Soft Lights Foundation

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November 27, 2021

BY EMAIL

Melissa Lynch, Counsel
Natural Resources Defense Council
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Re: Spatially Anisotropic Visible-Radiation Devices

Dear Melissa,

English Common Law dating back to 1663 states that a property owner has an easement to allow *light* to enter their property.[1] The word *light* referred to sunlight and starlight that could be seen by human eyes. We now know that human-visible light is the set of frequencies between approximately 380nm and 700nm on the electromagnetic spectrum. For regulatory purposes, *light* is spatially isotropic, meaning that the shape of the radiation is the same in all spherical directions.

Biological systems have a long history of evolution with *light*. The substance emitted by the sun, stars, fire, candles, and fireflies is *light* and is a fundamental component of biological life. Humans use their visual receptors to see objects using reflected light, the different wavelengths of light provide color information, and *light* controls circadian rhythms and mood. *Light is spatially isotropic radiation in the human visible portion of the electromagnetic spectrum*.

The substance emitted by LEDs does not meet the regulatory definition of *light*. Light Emitting Diodes are misnamed because they emit visible radiation, but not *light*. LEDs should more properly be named Visible Radiation Emitting Devices or VREDs. Because the substance that LEDs emit is spatially anisotropic radiation and not *light*, this substance interferes with the nervous system and can cause eye damage, pain, epileptic seizures, migraines, psychiatric trauma, and thoughts of suicide.

We wish to alert NRDC to legal issues related to the promotion of LED radiation devices. Figure 1 is a diagram that shows that *light* is spatially isotropic radiation in the human visible portion of the electromagnetic spectrum and that the radiation emitted by LEDs, while visible, is not *light*.

[1] https://www.britannica.com/topic/ancient-lights

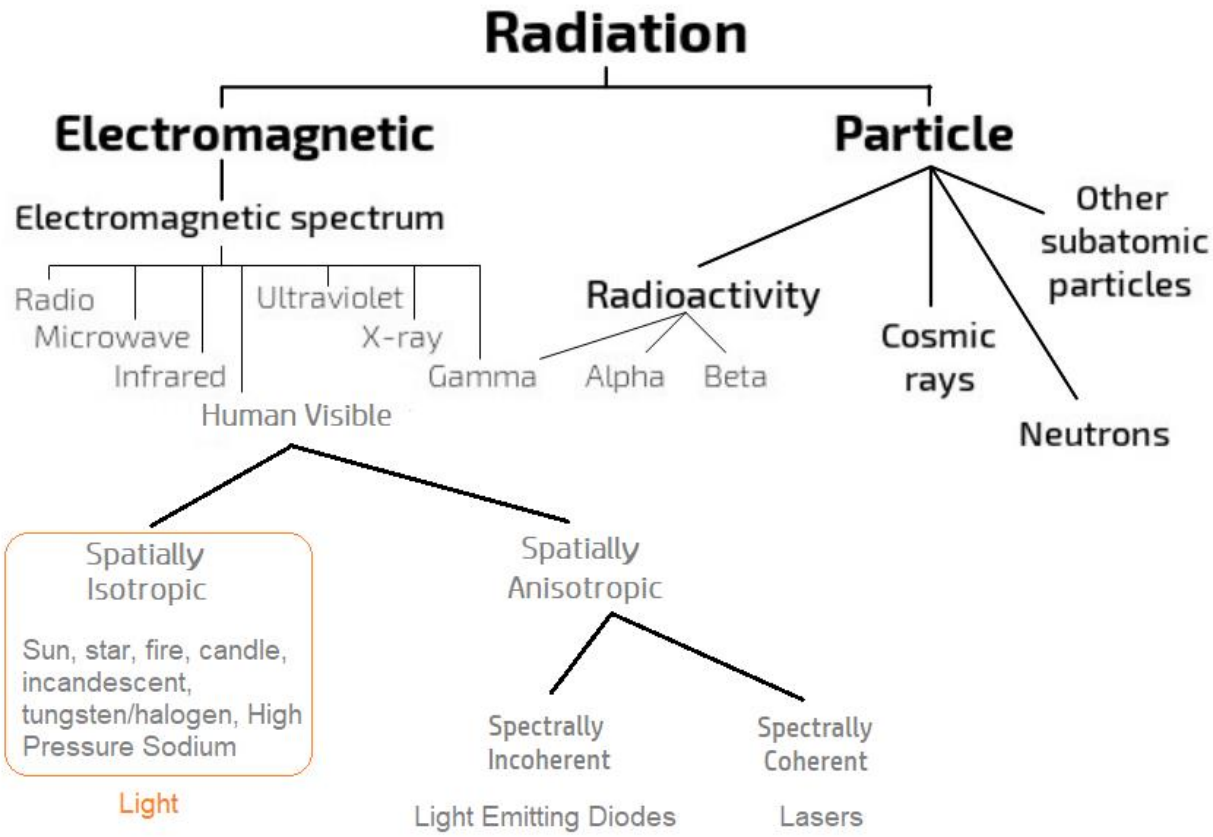

Figure 1 - Radiation

LEDs are not "energy efficient". To be energy efficient, a technology must provide the same quality of service and perform the same task as the previous technology[2]. The task in this situation is to provide *light* and uniform illumination while using less energy and not causing harm. Since LEDs do not emit spatially isotropic radiation, LEDs do not emit light, and the radiation that LEDs do emit is not uniform. Instead, LEDs emit spatially anisotropic visible radiation that is sending people to the hospital, causing eye damage, and violating civil rights. The claim of "energy efficiency" by NRDC and the LED lighting industry is fraudulent.

The federal Americans with Disabilities Act prohibits discrimination. Since LED radiation interferes with major life functions such as seeing, thinking, and concentrating for people with disabilities, such as those with epilepsy, autism, PTSD, migraines, bipolar disorder and others, LED radiation is discriminatory. The US Access Board has not yet developed guidelines for spatially anisotropic radiation from LEDs. Since LED radiation prevents safe access to public services such as roads, sidewalks and government facilities, LED radiation is discriminatory.

[2] https://www.energystar.gov/about/about_energy_efficiency

Figure 2 shows LED radiation devices in a parking lot. The visible radiation shown in the photo is not *light*. The substance is certainly visible, but it is not light as defined in regulations and law and is instead a toxic substance that causes injury.

Figure 2 –LED streetlight radiation

As an example of how dangerous LED radiation is, consider this warning shown in Figure 3 from the company Gear Light.

Figure 3 - LED Flashlight

The NRDC website contains false information that harms NRDC's legal cases and could pose a liability issue for NRDC. For example, NRDC says, "*Today, they [LEDs] are by far the best bet in terms of performance and energy savings, says Noah Horowitz, director of NRDC's Center for Energy Efficiency Standards in the Climate & Clean Energy Program. "*[3] This statement that LEDs provide energy savings is false. LEDs do not even emit light, so their energy use cannot be compared to devices that do emit light. Another quote from NRDC says, *"Since LED bulbs look and perform the same as incandescents and halogens…"*[4] Again, this is a false claim because LEDs emit some substance that is visible radiation, but they do not emit the substance that is compatible with human biology called light.

Since the substance that LEDs emit does not meet the regulatory definition of light, the NRDC must stop claiming that LEDs are a safe, energy-efficient substitute for devices that emit light.

Sincerely,

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[3] https://www.nrdc.org/stories/how-shop-energy-efficient-light-bulbs
[4] https://www.nrdc.org/sites/default/files/lighting-standards-2019-fs.pdf