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

NSAI Standards

Irish Standard
I.S. EN 16602-70-07:2014

Space product assurance - Verification and approval of automatic machine wave soldering

© 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 16602-70-07:2014

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 16602-70-07:2014	2014-10-08

This document was published under the authority of the NSAI and comes into effect on:	ICS number:
2014-10-25	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 16602-70-07

October 2014

ICS 49.140

Supersedes EN 14612:2003

English version

Space product assurance - Verification and approval of automatic machine wave soldering

Assurance produits des projets spatiaux - Validation et approbation du brasage automatique à la vague

Raumfahrtproduktsicherung - Verifikation und Zulassung von Maschinenschwalllötverfahren

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

© 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 16602-70-07:2014 E

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

Table of contents

Foreword **4**

Introduction **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 9

4 Principles **10**

5 Requirements **11**

5.1 General 11

5.1.1 PCB design constraints 11

5.1.2 Rework 11

5.2 Request for verification of the automatic wave soldering process 12

5.2.1 General 12

5.2.2 Technology samples 12

5.2.3 Examination 12

5.3 Line audit 13

5.4 Verification 13

5.4.1 Planning, management and finance 13

5.4.2 Description of samples 13

5.4.3 Initial tests 14

5.4.4 Environmental exposure 15

5.4.5 Final tests 15

5.4.6 Final verification report 16

5.5 Approval 16

5.5.1 Notification 16

5.5.2 Renewal of approval 16

5.5.3 Withdrawal of approval 16

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

5.5.4 Approval for future project 17

5.6 Process requirements for wave soldering of printed circuit boards 17

Annex A (normative) Solder joint discrepancy log – DRD 20

Annex B (normative) Request for verification of the automatic wave soldering process - DRD 22

Annex C (normative) Automatic wave soldering process verification report – DRD 24

Annex D (normative) Machine-soldering logbook – DRD 26

Annex E (normative) Wave soldering process identification document (PID) – DRD 27

Bibliography 28

Figures

Figure 4-1: Sequence of main events for final customer verification and approval of wave soldering process 10

Figure A-1 : Example of a solder joint discrepancy log 21

Tables

Table 5-1: Limits for warp and twist 14

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

Foreword

This document (EN 16602-70-07:2014) has been prepared by Technical Committee CEN/CLC/TC 5 “Space”, the secretariat of which is held by DIN.

This standard (EN 16602-70-07:2014) originates from ECSS-Q-ST-70-07C.

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 supersedes EN 14612:2003.

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.

Introduction

Wave soldering is regarded as a critical process that can find limited application during the assembly of components on to printed circuit boards (PCBs) intended for spacecraft. The preferred procedure is by manual soldering to the requirements of ECSS-Q-ST-70-08. Generally the small number of identically designed circuits does not warrant the setting up of unique machine parameters for each individual layout.

When wave soldering is identified as a suitable alternative to manual soldering for use in the customer's projects, it can be essential to follow the steps outlined in this document before the final customer's approval is granted. The sequence of main events is shown in Figure 4-1. Each step is fully completed and the details recorded, so that a dossier is compiled for each manufacturer's assembly line. All dossiers are kept updated by the approval authority and serve as a reference for the approval authority's Project Engineers.

A general qualification is not granted for wave soldering. Wave soldering lines that have been previously verified (see also clause 5.2) can be also approved for use on named projects, but this depends entirely on the specific project requirements. Project process approval is requested, as for all materials and critical processes, by means of ECSS-Q-ST-70.

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

1 Scope

This specification defines the basic requirements for the verification and approval of automatic machine wave soldering for use in spacecraft hardware. The process requirements for wave soldering of double-sided and multilayer boards are also defined.

This standard may be tailored for the specific characteristic 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