

# How to choose a laptop with a good screen

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## Contrast

This phrase has become quite familiar to us. Screen makers who want to use contrast ratios help buyers somewhat understand the screen of the device they want to buy.

Contrast is understood as the ratio between the brightest part (white) and the darkest part (black) that the screen can display. Any screen with a high contrast ratio proves that the screen is better because their images will be displayed more clearly and honestly.

However, the problem here is that there is no standard test of contrast ratio. In fact there are many ways to cheat test results, which is why low-cost displays are also announced with a relatively high 10,000: 1 contrast ratio.

You should only believe in contrast ratios when they are posted in reputable reviews. In the in-depth analysis using the same test methods and equipment is the only way to discover the true contrast of the screen.

## Brightness

Brightness is very important for mobile devices such as laptops, smartphones and tablets. Most devices are equipped with a mirror screen to enhance the contrast, but this type of screen causes reflection when using the device in bright rooms or outdoor spaces. This problem can only be overcome by a bright screen.

Nit is the standard brightness unit used to describe different light sources. The higher the nit number, the better the ability to display the brightness of the screen. The average nit score on laptop screens and mobile devices usually ranges from 200 to 300. Indexes that reach more than 300 nit are stable and over 500 nit are extremely good.

## Illumination

This is one of the factors that is easily overlooked. Illumination can be understood as the uniform distribution of brightness on the entire screen. Areas on the screen do not have the same brightness, but will have brighter, darker areas. The percentage between the brightest and the darkest area on the screen as a percentage is the illuminance.

The factors that affect the brightness of the screen depend heavily on the number of backlighting arranged behind the panel. On regular LCD screens, due to the limited number of backlight, the illuminance can reach almost 100%.

The laptop screen is different, due to the limitation of thickness and power consumption, reducing the number of backlight, resulting in a significant reduction in the screen brightness of the laptop, usually only about 70-80%. The backlight is usually placed in the center of the screen, so it will be the area with the largest brightness, and gradually decrease, but not evenly. A laptop screen with a brightness of over 90% can be considered ideal.

## Black and white tones

Quality in white and black is assessed by the corresponding brightness of the colors displayed on the screen.

Black is considered '*acceptable*' when there is brightness below 0.8cd / m<sup>2</sup>, and less than 0.5 cd / m<sup>2</sup> can be considered ideal. When the screen can only display the largest black of 1.8 cd / m<sup>2</sup> or more, you will not see true black, but only see gray. For LED displays because there is no need for backlight, black will be '*absolute*'.

White too, of course, high brightness white will . white. White areas are the areas with the highest brightness on the screen and white is rated as good when the brightness is at least 200 nits; lower will be '*thanks*' , not true white.

## Color space

Remember, in 1996, Microsoft partnered with HP to create a standard color model known as RGB. Color space is the standard color that the screen is capable of reproducing.

Many monitors currently cannot display 3/4 RGB color models. A normal laptop screen, a mobile device, or a low-cost monitor can display only 65 to 75%. Mid-range IPS display can display 90%. Only high-end IPS screens can display everything.

## Screen Panel IPS or Panel TN?

LCD screens or liquid crystal displays are made up of many different components including panels. Panel (or base plate) is a flat sheet containing liquid crystals, they are responsible for displaying images through each pixel showing different colors when current is applied.

When buying a new LCD screen, many of you will be confused between choosing the TN Panel (popular) and IPS Panel (more advanced). IPS is a panel technology developed by Hitachi to enhance image quality, color and contrast, and have a wider viewing angle than Panel TN.

In addition, the IPS panel does not distort the image when touching the screen like a TN panel, so IPS is suitable for touch screens. Although developed since 1996, IPS panel technology is still not standard for LCD screens and has not been widely available.

Although IPS has many outstanding features, but TN panel is still widely used and become standard panel of LCD screens, due to low production cost, less power consumption and can reach the level Better light. The screens are equipped with IPS panel, mostly high-end screens, suitable for graphic designers.

## View

Viewing angle is the maximum angle when viewed from two sides (left-right) where the laptop screen remains the same color. As mentioned above, most laptop screens use TN panels, giving the viewing angle quite narrow. Only some high-end models such as screens of workstations, better panels such as PVA or IPS will overcome this disadvantage:

Wide viewing angles are generally good, especially for entertainment needs. You can watch movies and photos comfortably without fear of tilting your head just a bit, the color has changed. Office applications such as Word and Excel suffer less from the perspective of viewing and therefore, if you mainly work with these applications, you don't need to worry.

## Conclude

Obviously, selecting a screen is not an easy thing. Hopefully, through this article, we will understand more about the factors to consider when choosing a type of laptop screen like that.

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