Shining a Light on Leak Detection

The UV PoweRating™ Index Whitepaper
UV leak detection is used in the automotive repair business to pinpoint small leaks in automotive air conditioning, engine oil, transmission, power steering, coolant, fuel and Evaporative emission systems. Typically a dye is injected into the system, and a special light is used to fluoresce these dyes so that they become easily identifiable to the human eye. The effectiveness of this system depends on several variables, including the strength of the dye, and the quality of light.

A quality leak detection light must have two key attributes. It must produce a powerful beam of light to fluoresce the dye at the leak site. It must also produce quality UV light that does not interfere with the fluorescence of the dye so that the human eye can see it. Having a strong output of light that falls within the proper wavelength for UV leak detection is what separates the proper, professional tools from the cheap and ineffective.

Prior to the development of the UV PoweRating, a single unit of measure did not exist for the performance of UV leak detection lighting. This created much confusion in the marketplace for UV lights, as manufacturers used inappropriate units of measure to attempt to quantify output and promote lights. A prime example of this tactic is the use of the lumens index.
Lumens are often referenced by UV light manufacturers as a measure of their lights output. Here is some background information on lumens:

• The lumen is an SI derived unit of luminous flux, or visible light.

• It is measured as a weighted scale that reflects the sensitivity of the human eye to various wavelengths.

• In a weighted scale, instead of all data points contributing equally to the measure, each data is assigned a different weight, or level of importance, in order to create a proportionate output.

• In the case of lumens, more weight is assigned to output within the wavelengths that our eyes are the most sensitive to.

• This differs from radiant flux (power), which measures total output of light, regardless of whether humans can see it or not.

This is a weighted scale

This is not a weighted scale

Light at the peak wavelength is weighted more heavily than light near the tail of the lumens curve.
Why the Lumens Index is not applicable to UV Lights

• The lumens index measures light that is visible to the human eye

• The UV light spectrum is largely invisible to the human eye

• Therefore, the lumens index is an ineffective and inaccurate way to measure UV light output.

• It’s like comparing apples to oranges.
The UV PoweRating™ Index

- We took the measurement method used in the lumens index, and applied this methodology to come up with the UV PoweRating Index.
- This methodology incorporates the best UV light to fluoresce dye, as well as the ideal UV spectrum for humans to see the dye.

- This new curve is the basis for the measurement of the UV PoweRating Index
The UV PoweRating™ Index

This graph depicts UV lights’ output vs. wavelength. This data is utilized to produce a PoweRating Score.

The UV PoweRating Index is able to accurately quantify a light’s output within the spectrum that most effectively fluoresces dyes.

The Index assigns a score to each light based on it’s output within the effective spectrum.
The UV PoweRating Index can be used as an effective selling tool for several reasons:

**It is Relevant**

- Competitors use statistics like watts, lumens, lux, etc. to quantify UV light output. These statistics sound catchy, but are irrelevant. The UV PoweRating Index was designed specifically for UV leak detection.

**It is Accurate**

- By using the lumens index as a template, the UV PoweRating Index uses a scientific formula to accurately quantify output within the ideal UV spectrum. The measure has been tested extensively by our engineering team.

**It is Simple**

- One number tells the story. It’s that simple. The higher the score, the better the light. This allows for easy and accurate comparison between various makes and models of UV lights.

**It is Marketable**

- The UV PoweRating Index provides a level, unbiased benchmark to test competitors lights against.
The numbers speak for themselves. The UV PoweRating Index accurately depicts the real world performance of each UV light. As the above graph demonstrates, not all lights are created equal. The UV PoweRating takes the mystery out of UV leak detection, and allows for a light’s performance to speak for itself.

For more information on the UV PoweRating Index, be sure to visit uview.com or scan here: