

Low Blue Light and Flicker Free Certifications Are Important

LED desktop monitors first appeared on the market about 5 years ago. They provided many benefits over traditional cathode ray tube (CRT) or even newer Cold Cathode Fluorescent (CCFL) monitors, including better image quality and lower power consumption, and they were much friendlier to the environment. However, LED technology introduced flickering as a side effect of managing brightness. Blue light levels have become an emerging concern due to our increased exposure to devices, including monitors and smartphones, that emit light.

Today, Low Blue Light and Flicker Free certifications have become important features that should be considered when assessing an LED desktop monitor purchase. To ensure user comfort and well-being, NEC now offers many models with Low Blue Light and Flicker Free certifications.

Lowering Blue Light Levels

At work and during leisure time, many people now spend long periods of time each day looking at screens of some type – desktop monitors, laptops or mobile devices, or TVs. Many of these screens, however, emit a higher level of blue light than natural light.

Blue light has been shown to cause [eye fatigue and discomfort](#). Researchers have also found a [link between blue light and sleep cycles](#). That's because blue light suppresses the production of melatonin, the hormone that regulates sleep patterns. Studies have shown that exposure to blue light late at night makes it [harder to fall asleep](#). Researchers continue to investigate the [long-term effects of blue light on eye health](#).

At NEC, we have addressed customer concerns about blue light by engineering LED desktop monitors that emit lower levels of blue light. In simple technical terms, we accomplish this by using a color filter to shift a monitor's color temperature (also known as the white point). As a result, the temperature of the light emission from these monitors drops from about 6500 degrees Kelvin, which is typical for LED monitors, to approximately 4300 degrees Kelvin.

In a side-by-side comparison with a standard LED monitor, a low blue light monitor will appear slightly more yellow. However, few people will notice the difference when viewing a low blue light monitor in isolation because the eyes adjust to the lower color temperature. Using an NEC low blue light monitor means that you still get a bright, detailed image – but without the risk of eye fatigue or other possible undesired effects.

Increasing Flicker Speed

The arrival of LED backlit monitors also made screen flicker a concern for monitor users. That's because the most straightforward way of enabling an LED monitor to be dimmed is to design the monitor's backlights to switch on and off rapidly, commonly accomplished using Pulse Width Modulation (PWM) which, as a side effect, can make the monitor "flicker." Most early LED monitors were engineered with a PWM rate between 100 Hz to 200 Hz. For most people, this level of flicker is not visible to the eye, although it may lead to eye discomfort without the user knowing the cause. Other people, however, are able to perceive the flicker, which is unpleasant to view and can cause eye strain and headaches.

In our latest generation of desktop monitors, NEC has upgrade to DC control for the LED backlight, which eliminates the flicker effect. Users of our flicker free monitors will not have to fret about being distracted by a flickering screen or about suffering eye fatigue due to flicker.



Certifications Matter

For monitors used in day-to-day office work and at home, businesses and consumers should consider buying monitors that offer low levels of blue light and flicker-free performance. A monitor with Low Blue Light and Flicker Free certifications will provide peace of mind – they're tested to confirm that they emit low levels of blue light and are flicker free. You won't have to worry about eye fatigue, eye strain, distraction, or potential health impacts.

NEC monitor receives Low Blue Light and Flicker Free certifications from [TÜV Rheinland](https://www.tuv.com), the global leader in low blue light and flicker free testing. Here's a list of NEC MultiSync® monitors that are certified Low Blue Light and Flicker Free. They fit a wide range of needs and use cases:

Mainstream Enterprise

E221N-BK
E241N-BK
E271N-BK
E203W-BK
E233Wmi-BK

Advanced Enterprise

EA245Wmi-BK
EA271F-BK
EA295Wmi-BK
EX241UN-BK
EX341R-BK

Professional (wide color gamut)

PA243W-BK
PA271Q-BK

For more information on these monitors, visit us at
www.necdisplay.com/category?category=displays#1

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Flicker Free

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