
1.9 REFERENCES

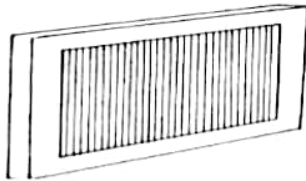
1. A text Book of Optics – Brijlal, S.Chand Publishing, N.Delhi
2. Optics-Satya Prakash, Pragati Prakashan, Meerut
3. Introductory University Optics, PHI Learning, New Delhi, 1998.

PLANE TRANSMISSION GRATING:

It is an arrangement consisting of large no. of parallel slits of equal width separated by an equal opaque space is known as diffraction grating or plane transmission grating.

Diffraction

grating



Construction: It can be constructed by drawing a large no. of rulings over a plane transparent material or glass plate with a fine diamond point.

Thus the space between the two lines act as slit and the opaque space will acts as obstacle.

N.B. Though the plane transmission grating and a plane glass piece looks like alike but a plane transmission grating executes rainbow colour when it exposed to sun light where as a plane glass piece does not executes so.

Grating element:

The space occurring between the midpoints of two consecutive slit in a plane transmission grating is known as **Grating element**. It can be measured by counting the no. of rulings present in a given length of grating.

Let us consider a diffraction grating having

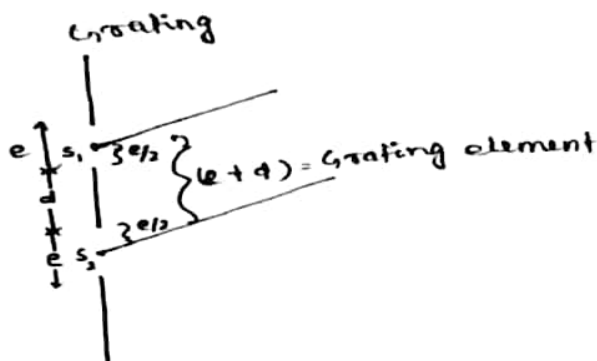
e = width of the slit

d = width of the opacity

If “ N ” be the no. of rulings present in a given length of grating “ x ” each having width $(e+d)$, then

$$N(e+d) = x$$

$$\Rightarrow (e+d) = \frac{x}{N} = \text{Grating element}$$



For example if a grating contain 15,000 lines per cm in a grating then the grating element of the grating

$$\text{Grating element, } (e+d) = \frac{1}{15000} = 0.00016933 \text{ cm}$$

EC-42

Subject: PHYSICS

Topic: Plane Transmission Grating

Class: TDE-II, Paper - I

Date: 05-06-2017 Time: 10-11 AM

By: Dr. Veinay Kumar Singh

Dept. of Physics

NMW, Gorekothu (Ginnam)

Mob. No. 9934659748

E-mail: VKS.1970@rediffmail.com