

## Light Measurement

All light measurements can be traced back to the Candela, which is the unit of luminous intensity. The Candela is also sometimes called candlepower, and is similar to an older unit, the candle, which was based upon an actual candle of specified dimensions and construction.

There are two basic methods used by various flashlight manufacturers to rate the light output of their products.

Total Luminous Output may be expressed in candela or in **lumens**. This is a measure of the entire light output of the flashlight regardless of beam focus. It is almost solely a function of the lamp, and for practical purposes is equal to the lamp output which lamp manufacturers rate in Mean Spherical Candela (Sometimes called Mean Spherical Candlepower which is not the same as peak beam candlepower), or in lumens. Multiply candela by 12.57 to convert to lumens. For example, the 20 watt lamp used in the SL-35X is rated at 450 lumens or 35.8 Mean Spherical Candela.

**Peak Beam Candlepower** is a measure of the brightest spot in the focused beam. It is a function of both the output of the lamp and the efficiency of the reflector. The focused spot of light has the same intensity that a bare source of unfocused light of the same candlepower would produce on the same area from the same distance. For example, a flashlight of 20,000 beam candlepower would project, within its "hot spot," the same amount of light on a wall as would a bare lamp of 20,000 candela at the same distance. Typical values of beam candlepower will run into the tens of thousands for powerful rechargeable flashlights.

## Candlepower vs Lumens

Peak beam candlepower is the measure of the brightest spot in the beam and is a function of both the output of the lamp and the efficiency of the reflector. As a result, peak beam candlepower is a subjective measurement, and different flashlight manufacturers measure it differently. Therefore, comparing peak beam candlepower ratings of flashlights from various manufacturers will not give an accurate comparison of brightness.

On the other hand, lumens can be used when comparing brightness because it is a measurement of the entire light output regardless of beam focus.

## Example Summary

Using the Streamlight website to compare the standard Strion and the LED Strion results showed exactly the differences in Peak Candlepower & Lumens. The Strion has a brighter, stronger sweet spot but the LED version floods the area with more total light. Run time with LEDs are typically longer.

	Strion®	Strion® LED
<b>Bulb Type</b>	Xenon	C4 LED
<b>Candlepower</b>	12000	8800
<b>Length</b>	5.3 in	5.9 in
<b>Lumens</b>	116	160
<b>Ratings</b>	CE	CE
<b>Runtime</b>	1.1 hour	2-7.5 hour
<b>Weight</b>	4.6 oz (130.41 g)	5.22 oz (147.98 g)