



July 7, 2021

RE: Photosensitivity in epilepsy and LED lighting

To Whom It May Concern:

I am writing to provide information on photosensitivity and seizures and LED lighting. For about 3% of people with epilepsy, exposure to flashing lights at certain intensities or visual patterns can trigger seizures. This condition is known as photosensitive epilepsy. People with photosensitive epilepsy may need to take measures to avoid lighting that may trigger seizures.

Factors that contribute to trigger a photosensitive reaction can include:

- Frequency of the flash (how quickly the light is flashing)
- Brightness
- Contrast with background lighting
- Distance between the viewer and the light source
- Wavelength of the light
- Whether a person's eyes are open or closed

Multiple studies have raised concerns about LED lighting and risks of epileptic seizures; I have included a sample of studies with this letter, along with additional studies and articles that discuss photosensitivity in epilepsy, generally. The included articles are cited alphabetically below.

1. Bullock, G. [31 Jan 2017] Photosensitive epilepsy: How light can trigger seizures. *TheraSpecs*. Available: <https://www.theraspecs.com/blog/photosensitive-epilepsy-how-different-types-of-light-can-trigger-seizures/>.
2. Harding, G., Wilkins, A., Erba, G., Barkley, G.L., & Fisher, R.S. (2005) Photic- and pattern-induced seizures: Expert consensus of the Epilepsy Foundation of America working group. *Epilepsia*, 46(9):1423-1425.
3. Lehman, B. & Wilkins, A. (2014) Designing to mitigate the effects of flicker in LED lighting: Reducing risks to health and safety. *IEEE Power Electronics Magazine*, September 2014, 18-26. doi: 10.1109/MPEL.2014.2330442.
4. Ticleanu C., Littlefair, P. (2015) A summary of LED lighting impacts on health. *International Journal of Sustainable Lighting*, 34:5-11.
5. Wilkins A., Veitch J., & Lehman B. (2010) LED lighting flicker and potential health concerns: IEEE standard PAR1789 update. *2010 IEEE Energy Conversion Congress and Exposition*, 171-178. doi: 10.1109/ECCE.2010.5618050.

Additional information about photosensitivity in epilepsy can be found on charitable epilepsy organization websites:

- Epilepsy Foundation of America:
  - <https://www.epilepsy.com/learn/triggers-seizures/photosensitivity-and-seizures>;
  - <https://www.epilepsy.com/learn/types-epilepsy-syndromes/reflex-epilepsies>
- Epilepsy Society (UK):
  - <https://epilepsysociety.org.uk/photosensitive-epilepsy>

If there are questions, you may contact me at [edenicola-scher@epilepsyneny.org](mailto:edenicola-scher@epilepsyneny.org).

Yours sincerely,



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