This is a free page sample. Access the full version online.

NSAI Standards

Irish Standard
I.S. EN 16603-34:2014

Space engineering - Part 34: Environmental control and life support (ECLS)

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

This is a free page sample. Access the full version online.

I.S. EN 16603-34:2014

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 16603-34:2014	2014-08-27

This document was published under the authority of the NSAI and comes into effect on:	ICS number:
2014-09-13	49.140
	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

This is a free page sample. Access the full version online.

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 16603-34

August 2014

ICS 49.140

English version

Space engineering - Part 34: Environmental control and life support (ECLS)

Ingénierie spatiale - Partie 34: Contrôle de l'environnement et support de vie pour les vols habités

Raumfahrttechnik - Teil 34: Umweltkontrolle und Lebenserhaltung (ECLS)

This European Standard was approved by CEN on 23 February 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

© 2014 CEN/CENELEC All rights of exploitation in any form and by any means reserved worldwide for CEN national Members and for CENELEC Members.

Ref. No. EN 16603-34:2014 E

This is a free page sample. Access the full version online.

Table of contents

Foreword **5**

1 Scope **6**

2 Normative references **7**

3 Terms, definitions and abbreviated terms **8**

3.1 Terms from other standards 8

3.2 Terms specific to the present standard 8

3.3 Abbreviated terms 10

4 Requirements **11**

4.1 Overview 11

4.2 Mission and system 11

4.2.1 General 11

4.2.2 Mission 11

4.2.3 System 12

4.3 General 13

4.3.1 Forms of life 13

4.3.2 ECLSS engineering 14

4.3.3 Environmental condition 14

4.4 Functional 14

4.4.1 Overview 14

4.4.2 Maintain environment 15

4.4.3 Respond to environmental contingencies 20

4.4.4 Provide resources 22

4.4.5 Manage waste 27

4.4.6 Support EVA operations 30

4.4.7 Provide health related services 32

4.5 Design 33

4.5.1 Overview 33

4.5.2 Data management control 33

4.6 Interface 34

This is a free page sample. Access the full version online.

4.6.1 General 34
4.6.2 Ground support equipment (GSE) 34
4.6.3 Mission interfaces 34
4.7 Verification 36
4.7.1 General 36
4.7.2 Verification by similarity 37
4.7.3 Verification by inspection 37
4.7.4 Verification by analysis 37
4.8 Product assurance and safety 37
4.9 Deliverables 38
4.9.1 Hardware 38
4.9.2 Documentation 38

Annex A (informative) **Parameters specification and monitoring 39**
A.1 Specification of parameters 39
A.2 Monitoring of parameters 42

Annex B (informative) **Reference information for parameters 43**
B.1 Previous flight data 43
B.2 ISS data 49
B.2.1 Atmosphere 49
B.2.2 ECLS loads 50
B.2.3 Water quality 51
B.2.4 Radiation doses 52

Annex C (informative) **References 54**

Bibliography 55

Tables

Table 4-1: Classification of pressurized volume 15

Table A-1 : List of parameters to be specified 39
Table A-2 : List of parameters to be monitored 42
Table B-1 : Previous flight data 44
Table B-2 : American programmes - Requirements 45
Table B-3 : American programmes - Functions 46
Table B-4 : Russian programmes - Requirements 47
Table B-5 : Russian programmes - Functions 48
Table B-6 : Atmosphere data 49

This is a free page sample. Access the full version online.

Table B-7 : Metabolic loads 50
Table B-8 : Water quality specifications 51
Table B-9 : Current ionizing radiation equivalent dose limits 52
Table B-10 : Organ dose limits for deterministic effects (all ages) 52
Table B-11 : Current career exposure limits 53

This is a free page sample. Access the full version online.

Foreword

This document (EN 16603-34:2014) has been prepared by Technical Committee CEN/CLC/TC 5 “Space”, the secretariat of which is held by DIN.

This standard (EN 16603-34:2014) originates from ECSS-E-ST-34C.

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

This is a free page sample. Access the full version online.

1 Scope

This Standard addresses the discipline of environmental control and life support (ECLS) and the interfaces to other disciplines of engineering and to the domains of management and product assurance.

It also introduces the structure and applicability of the associated Level 3 Standards.

The environmental control and life support systems (ECLSS) covered in this Standard includes those aspects relating to the assurance of a safe and comfortable environment for human beings undertaking a space mission.

When other forms of life are accommodated on board, the ECLSS also ensures the appropriate environmental conditions for those living organisms.

This Standard applies to all ECLSS for:

- all manned space endeavours and man-rated space products, and
- any other form of life to be maintained on board.

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

SAI GLOBAL

This is a free preview. Purchase the entire publication at the link below:

Product Page

Looking for additional Standards? Visit Intertek Inform Infostore

Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation