

BRITISH STANDARDS INSTITUTION 2 Park Street, London, W1A 2BS	CECC 23500 - 001 Issue 1 Sept 1989 Page 1 of 22 Pages
Specification available from: as shown in i) PD9002 ii) CECC 00 200 and Flexible Technology Ltd Townhead Rothesay Bute PA20 0DZ	
CAPABILITY DETAIL SPECIFICATION Flexible Printed Boards With Through Hole Connections	
Base Material: Polyimide, Copper Clad Laminate See Clause 2.1 Surface Finishes: Bare Copper Tin, Tin Lead Gold on Nickel Edge Contacts Solder Mask (Coverlay) Legends See Clause 2.2	
Refer to Qualified Products List PD9002 and/or CECC 00 200 for details of manufacturers approved to this specification.	

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GENERAL1.1 SCOPE

This Capability DS is based on 23 500. It relates to Flexible Printed Circuits With Through Hole Connections made with materials and surface finishes as specified in 2. below.

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 CQC shall

- be made of one of the copper clad base materials and one of the bonding sheet materials specified in 2.1 of the Capability DS.
- bear the composite test pattern specified in 8.2 of CECC 23 500 or equivalent.
- have one of the surface finishes specified in 2.2 of this Capability DS.
- where additional capability is claimed in respect of maximum size of board, minimum hole diameter, maximum aspect ratio, and minimum conductor widths and spacing, the CQC's and specimens shall be modified to demonstrate those features. - See 5.

2.1 MATERIALS

Material Group Designation	Specification IEC	Material Type	Material Grade	Base Material Thickness Range	Cu Foil Thickness
A	<u>BASE</u>				
	IEC249	Polyimide	General Purpose	.025mm/.125mm	13um 25um 50um
		Polyimide	Defined Flamability (Vertical)	.025mm/.05mm	13um 25um
	<u>COVERLAY</u>				
	IEC249	Polyimide	General Purpose	.025mm/.125mm	N/A
		Polyimide	Defined Flamability (Vertical)	.025mm/.05mm	N/A
	<u>ADHESIVE SYSTEMS</u>				
		Acrylic Adhesive	General Purpose	.025mm/.075mm	N/A

2.2 SURFACE FINISHES

2.2.1 METALLIC

Finish Group Designation	Surface Finish	Abbreviation for QPL
11	Bare Copper	Cu
12	Copper with temporary protective coating	Cu (tpc)
13	Tin, Tin Lead	Sn, SnPb
14	Tin Lead Fused	SnPb (f)
15	Tin Lead (dipped and levelled)	SnPb (dl)
16	Specimen K: 5um min. Gold Plated on Copper remainder finished to Group 11-15	5 Au/Cu, Cu

The demonstration of metallic finish group 16 shall be combined with a finish group from groups 11, 12, 13, 14, or 15. Each claimed combination of metallic finishes shall be tested separately.

2.2.2 ORGANIC FINISHES

Finish Group Designation	Group	Abbreviation for QPL
a	Marking Inks	MI

The manufacturer shall select from the group finishes specified in paragraph 2.2.1 on which the organic finish shall be tested.

All types of organic finish shall be tested.

2.3 COMBINATIONS OF MATERIAL, SURFACE FINISHES AND VARIANT DESIGNATIONS

The combination of

- any material of one material group specified in 2.1

and

- any surface finish of one finish group as specified in 2.2

constitutes a variant.

The variant is designated by the combination of the material group designation and the finish group designation e.g. A11, A12, A11a.

3. CAPABILITY APPROVAL

3.1 RANGE OF CAPABILITY APPROVAL

Capability approval granted on testing one variant is valid within the limits specified in 3.7 of CECC 23 000

- all metal clad base laminates
- all base material thicknesses
- all foil thicknesses of the metal clad base materials
- all adhesive materials

All materials shall be in accordance with section 2.1.

- all surface finishes within one surface finish group as quoted in section 2.2.

3.2 QPL INFORMATION

The QPL (Quality Parts List) information shall be given in accordance with 3.4 of CECC 23 000 and shall contain the following details related to this Capability DS

- reference to the CECC generic specification : 23 000
- reference to the CECC sectional specification : 23 500
- reference to this Capability DS : 23 500 - 001
- variant for which approval is granted
- abbreviations of the surface finishes as given in section 2.2 which are covered by the capability approval
- any additional capability, 3.5.3 of CECC 23 000 refers.

4. CAPABILITY TESTING

4.1 CAPABILITY TEST PROGRAMME

Each separate process shall be assessed within the test programme.

The number of failures permitted for each test is specified in the following tables but the total for any CQC shall not exceed 3 (as permitted in CECC 23 500 Table III).

4.2 BASIC CAPABILITY

The basic capability shall be demonstrated by using 9 composite test patterns (CTP's) of one variant from each material group. The number of specimens for each test is specified in Table I.

4.3 ADDITIONAL METALLIC FINISHES

Additional metallic surface finishes as designated in 2.2.1 shall be demonstrated by the manufacture of 3 CTP's plus sufficient extra specimens A and H to meet the requirements of Table II. Testing shall be in accordance with Table II.

Note: 1. The maximum claimed active board size for the finish shall be demonstrated.

4.4 ORGANIC SURFACE FINISHES

Each claimed organic surface finish, as designated in 2.2.2, shall be demonstrated by the manufacture of 3 CTP's using the pattern specified in Appendix A (Marking Inks). Testing shall be in accordance with Table III.

5. ADDITIONAL CAPABILITY

Maximum Active Board Size : Length + Breadth - See 8.3 of CECC 23 500

Plated Through Hole Diameters : Specimen C of CTP employed

Minimum Drilled Hole Diameter : Use 2mm Pads

Minimum Clearance Diameter : Use 2.5mm Pads

Minimum Conductor Width and Spacing : Specimen F of CTP to provide
5 conductors and 4 spacings each,
of the claimed minimum.

6. TRACEABILITY

Traceability of all test specimens to the original production panel shall be maintained. The method used to identify individual test specimens shall not affect the test results.