

January 19, 2022

BY EMAIL

Keith Wargo, CEO
Autism Speaks
keith.wargo@autismspeaks.org

Re: LEDs are a Trigger for People with Autism

Dear Keith Wargo,

The Autism Speaks website states *“In addition, underlying problems can trigger aggression. Among those with autism, common triggers include disturbing breaks in routine, lack of sleep, jarring “sensory stimuli” (noises, lights, or smells) or even undiagnosed mental health problems. Clearly, it’s important to look beyond the behavior itself to identify the underlying cause.”*¹

I am an adult who was diagnosed with autism spectrum disorder at age 53 and learned that I am unable to tolerate the beams of light from Light Emitting Diodes due to the extreme variability between the peak luminance and the edge luminance of an LED. This spatially non-uniform electromagnetic radiation overloads my sensitive nervous system. LEDs also trigger seizures in people with epilepsy and migraines in people who suffer from migraines. Flashing LEDs are even more toxic, many people would call them torture, and they meet the legal definition of assault.

Since my diagnosis, I have founded the Soft Lights Foundation and our goal is protect those with autism, epilepsy, migraines, and others from the harms of LED lights. We are contacting you to request that Autism Speaks post additional information about LEDs on its website.

MarieAnn Cherry is an adult who has epilepsy and who has been injured by LED light beams many times. Her exposures to LED light beams, even for a fraction of a second, has led to hundreds of seizures resulting in broken bones, lost teeth, and psychological trauma. MarieAnn has researched the issue and has written up a synopsis of how the safety of LEDs has been ignored by the authorities.² MarieAnn’s document also contains links to 40 studies on the toxic effects of LEDs.

While it is unethical to directly study whether a technology triggers a life-threatening seizure in humans by exposing the person to the possible trigger and it is also unethical to involuntarily subject

¹ <https://www.autismspeaks.org/autism-and-aggression>

² http://www.softlights.org/wp-content/uploads/2022/01/One-Third-of-us-at-Risk_-The-Medical-science-of-LEDs.pdf

humans to medical experiments,³ a study does not necessarily have to be carried out in a laboratory. A study of verifiable reports of incidents related to LED light beam exposure is a valid study. MarieAnn has compiled a list of verifiable quotes from persons who have been injured by LED exposure.⁴

The United Nations has defined 30 basic human rights.⁵ These rights are:

1. All human beings are free and equal.
2. No discrimination.
3. Right to life.
4. No slavery.
5. No torture.
6. Same right to use law.
7. Equal before the law.
8. Right to treated fair by court.
9. No unfair detainment.
10. Right to trial.
11. Innocent until proved guilty.
12. Right to privacy.
13. Freedom to movement and residence.
14. Right to asylum.
15. Right to nationality.
16. Rights to marry and have family.
17. Right to own things.
18. Freedom of thought and religion.
19. Freedom of opinion and expression.
20. Right to assemble.
21. Right to democracy.
22. Right to social security.
23. Right to work.
24. Right to rest and holiday.
25. Right of social service.
26. Right to education.
27. Right of cultural and art.
28. Freedom around the world.
29. Subject to law.
30. Human rights can't be taken away.

The use of LED light beams violates the right to be free and equal, the right to no discrimination, the right to life, the right to no torture, the right to freedom of movement, the right to freedom of

³ [https://media.tghn.org/medialibrary/2011/04/BMJ No 7070 Volume 313 The Nuremberg Code.pdf](https://media.tghn.org/medialibrary/2011/04/BMJ%20No%207070%20Volume%20313%20The%20Nuremberg%20Code.pdf)

⁴ <http://www.softlights.org/wp-content/uploads/2022/01/Quotes-from-individuals-harmed-by-LED-exposure.pdf>

⁵ <https://www.youthforhumanrights.org/what-are-human-rights/universal-declaration-of-human-rights/articles-1-15.html>

thought, the right to work, the right to social security, and the right to not have these rights taken away. It is unethical to purposely hide the loss of human rights caused by LED devices.

To assist you with the technical details of why LED light beams are so toxic, we provide additional technical information. LEDs emit electromagnetic radiation from a flat surface which creates a mix of energies that are not uniform, and the result is a low quality, toxic, hazardous, and discriminatory type of visible electromagnetic radiation.

Light Emitting Diodes produce light beams, rather than spatially uniform light. The result of the emission from the flat surface of an LED chip is an exceedingly intense beam from the middle of the chip that exceeds human tolerance levels and is toxic, hazardous, and discriminatory. This spatially non-uniform electromagnetic radiation from LEDs is unregulated and not approved by the government.

The left side of Figure 1 shows a spherical emitter that sends light in all directions in space. Because of the curvature of the emitter, the light rays do not overlap, and the radiation is spatially, spectrally, and temporally uniform. Every single point on the sphere is the same as any other point. On the other hand, the right side of Figure 1 shows a flat surface emitter such as an LED, which has a middle and edges. This flat surface creates a situation where the middle of the chip has different energy than the edges of the chip. LEDs send light only in the forward direction and the light rays are confined to an 'escape angle' which is determined by the physical characteristics of the chip. Thus, there are overlapping rays, with the most overlap being in the center of the chip, and the least overlap being on the edges. The result is that every point in space has different spatial, spectral, and temporal properties.

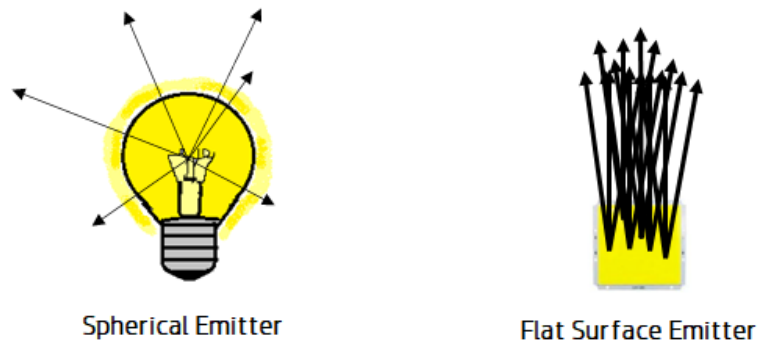


Figure 1 - Spherical vs. Flat Surface Emitter

Figure 2 shows the uniform spatial energy from candles, incandescent and High-Pressure Sodium versus the non-uniform spatial energy and extreme peak to edge luminance values from an LED. The intense peak of energy will cause eye damage and will overload the nerve signals to the brain because the information is not uniform. These negative outcomes are the effects of the toxicity of LEDs.

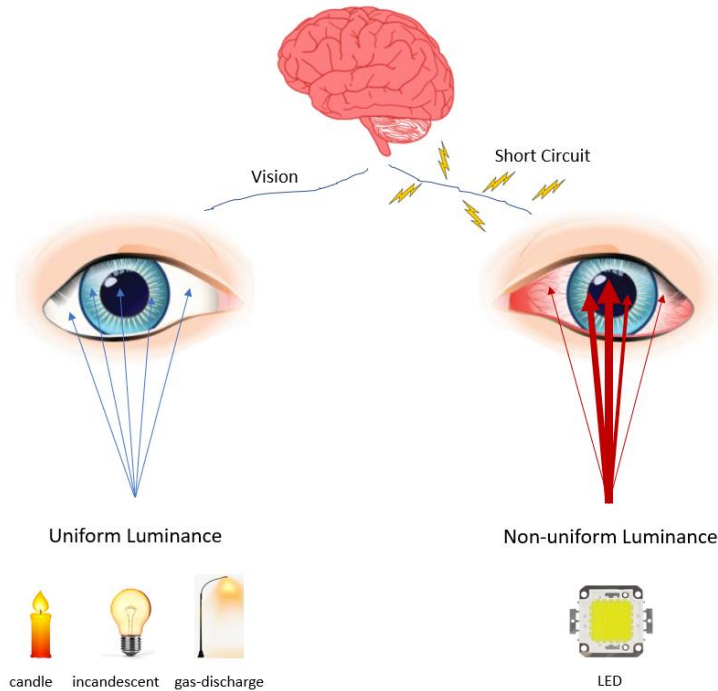


Figure 2 - Spatially Uniform v. Non-Uniform Radiation

Figure 3 is a diagram showing the categorization of radiation and shows that *light* and *illumination* are spatially isotropic radiation in the human visible portion of the electromagnetic spectrum. Radiation emitted by LEDs do not meet the regulatory meaning of or comply with standards for the use of light as illumination.

Regulatory Meaning of Light and Illumination

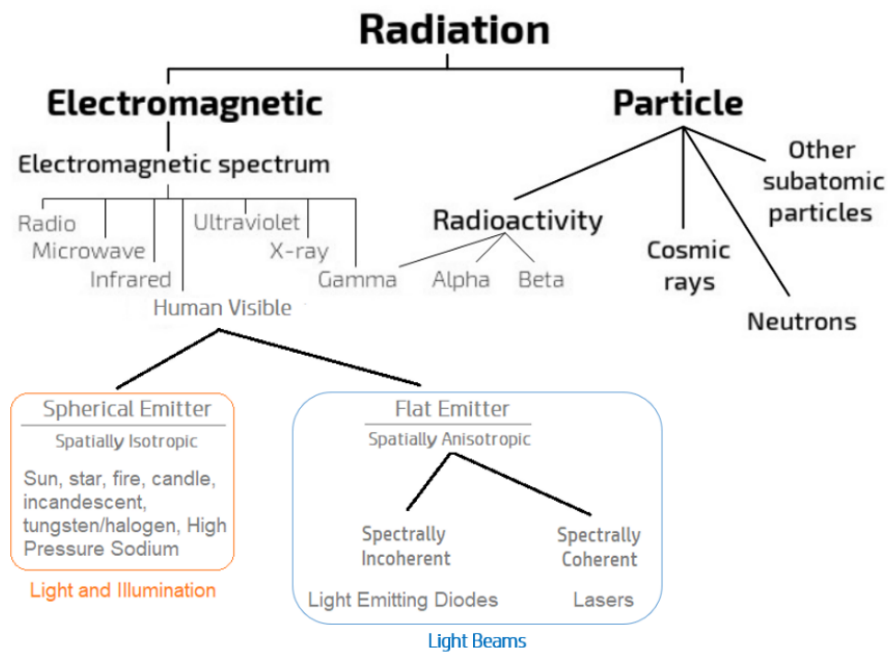


Figure 3 - Radiation Types

Figure 4 shows a uniform illumination device that is compatible with the human nervous system left side of the diagram and the non-uniform radiation emission of a flat surface LED on the right.



Figure 4 - Streetlight Comparison

As an example of how dangerous LED radiation is, the operator’s manual for the Ryobi P705 Flashlight includes the following: *“WARNING: Do not direct the light beam at persons or animals and do not stare into the beam yourself (not even from a distance) Staring into the light beam may result in serious injury or vision loss.”* The warning also refers to children, who along with infants are an identified high-risk population vulnerable to LED-exposure harm. Babies often lack an adult’s automatic, self-protective aversion response to bright or intense light, and will stare directly at the source. The parenthetical *“(not even from a distance)”* indicates a high level of danger.

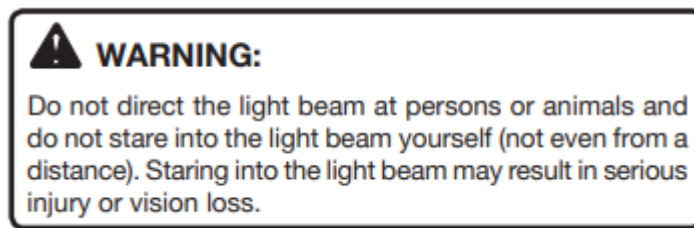


Figure 5 - Flashlight Warning

LED light beams can trigger autistic aggression, whether the light beam is static (even supposedly static LEDs are probably flickering at some rate) or flashing. Businesses that wish to protect themselves from liability may place a sign at the entry way to their business to alert people with autism of the danger. Considering that nearly all LEDs can trigger autistic aggression, we should be seeing these signs nearly everywhere.



Figure 6 - Autism Warning Sign

The video for Figure 7 shows how incandescent hazard lights work. They give a slow, general, soft warning and let people know that the vehicle is in an unusual situation without detracting from the task of driving or walking, and without causing seizures, migraines, or panic attacks.

Non-LED Hazard Lights: <https://youtu.be/DHJZTb7qXQo>



Figure 7 - Non-LED Hazard Lights

The video for Figure 8 shows the use of an RRFB, where the flashing LED device does not carefully warn, but rather assaults people, violating their civil rights, damaging their eyes, interfering with the functioning of their nerves, and endangering their lives. This type of rapid flashing can terrorize a person with autism.

Rectangular Rapid Flashing Beacon: <https://youtu.be/KBltx0Argag>



Figure 8 - RRFB

LED flashing lights turn on and off nearly instantly and the spatially non-uniform radiation and extreme variability between peak radiance and edge radiance triggers seizures, causes migraines, induces panic attacks, interferes with human nerve functioning, reduces vision, increases agitation, and endangers the lives of the public.

Figure 9 is a diagram showing why the spatial distribution of LED radiation is so toxic and dangerous. The source peak luminance of an LED can be hundreds of thousands or even hundreds of millions of nits, far exceeding human thresholds, and the non-uniform shape and extreme variability of luminance interferes with the human nervous system. The rapid flashing is also toxic, degrades vision, and interferes with the human nervous system.

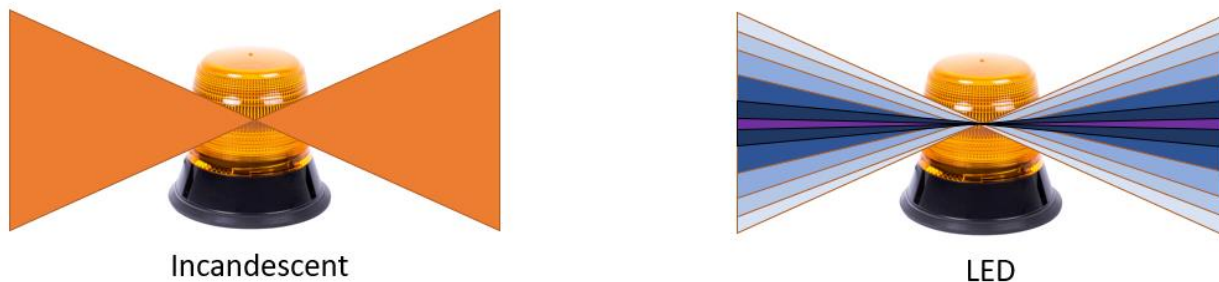


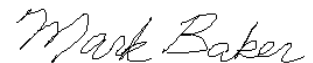
Figure 9 - Incandescent vs. LED Flashing Lights

The result of exposure to LED electromagnetic radiation is immediate sickness in the form of headaches, nausea, eye pain, loss of balance, migraines, panic response, altered vision, epileptic seizures, disorientation, aggressive behavior, and other neurological disturbances. Each of these

symptoms is being verifiably reported by an increasing number of individuals and constitute medical evidence of LED-induced harm. LED visible radiation exposure is causing catastrophic physical harm, subjecting individuals to illness and injury, and plunging formerly healthy, independent people into crisis levels of stress, hopelessness, psychological trauma, and persistent thoughts of suicide.

As a non-profit, Autism Speaks has an ethical obligation to clearly explain to the public that LED electromagnetic radiation is toxic, hazardous, and discriminatory for people with autism, and that these LED devices are causing autistic aggression and violating basic human rights. We request that you prominently publish information on the Autism Speaks website about the relationship between LED light beams and the terror felt by those diagnosed with autism spectrum disorder.

Sincerely,

A handwritten signature in cursive script that reads "Mark Baker".

Mark Baker
President
Soft Lights Foundation
www.softlights.org
mbaker@softlights.org