

86. Using the notation of Sample Problem 37-6,

$$L = \frac{D}{\theta_R} = \frac{D}{1.22\lambda/d} = \frac{(5.0 \times 10^{-2} \text{ m})(4.0 \times 10^{-3} \text{ m})}{1.22(0.10 \times 10^{-9} \text{ m})} = 1.6 \times 10^6 \text{ m} = 1600 \text{ km} .$$