



[5GinMerton.com](http://5GinMerton.com)

**Lights! Cameras! Inaction!**



- Is there a problem with LED (yes and no)
- Quality of light/CT colour temperature
- Is the problem understood?
- Health issues
- Does efficiency = less waste?
- Experience with local authorities
- LED lights surveillance and control

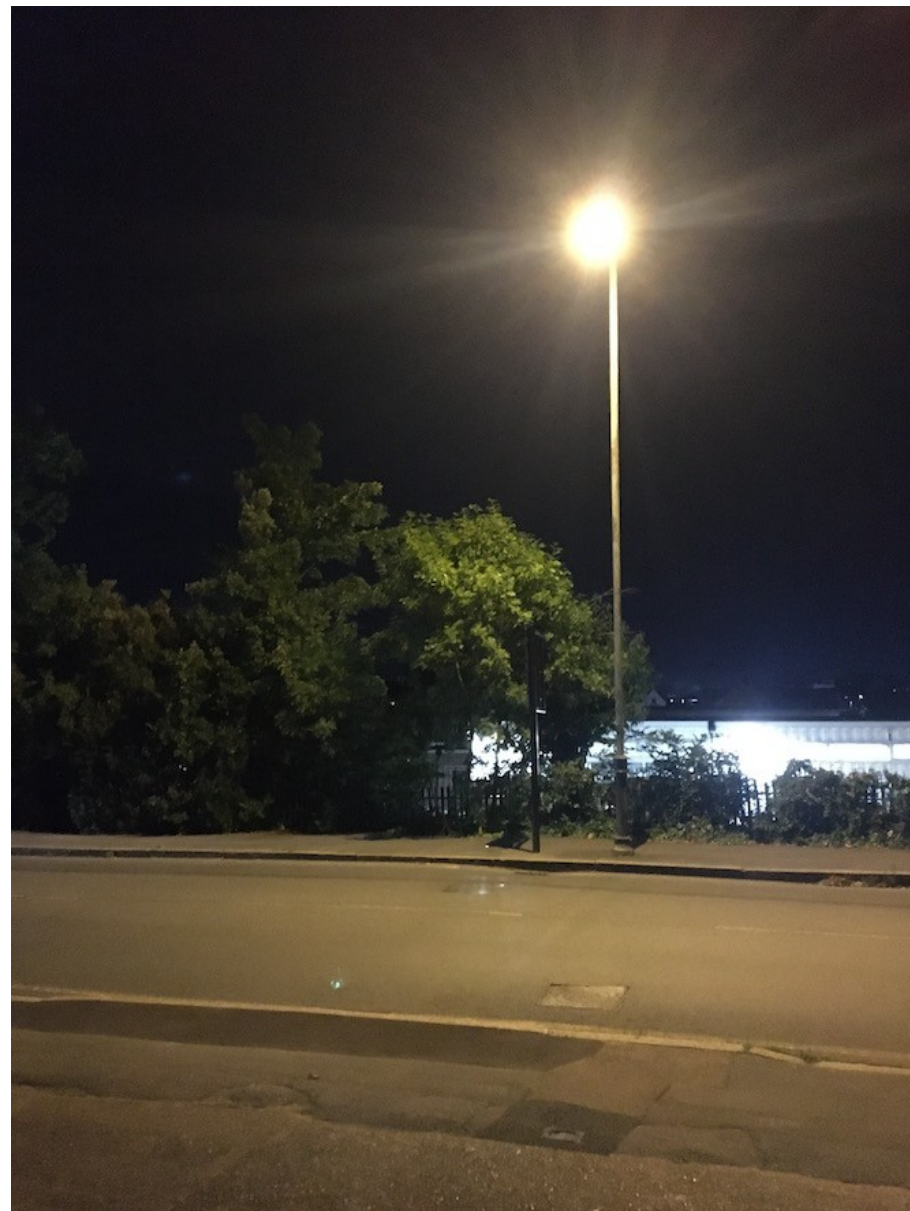


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# Kelvin Colours of Light



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# Light Quality

Ham under high-quality incandescent light.



Ham under low-quality industrial LED light.





# Light Quality



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Spherical Emitter



Flat Surface Emitter

<http://www.softlights.org/>

# Light Quality



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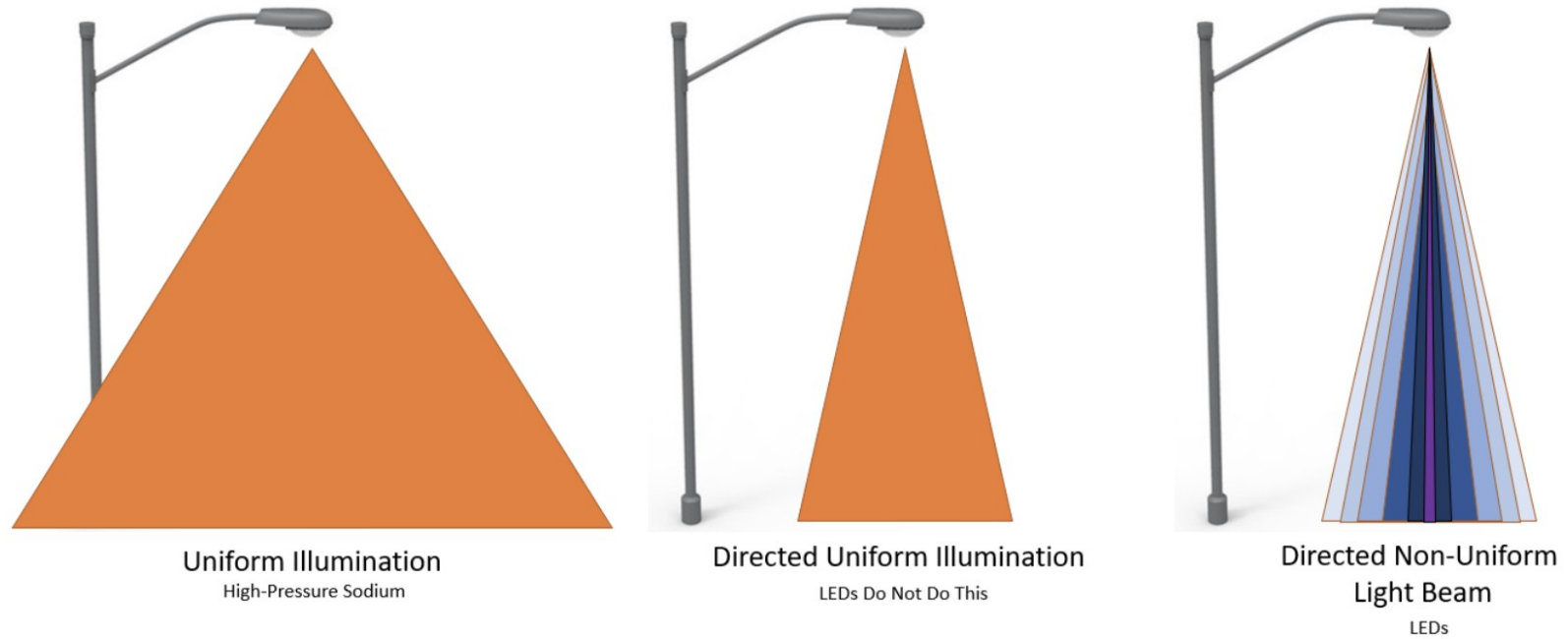


Figure 4

Figure 5 shows a luminous efficacy comparison between different light sources. Notice that only LED has non-uniform luminance. An energy efficiency comparison cannot be made between the uniform luminance light sources and the non-uniform luminance light sources because they are different services.



# Useful sources of Info

## Highways

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### Latest Issue



#### ALSO INSIDE:

- 80th Birthday of the traffic cone
- Resurfacing pilot has 'lowest carbon levels ever'

 View the latest issue

## Public Health England issues LED street lighting warning

03/04/2018

Public Health England has warned that high levels of blue light in LED street lighting can be uncomfortable and are 'known to cause damage to the retina'.

The executive agency of the Department of Health also suggested that 'daylight-running lights on cars' can mean that older drivers 'will be dazzled by oncoming vehicles with the risk that they may not see hazards until too late' - a problem exacerbated by fog.

LED street lights have been used to replace older forms of street lighting across the UK as they are much cheaper to run, easier to control and can have less light dispersal.

However John O'Hagan of Public Health England warned that social and health factors should be considered, as well as financial.

'Local authorities have been replacing mercury and sodium street lights with LEDs. If this is done purely on the basis of energy efficiency and cost, it is possible to end up with installations that may



# American Medical Association warns of health and safety problems from 'white' LED streetlights

Published: June 17, 2016 8.48pm BST



New LED-based streetlights are whiter than traditional ones and contain more blue light, which can disrupt people's circadian rhythms. meltedplastic/flickr, CC BY-NC-ND

## Author



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University of Connecticut

## Disclosure statement

Richard G. "Bugs" Stevens does not work for, consult, own shares in or receive funding from any company or organisation that would benefit from this article, and has disclosed no relevant affiliations beyond their academic appointment.

## Partners

**UConn** | UNIVERSITY OF CONNECTICUT

University of Connecticut provides funding and is a member of The Conversation US.

The Conversation UK receives funding from these organisations

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# Increase in LED lighting 'risks harming human and animal health'

**Transition to blue light radiation across Europe increases suppression of sleep hormone melatonin, say scientists**

*Waseem  
Mohamed*

Wed 14 Sep 2022 19.00  
BST



📷 The University of Exeter study claims that previous research into the effects of light pollution have underestimated the impacts of blue light radiation. Photograph: Stocktrek Images/Getty Images

# Jevon's Paradox/ Rebound Effect/ Catch 22



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- Link between increased technological efficiency and greater use.
- An example of this is our current experience with LED lights. Cheaper cost and more efficient lights (which also use rare earth material for their phosphors) have not lead to anticipated energy savings due to greater use.
- This trend/ “rebound effect” relating to use of artificial light has been empirically shown to be consistent over a period spanning 3 centuries and 6 across continents.

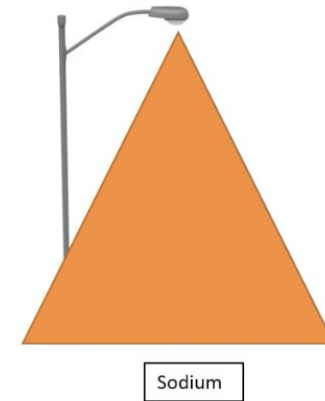
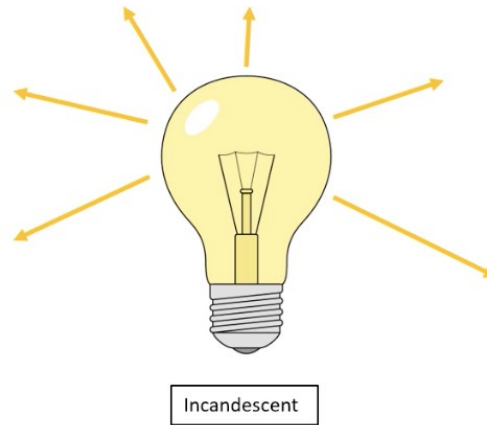
<https://www.anthropocenemagazine.org/conservation/2011/09/the-efficiency-catch-22/>

# Energy Efficiency

- Energy efficiency for what?

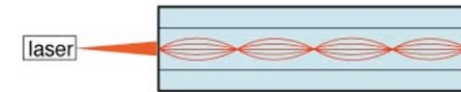
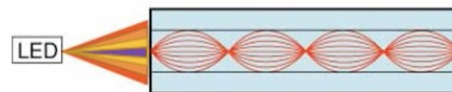
## Point Source

Incandescent and Sodium are good for illumination.



## Surface Source

LEDs and lasers are good for fiber optic communications.



# Specific Questions



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- Planned to be replaced with “**neutral white light**”
- Has a risk assessment/optical radiation environmental assessment been done on these lights?
- What would be the Kelvin output?
- Who is the decision-maker we can talk to in order to discuss these matters?



# Experience with the Council



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- Future Merton
- Lessons learnt
  - Councillor and Officials
  - MPs and Councillors
  - Polite, responsive, gas lighting? Why so complicated?
  - Safety mantra
  - Money spent
  - Narrow, institutionalised group think, operating in boxes, eg. pollution
  - Lose interest, lack of strategy
  - Avoid answering specific questions

# Kind of Response



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I have been pressing the council on the streetlighting on Woodside, Lake Road and Pine Grove, and the response I have had is as follows,

“Thank you for your enquiry regarding street lighting in Lake Road, Pine Grove and Woodside.

Lake Road, Pine Grove and Woodside were converted to LED in 2018, 2015 and 2023 respectively. The lighting in these roads is good and to British Standard and LED lanterns will give a service life circa 23 years.”

LED lanterns in Merton have in-built dimming which helps preserve the night time environment, reduce adverse effects to surrounding flora and fauna and greatly reduces energy and carbon emissions hence contributing towards government directive of attaining net zero.

# Response (cont.)



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The resounding consensus amongst Merton's residents is for street trees, which enhances and gives a pleasing visual aspect to our streets. In some cases, tree-lined streets will result in some shadowing however, once the leaves have been shed, the effect to lighting is lessened, particularly during the winter months."

If any of your residents feel unsafe because of the dim lighting, let me know and I will go back to the council and see if it is possible to adjust the timing of the dimming.

## **In respect of the characterful lamp posts which remain:**

"The existing lighting columns will remain as their service life has not expired yet however, the faux embellishments will be removed as they are an impediment to structural testing and also encourage corrosion."

# Response (cont. 2)



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- Later on this year we will be replacing the age expired lanterns beyond Orinoco Lane. The old lanterns utilise lamps which are being phased out, and these will be replaced with LED ones which emit a neutral white light. Typical lifespan for LED lanterns is 20 years which substantially reduces maintenance costs. The change to LED will deliver further efficiencies in energy, carbon reduction and light pollution, hence increasing the view of the night sky.
- All these factors contribute to a better environment and government's directive to attaining net zero emissions.”
- I have asked about the style of the replacement lights, but so far as the LEDs are concerned I am afraid that is a battle lost long ago, though who knows, if a sufficient body of scientific research accrues that counters the arguments in favour of LEDs, perhaps we will see change in the future.

# Response (cont.3)



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- The London Borough of Merton and have associated street lighting are lit to the required standards as outlined in **BS5489-1:2020. The minimum lighting class that is acceptable**
- The Highways team will of course work with partners on any improvements identified in the VAWG strategy. Safer Merton's Violence Against Women and Girls strategy working with other teams within the Council to ensure that women and girls feel safe in the borough.
- Over recent months, Safer Merton have been working on a Home Office funded 'Safer Streets' project

***Pick our battles?? I picked 5G, but Important to note that 5G really makes them run away!!***

# A Different Approach?



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- A lady has successfully got their council to revert her street to sodium lights (Spring 2022 ES-UK).
- Letters from consultant neurologist and an ophthalmologist
- Street lighting Department & Chief Engineer unhelpful
- Council's Equality Office & local Councillor very supportive.
- The Streetlighting Dept tried to find compromise solutions, taking time to trial amber and LEDs (2,700K) and forms of shielding
- Still got headaches
- Equalities Officer then used **Equalities Act** to explain legal grounds for keeping sodium street lights as '**reasonable adjustment**'.
- Sodium lights installed in her street and some surrounding ones (But for how long?)



# A Different Approach?(2)



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- I engaged with my council and after initially being fobbed off they accepted there were health problems and offered to make some charges locally to help me (Tom, Manchester)
- They changed the 4000k LEDs in my village for constant current 3000k, with better quality diffusers and some with directional shields to reduce glare towards my property.
- ***“I appreciate the council did try to help me but the wider issue is that something on a national scale needs to be done. There are clearly issues with LED technology that are not understood and the drive to save energy has meant common sense has gone out of the window.”***

# Streetlights and Surveillance



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- LED Bulbs' complex wiring and strategic positioning make recording devices an easy addition.
- We think streetlights are the place to do this because they have power, ubiquity, and the perfect elevation to capture a lot of important data," Austin Ashe, smart city technology company Current's general manager for intelligent cities, told IEEE Spectrum.
- LED light can spy by covertly listening and then send that audio over 300 meters away to the eavesdropper. The New York Times reported that 171 LED fixtures inside Terminal B at Newark Liberty International Airport are "watching" us.
- **Energy efficiency (Jevon's Paradox?) Surveillance the real reason, not efficiency?**

# Streetlights and Surveillance 2



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COMPUTERWORLD UNITED KINGDOM ▾ EVENTS WINDOWS GEN AI OFFICE SOFTWARE ANDROID COLLABORATION WHITE PAPERS/WEBCASTS

Home > Security



## SECURITY IS SEXY

By Darlene Storm, Computerworld | 18 FEBRUARY 2014 20:17 GMT

### About |

Most security news is about insecurity, hacking and cyber threats, bordering on scary. But when security is done right, it's a beautiful thing...sexy even. Security IS sexy.

OPINION

## Don't look now but the LED light fixtures are spying on you



Whether or not you pay any attention to the lighting overhead, the lightina mav be navina such close attention to you that privacy advocates

**“Let's get real.**

**The light fixtures and LEDs at Newark Airport are not about saving energy or having cool lights capable of 16 million colors;**

**it's about watching us, analyzing data about us and storing it for who knows how long.”**

# Multi-Function LED lights



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Sengled Snap WiFi Security Camera  
Light bulb | Smart Home Surveil...

Sengled Optoelectronics Co., Ltd.



Yeelight Tunable White Smart Light Bulb  
| Color Temperature Adjus...

Qingdao Yeelight Information Technology



Yeelight RGBW Color Changing Smart  
Light Bulb - Instant WiFi Pair...

Qingdao Yeelight Information Technology



Dimmable BR30 Smart Light Bulbs |  
ZigBee Wireless Home Lighting S...

Sengled Optoelectronics Co., Ltd.



Sengled Flex App Controlled WiFi LED  
Light Bulb with Built-in JB...

Sengled Optoelectronics Co., Ltd.

Sengled Flex  
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***\*Not to be  
confused with  
Li-Fi***

# People know...



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A Neverout headlamp on an Autocrat automobile at the Regent Street Motor Show

## Country dwellers caught in the headlights

**sir -** Ruth Downes (Letters, December 12) is not alone: there must be tens of thousands of us who are no longer able to drive at night due to the glare from both LED and xenon headlights.

I have 20/20 vision in daylight but am completely blinded at night on wild roads and have been forced to give up night driving. A legally enforced reversion to halogen bulbs would be welcome.

John Peer  
 20 Walsingham

**sir -** I had a faulty front sidelight on my three-year-old Jaguar. This light is an LED and I had to replace the whole front light console, consisting of a sidelight, twin headlights and indicator lights.

The estimated cost was 2500 for the light console, 1350 for labour and 1350 for VAT. Luckily this was covered by my warranty - but a few years ago it could have all been resolved by changing just one bulb.

David Veery  
 Shenley, Bergedshire

## Broadcasters as enemies of in-depth debate

**sir -** During the election campaign, we saw a new law in the political views...

overnight to

**sir -** There is Goldsmith an House of Lon How will B swamp when power through Dissolution H Jonathan Eva Hong Kong

**sir -** Television Conservative F very different c working-class t that of the soul Yet the two a feeling. After ye lesser issues, th 2016) to vote on most: the integr Kingdom and th sovereignty. The the idea of an Ea British) national Derrick Gilling) London SW7

**sir -** On Friday, I had an audience t He arrived in a which was parked Buckingham Paln so - with the engh No excuses for I Allan Hall London SE10

## Head and s

**sir -** The good peop Staffordshire will in to need that Nanthe the highest village t December 16). Flash sea level, stands H8 Lynne Ormsiston Chendale Palace...

# Incapacitator Lights



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# You are in an area controlled by a Public Spaces Protection Order

Within this restricted area there are certain things you must or must not do and police and authorised Council officers can impose certain requirements.

## You must not engage in any of the following

- Aggravated street trading/food/veg
- Use of portable/throwaway table/tables
- Use of portable equipment/tables
- Use of any other equipment/tables
- Use of any other equipment/tables
- Drinking
- Smoking (including e-cigarettes)
- Consuming alcohol
- Spitting or throwing/tossing/gest

## And you must

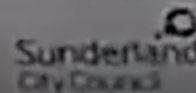
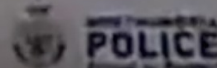
- Keep your dog on a lead at all times
- Take your dog to a designated dog exercise area
- Take your dog to a designated dog exercise area
- Take your dog to a designated dog exercise area
- Be able to produce a dog waste bag or suitable alternative when requested by an authorised officer
- Take a dog waste bag to a designated dog exercise area
- Take a dog waste bag to a designated dog exercise area

## And you must

- Keep your dog on a lead at all times
- Take your dog to a designated dog exercise area
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If you do not comply, you may receive a £100 fixed penalty notice or face prosecution and a fine of up to £500 (for alcohol-related breaches) or up to £1,000 (on all other cases).

For a full copy of the Order visit: [www.sunderland.gov.uk/pspo](http://www.sunderland.gov.uk/pspo)



# What are they?



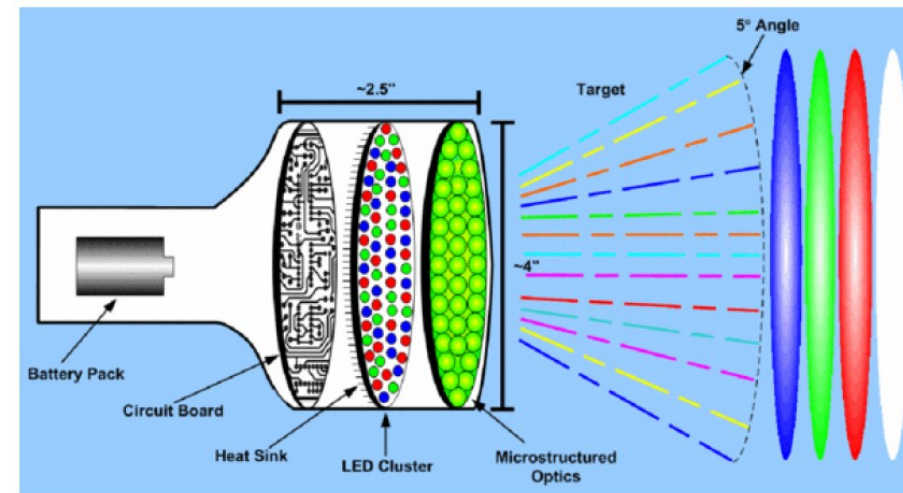
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WIKIPEDIA

## LED incapacitator

A **light emitting diode (LED) incapacitator** is a weapon designed like a flashlight. It emits an extremely bright, rapid, and well-focused series of "differently-colored random pulses". Before human eyes can focus in on one frequency, another frequency comes on, causing intracranial pressure, which results in headache, nausea, vomiting, disorientation, irritability, and visual impairment to the target.<sup>[1][2][3][4][5]</sup>

The non-lethal weapon is intended as a means of protection by law enforcement officials such as police and border patrols. The light emitted is capable of rendering opponents temporarily blind so that they can be subdued more easily.



Cross-sectional diagram of the "Incapacitator", from a DHS newsletter<sup>[1]</sup>

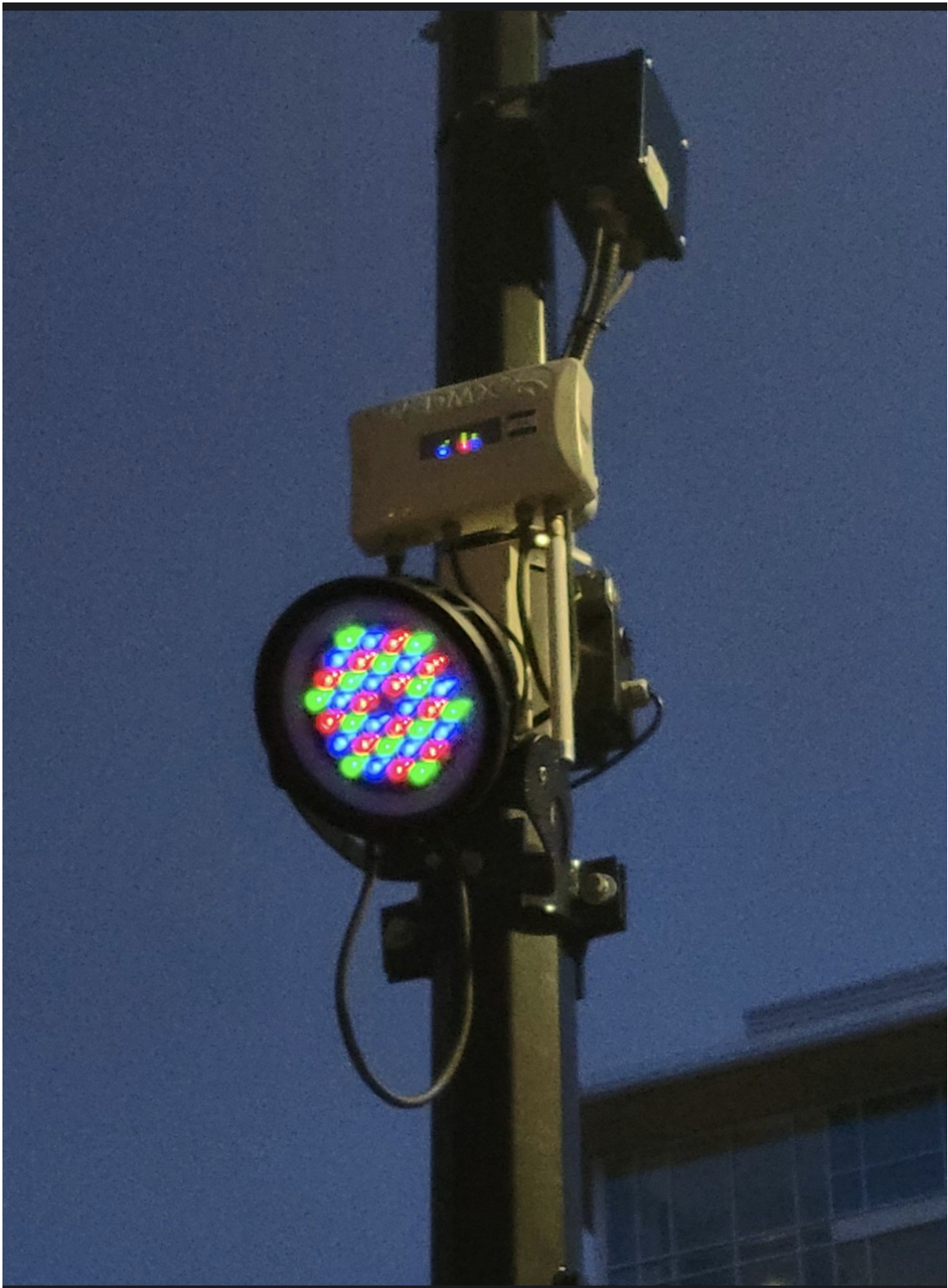
# What are they?



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# Some “light” Viewing (sorry)



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## **History Channel**

<https://www.youtube.com/watch?v=9Jsr53yvyrM>


## **A guy making one**

<https://www.youtube.com/watch?v=lac6qrkq9Uo>

# Good stuff is happening



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5G

REGULATION

RIGHTS & REMEDIES

English ▾

BLOG | ENVIRONMENT | HEALTH

## 5G/EMF/RF: UK EECC Challenge Escalated to Judicial Review

January 20, 2024