



National Standards Authority of Ireland

IRISH STANDARD

I.S. CLC/TS 50466:2006

ICS 31.020

**LONG DURATION STORAGE OF
ELECTRONIC COMPONENTS -
SPECIFICATION FOR IMPLEMENTATION**

National Standards
Authority of Ireland
Glasnevin, Dublin 9
Ireland

Tel: +353 1 807 3800
Fax: +353 1 807 3838
<http://www.nsai.ie>

Sales
<http://www.standards.ie>

*This Irish Standard was
published under the
authority of the National
Standards Authority of
Ireland and comes into
effect on:
June 6, 2006*

**NO COPYING WITHOUT NSAI
PERMISSION EXCEPT AS
PERMITTED BY COPYRIGHT
LAW**

© NSAI 2006

Price Code J

Údarás um Chaighdeáin Náisiúnta na hÉireann

TECHNICAL SPECIFICATION
SPÉCIFICATION TECHNIQUE
TECHNISCHE SPEZIFIKATION

CLC/TS 50466

May 2006

ICS 31.020

English version

**Long duration storage of electronic components –
Specification for implementation**

Stockage longue durée des composants
électroniques –
Guide de mise en oeuvre

Langzeitlagerung von elektronischen
Bauelementen –
Spezifikation für die Ausführung

This Technical Specification was approved by CENELEC on 2005-12-03.

CENELEC members are required to announce the existence of this TS in the same way as for an EN and to make the TS available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force.

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

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

This Technical Specification was prepared by the Technical Committee CENELEC TC 107X, Process management for avionics.

The text of the draft was submitted to the formal vote and was approved by CENELEC as CLC/TS 50466 on 2005-12-03.

The following date was fixed:

- latest date by which the existence of the CLC/TS
has to be announced at national level (doa) 2006-06-03

This document, which is in line with IEC/PAS 62435 relating to the management of obsolescence of electronic components, is first of all a practical guide to methods of long duration storage (more than 5 years) which summarizes the existing practices in the industry.

The application of the approach proposed in this guide in no way guarantees that the stored components are in perfect operating condition at the end of this storage. It only comprises a means of minimizing potential and probable degradation factors.

Unless otherwise specified, the approach, as well as the methods presented apply to all families of electronic components:

- passive components, including quartz crystals, connectors and relays. However, components with "manufacturer's" specifications showing an expiry date, or specific storage conditions, are excluded from this guide (e.g. primary cells, storage cells, etc...),
- encapsulated or non-encapsulated active components of a silicon [Si] or gallium arsenide [GaAs] technology,
- micro-electronic assemblies.

Contents

1	General	5
2	Normative references	5
3	Storage decision criteria	6
3.1	Advantages of storage	6
3.1.1	Technical simplicity – Rapidity	6
3.1.2	Solution durability	6
3.1.3	Preventive storage	6
3.2	Hazards – Drawbacks	6
3.2.1	Generic aging hazard	6
3.2.2	Poor stock dimensioning	7
3.2.3	Incorrect control of reliability during storage	7
3.2.4	Freezing equipment functionalities	7
3.3	Storage cost (Annex C)	7
3.4	Decision criteria	7
4	Purchasing procurement	8
4.1	List of components	8
4.2	Quantity of components to be stored	8
4.2.1	Production stock	8
4.2.2	Field service stock	8
4.3	When is it worth keeping in stock?	9
4.4	Procurement recommendations	9
5	Technical validation of the components	9
5.1	Purpose	9
5.2	Relevant field	9
5.3	Test selection criteria	10
5.4	Measurements and tests	10
5.4.1	Sampling	10
5.4.2	Visual examination, sealing, solderability	11
5.4.3	Compliance with the electrical specifications	11
5.4.3.1	Measurement of electrical parameters	11
5.4.3.2	Temperature impact	12
5.4.4	Assessment of the supplied batch reliability	12
5.4.5	Manufacturing control check (technological analysis)	14
5.5	Sanction	14
6	Conditioning and storage	14
6.1	Type of environment	14
6.2	Elementary storage unit	15
6.3	Stock management	15
6.4	Redundancy	15
6.5	Identification - Traceability	15
6.6	Initial packaging	15
6.7	Solderability	16
6.8	Stabilization bake	16
6.9	Storage conditions	16
6.9.1	Storage area	16
6.9.2	Temperature	16
6.9.3	Temperature variations	16
6.9.4	Relative humidity - Chemical attacks - Contamination	16
6.9.5	Pressure	17
6.9.6	Electrostatic discharges	17

6.9.7	Vibrations – Mechanical impacts.....	17
6.9.8	Electromagnetic field - Radiation	17
6.9.9	Light.....	17
6.10	Maintaining storage conditions	17
7	Periodic check of the components	18
7.1	Objectives	18
7.2	Periodicity.....	18
7.3	Tests during periodic check	18
8	De-stocking.....	18
8.1	Precautions	18
8.1.1	Electrostatic discharges.....	19
8.1.2	Mechanical impacts	19
8.2	Inspection.....	19
9	Feedback	19
Annex A	– Example related to components	20
A.1	Example of a component list	20
A.2	Data description.....	21
Annex B	– Examples of periodic and/or destocking tests.....	22
Annex C	– Parameters influencing the final price of the component storage.....	24
Annex D	– Parameters influencing the quantity of the components to be stored.....	25
Annex E	– Failure mechanisms - Hermetically encapsulated and non-encapsulated active components.....	26
Annex F	– Failure mechanisms: GaAs components.....	28
Bibliography	30
Table E.1	– Failure mechanisms - Hermetically encapsulated and non-encapsulated active components.....	26
Table F.1	– Failure modes compared with initial table on the silicon devices.....	28
Table F.2	– Failure modes specific to GaAs components	29

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](#)
-