

40. We use Eq. 37-22. For $m = \pm 1$

$$\lambda = \frac{d \sin \theta}{m} = \frac{(1.73 \mu\text{m}) \sin(\pm 17.6^\circ)}{\pm 1} = 523 \text{ nm} ,$$

and for $m = \pm 2$

$$\lambda = \frac{(1.73 \mu\text{m}) \sin(\pm 37.3^\circ)}{\pm 2} = 524 \text{ nm} .$$

Similarly, we may compute the values of λ corresponding to the angles for $m = \pm 3$. The average value of these λ 's is 523 nm.