

D10FAGRDSLS

Diffraction on an amplitude grating at normal incidence.

Width of openings d, center to center distance of strips a, wavelength λ , distance from grating to screen X and coordinate on Screen Y.

All distances and wavelength in mm, number of lines N.

All parameters are globally defined above the graph.

D(A) is the diffraction factor

I(A) is the interference factor, normalized to 1.

P(A) is the product of interference and diffraction factor.

$$Y := -800, -799.9.. 800$$

$$X := 4000$$

$$D(Y) := \left[\frac{\sin \left[\pi \cdot \frac{d}{\lambda} \cdot \left(\frac{Y}{X} \right) \right]}{\left[\pi \cdot \frac{d}{\lambda} \cdot \left(\frac{Y}{X} \right) \right]} \right]^2 \quad I(Y) := \left[\frac{\sin \left[\pi \cdot \frac{a}{\lambda} \cdot \left(\frac{Y}{X} \right) \cdot N \right]}{N \cdot \sin \left[\pi \cdot \frac{a}{\lambda} \cdot \left(\frac{Y}{X} \right) \right]} \right]^2$$

$$P(Y) := D(Y) \cdot I(Y)$$

$$d \equiv .02$$

$$\lambda \equiv .0005$$

$$a \equiv .2$$

$$N \equiv 2$$

