

Irish Standard I.S. EN 16602-70-06:2014

Space product assurance - Particle and UV radiation testing for space materials

© CEN 2014 No copying without NSAI permission except as permitted by copyright law.

#### I.S. EN 16602-70-06:2014

Incorporating amendments/corrigenda/National Annexes issued since publication:

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard — national specification based on the consensus of an expert panel and subject to public consultation.

S.R.~xxx: Standard~Recommendation-recommendation~based~on~the~consensus~of~an~expert~panel~and~subject~to~public~consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

This document replaces/revises/consolidates the NSAI adoption of the document(s) indicated on the CEN/CENELEC cover/Foreword and the following National document(s):

NOTE: The date of any NSAI previous adoption may not match the date of its original CEN/CENELEC document.

This document is based on:

Published:

EN 16602-70-06:2014

2014-10-08

This document was published under the authority of the NSAI

ICS number:

and comes into effect on:

49.140

2014-10-25

NOTE: If blank see CEN/CENELEC cover page

NSAI T +353 1 807 3800 Sales:

 1 Swift Square,
 F +353 1 807 3838
 T +353 1 857 6730

 Northwood, Santry
 E standards@nsai.ie
 F +353 1 857 6729

 Dublin 9
 W NSAI.ie
 W standards.ie

Údarás um Chaighdeáin Náisiúnta na hÉireann

**EUROPEAN STANDARD** 

EN 16602-70-06

NORME EUROPÉENNE EUROPÄISCHE NORM

October 2014

ICS 49.140

### English version

### Space product assurance - Particle and UV radiation testing for space materials

Assurance produit des projets spatiaux - Essais d'irradiation aux particules et aux ultraviolets pour matériaux d'un projet spatial

Raumfahrtproduktsicherung - Teilchen- und UV-Strahlungstests für Raumflugmaterialien

This European Standard was approved by CEN on 20 March 2014.

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, 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.





**CEN-CENELEC Management Centre:** Avenue Marnix 17, B-1000 Brussels

# **Table of contents**

Forew	ord		4	
1 Sco	pe		5	
2 Norı	mative ı	references	6	
3 Tern	ns, defi	nitions and abbreviated terms	7	
3.1	Terms	from other standards	7	
3.2	3.2 Terms specific to the present standard			
3.3	Abbrev	Abbreviated terms and symbols		
4 Prin	ciples .		10	
5 Req	uiremei	nts	12	
5.1	Specif	ying test	12	
	5.1.1	General provision	12	
	5.1.2	Methodology for laboratory degrading factors definition	12	
	5.1.3	Methodology for irradiations performance	14	
	5.1.4	Specifying the irradiation test procedure	16	
5.2	Preparing and performing test		18	
	5.2.1	General	18	
	5.2.2	Preparing the samples	18	
	5.2.3	Preparing the facilities and equipments	18	
	5.2.4	Running the radiation test procedure	19	
5.3	Record	Recording and reporting the test results		
	5.3.1	Test records	19	
	5.3.2	Test report	19	
	5.3.3	Acceptance criteria and nonconformance	19	
Annex	α A (nor	mative) Request for radiation test - DRD	21	
	-	mative) Radiation test specifications and procedures (Work		
pro	posal) -	- DRD	22	
Annex	c C (nor	mative) Radiation test report - DRD	25	
Biblio	graphy		27	

## This is a free page sample. Access the full version online. **I.S. EN 16602-70-06:2014**

### EN 16602-70-06:2014 (E)

Figures	
Figure 4-1: Test process overview	.10

Figure 4-2: Degrading factors specification......11

## **Foreword**

This document (EN 16602-70-06:2014) has been prepared by Technical Committee CEN/CLC/TC 5 "Space", the secretariat of which is held by DIN.

This standard (EN 16602-70-06:2014) originates from ECSS-Q-ST-70-06C.

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 April 2015, and conflicting national standards shall be withdrawn at the latest by April 2015.

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.

EN 16602-70-06:2014 (E)

# 1 Scope

Materials used in space applications need to be evaluated for their behaviour under Particle and UV Radiation. As part of this evaluation often an exposure to a simulated space environment is performed that can raise questions regarding its accuracy and representativeness. The role of this Standard is to establish a baseline for the testing specification.

NOTE The environments covered are electromagnetic radiation and charged particles.

This Standard defines the procedures for electromagnetic radiation and charged particles testing of spacecraft materials.

These materials include for instance thermal control materials, windows, coatings, and structural materials.

The procedures include simulation of the environment and the properties to be verified.

This Standard excludes electronic components.

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



**Product Page** 

- Dooking for additional Standards? Visit Intertek Inform Infostore
- Dearn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation