

# **Common Lighting Fixtures**

Ellipsoidal Reflector Spotlight



Can produce a hard/soft edge, beam can be shaped using internal shutters, can project images/gobos, focused by running the barrel.

### Fresnel



Medium to short throw fixture, name derived from the lens, often used on stage for front, back and down light.

#### **PARNel**



Functions like a Fresnel.

## A Little Math Never Hurt Anyone

Beam Diameter is:

Multiplying Factor \* Throw

Multiplying factor is found on the Fixture Data Sheet:

Ex.

26° Ellipsoidal

Multiplying Factor .32 Throw 16'

.32 \* 16 = 5.1

Calculating Intensity

Intensity is measured in Footcandles

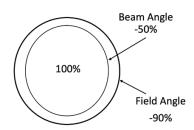
We need to know the Candela (Peak Candela) and the Throw

Peak Candela is found on the Fixture Data Sheet:

PC (176,255) / (256) T<sup>2</sup>

176,255/256 = 688fc

### **Understanding Beam Spread**

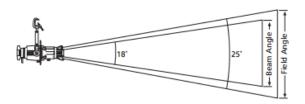


Beam Angle: Light beam is no less than 50% of the brightest part of the light beam.

Field Angle: Light beam is no more than 10% of the brightest part of the light beam.

#### PHOTOMETRICS

Photometric data below is measured with an HPL 750W/115V 300 hr lamp. To convert data when using any other HPL lamp, use the lumen or candela multiplying factors (Lm MF or Cd MF) for that specific lamp, listed in the Lamps table in this datasheet. For lumen data, multiply by the Lm MF. For candela or footcandle data, multiply by the Cd MF.



Candela (Sometimes
labeled Peak Candela)

Throw Distance (d)	15' 4.6m	30′ 9.1m	45′ 13.7m	60′ 18.1m
Field Diameter	6 7'	13.4'	20.1′	26.8'
riela Dialilea	2.0m	4.1m	5.1m	8.2m
numinance (fc)	783	196	87	49
Illuminance (lux)	8,432	2,108	937	52)

To determine center beam illumination in footcandles at any throw distance, divide candela by the throw distance squared.

For Field diameter at any throw distance, multiply the throw distance by .45

For Beam diameter at any throw distance, multiply the throw distance by .32

Multiplying Factor

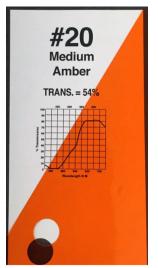
### Source Four 26°(cosine)

	Degree	Candela	Field Lumens	Beam Lumens	Efficiency	Lumens per watt
I	26°	176,255	13,690	9,040	62.5%	18.3

Metric Conversions: For meters, multiply feet by .3048 For Lux multiply footcandles by 10.76

## Adding Gel:

Adding gel will impact the output of the light as well.



Every gel has a transmission percentage which indicates the percentage of intensity after adding it to your lighting fixture.

The darker the gel, the smaller the transmission percentage.

Adding Medium Amber to light described on the reverse, would reduce footcandles by 46%. 688fc reduced to 372fc.

Rosco Congo Blue gel has a Transmission % of 1% reducing 688fc to 7fc