

22.21. Model: Light passing through a circular aperture leads to a diffraction pattern that has a circular central maximum surrounded by a series of secondary bright fringes.

Visualize: The intensity pattern will look like Figure 22.15.

Solve: From Equation 22.24, the diameter of the circular aperture is

$$D = \frac{2.44\lambda L}{w} = \frac{2.44(633 \times 10^{-9} \text{ m})(4.0 \text{ m})}{2.5 \times 10^{-2} \text{ m}} = 0.25 \text{ mm}$$