

1.8: Normal Flux Density F

The rate of passage of energy per unit area normal to the direction of energy flow is the normal flux density, expressed in W m^{-2} .

If a point source of radiation is radiating isotropically, the radiant flux being Φ , the normal flux density at a distance r will be Φ divided by the area of a sphere of radius r . That is

$$F = \Phi / (4\pi r^2) \quad (1.8.1)$$

If the source of radiation is not isotropic (or even if it is) we can express the normal flux density in some direction at distance r in terms of the intensity in that direction:

$$F = I / r^2 \quad (1.8.2)$$

That is, the normal flux density from a point source falls off inversely with the square of the distance.

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