

What is NITS and How to Find Laptops NITS?

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In brief

Nits measure the brightness a display emits, with one nit equaling one candela per square meter. For typical indoor laptop use, 300 to 500 nits is sufficient, while outdoor use or HDR content benefits from 600 nits or more.

When buying a new display for your smartphone, tablet, laptop, or TV, you might encounter the term "nits." While it might sound unfamiliar, this unit of measurement plays a crucial role in determining screen brightness and directly impacts your viewing experience. In this detailed guide, we'll explore what nits are, why they matter, how to measure them, and how to choose the ideal brightness for your needs.

What Are Nits?

A "nit" is a unit of luminance used to measure the brightness emitted by a display. It represents one candela per square meter (cd/m^2). In simple terms, nits tell you how much light your screen produces, impacting its visibility in different lighting conditions.

- Low Nits : Suitable for dimly lit indoor environments.
- High Nits : Essential for outdoor visibility or in areas with bright ambient light.

The term "nit" originates from the Latin word "nitere," meaning "to shine." A display with higher nits produces more luminance, which enhances clarity and readability in various environments.

Why Are Nits Important?

Nits are crucial for ensuring a comfortable and enjoyable viewing experience. Here's why:

1. Outdoor Visibility : If you've ever struggled to see your phone screen under direct sunlight, it's likely due to low nits. Displays with 800 nits or more perform better in bright outdoor conditions.
2. Eye Comfort : A dim screen in bright settings or an overly bright screen in a dark room can strain your eyes. Optimal brightness levels enhance comfort and reduce eye fatigue.
3. Enhanced Contrast and Color : Higher brightness improves contrast ratios and brings out richer colors, especially in HDR (High Dynamic Range) content, creating a more immersive viewing experience.
4. Versatility Across Devices : Whether you're gaming on a monitor, streaming on a TV, or working on a laptop, displays with adequate nits ensure clarity in all settings.

How to Measure Display Brightness in Nits

Knowing your device's brightness can help you determine if it meets your needs. Here are several ways to measure nits:

1. Manufacturer Specifications : Most product descriptions include brightness levels measured in nits. Check the official website or user manual for detailed specifications.
2. Online Reviews and Benchmarks : Websites like NotebookCheck and DisplayMate conduct in-depth reviews, including brightness measurements. These are excellent resources for detailed analysis.

3. Using a Light Meter : For precise measurements, a light meter can directly determine a display's nits. Place the meter in front of your screen, and it will provide an accurate luminance reading.
4. Calibration Tools : Software like SpyderX can estimate your screen's brightness. While not as accurate as a light meter, these tools offer a practical alternative.
5. DIY Lux Measurement : If you have a digital lux meter, you can calculate nits using the formula:

Ideal Brightness Levels for Different Scenarios

Not all devices require the same brightness. Here's a breakdown of recommended nit levels based on use cases:

Brightness (Nits): 200-300 nits | Recommended Use Case: Indoor use with low to moderate lighting

Brightness (Nits): 400-500 nits | Recommended Use Case: Bright indoor environments, standard office lighting

Brightness (Nits): 600-700 nits | Recommended Use Case: Outdoor use in shaded areas or overcast conditions

Brightness (Nits): 800-1000+ nits | Recommended Use Case: Direct sunlight and highly reflective environments

For example:

- Smartphones : High-end models offer 500-1000 nits for outdoor readability.
- Laptops : Typically range between 300-500 nits, with higher-end models reaching 600 nits.
- Televisions : HDR-capable TVs often provide 600-800 nits or more for vibrant visuals.

Nits vs. Lumens: Understanding the Difference

While both nits and lumens measure light, they serve different purposes:

- Nits : Measure the brightness emitted by a display surface (focused on screens).
- Lumens : Measure the total light output in a space (commonly used for projectors).

To convert between the two:

- 1 nit = 3.426 ANSI lumens
- Multiply the nit value by 3.426 to estimate lumens.
- Divide lumens by 3.426 to calculate nits.

How Bright Is Bright Enough?

Brightness requirements depend on your device and environment:

- Smartphones/Tablets : A minimum of 500 nits is ideal for both indoor and outdoor use.
- Laptops : 300-600 nits are suitable, depending on whether you work indoors or outdoors.
- Televisions : For HDR content, look for displays with 600 nits or more.

Tips for Choosing a Display with Optimal Brightness

When shopping for a new display, keep these tips in mind:

1. Consider Your Usage :
 - For outdoor use, prioritize higher nits (700+).
 - For indoor environments, 300-500 nits are sufficient.
2. Evaluate HDR Support : Higher brightness enhances HDR content, providing deeper blacks and brighter highlights.
3. Check Reviews : Trusted reviews often test brightness levels and compare them against competitors.
4. Test It Yourself : Visit a store and test display brightness under different lighting conditions.

Conclusion

Understanding nits is essential for selecting a display that suits your needs. Whether you're buying a smartphone, laptop, or TV, brightness plays a key role in delivering an optimal viewing experience. Higher nits provide better clarity, richer colors, and enhanced visibility in various environments. By considering the tips and guidelines above, you can confidently choose a display that meets your requirements and enhances your daily interactions with technology.