SLOVENSKI STANDARD
SIST EN 60195:2016

01-oktober-2016

Metoda za merjenje tokovnega šuma, ki ga povzročajo stalni upori (IEC 60195:2016)

Method of measurement of current noise generated in fixed resistors (IEC 60195:2016)

Ta slovenski standard je istoveten z: EN 60195:2016

ICS:

17.140.20	Emisija hrupa naprav in opreme	Noise emitted by machines and equipment
31.040.10	Fiksni upor	Fixed resistors

SIST EN 60195:2016 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60195

July 2016

ICS 31.040.10

English Version

Method of measurement of current noise generated in fixed resistors (IEC 60195:2016)

Méthode pour la mesure du bruit produit en charge par les résistances fixes
(IEC 60195:2016)

Messverfahren für das Stromrauschen in Festwiderständen
(IEC 60195:2016)

This European Standard was approved by CENELEC on 2016-05-12. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Ref. No. EN 60195:2016 E

European foreword

The text of document 40/2431/FDIS, future edition 2 of IEC 60195, prepared by IEC/TC 40 “Capacitors and resistors for electronic equipment" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60195:2016.

The following dates are fixed:

• latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2017-02-12
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2019-05-12

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Endorsement notice

The text of the International Standard IEC 60195:2016 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60027 (series)	NOTE Harmonized as EN 60027 (series).

Annex ZA
(normative)
Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC 60068-1	2013	Environmental testing -- Part 1: General and guidance	EN 60068-1	2014

IEC 60195

Edition 2.0 2016-04

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Method of measurement of current noise generated in fixed resistors

Méthode pour la mesure du bruit produit en charge par les résistances fixes

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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METHOD OF MEASUREMENT OF CURRENT NOISE GENERATED IN FIXED RESISTORS

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 60195 has been prepared by IEC technical committee 40: Capacitors and resistors for electronic equipment.

This second edition cancels and replaces the first edition published in 1965 and constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- harmonization of the allocation of isolation resistors R_M in the recommended operating conditions given in Table 2;
- correction of erroneous numeric values of the contribution of system noise, $f(T - S)$ in Table 3;
- addition of advice on the prescription of requirements in a relevant component specification;
- addition of a set of recommended measuring conditions for specimens with a rated dissipation of less than 100 mW;

- complete editorial revision.

The text of this standard is based on the following documents:

FDIS	Report on voting
40/2431/FDIS	40/2458/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

METHOD OF MEASUREMENT OF CURRENT NOISE GENERATED IN FIXED RESISTORS

1 Scope

This International Standard specifies a method of measurement and associated test conditions to assess the "noisiness", or magnitude of current noise, generated in fixed resistors of any given type. The method applies to all classes of fixed resistors. The aim is to provide comparable results for the determination of the suitability of resistors for use in electronic circuits having critical noise requirements.

The current noise in resistive materials reflects the granular structure of the resistive material. For some resistor technologies utilizing homogenous layers it is regarded as providing an indication of defects, which are considered as a root cause for abnormal ageing of the component under the influence of temperature and time.

The method described in this International Standard is not a general specification requirement and therefore is applied if prescribed by a relevant component specification, or, if agreed between a customer and a manufacturer.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60068-1:2013, *Environmental testing – Part 1: General and guidance*

3 Terms and definitions

For the purposes of this document the following terms and definitions apply.

3.1
current-noise
combination of all random fluctuations of current flow in a resistor which are not attributed to thermal agitation of the charge carriers (thermal noise) and which depend on the applied direct current

3.2
current-noise index
A_1
logarithmic index of the ratio of the open circuit r.m.s. current-noise voltage in a frequency decade, in μV, over the d.c. voltage applied under test, in V, used to express the “noisiness” of an individual resistor

Note 1 to entry: The current-noise index is expressed in dB. The ratio between μV and V is not considered in this index, leading to its value being 120 dB less than the mathematical current-noise index A_1'. This practical index follows the history of prior revisions of this method.