

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

CECC



Système Harmonisé d'Assurance de la Qualité  
des Composants Electroniques

SPECIFICATION PARTICULIERE CADRE:

**RESISTANCES FIXES  
DE PRECISION**  
(Niveau d'assurance F)

Harmonized System of Quality Assessment for  
Electronic Components

BLANK DETAIL SPECIFICATION:

**FIXED PRECISION  
RESISTORS**  
(Assessment level F)

Harmonisiertes Gütebestätigungssystem für  
Bauelemente der Elektronik

VORDRUCK FÜR BAUARTSPEZIFIKATION:

**PRÄZISIONS-  
FESTWIDERSTÄNDE**  
(Gütebestätigungsstufe F)

CECC 40302

1976

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Cette page bleue doit être insérée après la page de garde de la CECC 40 302 Edition 1 (1976)

MODIFICATION 1 A LA CECC 40 302 (Edition 1) :

SPECIFICATION PARTICULIERE CADRE:

RESISTANCES FIXES DE PRECISION  
(Niveau d'assurance de qualité F)

Insérer la nouvelle page 1a de la CECC 40 302 Edition 1 Modification 1.

Les modifications suivantes doivent être effectuées à la main:

#### TABEAU 2

(page 6)

En sous-groupe B1, essai "4.15.1 Soudure - Soudabilité", colonne 3, insérer avant le texte existant: "Méthode ----" et en colonne 6, supprimer le texte existant et insérer "Comme en 4.15.1.2.2".

(page 7)

En sous-groupe D1, essai "4.15.2 Soudure - Résistance à la chaleur", colonne 3, modifier la référence du document CEI et lire "CEI 68-2-20" et en colonne 7, modifier "4.15.2.4" en "4.15.2.3".

This blue page shall be inserted after the title page of CECC 40 302 Issue 1 (1976)

AMENDMENT 1 TO CECC 40 302 (Issue 1) :

BLANK DETAIL SPECIFICATION :

FIXED PRECISION RESISTORS  
(Assessment level F)

Insert new page 1a of CECC 40 302 Issue 1 Amendment 1.

The following amendments shall be made in manuscript:

#### TABLE 2

(page 5)

In Sub-Group B1, Test "4.15.1 Soldering - Solderability", Column 3, insert before the existing text "Method ----" and in Column 6 delete the existing text and insert "As in 4.15.1.2.2".

(page 6)

In Sub-Group D1, Test "4.15.2 Soldering - Resistance to heat", Column 3, amend the reference of the IEC document to read "IEC 68-2-20" and in Column 7, amend "4.15.2.4" to read "4.15.2.3".

Dieses blaue Blatt ist nach dem Titelblatt der CECC 40 302 Ausgabe 1 (1976) einzusetzen

ÄNDERUNG 1 ZU CECC 40 302 (Ausgabe 1) :

VORDRUCK FÜR BAUARTSPEZIFIKATIONEN:

PRÄZISIONSFESTWIDERSTÄNDE  
(Gütebestätigungsstufe F)

Die neue Seite 1a der CECC 40 302 Ausgabe 1 Änderung 1 ist einzusetzen.

Folgende Änderungen sind handschriftlich vorzunehmen:

#### TABELLE 2

(Seite 6)

In Untergruppe B1, Prüfung "4.15.1 Löten - Lötbarkeit", Spalte 2, ist vor dem bestehenden Text einzusetzen "Verfahren ----" und in Spalte 6 ist der bestehende Text zu ersetzen durch "Wie in 4.15.1.2.2".

(Seite 7)

In Untergruppe D1, Prüfung "4.15.2 Löten - Lötwärmebeständigkeit", Spalte 3, ist der Verweis auf das IEC-Schriftstück zu ändern in "IEC 68-2-20" und in Spalte 7 ist "4.15.2.4" zu berichtigen in "4.15.2.3".

CECC 40 302 Edition 1 Modification 1 1986

CECC 40 302 Issue 1 Amendment 1 1986

CECC 40 302 Ausgabe 1 Änderung 1 1986

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 FIXED PRECISION RESISTORS (ASSESSMENT LEVEL F). 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, the 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 4 : "RESISTORS".

It is one of a series of blank detail specifications for fixed precision resistors, all relating to the generic specification printed as CECC 40 000 and the sectional specification printed as CECC 40 300.

The text of this specification has been prepared from the information contained in CECC 40 000 and CECC 40 300. It was circulated to the CECC for voting in the documents listed below and was formally approved by the CECC for publication as a CECC Specification.

| <u>Document</u>       | <u>Voting date</u> |
|-----------------------|--------------------|
| CECC(Secretariat) 60  | 10 January 1972    |
| CECC(Secretariat) 83  | 30 June 1972       |
| CECC(Secretariat) 343 | 18 June 1975       |



Amendment 1 to Issue 1 of this blank detail specification results from amendments to the generic specification CECC 40 000 which were circulated to the CECC for voting in the document indicated below and were approved by the President of the CECC for publication:

Voting document  
CECC(Secretariat)1447

Date of voting  
March 1984

Report on the voting  
CECC(Secretariat)1611

IMPLEMENTATION

This amendment shall become effective for all new qualification approvals on 1 May 1986. It shall become effective for all other qualification approvals by 1 May 1987.

CECC 40 302 Issue 1 Amendment 1

-1a-

The numbers between square brackets on the first page correspond to the following indications which should be given :

Identification of the harmonized detail specification

- [1] The name of National Standards Organization under whose authority the detail specification is drafted.
- [2] The CECC Symbol and the number allotted by the CECC General Secretary to the completed detail specification.
- [3] The number and issue number of the national generic specification.
- [4] The national number of the detail specification, date of issue and any further information required by the national system.

Identification of the resistor

- [5] A short description of the type of resistor.
- [6] Information on typical construction (where applicable) for example: wirewound insulated.
- [7] Outline drawing with main dimensions which are of importance for interchangeability and/or reference to the national or international documents for outlines. Alternatively, this drawing may be given in an appendix to the detail specification.
- [8] Application or group of applications covered, or, preferably, the level of quality assessment covered by the blank detail specification.
- [9] Reference data on the most important properties, to allow comparison between the various resistor types.

|                                                                          |                                                                                                           |
|--------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| Page: [1]<br>of :<br>Specification available from:                       | [2]<br>CECC 40 302<br> |
| [3]<br>ELECTRONIC COMPONENT OF ASSESSED QUALITY<br>IN ACCORDANCE WITH :  | [4]                                                                                                       |
| [7]<br>Outline and dimensions: (See Table 1)<br>(First angle projection) | [5]<br>FIXED PRECISION<br>RESISTORS<br>(Assessment Level F)                                               |
|                                                                          | [6]                                                                                                       |
|                                                                          | [8]                                                                                                       |

Note 1 : Other shapes are permitted within the dimensions given. [9]

Note 2 : These resistors are (not) suitable for printed wiring applications.

TABLE 1

| Style | Rated<br>dissipation<br>(W at 70°C) | Limiting<br>element<br>voltage<br>(V d.c. or<br>a.c. peak) | Isolation<br>voltage<br>(V d.c. or<br>a.c. peak) | Maximum<br>dimensions |   | d   |     |     |
|-------|-------------------------------------|------------------------------------------------------------|--------------------------------------------------|-----------------------|---|-----|-----|-----|
|       |                                     |                                                            |                                                  | L                     | D | min | nom | max |
|       |                                     |                                                            |                                                  |                       |   |     |     |     |

All dimensions are in millimetres.

# 1. RATINGS AND CHARACTERISTICS

\*Resistance range

$\Omega$  to  $\Omega$

Standard selection tolerances

$\pm$  ... %

Climatic category

-/-/-

Vibration severity

... Hz to ... Hz; 0,75 mm or 98 m/s<sup>2</sup>  
(whichever is the less severe)

Low air pressure

8,5 kN/m<sup>2</sup> (85 mbar)

\*The preferred values are those of the E-series of IEC 63. Where the use of intermediate values is essential, they should, wherever possible, be chosen from a series in that document.

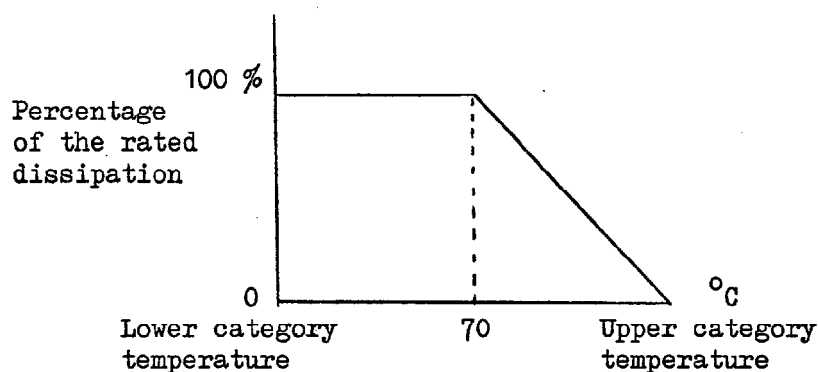
See the relevant Qualified Products List for the availability of components qualified to this detail specification.

Limit of resistance change  
after 1 000 h endurance test  $\pm ( \dots \% + \dots \Omega )$

Temperature characteristic of  
resistance (20 to 70°C)  $\Delta R/R: \leq \pm \dots \% \quad (\Delta R/R \Delta T: \leq \dots 10^{-6} / ^\circ\text{C})$

### 1.1 Derating

Resistors covered by this specification are derated according to the curve :



## 2. MARKING

The marking of the component and package shall be in accordance with the requirements of 2.4 of CECC 40 000.

## 3. RELATED DOCUMENTS

National Authorized Institutions shall complete this section, making reference to any documents, recommendations or specifications directly referred to in their national equivalent of this document.

## 4. ORDERING INFORMATION

Orders for resistors covered by this specification shall contain the following information:

- resistance value
- tolerance
- style and national specification number of this detail specification.

## 5. CERTIFIED TEST RECORDS

National Authorized Institutions shall indicate in this paragraph whether certified test records shall be prepared in accordance with 3.5 of CECC 40 000.

## 6. INSPECTION REQUIREMENTS (See Table 2)

6.1 When drying is called for, Procedure I of 4.2 of CECC 40 000 shall be used.

6.2 When it is desired to obtain qualification approval by adopting the fixed sample size procedure, use shall be made of the test schedule given for that purpose in CECC 40 300.

The conditions of test and the performance requirements shall be identical to those prescribed for quality conformance inspection in the detail specification.

TABLE 2

| Clause Number<br>and Test<br>(See Note 1)       | D<br>or<br>ND     | Conditions of test                                                                                                                                                                                                                                                                                                                                                                | I<br>L<br>(See Note 2) | A<br>Q<br>L<br>(See Note 2) | Performance<br>requirements<br>(See Note 1)                |         |     |                 |      |          |  |  |                                              |
|-------------------------------------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-----------------------------|------------------------------------------------------------|---------|-----|-----------------|------|----------|--|--|----------------------------------------------|
| <b>GROUP A INSPECTION</b>                       |                   |                                                                                                                                                                                                                                                                                                                                                                                   |                        |                             |                                                            |         |     |                 |      |          |  |  |                                              |
| To be conducted on a sampling basis, lot-by-lot |                   |                                                                                                                                                                                                                                                                                                                                                                                   |                        |                             |                                                            |         |     |                 |      |          |  |  |                                              |
| <b>Sub-Group A1</b>                             | ND                |                                                                                                                                                                                                                                                                                                                                                                                   | II                     | 1,0%                        |                                                            |         |     |                 |      |          |  |  |                                              |
| 4.3.1 Visual examination                        |                   |                                                                                                                                                                                                                                                                                                                                                                                   |                        |                             | As in 4.3.1                                                |         |     |                 |      |          |  |  |                                              |
| 4.3.3 Dimensions (gauging)                      |                   |                                                                                                                                                                                                                                                                                                                                                                                   |                        |                             | As specified in the detail specification.                  |         |     |                 |      |          |  |  |                                              |
| 4.3.2 Marking                                   |                   |                                                                                                                                                                                                                                                                                                                                                                                   |                        |                             | As in 4.3.2                                                |         |     |                 |      |          |  |  |                                              |
| <b>Sub-Group A2</b>                             | ND                |                                                                                                                                                                                                                                                                                                                                                                                   | II                     | 0,25%                       |                                                            |         |     |                 |      |          |  |  |                                              |
| 4.4 Resistance                                  |                   | See CECC 40 000 Appendix D3.1                                                                                                                                                                                                                                                                                                                                                     |                        |                             | As in 4.4.2                                                |         |     |                 |      |          |  |  |                                              |
| <b>GROUP B INSPECTION</b>                       |                   |                                                                                                                                                                                                                                                                                                                                                                                   |                        |                             |                                                            |         |     |                 |      |          |  |  |                                              |
| To be conducted on a sampling basis, lot-by-lot |                   |                                                                                                                                                                                                                                                                                                                                                                                   |                        |                             |                                                            |         |     |                 |      |          |  |  |                                              |
| <b>Sub-Group B1</b>                             | D                 |                                                                                                                                                                                                                                                                                                                                                                                   | S-3                    | 1,0%                        |                                                            |         |     |                 |      |          |  |  |                                              |
| 4.6 Voltage proof                               |                   | Insulated resistors only                                                                                                                                                                                                                                                                                                                                                          |                        |                             | As in 4.6.3                                                |         |     |                 |      |          |  |  |                                              |
| 4.5 Insulation resistance                       |                   | Insulated resistors only                                                                                                                                                                                                                                                                                                                                                          |                        |                             | $R : \geq \text{---} M \Omega$<br>or $\text{---} G \Omega$ |         |     |                 |      |          |  |  |                                              |
| 4.15.1 Soldering - Solderability                |                   | "Method ----"<br>(The detail specification shall indicate whether the terminations are suitable for printed wiring)                                                                                                                                                                                                                                                               |                        |                             | As in 4.15.1.2.2"                                          |         |     |                 |      |          |  |  |                                              |
| 4.11 Overload                                   |                   | <table><tr><th>Test duration</th><th>Rated dissipation</th></tr><tr><td>1 s</td><td>0,063 W</td></tr><tr><td>5 s</td><td>0,125 to 0,75 W</td></tr><tr><td>15 s</td><td>1 to 2 W</td></tr></table> <p>Voltage: The applied voltage shall be 2,5 times the rated voltage or twice the limiting element voltage, whichever is the less.</p> <p>Visual examination<br/>Resistance</p> | Test duration          | Rated dissipation           | 1 s                                                        | 0,063 W | 5 s | 0,125 to 0,75 W | 15 s | 1 to 2 W |  |  | As in 4.11.3<br>$\Delta R/R : \leq \dots \%$ |
| Test duration                                   | Rated dissipation |                                                                                                                                                                                                                                                                                                                                                                                   |                        |                             |                                                            |         |     |                 |      |          |  |  |                                              |
| 1 s                                             | 0,063 W           |                                                                                                                                                                                                                                                                                                                                                                                   |                        |                             |                                                            |         |     |                 |      |          |  |  |                                              |
| 5 s                                             | 0,125 to 0,75 W   |                                                                                                                                                                                                                                                                                                                                                                                   |                        |                             |                                                            |         |     |                 |      |          |  |  |                                              |
| 15 s                                            | 1 to 2 W          |                                                                                                                                                                                                                                                                                                                                                                                   |                        |                             |                                                            |         |     |                 |      |          |  |  |                                              |
| <b>Sub-Group B2</b>                             | ND                |                                                                                                                                                                                                                                                                                                                                                                                   | S-3                    | 2,5%                        |                                                            |         |     |                 |      |          |  |  |                                              |
| 4.7 Temperature characteristic of resistance    |                   | One cycle of 20°C to 70°C to 20°C only.                                                                                                                                                                                                                                                                                                                                           |                        |                             | $\Delta R/R : \leq \dots \%$                               |         |     |                 |      |          |  |  |                                              |

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| Clause Number<br>and Test<br><br>(See Note 1)                              | D<br>or<br>ND | Conditions of test                                                                                                                                                                                                                                           | Sample size &<br>criterion of<br>acceptability<br>(See Note 3) |    |   | Performance<br>requirements<br>(See Note 1)    |
|----------------------------------------------------------------------------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|----|---|------------------------------------------------|
|                                                                            |               |                                                                                                                                                                                                                                                              | P                                                              | n  | c |                                                |
| <u>GROUP C INSPECTION</u>                                                  |               |                                                                                                                                                                                                                                                              |                                                                |    |   |                                                |
| Not applicable                                                             |               |                                                                                                                                                                                                                                                              |                                                                |    |   |                                                |
| <u>GROUP D INSPECTION</u>                                                  |               |                                                                                                                                                                                                                                                              |                                                                |    |   |                                                |
| To be conducted on a sampling basis at the periodicity given in column "P" |               |                                                                                                                                                                                                                                                              |                                                                |    |   |                                                |
| <u>Sub-Group DI</u>                                                        | D             |                                                                                                                                                                                                                                                              | 6                                                              | 13 | 1 |                                                |
| 4.14 Robustness of terminations                                            |               | i) <u>7 specimens</u><br>Tensile, bending and torsion tests.<br>Visual examination<br>Resistance                                                                                                                                                             |                                                                |    |   | As in 4.14.6.1<br>$\Delta R/R : \leq \dots \%$ |
| 4.15.2 Soldering - Resistance to heat                                      |               | (The detail specification shall indicate whether Method 1A or Method 1B of Test Tb of IEC 68-2-20 shall apply).<br>Visual examination<br>Resistance                                                                                                          |                                                                |    |   | As in 4.15.23<br>$\Delta R/R : \leq \dots \%$  |
| 4.16 Rapid change of temperature                                           |               | ii) <u>Remaining 6 specimens</u><br>T <sub>A</sub> : Lower category temperature<br>T <sub>B</sub> : Upper category temperature<br>Visual examination<br>Resistance                                                                                           |                                                                |    |   | As in 4.16.4<br>$\Delta R/R : \leq \dots \%$   |
| 4.19 Vibration                                                             |               | Procedure: B4 IEC 68-2-6<br>Frequency range :<br>... Hz to ... Hz<br>Amplitude : 0,75 mm or 98 m/s <sup>2</sup> (whichever is the less severe).<br><br>Sweep endurance :<br>Total duration : 6 h<br><br>(See Note 4)<br><br>Visual examination<br>Resistance |                                                                |    |   | As in 4.19.3<br>$\Delta R/R : \leq \dots \%$   |

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| Clause Number and Test<br>(See Note 1)                                                                                                                                                                       | D or ND | Conditions of test                                                                                                                                                                                                 | Sample size & criterion of acceptability<br>(See Note 3) |    |   | Performance requirements<br>(See Note 1)                                                         |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|----|---|--------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                              |         |                                                                                                                                                                                                                    | P                                                        | n  | c |                                                                                                  |
| <u>Sub-Group D1 (cont)</u><br><br>4.20 Climatic sequence<br>- Dry heat,<br>- Damp heat, cyclic, first cycle<br>- Cold<br>- Low air pressure<br>- Damp heat, cyclic, remaining cycles<br>- Final measurements |         | <u>All of the sample</u><br><br><br><br><br><br><br><br><br><br>8,5 kN/m <sup>2</sup> (85 mbar)<br><br><br><br><br><br>Visual examination<br>Resistance<br><br>Insulation resistance<br>(insulated resistors only) |                                                          |    |   | As in 4.20.8<br>$\Delta R/R : \leq \dots \%$<br>$R : \geq \dots M \Omega$<br>or $G \Omega$       |
| <u>Sub-Group D2</u><br><br>4.24.1 Endurance at 70°C                                                                                                                                                          | D       | Duration : 1000 h<br>Examination at 48, 168, 500 and 1000 h.<br><br>Visual examination<br>Resistance<br><br>Examination at 1000 h<br>Insulation resistance<br>(insulated resistors only)                           | 6                                                        | 13 | 1 | As in 4.24.1.7<br>$\Delta R/R : \leq \dots \%$<br><br>$R : \geq \dots M \Omega$<br>or $G \Omega$ |
| <u>Sub-Group D3</u><br><br>4.21 Damp heat, steady state                                                                                                                                                      | D       | Visual examination<br>Resistance<br>Insulation resistance<br>(insulated resistors only)                                                                                                                            | 12                                                       | 13 | 1 | As in 4.21.4<br>$\Delta R/R : \leq \dots \%$<br>$R : \geq \dots M \Omega$<br>or $G \Omega$       |

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| Clause Number and Test<br>(See Note 1)                                                                          | D or ND | Conditions of test                                                                                                                                                                                                                                                                                                                                | Sample size & criterion of acceptability<br>(See Note 3) |    |   | Performance requirements<br>(See Note 1)                                                                                                                                          |        |        |                     |  |       |       |
|-----------------------------------------------------------------------------------------------------------------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|----|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|---------------------|--|-------|-------|
|                                                                                                                 |         |                                                                                                                                                                                                                                                                                                                                                   | P                                                        | n  | c |                                                                                                                                                                                   |        |        |                     |  |       |       |
| <u>Sub-Group D4</u><br><br>4.7      Temperature characteristic or resistance                                    | ND      |                                                                                                                                                                                                                                                                                                                                                   | 12                                                       | 13 | 1 | <table><tr><td>LCT/20</td><td>20/UCT</td></tr><tr><td colspan="2"><math>\Delta R/R : \leq</math></td></tr><tr><td>... %</td><td>... %</td></tr></table>                           | LCT/20 | 20/UCT | $\Delta R/R : \leq$ |  | ... % | ... % |
| LCT/20                                                                                                          | 20/UCT  |                                                                                                                                                                                                                                                                                                                                                   |                                                          |    |   |                                                                                                                                                                                   |        |        |                     |  |       |       |
| $\Delta R/R : \leq$                                                                                             |         |                                                                                                                                                                                                                                                                                                                                                   |                                                          |    |   |                                                                                                                                                                                   |        |        |                     |  |       |       |
| ... %                                                                                                           | ... %   |                                                                                                                                                                                                                                                                                                                                                   |                                                          |    |   |                                                                                                                                                                                   |        |        |                     |  |       |       |
| <u>Sub-Group D5</u><br><br>4.3.4    Dimensions (detail)<br><br>4.24.3   Endurance at upper category temperature | D       | <p>Duration : 1000 h<br/>Examination at 48, 168, 500 and 1000 h.</p> <p>Visual examination<br/>Resistance<br/>Examination at 1000 h<br/>Insulation resistance (insulated resistors only)</p>                                                                                                                                                      | 24                                                       | 13 | 1 | <p>As specified in the detail specification</p> <p>As in 4.24.3.7<br/><math>\Delta R/R : \leq \dots \%</math><br/><math>R : \geq \dots M\Omega</math> or <math>G\Omega</math></p> |        |        |                     |  |       |       |
| <u>Sub-Group D6</u><br><br>4.24    Endurance at other temperatures (where applicable)                           | D       | <p>This sub-group is only applicable if a derating curve other than that shown in 2.4 of CECC 40 300, is claimed in the detail specification.</p> <p>Duration : 1000 h<br/>Examination at 48, 168, 500 and 1000 h.</p> <p>Visual examination<br/>Resistance</p> <p>Examination at 1000 h<br/>Insulation resistance (insulated resistors only)</p> | 24                                                       | 13 | 1 | <p>As in 4.24.1.7<br/><math>\Delta R/R : \leq \dots \%</math><br/>(As for Sub-Group D2)</p> <p><math>R : \geq \dots M\Omega</math> or <math>G\Omega</math></p>                    |        |        |                     |  |       |       |

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NOTE 1 : Clause numbers of tests and performance requirements refer to CECC 40 000.

NOTE 2 : Inspection Levels and AQL's are selected from IEC 410.

NOTE 3 : In this table :

|     |   |                                                          |
|-----|---|----------------------------------------------------------|
| p   | = | periodicity (in months)                                  |
| n   | = | sample size                                              |
| c   | = | acceptance criterion<br>(permitted number of defectives) |
| D   | = | destructive                                              |
| ND  | = | non-destructive                                          |
| LCT | = | Lower category temperature                               |
| UCT | = | Upper category temperature                               |

NOTE 4 : Resistors shall be mounted by their normal means. Where this is by axial wire terminations, the distance between the resistor body and the mounting point on the termination shall be  $6 \pm 1$  mm.

The design of a resistor may be such that special mounting fixtures are required in its use. In this case, the detail specification shall describe the mounting fixtures and they shall be used in the performance of bump, shock and vibration tests.