchers, payloads, experiments, ground support equipment, and cleanrooms with planetary protection constraints.

This standard does not address molecular contamination control.

This standard does not address the principles and basic methodology for controlling cleanrooms and associated controlled environments with constraints on particulate contamination.

This standard may be tailored for the specific characteristic and constrains of a space project in conformance with ECSS-S-ST-00.