For a diffusely-reflecting surface, reflectance is defined as the ratio of reflected luminous flux to incident luminous flux. For a non-diffusely-reflecting surface, i.e. a surface with some specularity, the same equation between luminance and illuminance applies but reflectance is replaced with luminance factor. Luminance factor is defined as the ratio of the luminance of the surface viewed from a specific position and lit in a specified way to the luminance of a diffusely-reflecting white surface viewed from the same direction and lit in the same way. It should be clear from this definition, that a non-diffusely-reflecting surface can have many different values of the luminance factor. Table 1.1 summarises these definitions.

Table 1.1 The photometric quantities.

Measure	Definition	Units
Luminous flux	That quantity of radiant flux which expresses its capacity to produce visual sensation	lumens (lm)
Luminous intensity	The luminous flux emitted in a very narrow cone containing the given direction divided by the solid angle of the cone, i.e. luminous flux/unit solid angle	candela (cd)
Illuminance	The luminous flux/unit area at a point on a surface	lumen/m^2
Luminance	The luminous flux emitted in a given direction divided by the product of the projected area of the source element perpendicular to the direction and the solid angle containing that direction, i.e. luminous intensity/unit area	candela/m^2
Luminance coefficient	The ratio of the luminance of a surface to the illuminance incident on it	candela/lumen
Reflectance	The ratio of the luminous flux reflected from a surface to the luminous flux incident on it	

For a diffuse surface: luminance = (illuminance × reflectance) / π

Luminance factor	The ratio of the luminance of a reflecting surface viewed from a given direction to that of a perfect white uniform diffusing surface identically illuminated

For a non-diffuse surface, for a specific direction and lighting geometry: luminance = (illuminance × luminance factor) / π