ANSI Light Standards

The American National Standards Institute (ANSI) with input from the flashlight industry, developed performance standards and symbols to effectively measure and communicate a flashlight's features and benefits including brightness, runtime, beam distance, peak beam intensity, protection against water penetration and impact resistance.

The resulting ANSI/NEMA FL1 standards are described in more detail 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 secons 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.