



**SLOVENSKI STANDARD**  
**SIST EN 123000:2002**  
**01-maj-2002**

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**Generic Specification: Printed boards**

Generic Specification: Printed boards

Fachgrundspezifikation: Leiterplatten

Spécification générique: Cartes imprimées

**Ta slovenski standard je istoveten z: EN 123000:1991**

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**ICS:**

31.180 Printed circuits and boards

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EUROPEAN STANDARD  
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English version

**Generic Specification:**

**Printed boards**

Spécification Générique:  
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This European Standard was approved by the CENELEC Electronic Components Committee (CECC) on 18 April 1991. The text of this standard consists of the text of CECC 23 000 Issue 1 1985 of the corresponding CECC Specification. CENELEC members are bound to comply with 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 General Secretariat of the CECC or to any 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 CENELEC member into its own language and notified to the CECC General Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and United Kingdom. The membership of the CECC is identical, with the exception of the national electrotechnical committees of Greece, Iceland and Luxembourg.

**CECC**

CENELEC Electronic Components Committee  
Comité des Composants Electroniques du CENELEC  
CENELEC Komitee für Bauelemente der Elektronik  
General Secretariat: Gartenstr. 179, D- 6000 Frankfurt/Main 70

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FOREWORD

The CENELEC Electronic Components Committee (CECC) is composed of those member countries of the European Committee for Electrotechnical Standardization (CENELEC) who wish to take part in a harmonized System for electronic components of assessed quality.

The object of the System is to facilitate international trade by the harmonization of the specifications and quality assessment procedures for electronic components, and by the grant of an internationally recognized Mark, or Certificate, of Conformity. The components produced under the System are thereby accepted by all member countries without further testing.

The specification has been formally approved by the CECC, and has been prepared for those countries taking part in the System who wish to issue national harmonized GENERIC SPECIFICATIONS for PRINTED BOARDS. It should be read in conjunction with the current regulations for the CECC System.

At the date of printing of this specification the member countries of the CECC are Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom, and copies of it can be obtained from the addresses shown on the blue fly sheet.

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PREFACE

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This generic specification was prepared by CECC Working Group 23: Printed Circuits.

It is based on the publications of the International Electrotechnical Commission (IEC).

The text of this specification was circulated to the CECC for voting in the documents indicated below and was ratified by the President of the CECC for printing as a CECC Specification.

<u>Document</u>	<u>Voting date</u>	<u>Report on the Voting</u>
CECC(Secretariat)1003	February 1981	CECC(Secretariat)1210
CECC(Secretariat)1507	March 1984	CECC(Secretariat)1579

SECRETARIAT NOTE:

DUE TO THE URGENT INDUSTRIAL NEED FOR THIS SPECIFICATION, THE PRESIDENT OF THE CECC HAS RULED THAT IT BE PUBLISHED WITHOUT THE FULL EDITORIAL PROCEDURE BEING APPLIED. USERS OF THE SPECIFICATION ARE ASKED TO REPORT TO THE CECC GENERAL SECRETARIAT ANY ERRORS THEY FIND SO THAT AMENDING ACTION CAN BE INITIATED.

The text is published initially in English and German. The French version will follow as soon as it has been prepared.

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1. General1.1 Scope

This document is a Generic Specification (GS) applying to printed boards within the CENELEC system for Electronic Components of Assessed Quality. It relates to printed boards irrespective of their method of manufacture, when they are ready for mounting of the components.

1.2 Object

To define system and procedure for approval of manufacturers and products and to provide rules for the preparation of specifications for printed boards.

1.3 Related documents

IEC 194	Terms and definitions for printed boards
IEC 249	Metal-clad base materials for printed boards
IEC 326-2	Printed circuits - Test methods
IEC 410	Sampling plans and procedures for inspection by attributes
CECC 00 007	Sampling plans and procedures for inspection by attributes
CECC 00 010	Printed boards - Test methods

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1.4 General considerations

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Printed boards differ from most other electronic components in important factors, such as

- there are no standard boards with standard patterns and dimensions but an infinite variety of shapes and circuit configurations,
- they are "custom tailored", i.e. all details for a particular board must be agreed between customer and manufacturer,
- although they are made in considerable total quantities, the production quantity of a particular printed board may be small.

Therefore, the CECC Qualification Approval Procedure as detailed in CECC 00 107 Part I cannot be applied. Instead of this, it is necessary to use the CECC Capability Approval Procedure as laid down in CECC 00 107 Part III.

In case of printed boards capability approval is based on the use of composite test patterns as capability qualifying components with an appropriate selection of test methods and requirements for each type of printed board, e.g.

- single/double sided, with plain holes
- single/double sided, with plated-through holes



- multilayer printed boards
- flexible printed boards.

Note: This list is not intended to be exhaustive.

An important requirement of capability approval is that a manufacturer shall demonstrate the claimed capability of his facilities and processes.

In the case of printed boards "basic" and "additional" capability are distinguished (see also 3.1, 3.5.2, and 3.5.3 of this GS).

- Basic capability is the capability defined in a CECC or ONH.Cap DS. The term "basic" is not intended to indicate any minimum level of assessment, testing or requirement.
- Additional capability is any capability in addition to the basic capability.

Examples of additional capability:

- maximum size of printed boards that can be processed
- minimum diameter of plated-through holes relative to board thickness
- minimum conductor width and/or spacing
- maximum number of layers
- surface finish.

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They should be claimed, proved and recognized as additional capability (in addition to the basic capability).

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1.5

#### Specification structure

Although printed boards differ from electronic components under the qualification approval procedure in important factors and the application of the capability approval procedure is indispensable, the specifications as described in the Rules of Procedure for components under the qualification approval procedure will be used as far as ever practicable.

All higher level specifications have essentially the same level and the same significance for both, components under qualification approval procedure and printed boards under capability approval procedure.

These are

- the Basic Specification BS
- the Generic Specification GS
- the Sectional Specification SS.

Each SS covers one type of printed boards, e.g. single/double sided printed boards with plain holes, multilayer printed boards, etc.

A Blank Detail Specification, a convenient instrument for components

under qualification approval procedure is not applicable for printed boards. Instead of this, rules for the preparation of Detail Specifications are given in 5 of this GS.

The Detail Specification (DS) for components under the qualification procedure has two functions:

- qualification is tested and granted against it, and
- it describes the product to be delivered.

For printed boards under the capability approval procedure it is necessary to separate both functions and to cover them by two different specifications:

- the Capability Detail Specification (Cap DS) against which capability is tested and granted
- the Customer Detail Specification (CDS) which describes the product to be delivered, i.e. the custom designed printed board.

A survey of the specification structure is given in App. B. Further details of both, Cap DS and CDS, and rules for their preparation are given in 5.

## 2. Particular stipulations

### 2.1 Primary stage of manufacture

The primary stage of manufacture is defined as the incoming inspection of the base material prior to processing.

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This stage and all subsequent processes shall be carried out under the direct surveillance of an approved Chief Inspector. Where this first and subsequent stages of processing are carried out by a sub-contractor, capability approval may be granted provided that in each case the ONS are satisfied that the equivalent disciplines apply.

### 2.2 Structurally similar printed boards

Printed boards having all of the following common features are structurally similar:

- the same type of metal-clad base material, e.g. 249-2-4-IEC-GC-Cu
- the same type of printed board, e.g. single/double sided with plain holes or single/double sided with plated-through holes or multilayer printed boards
- the same type of surface finish, e.g. tin-lead or gold or copper.

### 2.3 Certified test records (RCE)

Where RCE is required, it shall comply with RP9. The content shall be as prescribed in 4.3 of this GS and in the relevant SS stating the number of specimens tested and the number of defectives.

#### 2.4 Delayed delivery

When printed boards are held by the manufacturer for a period of more than six months after the quality conformance inspection the following tests shall be carried out prior to delivery:

- Solderability Test 14a as specified for quality conformance inspection, Sub-Group B2, of the relevant CDS
- Visual examination of the appearance, as specified for quality conformance inspection in Sub-Group A1, of the relevant CDS.

#### 2.5 Release for delivery before the completion of Group B tests

When the conditions of CECC 00 007 (IEC 410) for changing to reduced inspection have been satisfied for the Group B tests, the manufacturer is permitted to release printed boards before the completion of such tests.

#### 2.6 Resubmission of rejected lots

Where a sample fails to meet the requirements of a periodic test action shall be taken in accordance with CECC 00 107, and CECC 00 007 (IEC 410).

#### 2.7 Marking of printed board and package

Printed board As far as practicable each printed board shall be clearly marked with the reference specified by the customer.

The marking may be formed with the conductive pattern or may be printed with a suitable marking ink.

Marking with additional information, such as manufacturers name or identification code, number of SS, date code etc. may be applied if explicitly agreed between customer and manufacturer.

The position of any marking must be agreed between customer and manufacturer.

Package The package shall be marked with the above information and any special marking required by the CDS (e.g. customer's identification number).

#### 2.8 Ordering information

Printed boards shall be ordered by quoting the CDS. This shall contain all information necessary to define the printed board clearly and completely or make reference to that information in an appropriate way.