

STN	Metódy merania vlastností modrého svetla a súvisiacich optických výkonov pre vizuálny zobrazovací terminál	STN EN IEC 63207 36 8610
------------	---	--

Measurement methods of blue light characteristics and related optical performance for visual display terminals

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 01/23

Obsahuje: EN IEC 63207:2022, IEC 63207:2022

EUROPEAN STANDARD

EN IEC 63207

NORME EUROPÉENNE

EUROPÄISCHE NORM

November 2022

ICS 33.160.60; 35.180; 31.120

English Version

**Measurement methods of blue light characteristics and related
optical performance for visual display terminals
(IEC 63207:2022)**

Méthodes de mesure des caractéristiques de la lumière
bleue et des performances optiques associées des
terminaux à écran de visualisation
(IEC 63207:2022)

Messverfahren von Eigenschaften des blauen Lichts und
ähnlichen optischen Leistungen für visuelle Anzeige
Einheiten
(IEC 63207:2022)

This European Standard was approved by CENELEC on 2022-11-02. 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.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.



European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

EN IEC 63207:2022 (E)**European foreword**

The text of document 100/3798/FDIS, future edition 1 of IEC 63207, prepared by IEC/TC 100 "Audio, video and multimedia systems and equipment" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 63207:2022.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2023-08-02
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2025-11-02

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

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.

Endorsement notice

The text of the International Standard IEC 63207:2022 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 standard indicated:

IEC 61747-30-1:2012 NOTE Harmonized as EN 61747-30-1:2012 (not modified)

IEC 61966-4:2000 NOTE Harmonized as EN 61966-4:2000 (not modified)



IEC 63207

Edition 1.0 2022-09

INTERNATIONAL STANDARD

NORME INTERNATIONALE



Measurement methods of blue light characteristics and related optical performance for visual display terminals

Méthodes de mesure des caractéristiques de la lumière bleue et des performances optiques associées des terminaux à écran de visualisation



THIS PUBLICATION IS COPYRIGHT PROTECTED
Copyright © 2022 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'IEC ou du Comité national de l'IEC du pays du demandeur. Si vous avez des questions sur le copyright de l'IEC ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de l'IEC de votre pays de résidence.

IEC Secretariat
3, rue de Varembe
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigendum or an amendment might have been published.

IEC publications search - webstore.iec.ch/advsearchform

The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee, ...). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished

Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and once a month by email.

IEC Customer Service Centre - webstore.iec.ch/csc

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: sales@iec.ch.

IEC Products & Services Portal - products.iec.ch

Discover our powerful search engine and read freely all the publications previews. With a subscription you will always have access to up to date content tailored to your needs.

Electropedia - www.electropedia.org

The world's leading online dictionary on electrotechnology, containing more than 22 300 terminological entries in English and French, with equivalent terms in 19 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

A propos de l'IEC

La Commission Electrotechnique Internationale (IEC) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

A propos des publications IEC

Le contenu technique des publications IEC est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

Recherche de publications IEC -

webstore.iec.ch/advsearchform

La recherche avancée permet de trouver des publications IEC en utilisant différents critères (numéro de référence, texte, comité d'études, ...). Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

IEC Just Published - webstore.iec.ch/justpublished

Restez informé sur les nouvelles publications IEC. Just Published détaille les nouvelles publications parues. Disponible en ligne et une fois par mois par email.

Service Clients - webstore.iec.ch/csc

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: sales@iec.ch.

IEC Products & Services Portal - products.iec.ch

Découvrez notre puissant moteur de recherche et consultez gratuitement tous les aperçus des publications. Avec un abonnement, vous aurez toujours accès à un contenu à jour adapté à vos besoins.

Electropedia - www.electropedia.org

Le premier dictionnaire d'électrotechnologie en ligne au monde, avec plus de 22 300 articles terminologiques en anglais et en français, ainsi que les termes équivalents dans 19 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.



IEC 63207

Edition 1.0 2022-09

INTERNATIONAL STANDARD

NORME INTERNATIONALE



Measurement methods of blue light characteristics and related optical performance for visual display terminals

Méthodes de mesure des caractéristiques de la lumière bleue et des performances optiques associées des terminaux à écran de visualisation

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 31.120; 33.160.60; 35.180

ISBN 978-2-8322-5702-9

**Warning! Make sure that you obtained this publication from an authorized distributor.
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.**

CONTENTS

FOREWORD.....	3
INTRODUCTION.....	5
1 Scope.....	6
2 Normative references	6
3 Terms, definitions and abbreviated terms	6
3.1 Terms and definitions.....	6
3.2 Abbreviated terms.....	8
4 Measurement conditions	8
4.1 Environmental conditions	8
4.2 Power supply	8
4.3 Stabilized condition of VDT	9
4.4 Light-measurement device	9
4.4.1 Spectral radiance meter.....	9
4.4.2 Luminance meter.....	9
4.4.3 Illuminance meter	9
4.5 Test settings	9
5 Measurement method of luminance	11
5.1 General.....	11
5.2 Measurement procedure	11
6 Measurement methods of blue light performances	12
6.1 Blue light radiance	12
6.1.1 General	12
6.1.2 Methods of measurement	12
6.2 Narrow band blue light spectrum ratio	12
6.2.1 General	12
6.2.2 Methods of measurement	12
7 Test report.....	13
Bibliography.....	14
Figure 1 – Layout diagram of measurement setup with terminology.....	10
Figure 2 – Location of test point for luminance.....	11

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**MEASUREMENT METHODS OF BLUE LIGHT CHARACTERISTICS AND
RELATED OPTICAL PERFORMANCE FOR VISUAL DISPLAY TERMINALS****FOREWORD**

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

IEC 63207 has been prepared by technical area 2: Colour measurement and management, of IEC technical committee 100: Audio, video and multimedia systems and equipment. It is an International Standard.

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

Draft	Report on voting
100/3798/FDIS	100/3819/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/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,
- 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

Nowadays, visual display terminals (VDTs) are everywhere in daily life, in devices such as TVs, monitors, tablets and mobile phones. Most people will watch VDTs for a long time every day for various reasons. However, there are three undesirable effects caused by the blue light from VDTs.

The first one is a possibility of injury to human retina [1]¹. The energy of blue light emitting from VDTs is weak. However, the effects of long-term exposure (30 years or more) to weak energy from the blue light of VDTs are unknown.

The second is a disturbance to the biological (circadian) clock [2], [3]. The blue light emitted from VDTs at night-time can also cause disturbance to the biological clock.

The third is eye strain [4], [5].

To reduce these three issues, the demand of blue-light-reduced VDTs by the market is dramatically increasing. In consequence, the industry of VDTs comprising well-known companies is enthusiastic in promoting blue-light-reduced VDTs. On the other hand, the reduction of blue light will certainly have drawbacks on the visual experience.

To address the defects above under the scope of IEC TC 100, this document contributes to developing a set of novel measurement methods for VDTs, including methods to integrate both the considerations of luminance-independent indicators of blue light characteristics (BLCs).

NOTE This document only provides objective measurement methods for measuring BLCs of VDTs, the action of defining threshold values or assessment methods are out of the scope of this document. If necessary, manufacturers can define their own threshold values and/or assessment methods in accordance with this document.

¹ Numbers in square brackets refer to the Bibliography.

MEASUREMENT METHODS OF BLUE LIGHT CHARACTERISTICS AND RELATED OPTICAL PERFORMANCE FOR VISUAL DISPLAY TERMINALS

1 Scope

This document specifies measurement methods for optical performance (luminance) and blue light characteristics (BLCs) of visual display terminals (VDTs), excluding displays for outdoor use only.

2 Normative references

There are no normative references in this document.

koniec náhľadu – text ďalej pokračuje v platenej verzii STN