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PEOPLE'S REPUBLIC OF CHINA**

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**Technical specification for construction of vertical cylindrical
low temperature storage tank**

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(English Translation)

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1 Scope

This document describes the test methods and standard measurement conditions for the optoelectronic parameters of LED light boards used for LED backlights in display lighting units.

2 Normative references

The contents of the following documents constitute essential clauses of this document through normative references in the text. Among them, for dated references, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies to this document.

SJ/T 11460.6.1-2015 Backlight unit for liquid crystal display - Part 6-1.Measuring method of optical and optoelectrical parameters

ISO/CIE 11664-5 Colorimetry - Part 5.CIE 1976 $L^*u^*v^*$ color space and u' , v' uniform chromaticity scale diagram

IEC 62595-1-2 Display lighting unit - Part 1-2.Terminology and letter symbol

3.1 Terms and definitions

The terms and definitions defined in IEC 62595-1-2.2016, as well as the following terms and definitions, apply to this document.

3.1.1

LED light board

A circuit board with multiple LEDs distributed in two dimensions, used to produce uniform planar light distribution, mainly for direct-type backlight components.

3.1.2

4.3 Test platform

A two-dimensional mobile test platform shall be used. The operating range shall not be less than the effective luminous size of the LED light board. The positioning accuracy of the test platform shall be able to meet the requirements of data repeatability.

5.1 Standard atmospheric conditions

The test and test environmental conditions are as follows.

- a) Temperature. 22 °C ~ 28 °C;
- b) Relative humidity. 25% ~ 85%;
- c) Air pressure. 86 kPa ~ 106 kPa.

When the test environmental conditions are inconsistent with the requirements of this document, it shall be noted in the test report.

5.2 Power drive conditions

When measuring the photoelectric parameters of the LED light board, the drive and control devices of the LED light board shall be set according to the requirements of the product specification.

5.3 Preheating

Preheating shall comply with the provisions of 4.3 of SJ/T 11460.6.1-2015.

5.4 Darkroom conditions

The ambient illumination shall not exceed 1 lx.

When the test environmental conditions are inconsistent with the requirements of this document, it shall be noted in the test report.

5.5 Thermal performance conditions

A heat sink shall be used when testing LED light board, to ensure that the heat

The following contents shall be recorded in the test report.

- The total voltage V , total current I , total power consumption P of the LED light board;
- The voltage value $V(i,j)$, current value $I(i,j)$, power consumption value $P(i,j)$ of each block of the LED light board;
- The maximum voltage value V_M and the minimum voltage value V_m between each block of the LED light board;
- The maximum current value I_M and the minimum current value I_m between each block of the LED light board;
- The maximum power consumption value P_M and the minimum power consumption value P_m between each block of the LED light board;
- The maximum voltage difference ΔV_M , the maximum current difference ΔI_M , the maximum power consumption difference ΔP_M between each block of the LED light board;
- The voltage difference $\Delta V(i,j)$, current difference $\Delta I(i,j)$, power consumption difference $\Delta P(i,j)$ of each block of the LED light board and the standard value.

6.2.1 Purpose

Measure the brightness and brightness uniformity of the LED light board.

6.2.2 Test conditions

The following test conditions shall be used.

- a) Test device.
 - 1) Color luminance meter and test installation platform;
 - 2) Power supply;
- b) Test environment conditions. Darkroom conditions.

6.2.3 Test method

The test method is carried out in accordance with the following provisions.

- a) Install the LED light board under test as shown in Figure 1; adjust the LMD to keep it perpendicular to the LED light board under test;

6.3.1 Purpose

Measure the chromaticity coordinates and chromaticity non-uniformity of LED light board.

6.3.2 Test conditions

The test conditions shall meet the requirements of 6.2.2.

6.3.3 Test method

The test method is carried out in accordance with the following provisions.

- a) Install the LED light board under test as shown in Figure 1; adjust the LMD to keep it perpendicular to the LED light board under test;
- b) Set the driving current and voltage according to the requirements of the product specification;
- c) According to the position of the brightness test in 6.2.3, test and obtain the CIE 1931 chromaticity coordinates (x_i , y_i) of the midpoint P_i in Figure 3; calculate the average value ($\bar{x}_a$, $\bar{y}_a$);
- d) Calculate the CIE 1976 UCS chromaticity coordinates (u'_i , v'_i) (see ISO/CIE 11664-5) of the midpoint P_i in Figure 3; calculate the average value ($\bar{u}'_a$, $\bar{v}'_a$);
- e) Calculate the mean square error of the chromaticity coordinates of the LED light board according to formula (8).
- f) Calculate the chromaticity non-uniformity NUC of the LED light board according to formula (9).