# Unidades de las magnitudes Radiométricas y Fotométricas.

**Fotometría**

Estudia la radiación visible, desde el punto de vista de su percepción por el ojo humano

Los parámetros relacionados con ella llevan el subíndice v o p

**Radiometría**

Estudia como medir las radiaciones

Los parámetros relacionados con ella llevan el subíndice e 0 r

1W=683 lumenes para una longitud de onda de 555nm

| **Fotométricas** | **Conversión** | **Radiométricas** |
|---|---|---|
| Intensidad luminosa<br>"Luminous intensity" | $[I_v]=[I_F]=cd=\frac{lm}{sr}=\frac{lm}{sr}\cdot\frac{1W}{683lm}=\frac{W}{683sr}=[I_R]=[I_e]$ | Intensidad radiada<br>"Radiant intensity" |
| Luminancia<br>*"Luminance sterance" or "Luminance·"* | $[L_v]=\frac{cd}{m^2}=\frac{lm}{m^2\cdot sr}=\frac{lm}{m^2\cdot sr}\cdot\frac{1\cdot W}{683lm}=\frac{W}{683\cdot m^2\cdot sr}=[L_e]$ | Radiancia<br>*"Radiant exitance"* |
| Iluminancia<br>*"Illuminance"* | $[E_c]=\frac{lm}{m^2}=\frac{lm}{m^2}\cdot\frac{1\cdot W}{683lm}=\frac{W}{683\cdot m^2}=[E_e]$ | Irradiancia<br>Irradianza<br>"Irradiance" |
| Excitación Luminosa<br>*"Luminous exitance"* | $[M_v]=\frac{lm}{m^2}=\frac{lm}{m^2}\cdot\frac{1\cdot W}{683lm}=\frac{W}{683\cdot m^2}=[M_e]$ | Excitación Radiante<br>*"Radiant excitance"* |
| Flujo Luminoso o Potencia<br>*"luminous flux"* | $[F_V]=k\cdot P_e=\frac{lm}{W}\cdot W=lm$ | |
| | $\frac{J}{s}=W=[P_e]$ | Potencia Radiante<br>"Radiant Power" |
| Función de Eficiencia Luminosa<br>*"luminous efficacy fun."* | $[K(\lambda)]=[K_m\cdot V(\lambda)]=\frac{683\cdot lm}{W}\cdot\frac{lm}{W}=\frac{683\cdot lm}{W}\cdot\frac{W}{683\cdot lm}\cdot\frac{lm}{W}\cdot\frac{W}{683\cdot lm}=\frac{1}{683}$ | |
| | $m=\frac{c}{f}=[\lambda]$ | Longitud de onda |
| | $\frac{1}{m}=\frac{1}{\lambda}=[m]$ | Número de onda |
| | J | Energía Radiante |

$V(\lambda)\equiv$Standard Photopic Observer Curve

# Unidades Geométricas.

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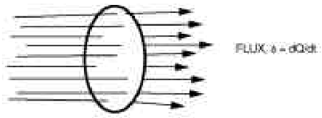
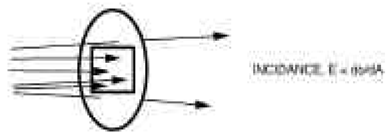
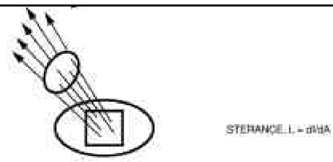
|---|---|
| $\phi$ **–FLUX**, describes the rate at which energy is passing to, from, or through a surface or other geometrical entity. |  |
| E-**INCIDANCE**, describes the flux per unit area normally (perpendicularly) incident upon a surface. |  |
| M-**EXITANCE**, describes the flux per unit area leaving (diverging) from a source of finite area. |  |
| I-**INTENSITY**, describes the flux per unit solid angle radiating (diverging) from a source of finite area.<br>Units: cd (candela) |  |
| L-**STERANCE** (“*Estereancia”)*, describes the intensity per unit area of a source. |  |
| $\omega$ **–SOLID ANGLE**, a solid angle, $\omega$, with its apex at the centre of a sphere of a radius, r, subtends on the surface of that sphere an area, A, so that $\omega = A/r^2$ in steradians (sr). |  |

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| $L_v$-**LUMINANCE STERANCE OR LUMINANCE**; This quantifies how well an object can be distinguished from its background. |