

T3-56

$$\lambda_1 = 589 \text{ nm}$$

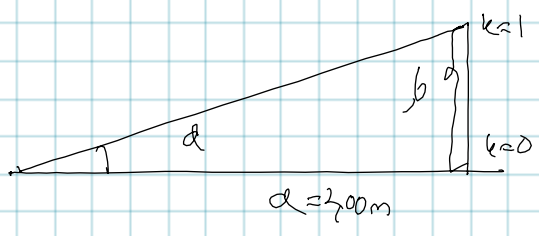
400 raheg/mm

$$d = \frac{1}{400} \text{ mm} = \frac{1}{400} \cdot 10^{-3} \text{ m} = 2,50 \cdot 10^{-6} \text{ m}$$

$$d \sin \alpha = k \cdot \lambda$$

$$\sin \alpha = \frac{k \lambda}{d} = \frac{1 \cdot 589 \cdot 10^{-9} \text{ m}}{2,50 \cdot 10^{-6} \text{ m}}$$

$$\alpha \approx 13,6^\circ$$



$$\tan \alpha = \frac{b}{a}$$

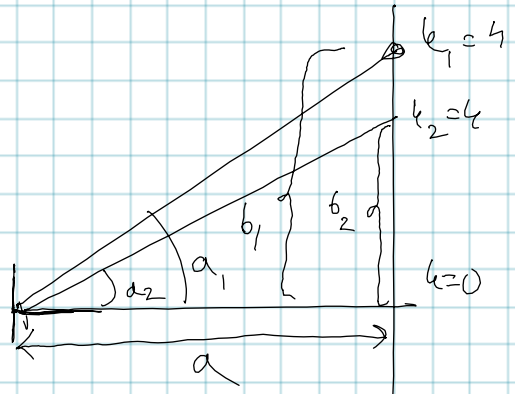
$$b = a \cdot \tan \alpha = 2,00 \text{ mm} \cdot \tan 13,63^\circ$$

$$b \approx 48,50 \text{ mm}$$

T3-57

$$d = 0,50 \text{ mm}$$

$$a = 1,0 \text{ m}$$



$$\lambda_2 = 480 \text{ nm}$$

$$\lambda_1 = 600 \text{ nm}$$

$$d \sin \alpha = k \cdot \lambda$$

$$\sin \alpha = \frac{k \cdot \lambda}{d}$$

$$\sin \alpha_2 = \frac{4 \cdot 480 \cdot 10^{-9} \text{ m}}{0,50 \cdot 10^{-3} \text{ m}}$$

$$\alpha_2 \approx 0,220^\circ$$

$$\sin \alpha_1 = \frac{4 \cdot 600 \cdot 10^{-9} \text{ m}}{0,50 \cdot 10^{-3} \text{ m}}$$

$$\alpha_1 \approx 0,275^\circ$$

$$\tan \alpha_1 = \frac{b_1}{a}$$

$$b_1 = \tan \alpha_1 \cdot a = \tan 0,275^\circ \cdot 1,00 \text{ m}$$

$$b_1 \approx 4,80 \text{ mm}$$

$$b_2 = \tan \alpha_2 \cdot a = \tan 0,220^\circ \cdot 1,00 \text{ m}$$

$$b_2 \approx 3,84 \text{ mm}$$

$$\Delta b = b_1 - b_2 = 4,80 \text{ mm} - 3,84 \text{ mm} \approx 0,96 \text{ mm}$$

Vastaus 1,0 mm