



ACCESSING SAFETY KNOWLEDGE [ASK] SHEET: EYE SAFETY-BLUE LIGHT & SAFETY GLASSES

Since 2007, new smart devices and modern-day electronics are equipped with screens that emit, at an average, up to five times more high energy visible **Blue (LED) Light** than previous technologies.

Blue Light is higher energy visible light wavelength between 400-525 nanometers (nm)

Computer Vision Syndrome (CVS) or Digital Eye Strain named by *The American Optometric Association* is eye and vision-related problems resulting from prolonged computer, tablet and cell phone use from emitted **Blue Light**.

According to recent studies, up to 80% of screen users report suffering from **Digital Eye Strain**.

Individuals experience eye discomfort and vision problems when viewing digital screens for extended periods.

Your eye blink rate is reduced staring at digital screens and tears evaporate drying out eyes causing inflammation.

LED lighting (LED's) may emit more **Blue Light** than traditional light sources. LED's can be concentrated light sources, like work lights, handheld and flashlights that are harmful when looking directly at the point of light.

Blue Light is a concern because of its higher energy with extended exposure may damage delicate eye tissues.

High intensity **Blue Light** from any source is potentially hazardous to your eyes. The fear is that **Blue Light** with its short wavelength passing through the Cornea, Lens, and then the Retina of the eye, with long term exposure can cause cumulative damage. Damage to the Retina can cause vision problems as age related Macular Degeneration.

There exists two types of **Blue Light**...Blue-Violet or HEV (High Energy Violet) are the most dangerous to the human retina. Blue-Turquoise light disrupts Melatonin production in us (makes us feel sleepy) which affects our Sleep-Wake cycle, known as Circadian Rhythm.

Current test results have shown that **Blue Light** from electronic devices is not going to damage parts of your eye or increase the risk of macular degeneration. However, more research is needed to determine **Blue Light** effects on the eye and potential damage and diseases that may occur from long-term exposure.

To prevent long-term damage to your eyes from **Blue Light** exposure include:

- Limit screen time – Take frequent breaks to give your eyes a rest
- Turn down brightness on screens to reduce total HEV
- Keep eyes lubricated- Use artificial tear eyedrops
- Place protective **Blue Light** filters on computer screens
- Use glare reducing anti-reflective coatings on eyewear
- Wear protective **Blue Light** glasses designed to block HEV

Clear eyewear block the least amount of HEV and provide a basic level of (20%-30%) protection.

Anti-reflective coatings on common eyewear typically block only (15%) of **Blue Light** HEV.

Using specifically designed glasses is the only way to block **Blue Light HEV.**

Tinted eyewear can provide greater varying protection based upon lens, tint, and color.

Premium safety glasses typically provide up to 380nm protection or near ultra-violet transmissions (ANSI Z87.1).

Safety **Blue Light** HEV glasses have greater protection preventive coatings and tint colors that vary yellow-orange.

We should take the necessary steps to block **Blue Light** in our daily life, including the use of protective eyewear for preventing any potential long-term health risk.