

# Lumen Tips and More . . .

**Lumen** – A unit of measurement of the amount of brightness that comes from a light source. The total 'amount' of light emitted from a source.

**Luminous Flux** – The measure of perceived power of light.

**Lux** - The metric unit that quantifies light on a surface or plane in lumens per square meter.

**Candela** – The unit of measurement of the amount of light emanating from a point source within a solid angle.

**Ballast** – An auxiliary electrical device consisting of induction windings wound around a metal core and sometimes including a capacitor for power correction. It is used with fluorescent and HID lamps to provide the necessary starting voltage and to limit current during operation.

## How to convert between candela and lumens?

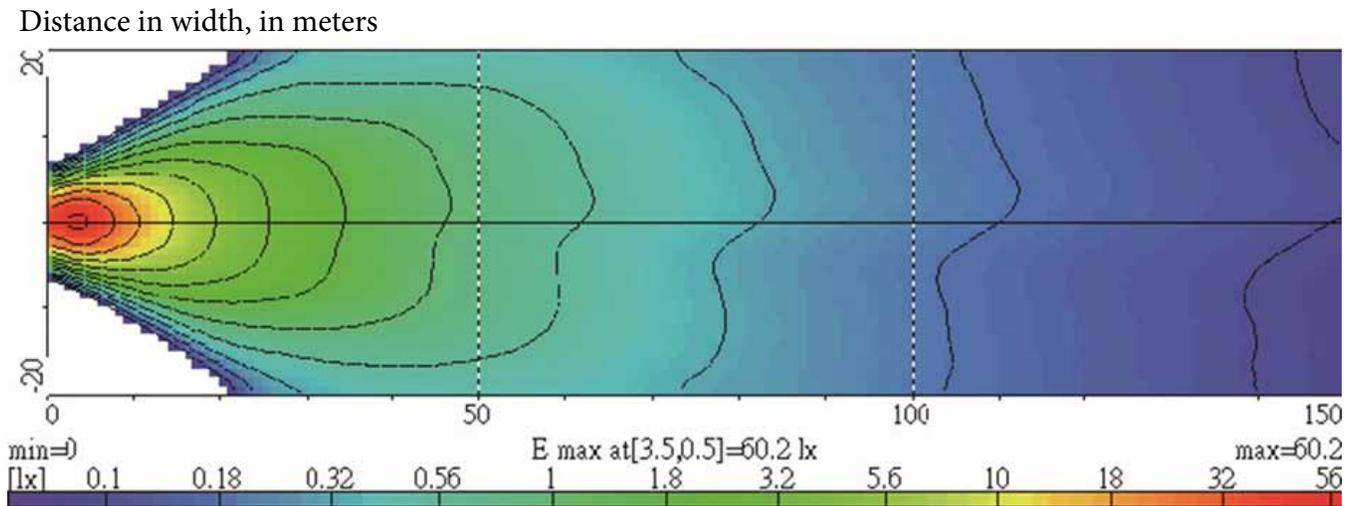
Converting between candela and lumens cannot be easily done because they measure different things. In general lumens measure light output at the source, while candelas measure the light that falls on a surface. As the area of the surface increases, the number of candelas will decrease even as the number of lumens remains constant.

## What is the difference between Lux and a Lumen?

Lumen is a measure of light output at the source. Lux takes into account the area over which luminous flux is spread.

For example, a flux of 1,000 lumens, concentrated into an area of one square meter, lights up that square meter with an illuminance of 1,000 lux. The same 1,000 lumens spread over ten square meters produces a dimmer illuminance of only 100 lux

## Isolux Charts Behavior of Beam Patterns Measured in Lux



## Types of Lumens

**Calculated Lumens** – Lumens based on LED wattage, voltage and luminous efficacy of the LED as published by the LED manufacturer.

**Raw Lumens** – Lumens measured in ECCO's integrated sphere at lamp start up rounded to the nearest 50. (445 would be 450 / 425 would be 400)

**Effective Lumens** - Lumens measured in ECCO's integrated sphere when the lamp has reached a steady state approximately 20 minutes rounded to the nearest 50.