



# SLOVENSKI STANDARD SIST EN IEC 62623:2023

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## Namizni in prenosni računalniki - Merjenje porabe energije (IEC 62623:2022)

Desktop and notebook computers - Measurement of energy consumption (IEC 62623:2022)

Desktop- und Notebook-Computer - Messung des Energieverbrauchs (IEC 62623:2022)

Ordinateurs de bureau et ordinateurs portables - Mesure de la consommation d'énergie (IEC 62623:2022)

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**Desktop and notebook computers - Measurement of energy  
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(IEC 62623:2022)**

Ordinateurs de bureau et ordinateurs portables - Mesure de  
la consommation d'énergie  
(IEC 62623:2022)

Desktop- und Notebook-Computer - Messung des  
Energieverbrauchs  
(IEC 62623:2022)

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**EN IEC 62623:2022 (E)****European foreword**

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IEC 62623

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# INTERNATIONAL STANDARD

# NORME INTERNATIONALE



**Desktop and notebook computers – Measurement of energy consumption**

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

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**DESKTOP AND NOTEBOOK COMPUTERS –  
MEASUREMENT OF ENERGY CONSUMPTION**

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IEC 62623 has been prepared by technical area 19: Environmental and energy aspects for multimedia systems and equipment, of IEC technical committee 100: Audio, video and multimedia systems and equipment. It is an International Standard.

This second edition cancels and replaces the first edition published in 2012. This edition constitutes a technical revision.

The first edition of this standard was originally based on ECMA-383.

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

- a) Additions to terms & definitions and modification to short & long idle descriptions.
- b) Test setup modifications for notebooks where battery pack cannot be removed for testing.
- c) Categorisation procedure based on ECMA-389 removed.
- d) Replace majority profile with new duty cycle study including new duty cycle attributes for desktop and notebook in a residential and enterprise application.
- e) Removal of any reference and test methodology to ENERGY STAR V5.

The text of this International Standard is based on the following documents:

Draft	Report on voting
100/3583/CDV	100/3669/RVC

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at [www.iec.ch/members\\_experts/refdocs](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at [www.iec.ch/standardsdev/publications](http://www.iec.ch/standardsdev/publications).

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 document will remain unchanged until the stability date indicated on the IEC website under [webstore.iec.ch](http://webstore.iec.ch) in the data related to the specific document. At this date, the document will be

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

**IMPORTANT – The "colour inside" logo on the cover page of this document 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 document provides 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 key categorisation attributes that enable energy consumption comparisons of similar products.

This document is originally based on ECMA-383 and complements the guidance given in IEC 62075.

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# DESKTOP AND NOTEBOOK COMPUTERS – MEASUREMENT OF ENERGY CONSUMPTION

## 1 Scope

This document 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 document 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 to be used with this document which enables conversion of average power into energy within the **TEC** formulas;
- a pre-defined format for the presentation of results.

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

## 2 Normative references

There are no normative references in this document.

## 3 Terms, definitions and abbreviations

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

### 3.1 Terms and definitions

#### 3.1.1

##### **active workload**

simulated amount of productive or operative activity that the EUT performs as represented in the  $P_{\text{work}}$  (see 4.2.12) and  $T_{\text{work}}$  (see 3.1.11.6) attributes of the **TEC** equation (see 5.6)

#### 3.1.2

##### **category**

classification within a product type that is based on product features and installed components

#### 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 when 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 DC 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 AC 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 inside the computer casing and designed to convert AC voltage from the mains power supply to lower DC voltage(s) for the purpose of powering the computer components

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 60050-732-01-04]

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 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.