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Eyewear display -
Part 400-20: Introduction to sensing functions - 3D sensing

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Eyewear display - Part 400-20: Introduction to sensing functions - 3D sensing

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Draft	Report on voting
110/1819/DTR	110/1839/RVDTR

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 Technical Report 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.

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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– withdrawn, or

– revised.

1 Scope

This part of IEC 63145, which is a Technical Report, provides general information, main features and applications of 3D sensing used for eyewear display, and to clarify the normative aspects of the standardization in this technology area.

The 3D sensing techniques mentioned in this document are mainly based on optical, non-contact principles.

2 Normative references

There are no normative references in this document.

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology 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

3.1.1
3D sensing
functional unit that can detect the spatial information of the scene additionally by depicting the depth information with a coloured code

3.2 Abbreviated terms

AR	augmented reality
DOF	degrees of freedom
FoV	field of view
LiDAR	light detection and ranging
MDE	monocular depth estimation
MR	mixed reality
SLAM	simultaneous localization and mapping
ToF	time of flight
VR	virtual reality

4 3D sensing technologies

4.1 General introduction

The conventional optical 2D sensing provides local brightness information in a scene by capturing images from a sensor location. Such images do not contain depth information. 3D sensing can detect and add spatial information of the scene, for example, by depicting the depth information with a coloured code. z-axis data can be added to the x, y-axis data for each pixel of the image being captured by the camera module, after the data processing and ideally with a minimum of latency. Most of the methods can only generate depth or distance data with a time delay, which allows to convert 2D data into 3D data (Figure 1).