Light has two colour properties; the apparent colour of the light that the source emits, and the effect that the light has on the colours of surfaces. The latter effect is called colour rendering.

1.8.1 Apparent colour of emitted light

The colour of the light emitted by a near-white source can be indicated by its correlated colour temperature. Each lamp type has a specific correlated colour temperature, but for practical use the correlated colour temperatures have been grouped into three classes by the Commission Internationale de l'Eclairage (CIE) as shown in Table 1.2.

Table 1.2 Colour appearance and colour temperature

Colour appearance	Correlated colour temperature
Warm	Below 3300 K
Intermediate	3300–5300 K
Cool	Above 5300 K

The choice of an appropriate colour appearance of a light source for a room is largely determined by the function of the room. This may involve such psychological aspects of colour as the impression given of warmth, relaxation, clarity etc., and more mundane considerations such as the need to have a colour appearance compatible with daylight and yet to provide a 'white' colour at night.

Note: For a more formal definition of some of the terms involved see Part 4, Glossary.

1.8.2 Colour rendering

The ability of a light source to render colours of surfaces accurately can be conveniently quantified by the CIE general colour-rendering index. This index is based on the accuracy with which a set of test colours is reproduced by the lamp of interest relative to how they are reproduced by an appropriate standard light source, perfect agreement being given a value of 100. The CIE general colour-rendering index has some limitations, but it is the most widely accepted measure of the colour-rendering properties of light sources.

Lamps with a colour-rendering index below 80 should not be used in interiors where people work or stay for longer periods. Exceptions may apply for some places or activities (e.g. high-bay lighting), but suitable measures should be taken to ensure lighting with higher colour rendering at fixed, continually occupied work-places, and where safety colours have to be recognised.

For recommendations, see section 2.5, Lighting schedule.

Note: For a more formal definition of some of the terms involved, see Part 4, Glossary.

1.9 Light modulation

All electric lamps operated on an AC supply (50 Hz in Europe) have an inherent modulation in light output at twice the supply frequency (see Figure 1.19(a)). With most discharge lamps there