



Transparent LCD **Terminal** Test Methods and Technical Requirements

——China
IEC TC100 Discussion



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1. The transparent display in the movie

Ordinary people know transparent display for the first time was in Hollywood science fiction movie, its cool display effect brought film a strong sense of the future, and left the audience a deep impression. The brand-new visual experience of transparent display is full of curiosity and desire.



2. Transparent display terminal application in reality



Transparent LCD display has been largely satisfied the curiosity of mind, and attracted the eye much. Transparent LCD used in the commercial display, its brand-new visual experience has built the high-grade commercial environment for businesses and bring huge benefits for businesses.



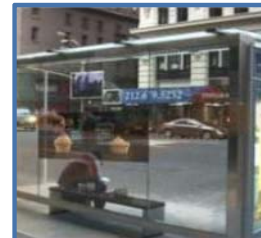
Merchandise figures show



Luxury show



Commercial refrigerator



Bus station show



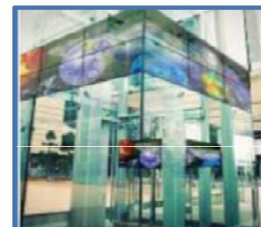
Airport VIP-room window



Store display



Restaurant Show



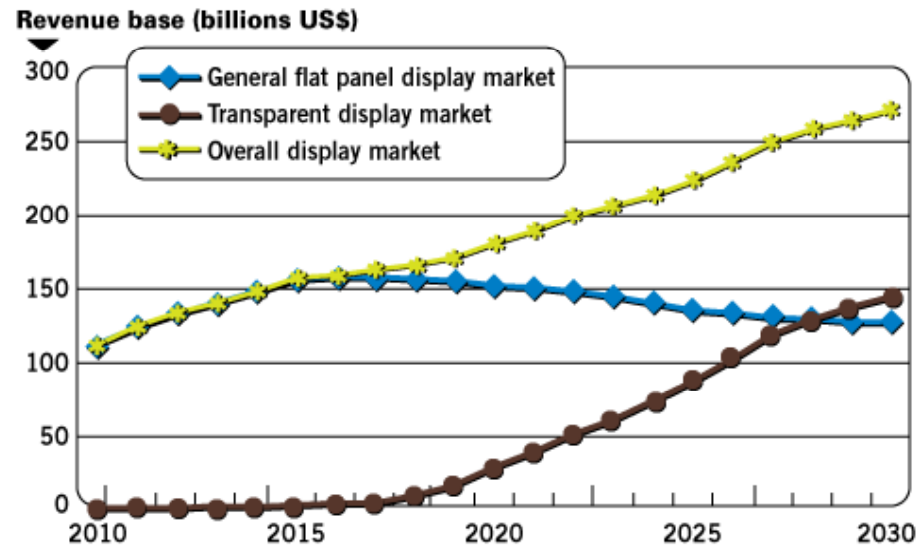
Transparent elevator



Vending machine



3. Transparent display market



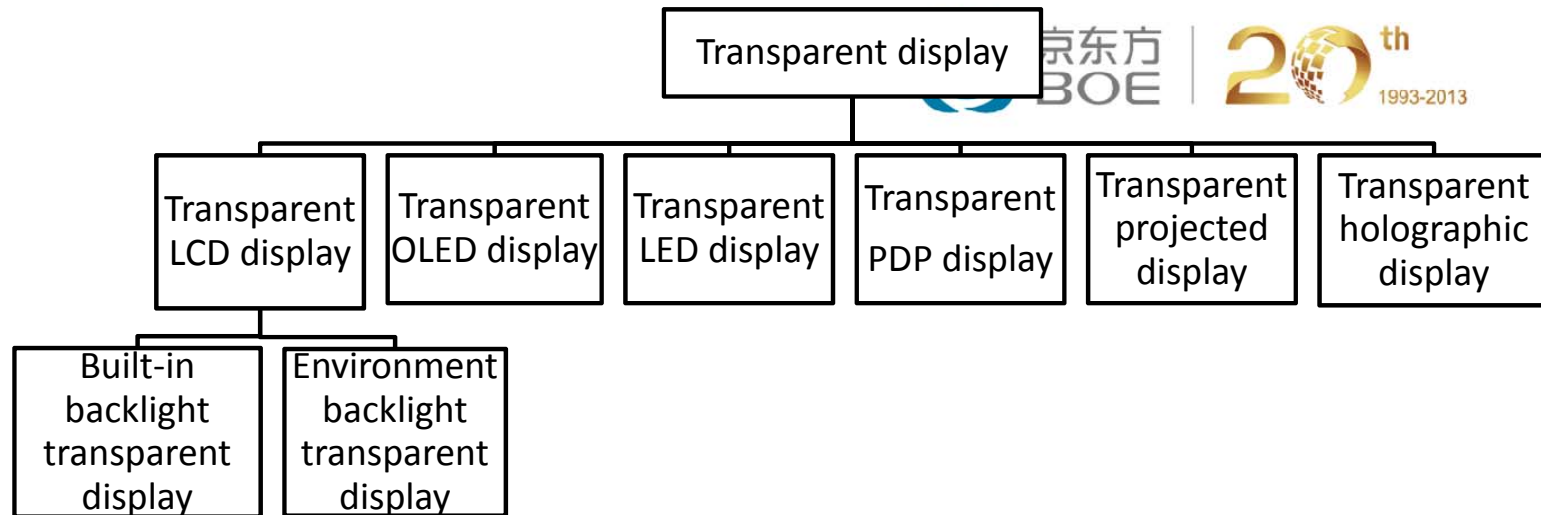
20th
1993-2013

According to market research institutions Display bank prediction, transparent display market launch rapid growth since 2012, and reached 1.17 billion units in 2025 with the size of the market reached \$87.2 billion.

Transparent displays can create wide and new applications such as buildings, advertising and public use, etc. The transparent LCD monitor, relying on mature technology and low cost, in the prophase will lead the transparent display market.



4. Transparent display technology classification



With the development of display technology, LCD, OLED, LED, PDP, projection, holographic and other display technologies have realized transparent display function, and obtain the corresponding application.

Based on mature technology, LCD display achieved low-cost transparent display. The built-in or environment backlight plus active matrix liquid crystal display makes the whole transparent display terminal, which has realized transparent digital display, and has been widely applied.



5.1. Transparent LCD panel manufacturers



With the development of display technology, LCD display was the first to complete technology development in the field of transparent display. At present, the major panel makers have developed different sizes of transparent LCD, in order to meet the market demand, some have started mass production.

Transparent LCD Panel Manufacturers	Size of Transparent LCD Mass Production
Samsung	22 inch、 46 inch
LG	47 inch
AUO	50 inch、 65 inch
BOE (China)	32 inch、 46 inch



5.2. Transparent LCD **terminal** manufacturers



Using the mature technology and approachable price transparent LCD display, some companies in China has successively developed different kinds of transparent LCD terminal, attracted a large number of application of business users.

Transparent LCD terminal manufacturers	Transparent LCD terminal products
BOE	32/46 inch transparent LCD monitor
Beijing Vewell Tech. Co., Ltd	22 inch showcase
Nanjing Touchpush Tech. Co., Ltd	19/22/32/46 inch showcase
Xi' an LingJing Tech. Co., Ltd	22/46 inch showcase
Beijing Spiriyo Tech. Co., Ltd	22 inch showcase, 46 inch Wall cabinet , 92/110 inch DID Wall
Shenzhen ANRECSON Co., Ltd	22/46 inch showcase
Guangzhou Nicegc Tech. Co., Ltd	22/46 inch showcase
Skyworth Tech. Co., Ltd	22/46 inch showcase
Shenzhen Yueqixianshi Tech. Co., Ltd	22 inch showcase
Samsung	22 inch showcase
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6. The necessity of transparent LCD terminal standard established



Transparent LCD terminal gives consumers a new shopping experience, also attracted users to use it actively, even attracts a lot of display manufacturers to seize this emerging market.

Due to the transparent LCD terminal is a new display product of new applications, its technical requirements completely different from the traditional LCD display terminal. In December 2013, China proposed "transparent display working group " at IEC TC/110 work conference held in Japan, which get a heated discussion by the participating countries. However, it' s just about the transparent device , not mentioned the transparent product or system. So it' s an urgent thing for us to set up the test method and technical requirement for terminal.

With such a huge market demand of transparent LCD terminal and the blank of industry standards, there is an urgent need to develop a standard for the test methods and technical requirements. To promote product performance and market demand, and to create more economic and social benefits.



6. The necessity of transparent LCD terminal standard established



Transparent LCD Display

★ Already started to compile the National standard of China

**Device
-TC110**

**Terminal
-TC100**

- Mainly include : panel/Open Cell
 Similar models, it doesn't have much application scenario
 test methods and technical requirement are not so complex as terminal

- Mainly include : product/system
 Different applications,
 different products,
 different test methods
 different technical requirements



- Store display
Restaurant Show
- Transparent elevator
- Vending machine
Bus station show

7. Transparent LCD terminal standard main content



Product/system

1. Transparent LCD Terminal Technical Requirements

- This standards mainly include: appearance requirements, basic functional requirements, display format, interface requirements, accessory equipment performance requirements, structural setting requirements, mark, packing, transportation, storage, etc

Product/system

2. Transparent LCD Terminal Test Methods

- This standards mainly include: appearance inspection method, display characteristic test method, projection characteristics test method, environment light impact test method, environmental test method, etc.



END



Thanks

