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SMPTE STANDARD

SMPTE 117M-2001

Revision of
ANSI/SMPTE 117M-1996

for Motion-Picture Film — Photographic Audio Density — Spectral Diffuse Density Measurement



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1 Scope

This standard supplements ISO 5-2 and ISO 5-3 by specifying spectral conditions suitable for determining the sensitometric characteristics of photographic audio records on three-component subtractive color films having records made up of dye images plus silver or a metallic salt. It does not apply to the density measurement of records composed of dyes only. The conditions of this standard are applicable to systems of audio reproduction using the S-1 photosurface. It is recognized that there are other types of photosurfaces used for photographic audio reproduction that do not fall within the scope of this standard. This standard defines a practical condition by means of which it is expected that most density measurements will be made.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent edition of the standards indicated below.

ISO 5-2:2001, Photography — Density Measurements — Part 2: Geometric Conditions for Transmission Density

ISO 5-3:1995, Photography — Density Measurements — Part 3: Spectral Conditions

3 Terminology used in the densitometry of photographic color audio records

3.1 Peak response

The peak response of a densitometer is the wavelength to which the densitometer has the greatest response, including such factors as the spectral emission of the light source, the combined spectral transmission of all optical filters in the light path, and the spectral sensitivity of the photo-sensitive receptor.

3.2 Bandwidth

The bandwidth of a densitometer is the range of wavelengths to which the densitometer is sensitive. In a practical densitometer, this range of wavelengths is not sharply defined; but, for the purposes of this standard, the bandwidth shall be considered to lie between those wavelengths that excite, in the photo-sensitive receptor, one half the current which is excited at the wavelength of peak response. These limiting wavelengths are to be measured or computed using the light source, all operating optical filters, and the photo-sensitive receptor of the densitometer.

3.3 Overall response

The overall response of a densitometer is the integrated response of the densitometer to all wavelengths, including such factors as the spectral emission of the light source, the combined spectral transmission of all optical filters in the light path, and the spectral sensitivity of the photo-sensitive receptor.