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Space product assurance - Procurement of printed circuit boards

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 07/15

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 16602-70-11

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ICS 31.180; 49.140

English version

Space product assurance - Procurement of printed circuit boards

Assurance produit des projets spatiaux - Approvisionnement des circuits imprimés

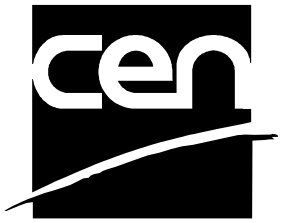
Raumfahrtproduktsicherung - Beschaffung von Leiterplatten

This European Standard was approved by CEN on 11 October 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

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Foreword

This document (EN 16602-70-11:2015) has been prepared by Technical Committee CEN/CLC/TC 5 “Space”, the secretariat of which is held by DIN.

This standard (EN 16602-70-11:2015) originates from ECSS-Q-ST-70-11C.

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 July 2015, and conflicting national standards shall be withdrawn at the latest by July 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

1
Scope

This Standard defines the requirements imposed on the customer, the supplier and the qualified PCB manufacturer for PCB procurement.

The requirements of clause 7 apply to both qualification and procurement of finished PCBs and do not include the manufacturing tolerances.

This Standard is applicable for the following type of boards:

- Rigid PCBs (single-sided, double-sided, multilayer, sequential multilayer and PCBs with metal core)
- Flexible PCBs (single-sided and double-sided)
- Rigid-flex PCBs (multilayer and sequential multilayer)
- High frequency PCBs
- Special PCBs.

PCBs are used for the mounting of components in order to produce PCB assemblies performing complex electrical functions. The PCBs are subjected to thermo-mechanical stresses during their assembly such as mounting of components by soldering, rework and repair under normal terrestrial conditions. In addition the assembled PCB is subjected to the environment imposed by launch and space flights. Therefore the qualification of a PCB supplier to ECSS-Q-ST-70-10 is of extreme importance before the procurement of PCB for space usage.

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

2
Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this ECSS Standard. For dated references, subsequent amendments to, or revision of any of these publications do not apply. However, parties to agreements based on this ECSS Standard are encouraged to investigate the possibility of applying the more recent editions of the normative documents indicated below. For undated references, the latest edition of the publication referred to applies.

EN reference	Reference in text	Title
EN 16601-00-01	ECSS-S-ST-00-01	ECSS system — Glossary of terms
EN 16602-70	ECSS-Q-ST-70	Space product assurance — Material, mechanical parts and processes
EN 16602-70-02	ECSS-Q-ST-70-02	Space product assurance — Thermal vacuum outgassing test for the screening of space materials
EN 16602-70-07	ECSS-Q-ST-70-07	Space product assurance — Verification and approval of automatic machine wave soldering
EN 16602-70-08	ECSS-Q-ST-70-08	Space product assurance — Manual soldering of high-reliability electrical connections
EN 16602-70-10	ECSS-Q-ST-70-10	Space product assurance — Qualification of printed circuit boards
EN 16602-70-28	ECSS-Q-ST-70-28	Space product assurance — Repair and modification of printed circuit board assemblies for space use
EN 16602-70-38	ECSS-Q-ST-70-38	Space product assurance — High-reliability soldering for surface-mount and mixed technology printed-circuit boards
	IEC 60249 (1993-05)	Base materials for printed circuits
	IEC 60326-2-am 1 (1992-06)	Printed boards. Part 2: Test methods
	IPC-4101	Specification for base materials for rigid and mulitlayer printed boards
	IPC-MF-150F	Metal foil for printed wiring applications
	IPC-CF-152B	Composite metallic material specification for printed wiring board