PySepectrometer Project 9-8-2021

A while back I came upon this YouTube video:

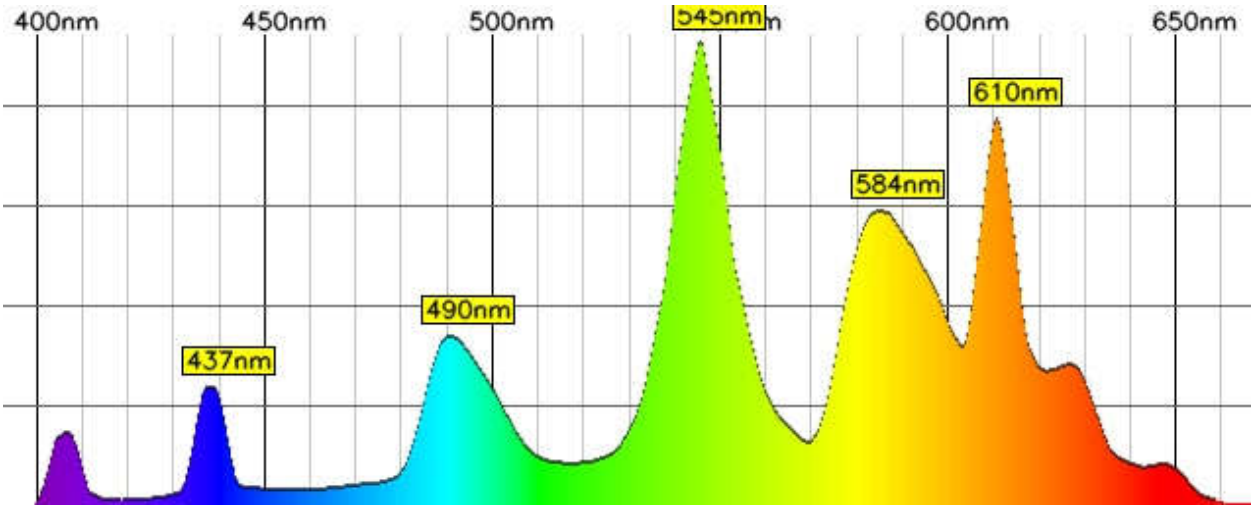
https://www.youtube.com/watch?v=T_goVwwxKE4&ab_channel=Les%27Lab

I already had most of the parts so I decided to give it a try. Besides, who wouldn't want their own spectrometer?

Here is what my finished project looked like:

It is setup to run headless. I remote into it with my laptop so it is portable.

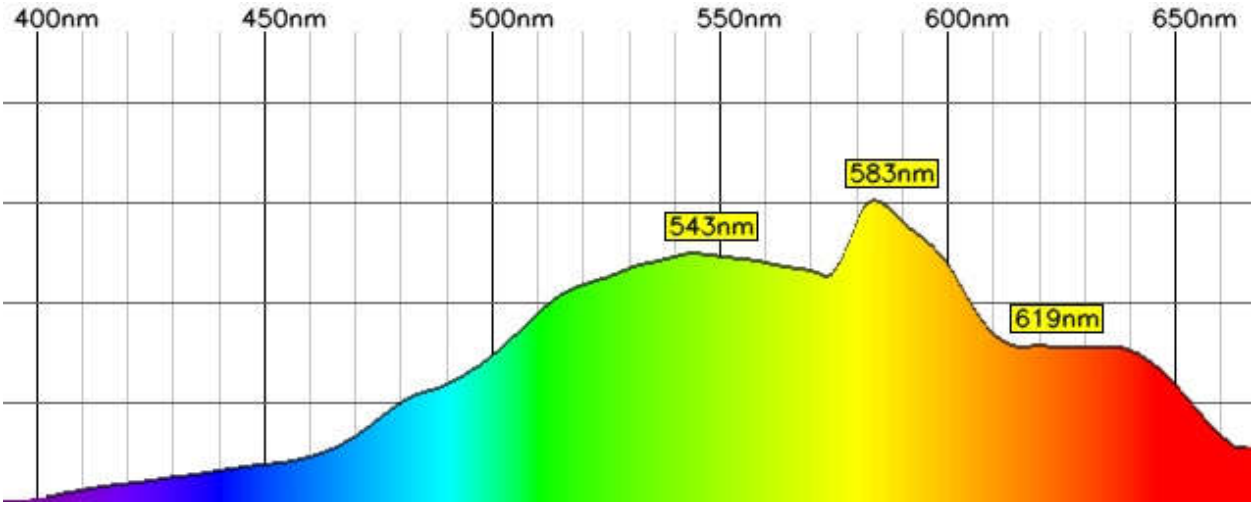
I calibrated using a compact florescent bulb.



With florescent bulbs the first peak is at 405nm and the last peak is at 610nm.

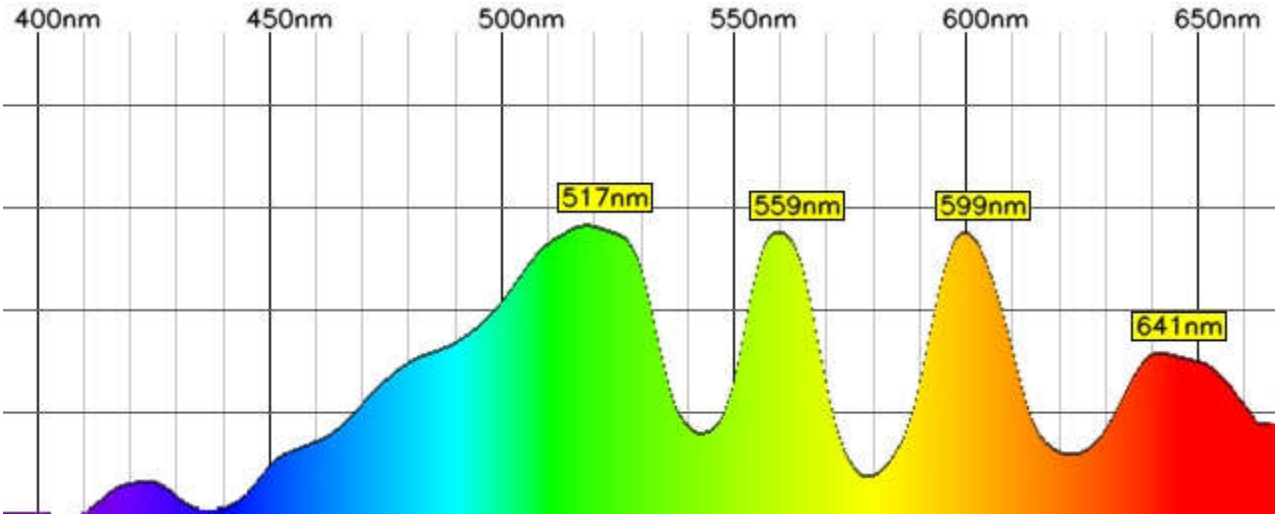
Once calibrate it was time for some fun.

100W Incandescent Bulb

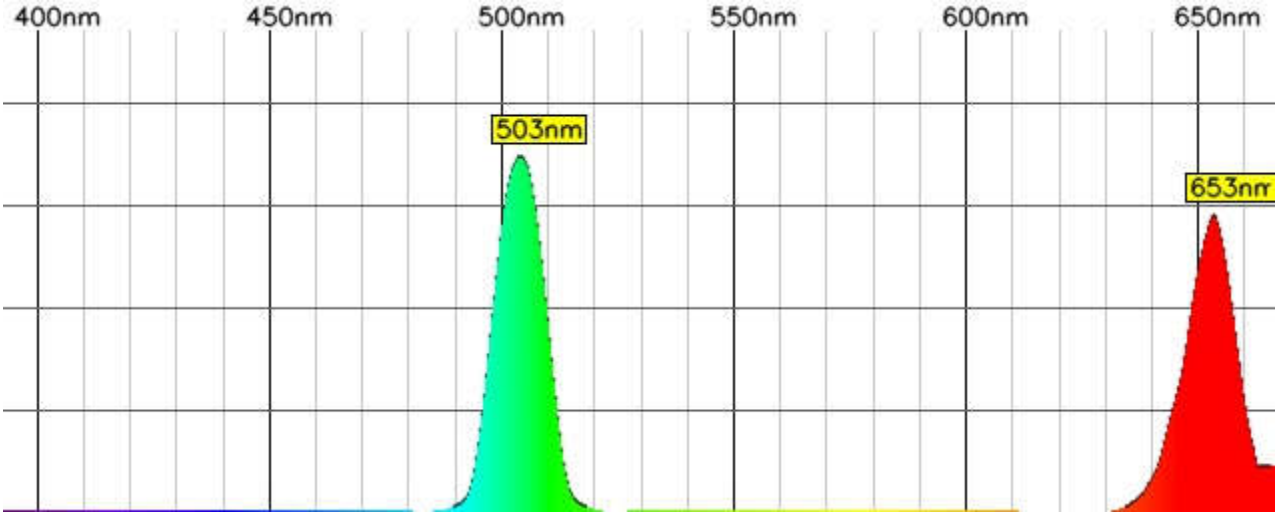


For the rest of the images I held assorted astro filters between the incandescent bulb and the spectrometer.

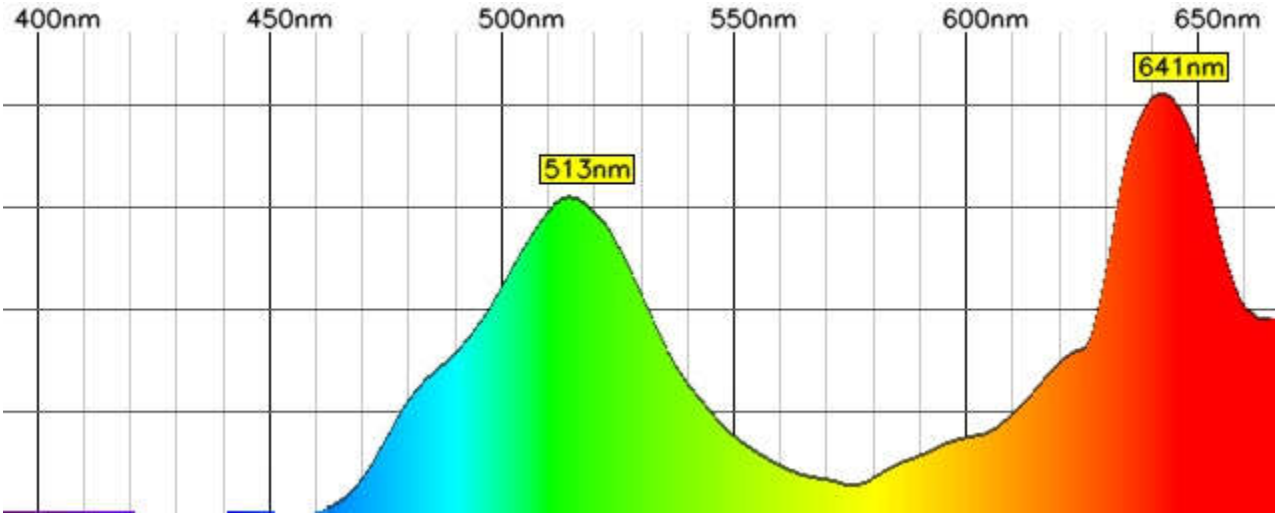
Optolong L-Pro Light Pollution Filter. Without this I couldn't do astrophotography from my light polluted backyard.



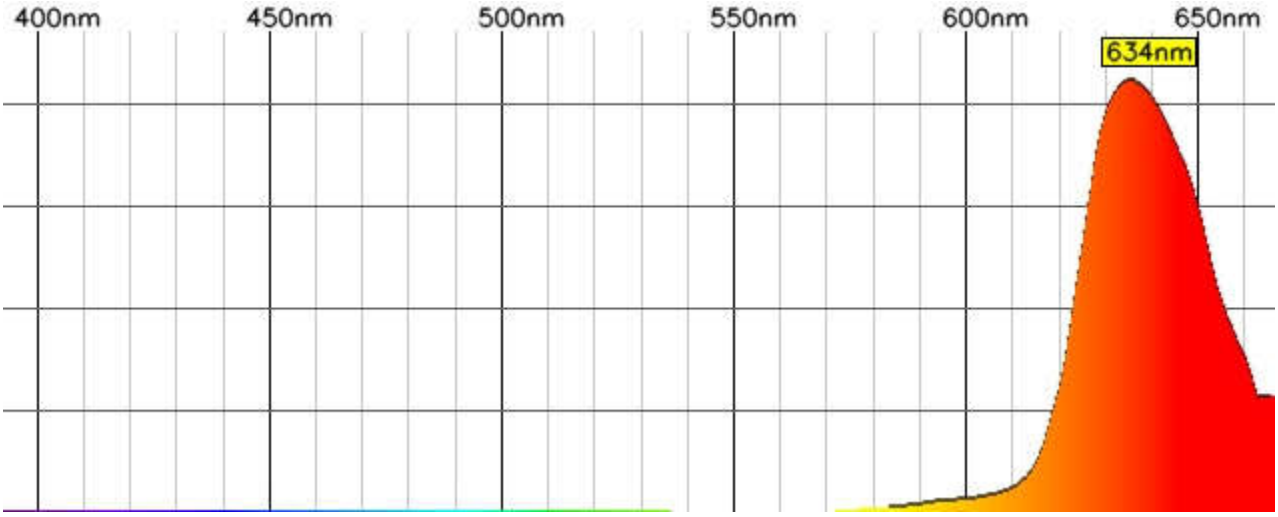
Optolong L-Extreme. Only passes Oxygen III and Hydrogen Alpha regions. Great for emission nebulae.



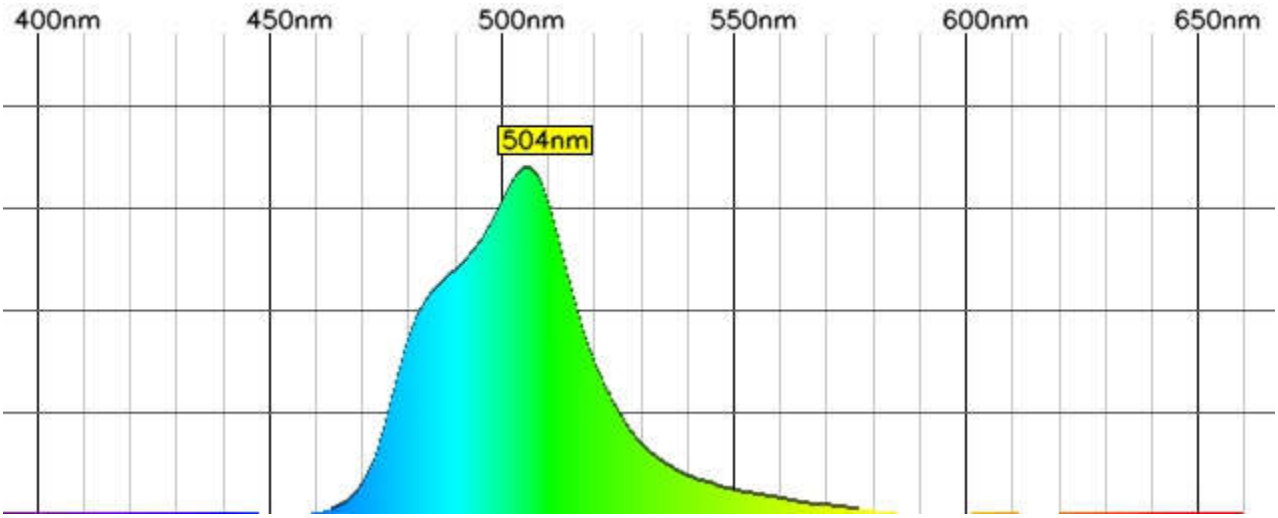
20+ year old filter that was suppose to do what the L-Extreme filter does do!



Baeder 35 nm Hydrogen Alpha Filter. Used as an energy rejection filter with a solar hydrogen alpha filter.



20+ year old Oxygen III filter



I learned several things from this exercise. First, the filter manufacturers are getting really good and have improved dramatically since 20+ years ago. Second, There is a reason why our eyes hate fluorescent lights, compared to incandescent lights, half the visible spectrum is missing. I compared several LED light bulbs. The better quality ones are getting closer to incandescent, but they still have room for improvement.