Ondas sonoras

5) $$\beta = 10 \log\left(\frac{0{,}4 \ W/m^2}{1 \times 10^{-12} \ W/m^2}\right)$$

$$\Rightarrow \beta = 116 \ dB < \text{Umbral de dolor}$$

$$\text{Si } d' = \frac{d}{2} \Rightarrow I' = \frac{P}{4\pi\left(\frac{d}{2}\right)^2} = \frac{P}{4\pi d^2}\, 4 = 4I$$

$$\Rightarrow \beta = 10 \log\left(\frac{4 \times 0{,}4\ W/m^2}{1 \times 10^{-12}\ W/m^2}\right)$$

$$\Rightarrow \beta = 122\ dB > \text{Umbral de dolor}$$