

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Energy performance of lamp controlgear –
Part 2: Controlgear for discharge lamps (excluding low-pressure mercury
fluorescent lamps) – Method of measurement to determine the efficiency of
controlgear**

**Performance énergétique des appareillages de lampes –
Partie 2: Appareillages des lampes à décharge (à l'exclusion des lampes à
fluorescence à vapeur de mercure à basse pression) – Méthode de mesurage
pour la détermination du rendement des appareillages**



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

ENERGY PERFORMANCE OF LAMP CONTROLGEAR –

**Part 2: Controlgear for discharge lamps
(excluding low-pressure mercury fluorescent lamps) –
Method of measurement to determine the efficiency of controlgear**

FOREWORD

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IEC 62442-2 has been prepared by subcommittee 34C: Auxiliaries for lamps, of IEC technical committee 34: Lighting. It is an International Standard.

This third edition cancels and replaces the second edition published in 2018. This edition constitutes a technical revision.

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

- a) the title of Part 2 has been modified;
- b) this edition has been harmonized with IEC 62442-1 and IEC 62442-3;
- c) the reference to and use of the measurement methods for non-active power consumption in accordance with IEC 63103 have been added.

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

Draft	Report on voting
34C/1546/FDIS	34C/1549/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.

A list of all parts in the IEC 62442 series, published under the general title *Energy performance of lamp controlgear*, can be found on the IEC website.

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

ENERGY PERFORMANCE OF LAMP CONTROLGEAR –

Part 2: Controlgear for discharge lamps (excluding low-pressure mercury fluorescent lamps) – Method of measurement to determine the efficiency of controlgear

1 Scope

This part of IEC 62442 defines a measurement method of the power losses of electromagnetic controlgear, the total input power and the standby power of electronic controlgear for discharge lamps (excluding low-pressure mercury fluorescent lamps). A calculation method of the efficiency of controlgear for discharge lamp(s) is also defined.

It is assumed that the controlgear are designed for use on DC supplies up to 1 000 V and/or AC supplies up to 1 000 V at 50 Hz or 60 Hz.

This document applies to electrical controlgear-lamp circuits comprised solely of the controlgear and of the lamp(s).

NOTE Requirements for testing individual controlgear during production are not included.

This document specifies the measurement method for the total input power, the standby power and the calculation method of the lamp controlgear efficiency for all controlgear sold for domestic and normal commercial purposes operating with discharge lamps.

This document does not apply to:

- controlgear which form an integral part of lamps;
- controlgear circuits with capacitors connected in series;
- controllable electromagnetic controlgear.

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 60050-845, *International Electrotechnical Vocabulary (IEV) – Part 845: Lighting* (available at <http://www.electropedia.org>)

IEC 61347-1:2015, *Lamp controlgear – Part 1: General and safety requirements*

IEC 63103:2020, *Lighting equipment – Non-active mode power measurement*

IEC TS 63105:2021, *Lighting systems and related equipment – Vocabulary*

IEC Guide 115:2021, *Application of uncertainty of measurement to conformity assessment activities in the electrotechnical sector*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60050-845 and IEC TS 63105 and the following 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

nominal value

suitable approximate quantity value used to designate or identify a component, device or equipment

Note 1 to entry: To express the "nominal value" of a particular quantity, the term "value" is replaced by the quantity name; for example, nominal power, nominal voltage, and nominal current.

[SOURCE: IEC 62442-1:2022, 3.1]

3.2

rated value

value of a quantity, used for specification purposes, declared by the manufacturer or responsible vendor and established under standard test conditions

Note 1 to entry: To express the "rated value" of a particular quantity, the term "value" is replaced by the quantity name; for example, rated power, rated voltage, rated current, and rated temperature.

[SOURCE: IEC 60050-845:2020, 845-27-100, modified – Note 2 to entry has been deleted.]

3.3

controlgear

one or more components between the supply and one or more lamps which can serve to transform the supply voltage, limit the current of the lamp(s) to the required value, provide starting voltage and preheating current, prevent cold starting, correct power factor or reduce radio interference

[SOURCE: IEC 62442-1:2022, 3.3]

3.4

electromagnetic controlgear

magnetic controlgear

controlgear which by means of inductance, or a combination of inductance and capacitance, serves mainly to limit the current of the electric lamp(s)

[SOURCE: IEC 60050-845:2020, 845-28-052, modified – The second preferred term has been added.]

3.5

electronic controlgear

<of discharge lamp> AC and/or DC supplied electronic circuit including stabilizing elements for starting and operating one or more lamp(s)

3.6

discharge lamp

lamp in which the light is produced, directly or indirectly, by an electric discharge through a gas, a metal vapour or a mixture of several gases and vapours

3.7**controlgear-lamp circuit**

electrical circuit, or part thereof, normally built in a luminaire, consisting of the controlgear and lamp(s)

[SOURCE: IEC 62442-1:2022, 3.7]

3.8**standby mode**

<of controlgear> mode when the equipment is connected to a supply voltage with the illumination function off, while capable of being activated by an external trigger not being a trigger from a network

Note 1 to entry: Examples of external triggers are sensing or timing.

[SOURCE: IEC 63103:2020, 3.10, modified – The domain "<of lighting equipment>" has been replaced with "<of controlgear>".]

3.9**networked standby mode**

<of controlgear> mode when the equipment is connected to a supply voltage with the illumination function off, while capable of being activated by an external trigger being a trigger from a network

[SOURCE: IEC 63103:2020, 3.11, modified – The domain "<of lighting equipment>" has been replaced with "<of controlgear>".]

3.10**standby power**

<of controlgear> average power consumption in the standby mode

3.11**networked standby power**

<of controlgear> average power consumption in the networked standby mode

3.12**total input power**

total power consumed by the controlgear-light source circuit measured at rated input voltage

3.13**controlgear efficiency**

η_{CG}

ratio of the output power to the lamp(s) and the input power of the controlgear

Note 1 to entry: Loads from sensors, network connections or other auxiliaries are disconnected or, if not possible, otherwise eliminated from the result.

3.14**multi-lamp type controlgear**

single-lamp controlgear designed for the operation of more than one type of lamp with different electrical characteristics, for example power

3.15**controllable controlgear**

controlgear whose light sources operating characteristics can be changed by means of a signal via mains or control input(s)

Note 1 to entry: Signal control is either wired or wireless.