

## Maintaining Light Sources

Unfortunately, the typical user of a viewing booth does not have access to the instruments necessary to measure either the illumination level or the spectral distribution of energy. As a result, the most critical maintenance issue is to change bulbs frequently enough and on a regular schedule.

The standard requires the manufacturers to "specify the average number of hours during which the apparatus is expected to remain within specification" and cautions users to "make every effort to comply with this, unless it can be otherwise demonstrated that the equipment remains within tolerance." It suggests including a time-metering device or some other mechanism for indicating degradation in the viewing apparatus.

Some manufacturers recommend 2500–5000 hours of bulb life, or one year, as a good interval between bulb changes. It goes without saying that the surfaces of a viewing booth should be kept clean and free of clutter.

## Monitor Viewing Conditions

Until now, the industry has not had any recommended conditions for viewing images on a monitor. This was not a problem as long as people were not trying to make final judgments based on a soft display. We won't attempt to argue whether such judgments are valid, smart, or proper. Certainly, a first step in attempting to achieve some degree of consistency is to define a recommended viewing condition. The new standard contains specifications for the viewing of a monitor independent of any form of hard copy. Thus, these

## Warm-up

Both lamps and observers need a "warm-up" time. Manufacturers often recommend a warm-up time of 15–30 minutes after a viewing booth is turned on, to allow lamps to stabilize, before critical evaluations are made. In addition, when the room lighting environment is significantly different than the viewing booth "an observer should avoid making judgments immediately after entering a new illumination environment because it takes a few minutes to visually adapt to that new environment."

**TABLE II. RECOMMENDATIONS: VIEWING CONDITIONS FOR JUDGING AND EXHIBITING PHOTOGRAPHS**

Material	Recommended viewing conditions
<b>Judging</b>	
Photographic prints	ISO condition P1 with 0°/45° viewing geometry, but the correlated colour temperature can be as low as 3200 K if tungsten sources are used*.
Transparencies (direct viewing)	ISO condition T1 (diffuse illumination).
Transparencies (projection viewing)	ISO condition T2, but the correlated colour temperature can be as low as 3200 K if tungsten sources are used*.
<b>Exhibition</b>	
Photographic prints	ISO condition P1 with 0°/45° viewing geometry, but the correlated colour temperature can be as low as 3200 K if tungsten sources are used*, and the illuminance level can be as low as 375 lx.
Transparencies (direct viewing)	ISO condition T1 (diffuse illumination), but the correlated colour temperature can be as low as 3200K if tungsten sources are used*, and the luminance level can be as low as 240 cd/m <sup>2</sup> , or 1000 times the veiling glare luminance, whichever is greater.
	Note: the veiling glare luminance in a typical direct viewing situation will be approximately 0.0016 times the stray light illuminance incident on the illuminator surface.
Transparencies (projection viewing)	ISO condition T2, but the correlated colour temperature can be as low as (projection viewing) 3200 K if tungsten sources are used*, and the luminance level can be as low as 40 cd/m <sup>2</sup> , or 1000 times the veiling glare luminance, whichever is greater.
	Note: the veiling glare luminance in a typical projection viewing situation will be approximately 0.3 times the stray light illuminance incident on the projection screen.
* With sources at correlated color temperatures other than 5000 K, the metamerism and color rendering index qualifications described in this standard are not applicable. In such cases, the user must rely on the similarity of the tungsten source spectral power distribution to that of a theoretical Planckian radiator. If the spectral power distributions are sufficiently similar, the chromaticities, metameric differences, and color rendering will also be similar.	