Assessment of lighting equipment related to human exposure to electromagnetic fields
National foreword

This British Standard is the UK implementation of EN 62493:2015+A1:2022. It is identical to IEC 62493:2015 incorporating amendment 1:2022. It supersedes BS EN 62493:2015, which will be withdrawn on 20 July 2025.

The start and finish of text introduced or altered by amendment is indicated in the text by tags. Tags indicating changes to IEC text carry the number of the IEC amendment. For example, text altered by IEC amendment 1 is indicated by \[\text{A1}\].

The UK participation in its preparation was entrusted to Technical Committee CPL/34, Lamps and Related Equipment.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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(IEC 62493:2015)

This European Standard was approved by CENELEC on 2015-04-14. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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This document supersedes EN 62493:2010.

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The text of the International Standard IEC 62493:2015 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:

- CISPR 16-1-2 NOTE Harmonized as EN 55016-1-2.

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European foreword to amendment A1

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Any feedback and questions on this document should be directed to the users’ national committee. A complete listing of these bodies can be found on the CENELEC website.

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The text of the International Standard IEC 62493:2015/AMD1:2022 was approved by CENELEC as a European Standard without any modification.
## 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 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: [www.cenelec.eu](http://www.cenelec.eu)

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

ASSESSMENT OF LIGHTING EQUIPMENT RELATED TO HUMAN EXPOSURE TO ELECTROMAGNETIC FIELDS

FOREWORD

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International Standard IEC 62493 has been prepared by IEC technical committee 34: Lamps and related equipment.

This second edition constitutes a technical revision.

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

a) identification of lighting product types deemed to comply with the standard without the need for test;

b) deletion of the need for CISPR-15-compliance as a prerequisite for IEC 62493 compliance;

c) inclusion of the consequences of the ICNIRP 2010 guidelines for (up to 100 kHz);

d) adding some guidance to the Van der Hoofden test head method to improve reproducibility of results;

e) inclusion of compliance demonstration method for products having intentional radiators.

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

A list of all parts in the IEC 62493 series, published under the general title Assessment of lighting equipment related to human exposure to electromagnetic fields, can be found on the IEC website.

The exposure limits given in Annex C (informative) are for information only; they do not comprise an exhaustive list and are valid only in certain regions of the world. It is the responsibility of users of this standard to ensure that they use the current version of the limit values specified by the applicable national authorities.

The committee has decided that the contents of the base publication and its amendment will remain unchanged until the stability date indicated on the IEC web site under 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 International Standard establishes a suitable evaluation method for the influence of the electromagnetic fields in the space around the equipment mentioned in the scope, and defines standardized operating conditions and measurement distances.

This standard is designed to assess, by measurements and/or calculations, electromagnetic (EM) fields and their potential effect on the human body by reference to exposure levels of the general public given by ICNIRP 2020 [1], ICNIRP 2010 [2], IEEE C95.1:2005 [3] and IEEE C95.6:2002 [4]. The exposure levels with which to comply are basic restrictions (both ICNIRP- and IEEE-based).

Based on the lighting equipment operating properties, the frequency range of the applicable basic restrictions can be limited as follows:

- internal electric field between 20 kHz and 10 MHz;
- specific absorption rate (SAR) between 100 kHz and 300 MHz;
- power density is outside the scope.

NOTE Operating frequencies of lighting equipment are higher than 20 kHz to avoid audible noise and infrared interference. Frequency contributions above 300 MHz can be neglected.

This standard is not meant to supplant definitions and procedures specified in exposure standards, but it is aimed at supplementing the procedure already specified for compliance with exposure.
ASSESSMENT OF LIGHTING EQUIPMENT RELATED TO HUMAN EXPOSURE TO ELECTROMAGNETIC FIELDS

1 Scope

This International Standard applies to the assessment of lighting equipment related to human exposure to electromagnetic fields. The assessment consists of the induced internal electric field for frequencies from 20 kHz to 10 MHz and the specific absorption rate (SAR) for frequencies from 100 kHz to 300 MHz around lighting equipment.

Included in the scope of this standard are:

– all lighting equipment with a primary function of generating and/or distributing light intended for illumination purposes, and intended either for connection to the low voltage electricity supply or for battery operation; used indoor and/or outdoor;
– lighting part of multi-function equipment where one of the primary functions of this is illumination;
– independent auxiliaries exclusively for the use with lighting equipment;
– lighting equipment including intentional radiators for wireless communication or control.

Excluded from the scope of this standard are:

– lighting equipment for aircraft and airfields;
– lighting equipment for road vehicles; (except lighting used for the illumination of passenger compartments in public transport)
– lighting equipment for agriculture;
– lighting equipment for boats/vessels;
– photocopiers, slide projectors;
– apparatus for which the requirements of electromagnetic fields are explicitly formulated in other IEC standards.

NOTE The methods described in this standard are not suitable for comparing the fields from different lighting equipment.

This standard does not apply to built-in components for luminaires such as electronic controlgear.

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.

IEC 62209-2:2010, Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices – Human models, instrumentation, and procedures – Part 2: Procedure to determine the specific absorption rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)

IEC 62232:2011, Determination of RF field strength and SAR in the vicinity of radiocommunication base stations for the purpose of evaluating human exposure

IEC 62311:2007, Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz – 300 GHz)