

# Product Review: EcoTech Marine's Radion XR30 Pro LED Light

By Dana Riddle



EcoTech Marine introduced the Radion LED luminaire a number of years ago and it is now in its fifth iteration. They have a proven track record of providing light intensity and quality so important for reef and planted aquaria. This review will examine the Radion XR30 Pro luminaire.

It is not the intent of this article to describe any light as being 'best' – there are simply too many variables involved in making this determination, including, but not limited to purchase price, spectral quality, programming options, light intensity, warranty, optional equipment, and so on.

To start, we'll examine the number of LEDs and their spectral qualities.

The Radion XR30 Pro houses 100 LEDs, ranging from violet (with some spillover into the UV-A range) to deep red. There are 9 programmable channels for spectral quality and intensity plus a moonlight channel.

## Specifications

**Number of LEDs :** 100

**Spectral Qualities:**

4-UV(405nm)

4-UV(415nm)

4-Violet

16-Blue

32-Royal Blue

6-Green

4-Photon Red

6-WarmWhite

24-CoolWhite

There are also two blue LEDs acting as lunar light.

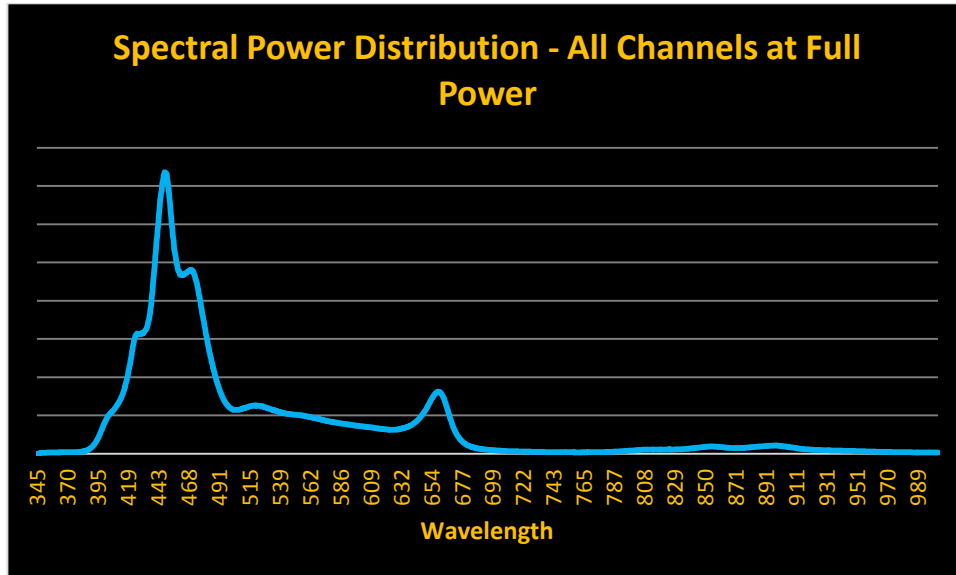


Figure 1.

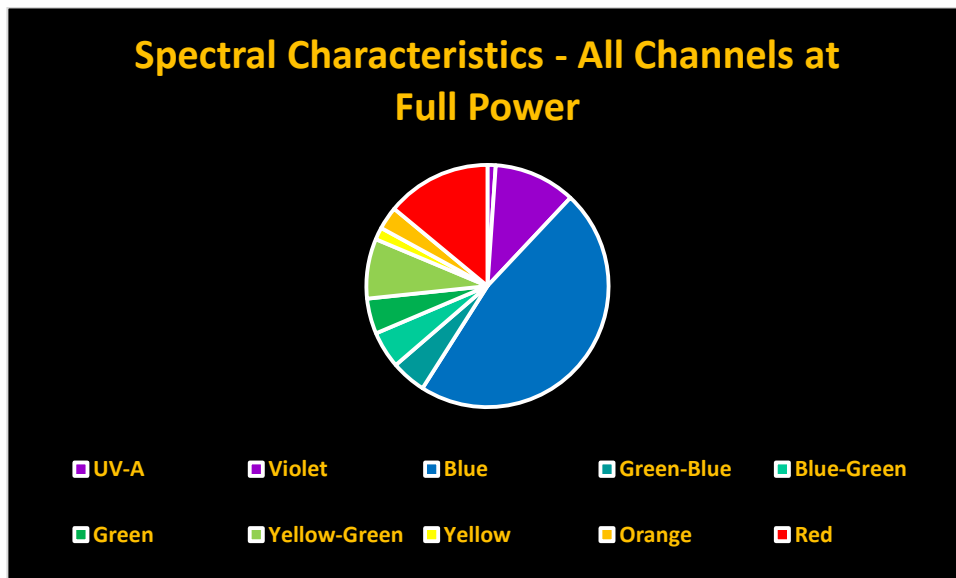


Figure 2.

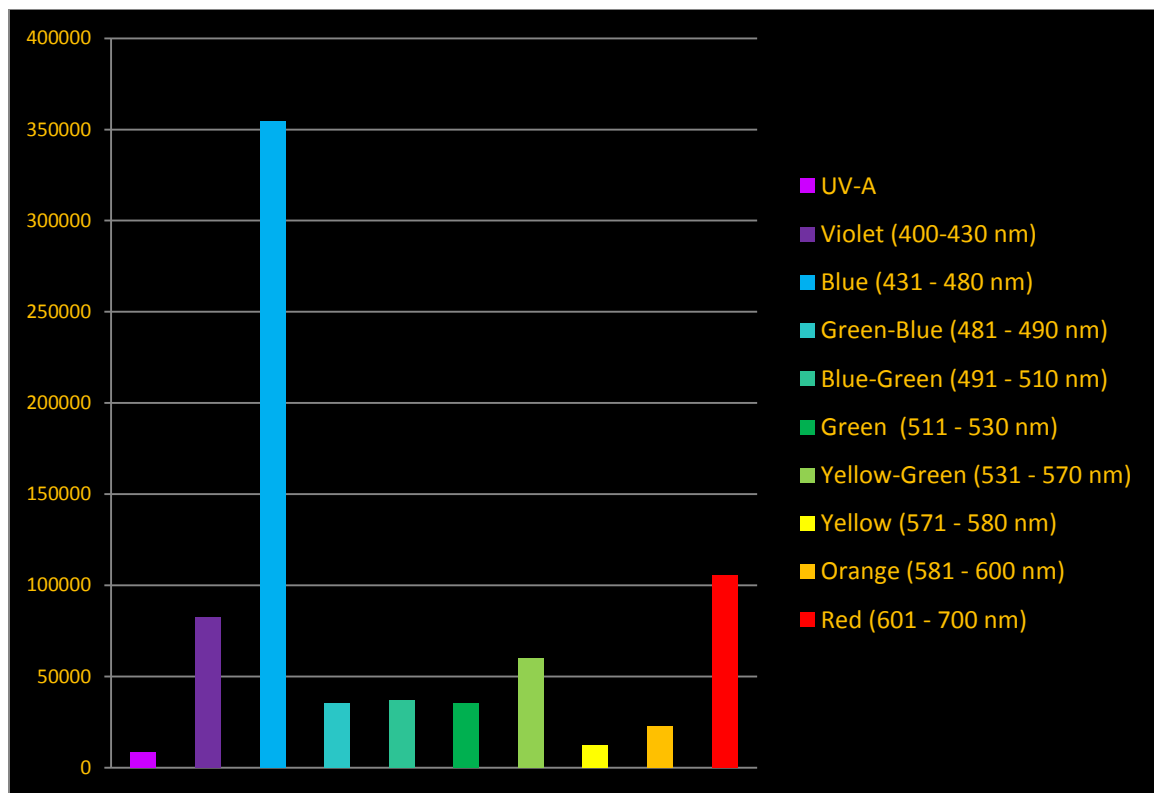


Figure 3.

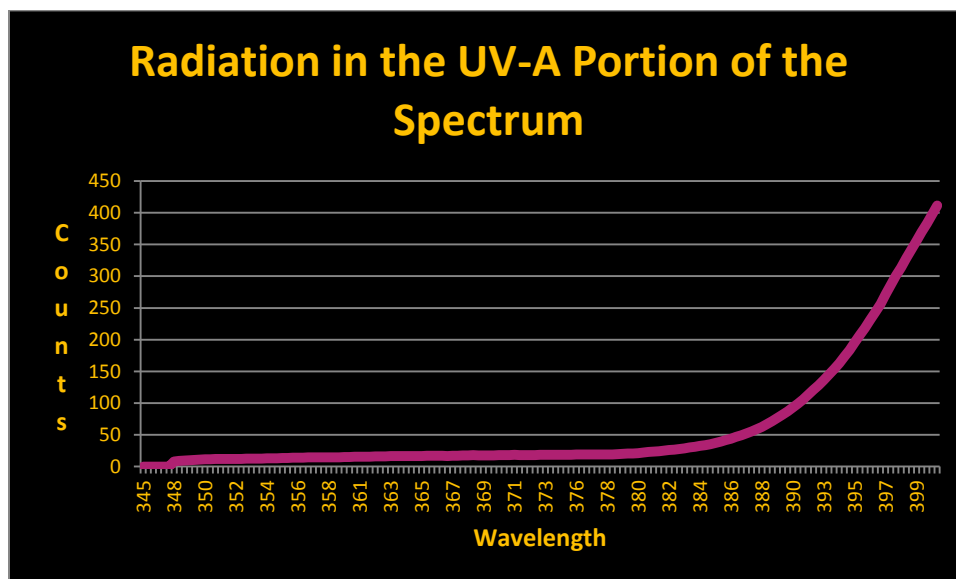


Figure 4.

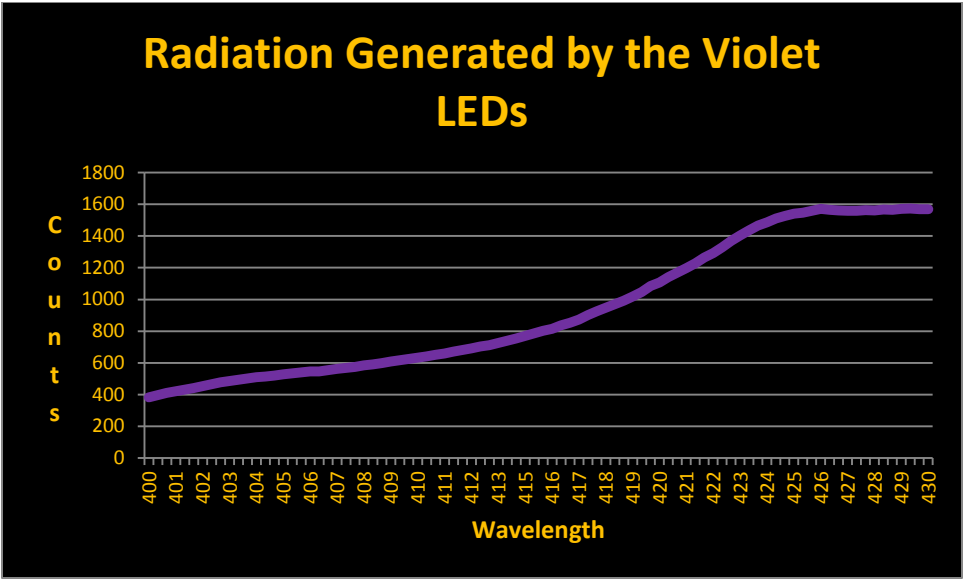


Figure 5.

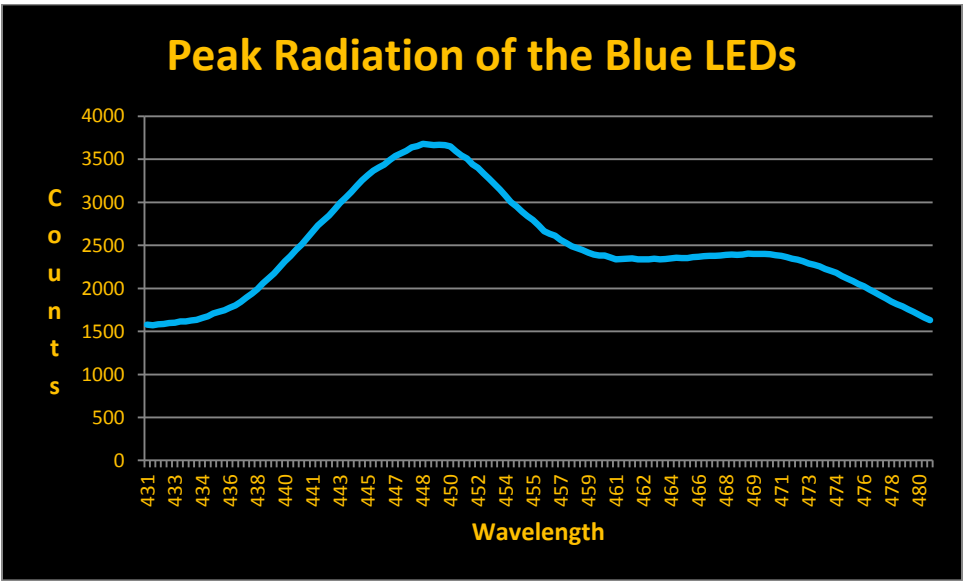


Figure 6.

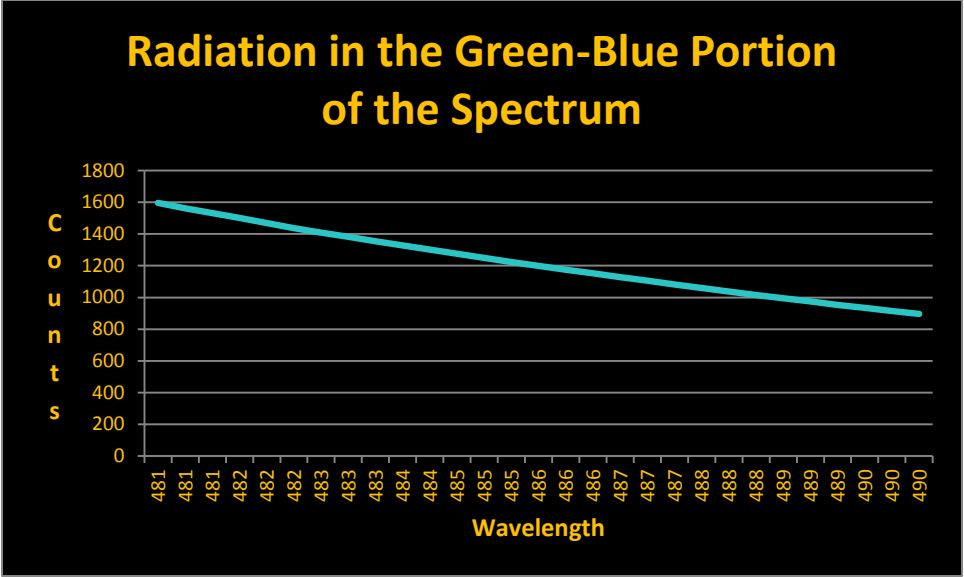


Figure 7.

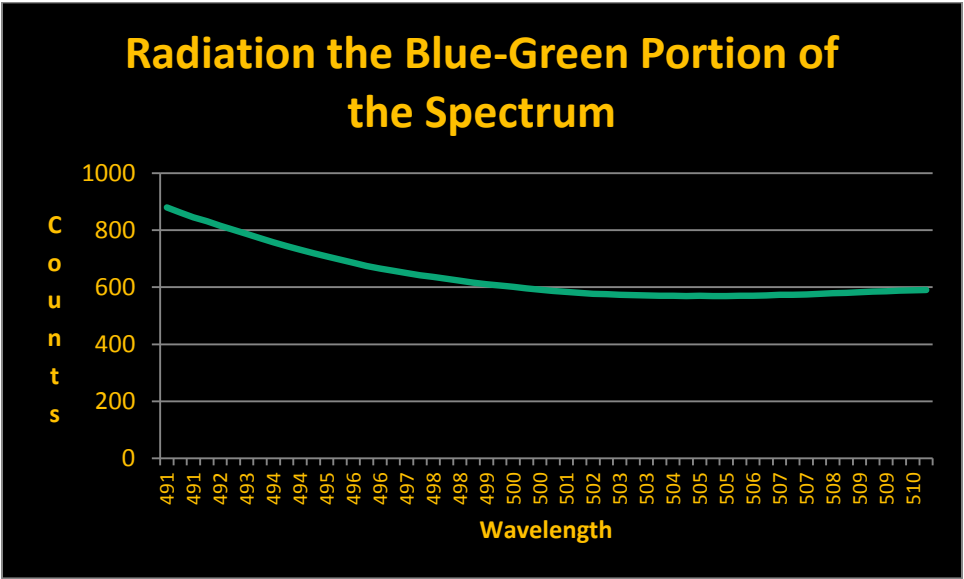


Figure 8.

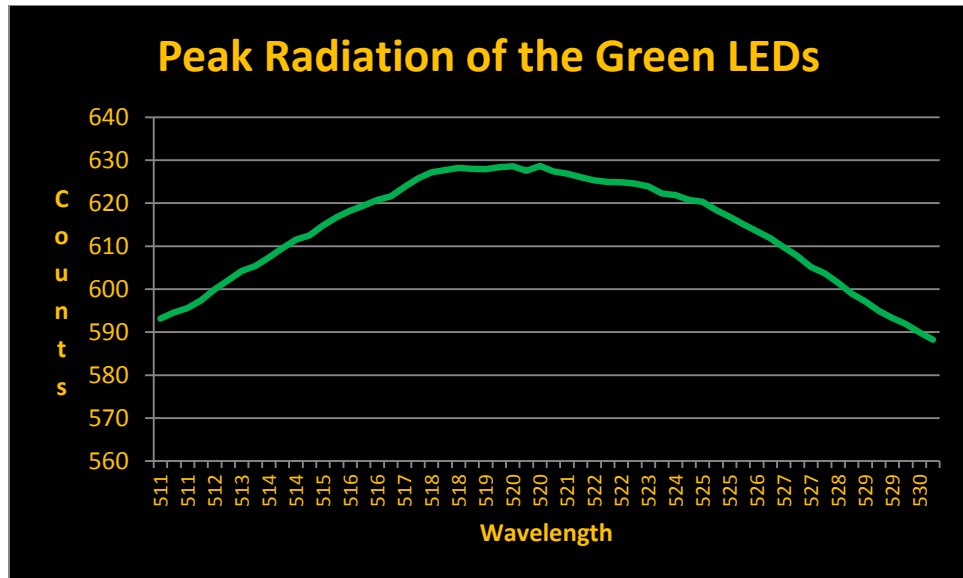


Figure 9.

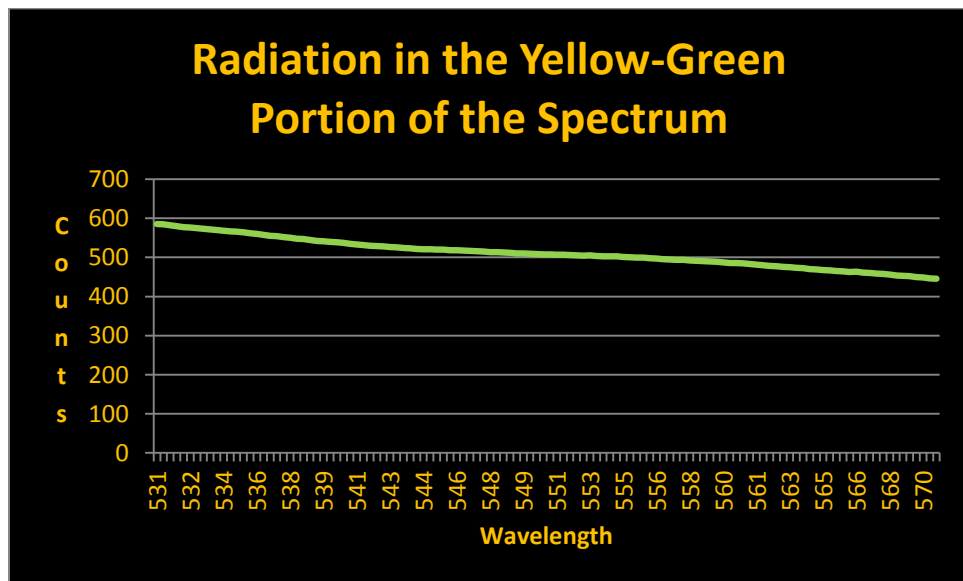


Figure 10.

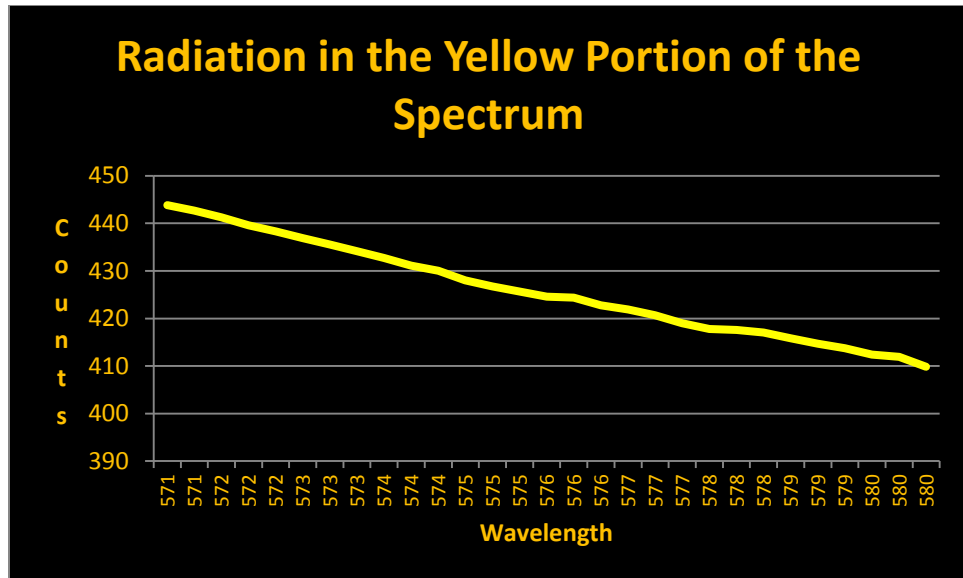


Figure 11.

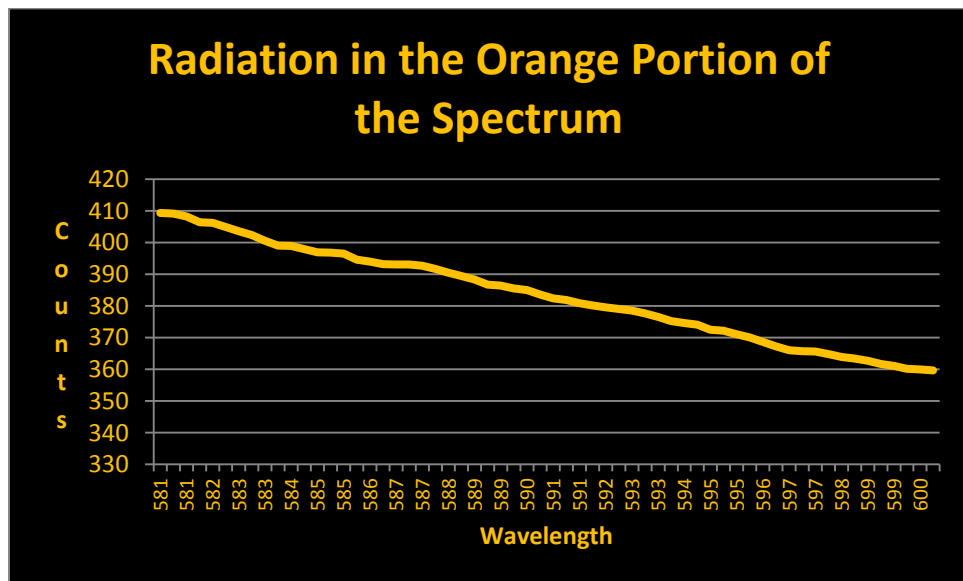


Figure 12.

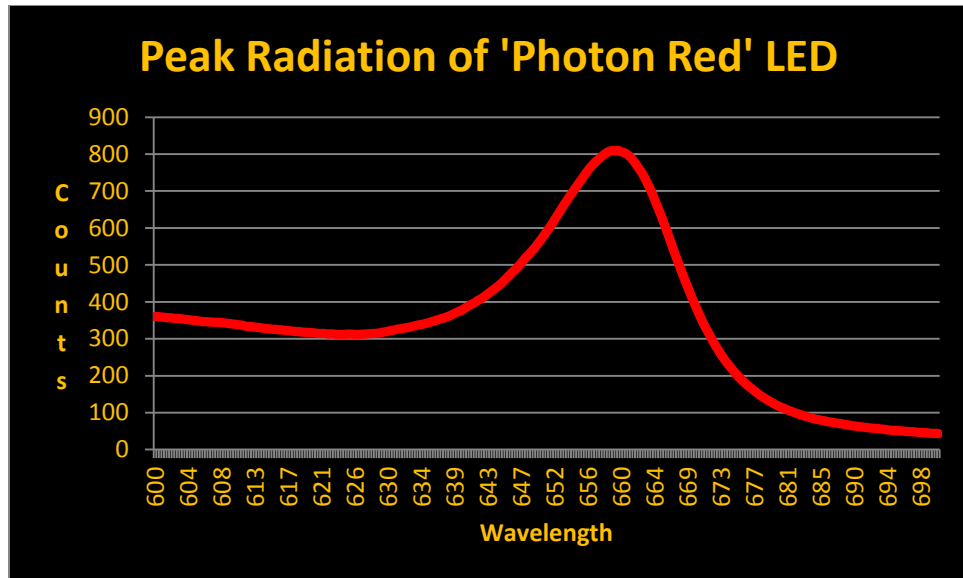


Figure 13.

#### Light Distribution

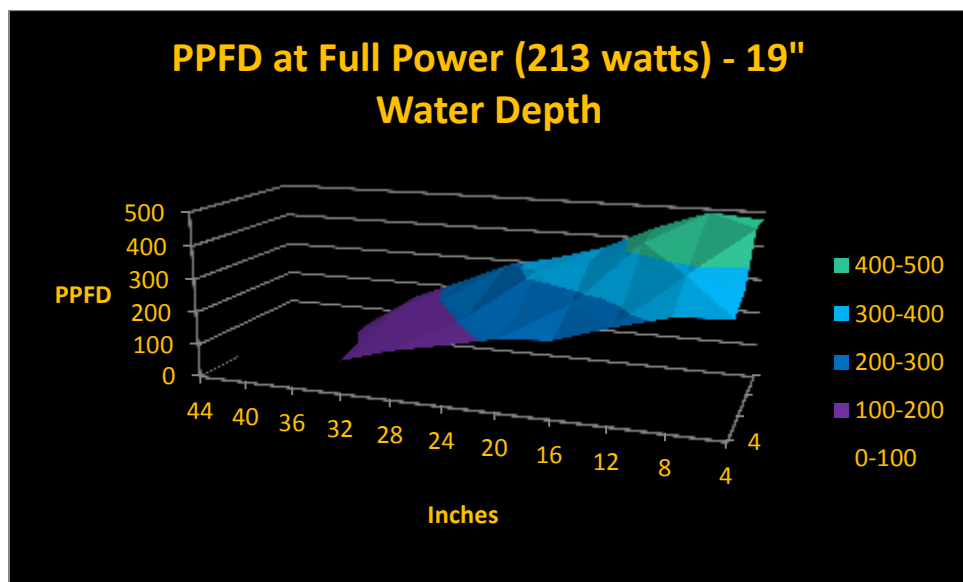
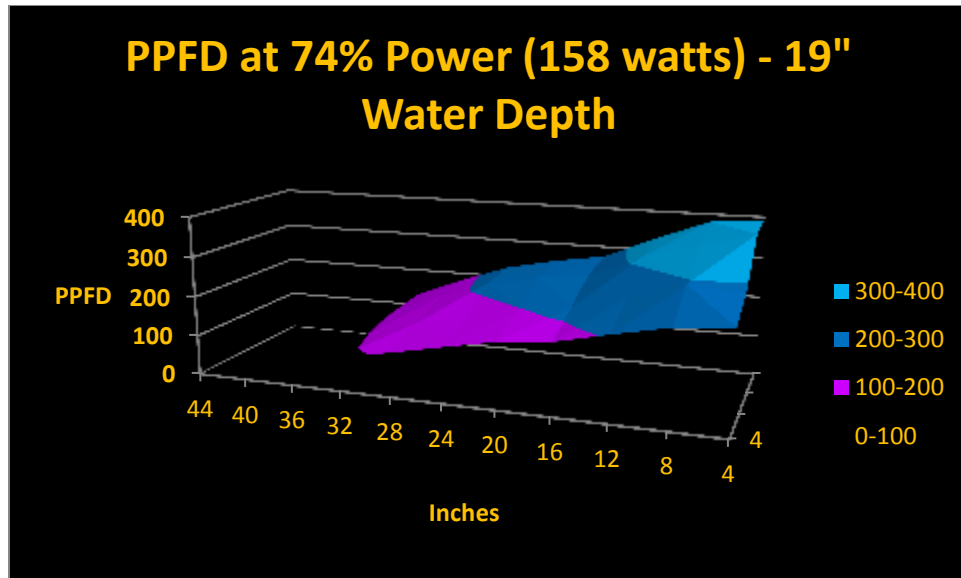


Figure 14.





**Figure 15.**



**Power Consumption:** 217 watts (at full power)

**Cooling:** Forced cooling, 1 fan

**Dimensions-** Overall: 11.8"L x 7"W x 1.5"H; LED Panel: 3.5"W x 10.25"L

**Weight:** 4.5 pounds

**Photosynthetically Active Radiation (PAR) and Light Distribution Patterns at Various Depths**

For practical purposes, light intensity is best reported through use of a quantum (PAR) meter. Simply taking one measurement doesn't tell us much, so I used a grid system and measured PPFD every 4 inches on center. There were 41 measurements made at 3 different depths, for a total of 123. The LEDs were at 100% power on all 9 channels using the 'custom' option in the wireless controller with the light positioned 9" off the water's surface.

Figure 13 demonstrates light intensity just below the water's surface.

### Photosynthetically Usable Radiation (PUR)

Some wavelengths are better at promoting photosynthesis than others. For our purposes, Photosynthetically Usable Radiation is an estimate of how bandwidths of light drive photosynthetic processes. A Seneye device was used to estimate Photosynthetically Usable Radiation (PUR). See Figure 16.

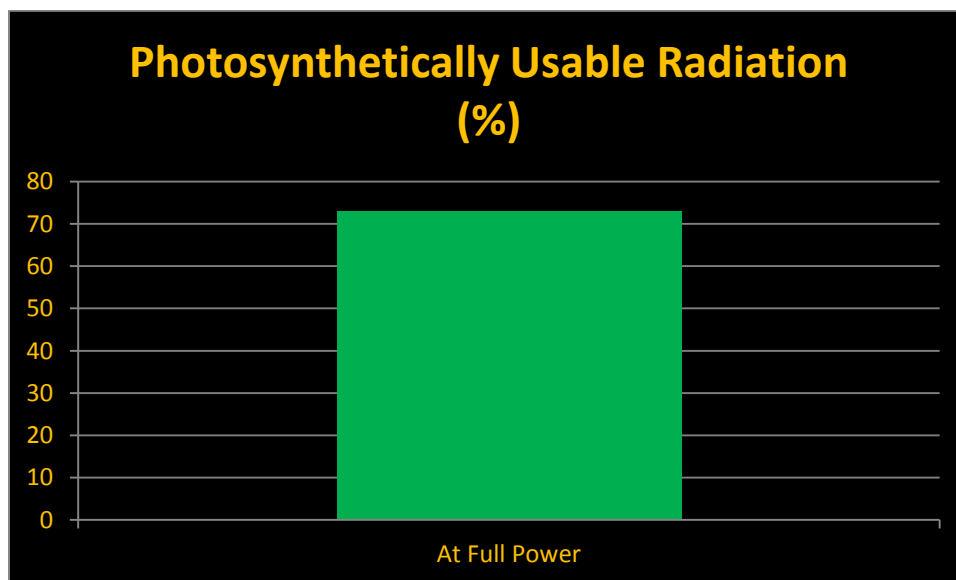


Figure X.

### Cooling

Excessive heat is an enemy of light-emitting diodes and if not controlled, at best, can negatively affect output and, at worst, can destroy them. The Radion XR30 Pro light has one cooling fan to keep temperature under control. After operation at full power for about two hours, the luminaire temperature was found to be 101.8° F through use of a non-contact IR thermometer. Generally, LED lights should not be hung in an enclosed hood unless measures are taken to control temperature within.

As a footnote, the rectifier (power supply) can be as warm as about 90° F. A generous cord length allows it to be mounted away from the display tank.

### **Operating Software**

EcoTech Marine offers Moibus operating software free of charge. It is available for iOS and Android devices.

**Suggested Retail Price:** \$839.99 USD

### **Options**

Although eyelet mounts are included, additional hardware is required (although a handy aquarist could possibly make some sort of suspension device). There are two options available from the factory: A hanging kit (\$47.25) and a RMS XR30 tank mount/bracket adapter kit (\$113.95). Recommended hanging height is 9" above water level. Prices were found on an internet site, and are current at the time of writing.

### **Testing Methods and Materials**

A 90-gallon aquarium (48" x 18" x 24") was filled with freshwater to the overflow level. The Radion luminaire was centered at a height of 9 inches from the water surface (this is the height when using optional mounting hardware). Spectral compositions were determined by an Ocean Optics USB 2000 and OceanView software. Data were loaded into a proprietary MS Excel program, analyzed and graphed. Photosynthetically Active Radiation (PAR) was reported by an Apogee Instruments' MQ-510 quantum meter. Light distribution patterns were determined by taking PAR measurements every 4 inches across an eggcrate grid, supported by PVC pipes at 3 distances from the light source. All channels were programmed to be at maximum power. See photo 18. Photosynthetically Usable Radiation (PUR) was estimated by a Seneye device. Power consumption was measured through use of a Kill-A-Watt meter (P3 International.) Temperature was measured with a non-contact IR thermometer.

### **Credits**

This light is on loan to me and will be donated to the Twin Cities Marine Aquarium Society after testing is completed. These individual and groups made this possible:

Jennifer & Doug Wanner of New Wave Aquaria

Ryan Snodgrass

TCMAS.org (Twin Cities Marine Aquarium Society)

Abhishek Dasgupta

As a final note, I performed this testing at no charge, and have no financial interest in any lighting company.

