SLOVENSKI STANDARD
SIST EN 62623:2013

01-julij-2013

Namizni in prenosni računalniki - Merjenje porabe energije (IEC 62623:2012)

Desktop and notebook computers - Measurement of energy consumption (IEC 62623:2012)

Desktop- und Notebook-Computer – Messung des Energieverbrauchs (IEC 62623:2012)

Ordinateurs de bureau et ordinateurs portables - Mesure de la consommation d'énergie (CEI 62623:2012)

Ta slovenski standard je istoveten z: EN 62623:2013

ICS:

35.160	Mikroprocesorski sistemi	Microprocessor systems

SIST EN 62623:2013 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

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English version

Desktop and notebook computers - Measurement of energy consumption

(IEC 62623:2012)

Ordinateurs de bureau et ordinateurs portables -
Mesure de la consommation d'énergie
(CEI 62623:2012)

Desktop- und Notebook-Computer –
Messung des Energieverbrauchs
(IEC 62623:2012)

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CENELEC

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

Management Centre: Avenue Marnix 17, B - 1000 Brussels

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Foreword

The text of document 108/490/FDIS, future edition 1 of IEC 62623, prepared by IEC/TC 108 "Safety of electronic equipment within the field of audio/video, information technology and communication technology" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62623:2013.

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)	2013-09-04
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2015-12-04

This standard is based on ECMA-383.

In this standard, the following print types or formats are used:
– requirements proper and normative annexes: in roman type;
– notes/explanatory matter: in smaller roman type;
– terms that are defined in 3.1: **bold**.

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Endorsement notice

The text of the International Standard IEC 62623:2012 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 62075	NOTE	Harmonized as EN 62075.
IEC 62301	NOTE	Harmonized as EN 62301.

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 When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
ECMA-389	-	Procedure for the Registration of Categories for ECMA-383 2nd edition	-	-

IEC 62623

Edition 1.0 2012-10

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Desktop and notebook computers – Measurement of energy consumption

Ordinateurs de bureau et ordinateurs portables – Mesure de la consommation d'énergie

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

DESKTOP AND NOTEBOOK COMPUTERS – MEASUREMENT OF ENERGY CONSUMPTION

FOREWORD

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International Standard IEC 62623 has been prepared by IEC technical committee 108: Safety of electronic equipment within the field of audio/video, information technology and communication technology.

This standard is based on ECMA-383.

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

FDIS	Report on voting
108/490/FDIS	108/500/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.

In this standard, the following print types or formats are used:

– requirements proper and normative annexes: in roman type;

– notes/explanatory matter: in smaller roman type;

– terms that are defined in 3.1: **bold**.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site 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.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

This standard is based on ECMA-383 and complements the guidance given in IEC 62075. It includes the definitions of energy saving modes and generic energy saving guidance for designers of desktop and notebook computers, by defining a methodology on how to measure the energy consumption of a product whilst providing categorisation criteria that enable energy consumption comparisons of similar products.

DESKTOP AND NOTEBOOK COMPUTERS – MEASUREMENT OF ENERGY CONSUMPTION

1 Scope

This International Standard covers personal computing products. It applies to desktop and notebook computers as defined in 4.1 that are marketed as final products and that are hereafter referred to as the equipment under test (EUT) or product.

This standard specifies:

– a test procedure to enable the measurement of the power and/or energy consumption in each of the EUT's power modes;

– formulas for calculating the **typical energy consumption** (**TEC**) for a given period (normally annual);

– a majority profile that should be used with this standard which enables conversion of average power into energy within the **TEC** formulas;

– a system of categorisation enabling like for like comparisons of energy consumption between EUTs;

– a pre-defined format for the presentation of results.

This standard does not set any pass/fail criteria for the EUTs. Users of the test results should define such criteria.

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.

ECMA-389, *Procedure for the Registration of Categories for ECMA-383 2nd edition*

3 Terms, definitions and abbreviations

3.1 Terms and definitions

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

3.1.1
active workload
simulated amount of productive or operative activity that the EUT performs as represented in the P_{work} (see 4.2.10) and $\boldsymbol{T_{work}}$ (see 3.1.13.6) attributes of the **TEC** equation (see 5.6)

3.1.2
category
grouping of EUT configurations

3.1.3
duty cycle
divisions of time the EUT spends in each of its individual power modes

Note 1 to entry: A duty cycle is expressed as a percentage totalling 1.

3.1.4
energy use
energy used by a product then measured from the mains power supply over a given period of time

Note 1 to entry: Energy is measured in kilowatt hour.

3.1.5
external power supply
EPS
equipment contained in a separate physical enclosure external to the computer casing and designed to convert mains power supply to lower d.c. voltage(s) for the purpose of powering the computer

Note 1 to entry: This note applies to the French language only.

Note 2 to entry: The **EPS** is sometimes referred to as an a.c. brick.

Note 3 to entry: A reference to a document which outlines the testing procedures for measuring **EPS** efficiencies (External Power Supply Efficiency Test Method) can be found in the Bibliography.

3.1.6
internal power supply
IPS
component contained in the same physical enclosure to the computer casing and designed to convert mains power supply to lower d.c. voltage(s) for the purpose of powering the computer

Note 1 to entry: This note applies to the French language only.

Note 2 to entry: A reference to a document which outlines the testing procedures for measuring **IPS** efficiencies (Generalized Internal Power Supply Efficiency Test Protocol) can be found in the Bibliography.

3.1.7
local area network
LAN
computer network located on a user's premises within a limited geographical area

[SOURCE : IEC 60050-732:2010, 732-01-04]

Note 1 to entry: This note applies to the French language only.

Note 2 to entry: Currently the two primary technologies used in computers are IEEE 802.3 Ethernet or Wired **LAN**, and IEEE 802.11 WiFi or Wireless **LAN.**

3.1.8
manufacturer
organization responsible for the design, development and production of a product in view of its being placed on the market, regardless of whether these operations are carried out by that organization itself or on its behalf

3.1.9
red green blue
RGB
primary colours that make up a pixel on a computer display

Note 1 to entry: The **RGB** values represent the intensity settings of each colour of that pixel to specify an exact colour.

3.1.10
typical energy consumption
TEC
number for the consumption of energy of a computer that is used to compare the energy performance of like computers, which focuses on the typical energy consumed by an EUT for a given profile while in normal operation during a representative period of time

Note 1 to entry: This note applies to the French language only.

Note 2 to entry: For desktops and notebook computers, the key criterion of the **TEC** approach is a value for typical annual **energy use**, measured in kilowatt-hours (kWh), using measurements of average operational mode power levels scaled by an assumed typical **duty cycle** that represent annualized use for a profile.

3.1.11
actual energy consumption
TEC measured using P_{work}

Note 1 to entry: The **actual energy consumption** is referenced as $\mathbf{TEC}_{actual}$.

3.1.12
estimated energy consumption
TEC estimated by substituting P_{sidle} for P_{work}

Note 1 to entry: The **estimated energy consumption** is referenced as $\mathbf{TEC}_{estimated}$.

Note 2 to entry: P_{sidle} is defined in detail in 4.2.

Note 3 to entry: P_{work} is defined in detail in 4.2.

3.1.13
duty cycle attributes
the percentage of time the EUT spends in each of its individual power modes

Note 1 to entry: Examples of **duty cycle attributes** are defined in 3.1.13.1 to 3.1.13.6.

3.1.13.1
off component of duty cycle
$\boldsymbol{T_{off}}$
percentage of time the EUT is in the off mode

3.1.13.2
sleep component of duty cycle
$\boldsymbol{T_{sleep}}$ **and** $\boldsymbol{T_{sleepWoL}}$
percentage of time the EUT is in the sleep modes

3.1.13.3
on components of duty cycle
$\boldsymbol{T_{on}}$
percentage of time the EUT is in the on mode

Note 1 to entry: The T_{on} **duty cycle** is equal to the sum of the T_{work} + T_{sidle} + T_{idle}.

3.1.13.4
short idle component of duty cycle
$\boldsymbol{T_{sidle}}$
percentage of time the EUT is in the short idle mode

3.1.13.5
long idle component of duty cycle
$\boldsymbol{T_{idle}}$
percentage of time the EUT is in the long idle mode