

# INTERNATIONAL STANDARD



**Electronic displays –  
Part 2-7 : Measurements of optical characteristics – Tiled displays**



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**Electronic displays –  
Part 2-7 : Measurements of optical characteristics – Tiled displays**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

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**ELECTRONIC DISPLAYS –****Part 2-7: Measurements of optical characteristics – Tiled displays**

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

Draft	Report on voting
110/1614/FDIS	110/1631/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](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at [www.iec.ch/publications](http://www.iec.ch/publications).

A list of all parts in the IEC 62977 series, published under the general title *Electronic displays*, can be found on the IEC website.

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## INTRODUCTION

Tiled displays are widely used in a variety of places and in a variety of forms. Demand for tiled displays is expected to increase in the future. IEC TC 110 has already standardized various measurement methods to evaluate performance of electronic displays. However, in order to evaluate the performance of a tiled display, additional definitions of terms and new evaluation methods will be developed.

The tiled display has repeatable elements that exist at various levels whose subsystems enable a highly configurable display system. In terms used in LED industries, for example the display system (first level of assembly) includes all subcomponents. It can come in any shape or size, curved, disconnected, etc. The cabinet (second level of assembly) typically includes a mechanical support structure with mechanical interconnects. The cabinet is also called a panel, chassis, or shell. The module (third level of assembly) typically includes optical elements (lowest level of assembly) with electrical interconnects, but will probably not have module-to-module mechanical interconnects. The module is also called a tile. As described above, the tiled display consists of a combination of subsystems of each level as illustrated in Figure 1. In this combination process, problems that did not appear on a single panel display can occur. Therefore, the optical properties caused by this problem will be checked at each level.



**Figure 1 – Example of tiled display system**

Depending on the final installation location, the methods presented in this document will probably not be applicable, and the result can vary depending on the calibration process reflecting the final installation environment.

This document deals with a tiled display performance evaluation method based on the existing TC 110 measurement method.

## ELECTRONIC DISPLAYS –

### Part 2-7: Measurements of optical characteristics – Tiled displays

#### 1 Scope

This part of IEC 62977 specifies standard measuring conditions and measurement methods for determining the optical characteristics of tiled displays which consist of multiple display modules in order to form one screen. These methods apply to emissive and transmissive direct view flat displays that render real 2D images with all modules lying in the same plane. The methods are applicable in environments where the measuring conditions can be controlled, such as laboratory and production testing.

NOTE The measurement results are not specific values for the products. They can vary according to the measurement method and light measuring device (LMD) used in the calibration.

#### 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 62977-2-1:2021, *Electronic displays – Part 2-1: Measurements of optical characteristics – Fundamental measurements*

IEC 62977-2-2:2020, *Electronic displays – Part 2-2: Measurements of optical characteristics – Ambient performance*

IEC 62341-6-2:2015, *Organic light emitting diode (OLED) displays – Part 6-2: Measuring methods of visual quality and ambient performance*

#### 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

##### **tiled display**

display which consists of multiple display modules in order to form one screen