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INTERNATIONAL STANDARD

Eyewear display –
Part 10: Specifications



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EYEWEAR DISPLAY –

Part 10: Specifications

FOREWORD

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IEC 63145-10 has been prepared by IEC technical committee 110: Electronic displays. It is an International Standard.

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

FDIS	Report on voting
110/1539/FDIS	110/1560/RVD

Full information on the voting for the approval of this International Standard 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 63145 series, published under the general title *Eyewear display*, 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 "http://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- withdrawn,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.

EYEWEAR DISPLAY –

Part 10: Specifications

1 Scope

This part of IEC 63145 establishes specifications and requirements for eyewear displays. This document is applicable to virtual reality (VR)-type (non-see-through) and augmented reality (AR)-type (see-through) eyewear displays using virtual image optics. The specifications and requirements for prescription lenses are out of 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 63145-1-2, *Eyewear display – Part 1-2: Generic – Terminology*

IEC 63145-20-10:2019, *Eyewear display – Part 20-10: Fundamental measurement methods – Optical properties*

IEC 63145-20-20:2019, *Eyewear display – Part 20-20: Fundamental measurement methods – Image quality*

IEC 63145-22-10:2020, *Eyewear display – Part 22-10: Specific measurement methods for AR type – Optical properties*

IEC 63145-22-20[1], *Eyewear display – Part 22-20: Specific measurement methods for AR type – Image quality*

3 Terms, definitions, and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 63145-1-2 and the following apply.

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

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

[1] Under preparation. Stage at the time of publication: IEC AFDIS 63145-22-20:2023.

3.1.1
number of electrically addressable pixels
total number of physical pixels which are electrically accessible and constitute the micro display that is used to display the image

Note 1 to entry: It is described by $H \times V$, where H and V are the numbers of horizontal and vertical pixels, respectively.

Note 2 to entry: This term does not consider the kind of sub-pixel arrangement.

3.2 Abbreviated terms

AR augmented reality
DUT device under test
FOV field of view
LCD liquid crystal display
LMD light measuring device
VR virtual reality

4 Specification tables

4.1 Generic specification tables

Table 1 and Table 2 shall be applied as the generic specification tables of optical characteristics of eyewear displays. These tables show the list of items which specifies the optical characteristics of eyewear displays.

Table 1 – Blank detail specification table of optical characteristics (applicable to AR and VR)

Characteristics	Symbol	Unit	VR		AR		Measurement methods
			Min.	Max.	Min.	Max.	
Monocular characteristics							
Maximum centre luminance	L_{vCM}	cd/m^2	-		-		IEC 63145-20-10:2019, 6.3
Minimum centre luminance	L_{vCm}	cd/m^2		-		-	IEC 63145-20-10:2019, 6.3
Nine-point luminance	L_{vi} (i = 0 to 8)	cd/m^2					IEC 63145-20-10:2019, 6.3
Average luminance	L_{va}	cd/m^2					IEC 63145-20-10:2019, 6.3
Luminance uniformity	U	%					IEC 63145-20-10:2019, 6.3
Luminance non-uniformity	NU	%					IEC 63145-20-10:2019, 6.3
Chromaticity of white at the centre	(x_W, y_W), (u'_W, v'_W)						IEC 63145-20-10:2019, 6.4
Chromaticity of red at the centre	(x_R, y_R), (u_R', v'_R)						IEC 63145-20-10:2019, 6.4
Chromaticity of green at the centre	(x_G, y_G), (u'_G, v'_G)						IEC 63145-20-10:2019, 6.4
Chromaticity of blue at the centre	(x_B, y_B), (u'_B, v'_B)						IEC 63145-20-10:2019, 6.4