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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 39930-2021

**Organic light emitting diode (OLED) panels for general lighting -
Performance requirements**

普通照明用有机发光二极管（OLED）面板 性能要求

(English Translation)

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1 Scope

This standard specifies the performance requirements of organic light-emitting diode (OLED) light sheets and panels for general lighting in indoor and similar occasions.

This standard applies to a single side that does not exceed 120V DC power supply or does not exceed 50V frequency 50Hz or 60Hz AC power supply Luminous OLED light sheets and panels.

Note: At this stage, some performance requirements are still under consideration, such as the color uniformity of OLED panels.

2 Normative references

The following documents are indispensable for the application of this document. For dated reference documents, only the dated version applies to this article Pieces. For undated reference documents, the latest version (including all amendments) is applicable to this document.

GB/T 2828.1 Sampling inspection procedure by attributes Part 1: Batch inspection sampling plan retrieved by acceptance quality limit (AQL) (GB/T 2828.1-2012, ISO 2859-1:1999, IDT)

GB/T 2829 Periodic Inspection Sampling Procedures and Tables by Attributes (Applicable

to the Inspection of Process Stability)

GB/T 39075 Safety requirements for organic light-emitting diode (OLED) panels for general lighting

GB/T 2900.65 Electrical engineering terminology lighting (GB/T 2900.65-2004, IEC 60050-845:1987, MOD)

GB/T 24824-2009 General lighting LED module test method (CIE127.2007, NEQ)

GB/T 24826-2016 General lighting LED products and related equipment terms and definitions (IEC 62504:2014, IDT)

GB/T 26178-2010 Measurement method of luminous flux (CIE84.1989, IDT)

GB/T 26180-2010 The expression and measurement method of light source color rendering (CIE13.3.1995, IDT)

CIE15.2004 Colorimetry

3 Terms and definitions

The following terms and definitions defined in GB/T 39075, GB/T 24826-2016 and GB/T 2900.65 apply to this document.

3.1 Initial values

The measured optical and electrical parameter values of the unused OLED panel after stabilization.

3.2 Average luminance

The arithmetic average of the brightness of multiple areas in the light-emitting area of the OLED panel in a specific direction.

3.3 Brightness uniformity

The value used to quantify the brightness change of the light-emitting area of an OLED panel Example:

OELR260mA2.3W30-007A represents the rigidity of rated current 260mA, rated power 2.3W, correlated color temperature 3000K, and design serial number 007A OLED panel for general lighting.

5.1 General test conditions

In addition to other regulations, the photoelectric parameter test of the OLED panel should be at an ambient temperature of $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$ and a maximum relative humidity of 65%.

It is carried out in a non-convection environment of 1 standard atmospheric pressure. The life characteristic test should be at an ambient temperature of $25^{\circ}\text{C}\pm 5^{\circ}\text{C}$, the maximum relative humidity It is carried out in a non-convection environment of 65%, 1 standard atmospheric pressure.

Except for other provisions in this standard, the test should be carried out at the rated current. The test current should be stabilized within the range of $\pm 0.5\%$ of the rated current Inside, the total harmonic content input should not exceed 3%.

Unless otherwise specified by the manufacturer, the test panel shall be installed horizontally or vertically during the test. The flexible OLED panel should be fixed to the table On a rigid flat plate with a flat surface, it is ensured that it does not deform during the entire test process. The installation method of the OLED panel during the test shall be recorded.

5.2 Stable

The stabilization of the OLED panel should be carried out in a non-convection environment with an ambient temperature of $25^{\circ}\text{C}\pm 1^{\circ}\text{C}$ and 1 atmosphere.

In the constant current mode, the OLED panel should be lit under specified conditions, and the input current should be stable within $\pm 0.5\%$. In stability In the process, the actual voltage of the OLED panel is measured at an interval of at least 1 min/time. For example, within 5 minutes, the OLED panel voltage reading is the largest If the difference between the value and the minimum value is less than 0.5%, the OLED panel has reached a stable state and can be tested.

6.1 Dimensions

The external dimensions of the OLED panel should conform to the manufacturer's declared value, but the actual measured value should be within the tolerance range specified by the manufacturer.

6.2 Initial electrical performance

The power of the OLED panel should conform to the manufacturer's declared value, and the actual measured value should not be greater than 110% of the declared value.

6.3.1 Luminous flux

The luminous flux of the OLED panel should meet the manufacturer's declared value, and the actual measured value should not be less than 90% of the declared value.

6.3.2 Light effect

The luminous efficiency of OLED panels is classified according to its power (P), which should not be less than the regulations in Table 2.

b) When the OLED panel is lit for 6000h, its luminous flux maintenance rate should not be less than 75%.

Note: The luminous flux is less than 70% (L70) of the initial luminous flux as the end of service life.

6.5.1 High temperature and high humidity working test

The OLED panel works for 48 hours at 60°C and 90% relative humidity, and the luminous flux after the test should not be less than 90% of the luminous flux before the test.

6.5.2 High temperature and high humidity storage test

The OLED panel is stored for 500h at 60°C and 90% relative humidity. The luminous flux of the OLED panel after the test should not be less than the light before the test 90% of flux. After the OLED panel is tested, it is energized and checked, and there is no appearance defect (such as black spots) with a diameter greater than 0.5mm.

7.1 Dimensions

The dimensions of the OLED panel are measured with a measuring tool with an error of no more than 0.02mm.

7.2 Electrical performance

Carry out according to 5.1 of GB/T 24824-2009.

7.3.1 Luminous flux

The OLED panel should be lit under specified conditions and tested after it is stable. According to GB/T 26178-2010 and refer to Appendix A.

7.3.2 Light effect (Eff)

Measure the power of the OLED panel according to 7.1 and measure the luminous flux of the OLED panel according to 7.3.1, and calculate the luminous efficiency according to formula (1). (1) Where. Eff---light effect; Phi --- luminous flux; P --- Power.

7.3.3 Color characteristics

The color coordinates can be measured by the method of 7.3.1 spectral data, and the color coordinates and correlated color temperature can be calculated according to the method