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Electrical interface specifications for self ballasted lamps and controlgear in phase-cut dimmed lighting systems

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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ELECTRICAL INTERFACE SPECIFICATIONS FOR SELF BALLASTED LAMPS AND CONTROLGEAR IN PHASE-CUT DIMMED LIGHTING SYSTEMS

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IEC TR 63037, which is a Technical Report, has been prepared by IEC technical committee 34: Lamps and related equipment.

This second edition cancels and replaces the first edition published in 2016. This edition constitutes a technical revision.

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

a) emission of audible noise;
b) ghosting caused by issues that are not related to the power supply of the dimmer or synchronization;
c) stability of phase angle waveform (for the dimmer), including symmetry and stability tests;
d) flicker of light loads;
e) repetitive ring up voltage;
f) dimming range; and
g) number of switching cycles have been added.

The text of this Technical Report is based on the following documents:

Draft TR	Report on voting
34/517/DTR	34/583A/RVDTR

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

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

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

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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 publication using a colour printer.

INTRODUCTION

This document describes the technical requirements for self-ballasted lamps and controlgear to work with phase-cut dimmers. For a complete picture of the technical requirements the user should also refer to IEC TR 63036 (see also IEC 60669-2-1:—,[1] Annex EE), the companion document that contains technical requirements and testing methods for phase-cut dimmers.

[1] Under preparation. Stage at the time of publication IEC AFDIS 60669-2-1:2019.

ELECTRICAL INTERFACE SPECIFICATIONS FOR SELF BALLASTED LAMPS AND CONTROLGEAR IN PHASE-CUT DIMMED LIGHTING SYSTEMS

1 Scope

~~This document specifies the electrical interface between phase-cut dimming equipment and lighting equipment, such as LED integrated lamps and light sources with external controlgear, with the intention of helping designers of both types of equipment to develop products that will work together properly.~~

~~This document describes both the dimming phase and the off phase. In addition to the specification of the interface, test procedures are given for testing the proper operation.~~

~~It may be expected that controlgear fulfilling the requirements of this document are also suited to be used with electronic switches that use a circuitry comparable with that of a phase-cut dimmer, but do not contain means for the adjustability of the phase-cut angle.~~

This document provides guidance to controlgear/integrated lamp designers for the development of products suitable to operate with future phase-cut dimmers. It describes the possible voltage signals and the expected response of the controlgear/integrated lamps.

This document describes the expected response of controlgear during all operation states of a phase-cut lighting system and provides a complete understanding of the requirements for phase-cut dimmers. The response of a phase-cut dimmer is described in IEC 60669-2-1:—, Annex EE.

This document specifies the system performance aspects and test procedures for the control by mains voltage phase-cut dimming of the brightness of mains operated electronic lighting equipment intended to be controlled by mains voltage phase-cut dimmers, such as LED integrated lamps and light sources with external controlgear.

Safety requirements are not covered by this document, but by respective product standards.

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 – Part 845: Lighting* (available at http://www.electropedia.org)

IEC 62504, *General lighting – Light emitting diode (LED) products and related equipment – Terms and definitions*

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Edition 2.0 2019-07

TECHNICAL REPORT

Electrical interface specifications for self ballasted lamps and controlgear in phase-cut dimmed lighting systems



IEC TR 63037:2019-07(en)

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