

## CARE Committee

---

**From:** Patrick Grant <pgrant\_94087@yahoo.com>  
**Sent:** Friday, September 2, 2022 8:49 PM  
**To:** CARE Committee  
**Cc:** rjw@hawaii.edu  
**Subject:** Helpful input on Night sky committee

You don't often get email from pgrant\_94087@yahoo.com. [Learn why this is important](#)

Honorable Council King and committee,

First I wish to say it was refreshing to see the quality of testimony and intelligent deliberation of the committee took. Unfortunately I had to bail before testifying as I had to catch a flight.

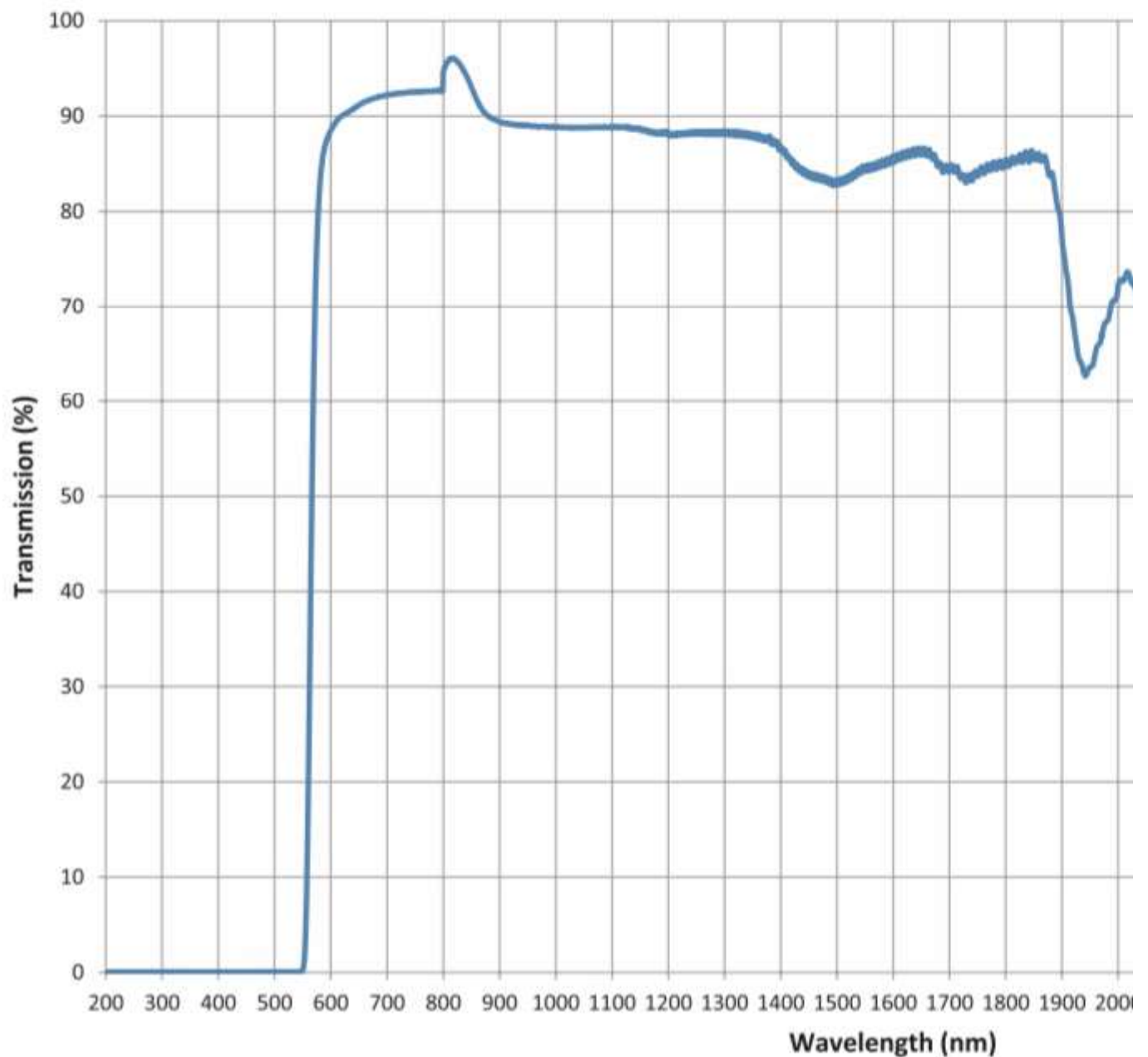
Id like to add some helpful observations as a Retired NASA Electro-optical earth science engineer, part of MODIS team.

1. First I like to point out a fairly common black and white photography filter type in use for over half a century fits the bill for blocking blue light. Its available in Gell form which can be cut with scissor too. It's historically known as Kodak Wratten 22. Spectral transmission curve below. I might suggest finding a mechanism for large purchase lower quality needed for lights and have workshops in libraries so folks can come in and retrofit their lights minimum cost to save turtles. This does not require special consultant sourcing.

# Wratten gelatin colour filter

**Material / Specification:** 568nm longpass (Wratten no.22)

**Range / Description:** 568FWP



2. I found the turtle lighting evidence much clearer and compelling than bird evidence.

Great link to all of Florida's turtle lighting code. <https://myfwc.com/conservation/you-conserve/lighting/ordinances/>

3. Dr Wainscoat right. Blue light has way more scattering and speeds 10s of miles from source. Follow his recommendations! My Kihei neighborhood (Wikani street) way over lit! In my NASA career several times work with NOAA dark sky team. There is NASA/satellite instruments on MODIS and NPOESS to measure dark light. Good site <https://www.lightpollutionmap.info>. This is critical reduce intense blue lights as one of worlds best astronomy sites which has large economic and science value to Maui be lost. In addition tourists pay premium to see stars as ancestral Hawaii's did. Night sky from Maui valley very poor, street lights and unnecessary commercial lighting by far biggest source. What's more effect is sidewalk and crosswalk only lighting, controlled by time and PIR type "motion" sensors.

4. Led actually are UV blue internal and use phosphors down converting filter to create longer wavelength's. Its a huge high peak that leaks through. Most, especially cheaper sold in big box type degrade over time and turn bluer. The difficulty in establishing blue longer term stability and leak though effects is big argument in favor into going back to lower power older style street lights Dr. Wainscoat advocated. If councils asks in concert with Dr Wainscoat, it should be easy to select or make a hand held meter to regularly take around all Maui lighting store displays to identify blue excessive lights.

5. Perhaps council could make a revenue neutral tax heavy on blue intense lights and rebate on turtle lighting for all stores, businesses and events. Carrot and stick to saving turtles, birds, and astronomy on Maui. Maybe turtle friendly certification that events business can use in sales promotion. Huge sales carrot!

6. Events must be shielded, no excuse. High incentives to be turtle friendly.

7. Seems Error in wording in exemptions line 3 "or" should be "and" or two sentences. Otherwise seems to read unlimited lighting in one case.

8. Section G "motion or IR or PIR sensor" PIR sensor preferred as motion sensors pickup motion of vegetation in Maui winds. I gave up with big box store motion sensors as every breeze would set them off. There may need to be a list maintained and published by county of sensors (and sticker or sales point listing given to vendors for sales to promote) that pick up people but not wind blown landscaping in testing.

Regards  
Pat Grant.