Eyesafe® Eyewear Requirements 1.0

Blue Light and Color Performance Criteria for Blue Light Filtering Eyewear

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Developed in collaboration with the Eyesafe Vision Health Advisory Board.
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With increasing scientific and medical research on blue light exposure, Eyesafe is introducing Eyesafe Eyewear Requirements 1.0, a comprehensive set of criteria for evaluating blue light filtering glasses. These guidelines are designed to help eyewear manufacturers deliver effective blue light filtration while preserving color accuracy and clarity for the user.

A growing number of studies suggest that cumulative exposure to blue light over time could lead to premature eye health issues, among them damage to photoreceptor cells in the retina that may increase risks of vision problems such as age-related macular degeneration.[1-3]

Concerns have been expressed in the eye care community over the potential long-term eye and health impacts from digital screen usage. A combination of factors including viewing distance, frequency and duration of use, physical responses to screen habits, and exposure to blue light, have been reported to cause visual discomfort in 65 percent of Americans.[4]

Exposure to blue light from digital devices has been cited as a contributor to digital eye strain, which is characterized by an ensemble of symptoms such as dry eyes, irritated eyes, blurred vision, sleep disruption, fatigue, reduced attention span, irritability, and neck and shoulder pain.[1,5-6]

Eyesafe is introducing a set of industry-first requirements designed to redefine the blue light eyewear category. The criteria are based on the Spectral Weighting Factors for Blue-Light Hazard as published by the International Commission on Non-Ionizing Radiation Protection (ICNIRP) in 2013 and the American National Standard Institute (ANSI) in 2015, which indicate the wavelength between 435-440 nanometers pose the greatest risk to retinal health.

Key Assessment Criteria

- **RPF® (Radiance Protection Factor)** Scale – A new standardized measure of blue light filtration effectiveness, modeled after SPF for sunscreen. The RPF level identifies how much blue light is filtered at peak 435-440 nanometers, providing transparency for consumers. An RPF of 20 or higher is needed to meet the Eyesafe Requirements.
- **Color Impact–** maximum color shift and luminance reduction allowed by RPF level to ensure visual clarity and accuracy, so users can enjoy their devices while wearing blue light eyewear without significant color distortion.

Eyesafe® Eyewear Requirements (2025)				
RPF® Radiance Protection Factor	**Peak Filtration at 435-440nm**	**Blue Light Toxicity Reduction**	**CCT Shift**	**Luminance Reduction**
RPF20	≥20%	≥15%	≤500K	≤20%
RPF30	≥30%	≥15%	≤1000K	≤20%
RPF40	≥40%	≥20%	≤1500K	≤20%
RPF50	≥50%	≥25%	≤1500K	≤20%
RPF60	≥60%	≥30%	≤1500K	≤20%
RPF70	≥70%	≥35%	≤1500K	≤20%
RPF80	≥80%	≥40%	≤1500K	≤30%

Notes:

The requirements above are applicable for finished frames with lenses and lenses

The RPF number will range from RPF20 to RPF80 and require achievement of each of the identified requirements.

The application of the solution will reduce the blue content and lead to a color temperature deviation and luminance reduction within an identified range.

The performance of the solution shall not lead to a color temperature shift more than allowed limits.

References

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