

European Committee for Electrotechnical Standardization (CENELEC)
Cenelec Electronic Components Committee

CECC



Système Harmonisé d'Assurance de la Qualité
des Composants Electroniques

**SPECIFICATION
PARTICULIERE CADRE :
TUBES INDICATEURS
A CATHODE FROIDE**

Harmonized System of Quality Assessment for
Electronic Components

BLANK DETAIL SPECIFICATION :

**COLD CATHODE
INDICATOR TUBES**

Harmonisiertes Gütebestätigungssystem für
Bauelemente der Elektronik

**VORDRUCK FÜR
BAUARTSPEZIFIKATION :**

**KALTKATHODEN –
ANZEIGERÖHREN**

CECC 46001

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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 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.

This document has been formally approved by the CECC, and has been prepared for those member countries taking part in the System who wish to prepare and issue detail specifications for COLD CATHODE INDICATOR TUBES. It should be read in conjunction with document CECC 00 100 : Basic Rules (1974).

At the date of printing of this document, the member countries of the CECC are Belgium, Denmark, Germany, France, Ireland, Italy, Netherlands, Norway, Sweden, Switzerland and the United Kingdom, and copies of it can be obtained from the National Committees of the CENELEC in these countries.

PREFACE

This blank detail specification was prepared by CECC Working Group 14 : "SPACE-CHARGE CONTROLLED TUBES".

It is one of a series of blank detail specifications for cold cathode indicator tubes, all relating to the generic specification printed as CECC 46 000.

The text of this specification was circulated to the CECC for voting in document CECC(Secretariat)427 in September 1975 and was formally approved by the CECC for printing as a CECC Specification.

GENERAL

1. The basic data detailed in the following paragraphs shall appear in the harmonized detail specification.

Appendix A prescribes the basic layout of the front page of such a specification.

2. Identification of the harmonized detail specification

- 2.1 The name of the National Standards Organization under whose authority the detail specification is drafted.
- 2.2 The CECC number of the relevant CECC blank detail specification and the allotted CECC number for the detail specification, together with the CECC Symbol.
- 2.3 The number and issue number of the national generic specification.
- 2.4 The national number of the detail specification, date of issue and any other information required by the national system.

3. Identification of the tube

- 3.1 A brief description of the tube, including reference to cold cathode operation and to the characters which can be indicated.
- 3.2 Type designation.
- 3.3 Outline drawing giving principal dimensions and connections.

4. Supplementary information

Detail specifications shall include supplementary information such as :

- 4.1 Marking
- 4.2 Ordering information
- 4.3 Related documents referred to in the detail specification
- 4.4 Requirements for certified test records (where certified test records are considered inappropriate, this shall be clearly indicated by the statement "not applicable")
- 4.5 Structural similarity.

5. Data (not for inspection purposes)

- 5.1 General and mechanical data
 - Dimensioned engineering drawing (in accordance with IEC 67, if applicable)
 - Mass (Weight)
 - Accessories (if applicable)
 - Maximum temperatures for the envelope and seals
 - Maximum and minimum ambient temperatures for operation
 - Shape and size of characters.

5.2 Electrical data - Operating values

- Cathode current
- Maintaining voltage
- Minimum bias voltage
- Minimum cathode current for characters
- Minimum cathode current for decimal point(s)
- Maximum ignition delay time
- Maximum anode voltage for non-ignition
- Minimum anode voltage for ignition
- Maximum anode voltage for extinction.

5.3 Electrical data - Limiting values

Absolute maximum rating system in accordance with IEC 134.

- Maximum bias voltage
- Maximum average cathode current for characters
- Maximum average cathode current for decimal point(s)
- Maximum peak cathode current for characters
- Maximum peak cathode current for decimal point(s).

6. Test schedule and inspection requirements

The harmonized detail specification shall contain the following groups of tests indicated in the layout below.

All reference to paragraphs are made with respect to CECC 46 000 unless otherwise stated.

GROUP A INSPECTION (lot-by-lot)					
Examination or Test	D ND	Condition of Test (Ref. to CECC 46 000)	I L	A Q L	Performance Requirements (Ref. to CECC 46 000)
<u>Sub-Group A1</u>					
Visual examination	ND	4.3	100%		
Inter-electrode insulation	ND	4.5.7	100%		max
Uniformity of luminance	ND	4.5.3	100%		
Alignment of characters	ND	4.5.2	100%		max
<u>Sub-Group A2</u>					
External discharge	ND	4.5.8	S4	4%	

GROUP B INSPECTION (lot-by-lot)					
Examination or Test	D ND	Condition of Test (Ref. to CECC 46 000)	I L	A Q L	Performance Requirements (Ref. to CECC 46 000)
Ignition delay time	ND	4.5.6	S2	4%	max
Ignition voltage	ND	4.5.1	S2	4%	max /min
Robustness of terminations (when applicable)	D	4.6.1	S2	4%	
Solderability (when applicable)	ND	4.6.2	S2		

GROUP C INSPECTION (periodic - three months intervals)					
Examination or Test	D ND	Condition of Test (Ref. to CECC 46 000)	I L	A Q L	Performance Requirements (Ref. to CECC 46 000)
Dimensions	ND	4.4	S3	6,5%	
Probe current	ND	4.5.5	S3	2,5%	
Shock (if application requires)	D	4.6.3	S2	4%	to pass post shock test 4.3, 4.5.3, 4.5.7.
Vibration (if application requires)	D	4.6.4	S2	4%	to pass post vibration test 4.3, 4.5.3, 4.5.7.
Endurance	D	4.7	S4	4%	to pass post endurance test 4.5.3, 4.5.6, 4.5.7.

Notes

D = destructive test
 ND = non-destructive test
 IL = inspection level
 AQL = acceptable quality level

7. Delayed delivery

Each tube held for a period exceeding twelve months following quality conformance inspection shall be re-examined under the uniformity of luminance test before delivery.

Appendix A

Layout for the front page of harmonized
detail specifications

(1)	page of	(2) 
(3) Electronic components of assessed quality in accordance with		(7)
(4)		
(5) Detail specification for		
(6)		
See the relevant Qualified Products List for availability of components under this detail specification.		

Note :

References for the above numbers are as follows :

- (1) see 2.1
- (2) see 2.2
- (3) see 2.3
- (4) see 2.4
- (5) see 3.1
- (6) see 3.2
- (7) see 3.3