

**Harmonized system of quality
assessment for electronic components**

**Capability detail
specification:
Flexible multilayer
printed boards with
through connections**

ICS 31.180

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National foreword

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This standard should be read in conjunction with the most recent editions of BS EN 123000 and BS EN 123800.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, the CECC title page, pages 2 to 18 and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

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English version

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Flexible multilayer printed boards with through
connections**

Spécification particulière d'Agrément:
Cartes imprimées multicouches souples avec
connexions transversales

Bauartspezifikation zur Anerkennung der
Befähigung:
Flexible Mehrlagen-Leiterplatten mit
Durchverbindungen



This Capability Detail Specification was approved on 1997-08-06.

Up-to-date lists and bibliographical references of other detail specifications relating to EN 123000:1991 and EN 123800:1996 may be obtained on application to the Central Secretariat or to any CENELEC member.

This CECC Detail Specification 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 Central Secretariat has the same status as the official versions.

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CENELEC

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

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Foreword

This Capability Detail Specification has been prepared by CENELEC/TC CECC/SC 52, Printed Boards (formerly designated CECC Working Group 23).

It was approved as CECC 23 800-801 on 1997-08-06.

It should be read in conjunction with EN 123000:1991 and EN 123800:1996 and with the current regulations for the CECC System.

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1 General

1.1 Scope

This Capability Detail Specification (CapDS) is based upon EN 123800. It relates to flexible multilayer printed boards with through connections, made with materials and surface finishes as specified in clause 2.

1.2 Object

To specify the Capability Qualifying Component (CQC), its characteristics to be tested, the test methods and conditions to be applied and the requirements to be fulfilled for testing basic and extended capability.

2 Capability Qualifying Component (CQC)

Test boards to be used as CQCs for basic capability shall

- be made from a combination of the materials specified in 2.1 of this CapDS. The construction shall be as given in 8.3 of EN 123800.
- bear the composite test pattern (CTP) specified in 8.3 of EN 123800 (or equivalent CTP), for basic and other metallic finishes. CTPs as specified in 8.2 of EN 123200 (or equivalent CTP) shall be used to demonstrate organic surface finishes and externally bonded heat sinks.
- have one of the surface finishes specified by groups 11, 12, 13, 14, 15, 16, or 17 in 2.2 of this CapDS.
- be fabricated using a copper thickness determined by the needs of the process and parameters to be demonstrated (e.g. conductor width and separation). The CQC copper thickness shall be detailed in the capability manual.

Requirements for test boards to be used as modified CQCs for the demonstration of additional capability are detailed in clause 5 of this CapDS.

2.1 Materials

Material group designation	Specification	Base Material		Base material thickness range
		Type	Grade	
A	EN 60249-2-13	Polyimide film	General purpose	12,5 125 µm
	EN 60249-3-15	Polyimide film	Defined flammability	12,5 125 µm

2.2 Surface finishes

2.2.1 Metallic finishes

Finish group Designation	Surface finish	Abbreviation for QPL	Remarks
11	Bare copper	Cu	
12	Copper with solderable organic protective coating	Cu(opc)	
13	Copper with oxide	Cu(CuO)	
14	Tin, Tin-Lead	Sn, SnPb	
15	Tin-Lead (fused)	SnPb(f)	
16	Tin-Lead (dipped and levelled)	SnPb(dI)	selective and non-selective applications to be demonstrated separately where claimed
17	Immersion Gold over Electroless Nickel	AuNi(smt)	
18			not assigned
19			not assigned
20			not assigned
21	Specimen K 5 µm, gold plated on copper, remainder using finish group 11-17 (see below)	5AuCu	
22	Specimen K 0,7 µm, gold plated on nickel, remainder using finish group 11-17 (see below)	0,7AuNi	
23	Specimen K 2,5 µm, gold plated on copper, remainder using finish group 11-17 (see below)	2,5AuCu	
24	Specimen K 2,5 µm, gold plated on nickel, remainder using finish group 11-17 (see below)	2,5AuNi	

The demonstration of metallic group finishes 21, 22, 23 or 24 shall be combined with a finish from groups 11, 12, 13, 14, 15, 16 or 17. Each claimed combination of metallic finishes shall be tested separately. Selective and non-selective finishes of the same material, where claimed, shall be demonstrated separately.

2.2.1.1 Accelerated ageing

The ability of finish groups 11, 12, 13, 14, 15, 16 or 17 to solder after extended or adverse storage conditions is demonstrated using accelerated ageing. This test shall be carried out on those finishes where accelerated ageing is claimed. Each finish that has complied with the requirements of the ageing test is highlighted by the inclusion of an asterisk (*) adjacent to that finish in the manufacturers abstract of capability as published in the QPL.

2.2.2 Organic finishes

Finish group designation	Organic finish	Abbreviation for QPL
a	Adhesive coated film coverlayer	AFC
b	Dry film solder mask	DSM
c	Wet resist Solder mask	WSM
d	Liquid photopolymer solder mask	LSM
e	Marking ink	MI
f	Conductive ink	CI

The demonstration of organic finish groups a, b, c or d shall be over a finish from groups 11, 12, 13, 14, 15, 16 or 17. All claimed types of solder resist shall be tested separately.