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**GENERAL GUIDANCE
 MEASURING REFLECTANCE (GAIN)
 DATA SHEET**

Document Ref DS-073 Issue 4 Aug 2009

Method of measuring reflectance ("gain") in cinema auditoria

Introduction

Reflectance ("gain") is normally measured on screen samples in laboratory conditions. It is difficult to reproduce these laboratory conditions when a cinema screen is located in a cinema auditorium. The following auditoria gain measurement technique can be used as an approximation to gain measurement in the laboratory.

Gain

Screen gain is defined as the ratio of the luminance produced by a projector beam of white light falling onto the screen surface, compared with the luminance of a reference standard with gain of 1.0. In the British Standard for gain measurement (BS 5550) the reference standard is a tile of magnesium carbonate.

For convenience, Harkness Screens can supply a 3mm thick white reference with black back with a gain value of 0.8. Harkness Screens can supply A3 sheets of this material.

Equipment

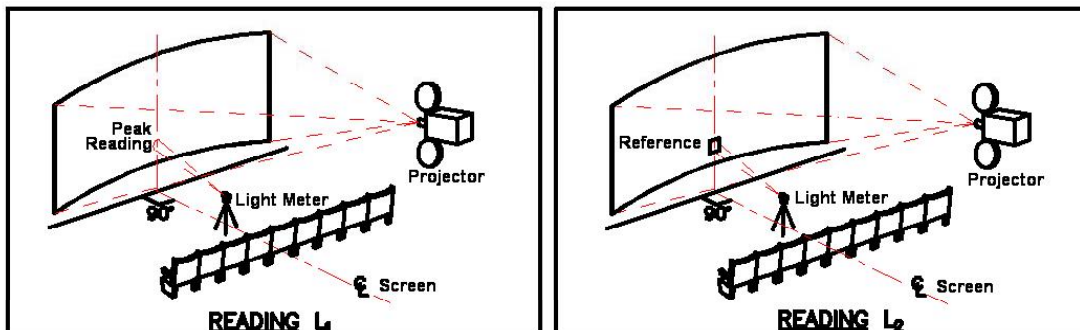
1. A tripod-mounted light meter having an acceptance angle of not greater than 2°. Recommended light meter is a Minolta LS-100 or Spectra Professional IV-A-SP.
2. White light from an installed projector.
3. Reference standard. Harkness Screens can provide A3 sized references with gain 0.8 and a monopod pole to support it.

Method

The luminance readings will be measured from the vertical centre line of the cinema screen. A light meter will be placed at 90 degrees to the cinema screen. The light meter will be mounted on a tripod and its angle will be adjusted in the vertical plane until a peak luminance* reading is measured from the screen (L_1). The unit of measurement will be ft. lbs or cd/m^2 . The light meter remains in same position, and a luminance reading is then measured off the reference standard flat against the cinema screen in the same place that the peak screen reading was measured (L_2).

The light meter should be mounted at a height at or above the screen bottom picture line. This ensures the peak luminance reading is measurable within the picture area.

$$\text{Screen Reflectance Gain} = \frac{L_1 \times 0.8}{L_2}$$



*This peak luminance will be the point on the screen where the angle of incidence equals the angle of reflectance for the light meter position.

Gain measurement reference: British Standard BS 5550-7.2.5:1980 Cinematography