

ANSI Light Standards

Why Create Flashlight Standards?

While Pelican was one of the first manufacturers to use quantifiable test procedures, the need was recognized to develop a common language that customers could use to select the right flashlight for their specific needs.

As a result, the American National Standards Institute (ANSI) with input from the flashlight industry, developed performance standards and symbols to effectively communicate a flashlight's features and benefits.

Resulting ANSI/NEMA FL 1 Standards include the six criteria described below:

Measure	Definition	
Light Output	Light Output is the total luminous flux. It is the total quantity of emitted overall light energy as measure by integrating the entire angular output of the portable light source. Light output in this standard is expressed in units of lumens.	
Run time	Run Time is defined as the duration of time from the initial light output value – defined as 30 seconds after the point the device is first turned on – using fresh batteries, until the light output reaches 10% of the initial value.	
Beam Distance	Beam Distance is defined as the distance from the device at which the light beam is 0.25 lux (0.25 lux is approximately the equivalent of the light emitted from the full moon "on a clear night in an open field").	
Peak Beam Intensity	Peak Beam Intensity is the maximum luminous intensity typically along the central axis of a cone of light. The value is reported in candela and does not change with distance.	
Enclosure Protection Against Water Penetration Ratings	Based on the ANSI/IEC 6029 standard, the following enclosure ratings for the devices covered by this standard have been defined: Water Resistance – IPX4 – Water splashed against the device from any direction shall have no harmful effects. Water Proof – IPX7 – Ingress of water in quantities causing harmful effects shall not be possible when the enclosure is temporarily immersed in water under standardized conditions of pressure and time. Submersible – IPX8 – Ingress of water in quantities causing harmful effects shall not be possible when the enclosure is continuously immersed in water under conditions which shall be stated by manufacturer, but which are more severe than for IPX7.	 
Impact Resistance	Impact Resistance is the degree to which a device resists damage from dropping on a solid surface.	



ANSI (American National Standards Institute)

These standards are accredited by ANSI, which is a private non-profit organization that oversees the development of voluntary consensus standards for products, services, processes, systems, and personnel in the United States. The organization also coordinates U.S. standards with international standards so American products can be used globally.

Glossary of Terms:

Candela – A unit of measurement of the intensity of light that is, power emitted by a light source in a particular direction.

Lux – The unit of luminous flux in the International System, equal to the amount of light given out through a solid angle by a source of one candela intensity radiating equally in all directions.

Lumen – A unit of measurement of the amount of brightness that comes from a light source. Lumens define “luminous flux,” which is energy within the range of frequencies we perceive as light.

IP (Ingress Protection) – Ingress Protection (IP) ratings specify the environmental protection the enclosure provides. The IP rating normally has two numbers (IPXX). The first number represents protection from solid objects or materials (dust) where the second number represents protection from liquids (water). With the IP rating IP 54, 5 describes the level of protection from solid objects and 4 describes the level of protection from liquids.

