



PestWest **EDGE**ducational Brief

By Dr. Stuart Mitchell



UV-Grade A Deployment!

Of the broad electromagnetic spectrum, wavelengths visible to the human eye occupy a narrow band (approximately 700 nanometers or billionths of a meter for red light, down to about 400 nm for violet light). See Image A on next page. More specifically, the human eye is sensitive to around 540 nanometers or yellow-green light. The adjacent spectral regions to the visible band are also referred to as light (infrared at one end, and ultraviolet at the other). Through the use of electroretinogram (ERG) technology, researchers have demonstrated that a House fly's compound eyes are quite sensitive to 365 nanometers of ultraviolet (UVA) light.



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For UV-Grade A site deployment of insect light traps (ILTs) and electronic fly killers (EFKs), factors of ambient light and UVA emission are essential.

Because the *Inverse Square Law of Physics* states basically that fluorescent lamp UVA light intensity decreases proportionately with the distance from the ILT or EFK, it is essential to have an accurate measurement of emitted UVA light. See image B to right.

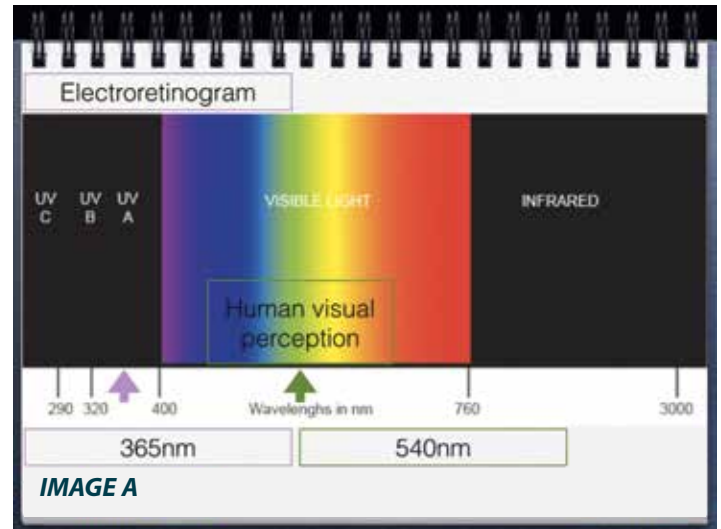
- For example, if there is a 3-fold increase in distance from the ILT, then there is a 9-fold decrease in intensity.
- The UVA intensity decrease over distance is for an area equal to the size of the UVA source; therefore since a fly's compound eyes are much smaller than an ILT or EFK, the decrease is somewhat less.

PestWest's **UV-AMETER** takes the UVA measurement at the correct distance from the ILT or EFK to assure maximum UVA light output. Based upon total lamp wattage, the meter must be pointed directly at the ILT or EFK from a specific distance (figure 1).

UVA light emitted from lamps at 365 nanometers diminishes with use and UVA light is invisible to the human eye. Lamps must remain on 24/7, 365 to reduce loss of UVA emission. To assure proper placement and maximum UVA emission, the **UV-AMETER** provides a calibrated reading thorough a moving bar of indicator LED lights (figure 2).

Assure UV-Grade A deployments! With your exclusive PestWest UV-AMETER, know before you glow! If the LEDs are in the green, your ILTs and EFKs can be seen!

Scan the QR Code to for more information on the PestWest UV-A Meter



Inverse-Square Law
 $Intensity \sim 1/distance^2$

The intensity (or illuminance or irradiance) of light or other linear waves radiating from a point source (energy per unit of area perpendicular to the source) is inversely proportional to the square of the distance from the source.

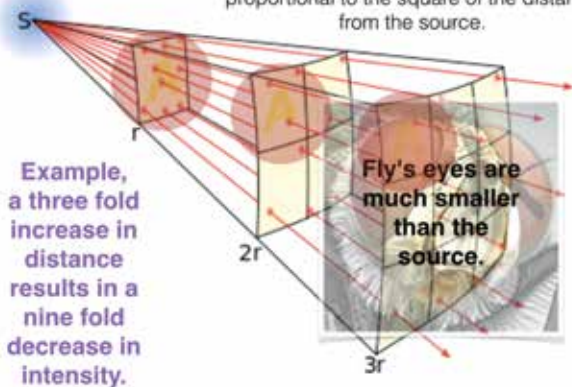


IMAGE B

Total bulb wattage:	10 watts	20 watts	30 watts	50 watts	10 watts
Metres:	1.3	1.5	2.0	2.2	2.5
Feet:	4 1/4	5.0	6 1/2	7 1/4	8 1/4
Measurements are of the total output of the trap, there is no need to measure individual bulbs.					Fig. 1

LED reading - The moving bar of LED lights change colour according to the condition of the tubes. The further to the right the LED display moves the more UV output.	
Green - right 4 LEDs	Good - satisfactory
Yellow - centre LEDs	Marginal output - approaching renewal
Red - left 3 LEDs	Inadequate - bulbs should be replaced
Fig. 2	



PestWest USA LLC, 4363 Independence Court, Sarasota, FL 34234
 OFFICE: 941.358.1983 FAX: 941.358.1916 TOLL FREE: 866.476.7378
 EMAIL: info@pestwest.com

www.pestwest.com