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Electrical and electronic household and office equipment - Measurement of networked standby power of edge equipment

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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Electrical and electronic household and office equipment – Measurement of networked standby power of edge equipment

FOREWORD

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IEC 63474 has been prepared by IEC technical committee 100: Audio, video and multimedia systems and equipment and IEC technical committee 59: Performance of household and similar electrical appliances. It is an International Standard.

It has the status of a group energy efficiency publication in accordance with IEC Guide 118.

This second edition cancels and replaces the first edition published in 2023. This edition constitutes a technical revision.

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

a) the scope and the measurement method were extended to battery operated products;
b) terms and definitions, and measurement conditions have been updated and aligned for both IEC 62301 (ED3) and this document, IEC 63474 (ED2).

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

Draft	Report on voting
100/4461/FDIS	100/4481/RVD

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. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

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 in the data related to the specific document. At this date, the document will be

– reconfirmed,
– withdrawn, or
– revised.

INTRODUCTION

The methods specified in this document are intended to define requirements for the measurement of power used by equipment having one or more wired or wireless network port(s) in those modes that are able to resume a function by way of a remotely initiated trigger or reactivation trigger from a network connection (networked standby mode).

For the measurement of power used in non-active mode other than networked standby mode,, reference is made to IEC 62301 [1].

This document also provides a method to test power management and to test whether it is possible to deactivate wireless network connection(s).

IEC 63474:2023 [2] (ED1) was based on EN 50643:2018 [3]. It was submitted to the National Committees for voting under the Fast Track Procedure.

1 Scope

This document specifies methods of measurement of electrical power in networked standby mode and the reporting of the results for edge equipment.

The measurement of power and energy use in non-active mode, other than networked standby mode, is covered by IEC 62301 [1], including the input voltage range.

This document applies to edge equipment that is powered by:

– low voltage mains AC power (LV ≤ 1 000 V AC), or
– an external power supply that provides low voltage (LV ≤ 1 000 V) or extra low voltage (ELV ≤ 50 V) AC or DC power, or
– a separate source of extra low voltage DC power (ELV ≤ 50 V DC), or
– an internal main battery.

Conditions that are outside the scope of this document are as follows:

– active modes (primary function),
– other non-active modes (which are either covered by IEC 62301 [1] or by specific product group standards),
– conditions where main batteries are being charged other than in maintenance mode,
– disconnected condition of the equipment.

This document applies to the following product groups where a networked standby mode is present:

– edge equipment with a network reactivation function, such as household appliances, information technology equipment, audio, video and multimedia systems and equipment,
– digital radio receivers with an emergency warning function,
– gas burning equipment with electrical components.

NOTE 1 The measurements of power, energy use and performance of products during their intended use (when performing their primary functions) are generally specified in product standards and are not covered by this document.

NOTE 2 Networked standby mode for lighting equipment and the measurement of power is specified in IEC 63103 [4].

NOTE 3 Interconnecting equipment (equipment that provides network infrastructure and function) is outside the scope of this document. Measurement of electrical power in networked standby mode for interconnecting equipment is the subject of ETSI standard EN 303 423 [5].

This document also provides a method to test power management and to test whether it is possible to deactivate wireless network connection(s).

NOTE 4 Edge equipment can also include auxiliary batteries.

This group EE publication is primarily intended to be used as an EE standard for the products mentioned in the scope, but is also intended to be used by TCs in the preparation of publications for products which are included in the boundary mentioned in the scope of this document.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 62104, *Characteristics of DAB receivers*

IEC 62301, *Household electrical appliances - Measurement of standby power*

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 62301 as well as the following apply.

NOTE Annex A shows the conceptual framework of power modes and functions.

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

– ISO Online browsing platform: available at https://www.iso.org/obp
– IEC Electropedia: available at http://www.electropedia.org/

3.1.1 Function related terms and definitions

3.1.1.1
function
<of a product> predetermined operation undertaken by a product

Note 1 to entry: Functions can be controlled by an interaction of the user, of other technical systems, and of the system itself, from measurable inputs from the environment and/or time.

Note 2 to entry: A function can be classified as primary function (3.1.1.2), secondary function (3.1.1.3) or tertiary function (3.1.1.4), which are broad categories. The specific categorization of a function can be determined for each type of equipment.

3.1.1.2
primary function
<of a product> function (3.1.1.1) providing a main intended purpose

EXAMPLE Cleaning of clothes by a washing machine, displaying of video or providing sound by a television.

Note 1 to entry: Products can have more than one primary function.

Note 2 to entry: Figure A.1 provides a structured overview as an aid to understanding functional relationships and energy use applicable in electrotechnical products. Additional terms and definitions to fulfil the particular needs of product sectors should be defined within the structure of the concepts shown in Figure A.1.

[SOURCE: IEC 60050-904:2014 [6], 904-03-02, modified - Subject field added, the word ‘main’ added to the definition, Example and new Note 1 to entry added, existing Note 1 to entry becomes Note 2 to entry, reference to Table 1 replaced by reference to Figure A.1 in Note 2 to entry, and the table is omitted from this term entry.]

3.1.1.3
secondary function
<of a product> function (3.1.1.1) that enables, supplements or enhances a primary function (3.1.1.2)

EXAMPLE 1 Secondary functions can include status information functions, network (3.1.3.1) integrity functions, reactivation functions, or sensor-based functions.

EXAMPLE 2 Timer informing of the remaining time for completion of the washing program or the delay start function (3.1.1.1) of a washing machine.

Note 1 to entry: Figure A.1 provides a structured overview as an aid to understanding functional relationships and energy use applicable in electrotechnical products. Additional terms and definitions to fulfil the particular needs of product sectors should be defined within the structure of the concepts shown in Figure A.1.