

Update #2 - 7/16/14

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Calculating Luminous Intensity

Power (Watts) → Luminous Flux (Lumens) → Luminous Intensity (Candela)

- power = voltage × current
- luminous flux = power × luminous efficacy
- luminous intensity = luminous flux / solid angle

$$P_{(W)} = V_{(V)} \times I_{(A)}$$

$$\Phi_{(lm)} = P_{(W)} \times \eta_{(lm/W)}$$

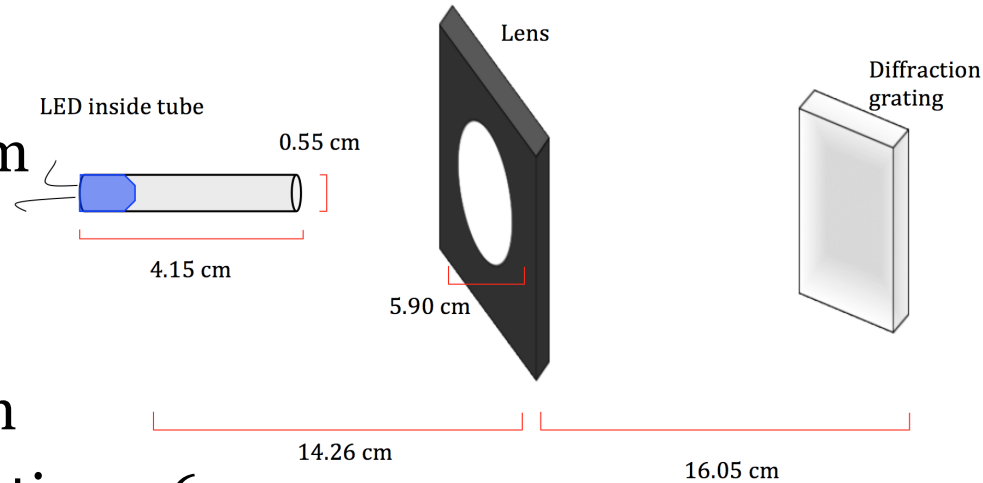
$$I_{(cd)} = \Phi_{(lm)} / \Omega$$

(sr)

$$I_{v(cd)} = (I_{(A)} V_{(V)} \eta_{(lm/W)}) / \Omega_{(sr)}$$

Spectrometer Dimensions

- length of collimator tube: 4.15 cm
- diameter of collimator tube: 0.55 cm
- diameter of lens: 5.90 cm
- distance from led to lens: 14.26 cm
- distance from tube to lens: 10.75 cm
- distance from lens to diffraction grating: 16.05 cm
- (uncertainty: ± 0.05 cm)



Troubleshooting the Amplifier

- Does not have the gain it should
- Gain does not remain constant
 - Decreases as input increases

