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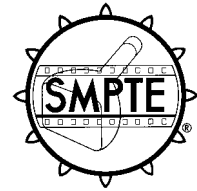
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SMPTE RECOMMENDED PRACTICE

RP 14-1997

Revision of RP 14-1988

Plotting Data from Sensitometric Strips Exposed on Type Ib (Intensity Scale) Sensitometers



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1 Scope

The purpose of this practice is to specify the relationship of the spacings of the exposure scale (horizontal coordinate) of graph paper on which sensitometric data are plotted and the corresponding increments of the logarithm of exposure in the sensitometer when the exposure modulator is a step tablet.

2 Normative references

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

ANSI/ISO 5-2-1995, ANSI/NAPM IT2.19-1995, Photography — Density Measurements — Part 2: Geometric Conditions for Transmission Density

ANSI/ISO 5-3-1995, ANSI/NAPM IT2.18-1996, Photography — Density Measurements — Part 3: Spectral Conditions

3 Exposure method

3.1 In a type Ib (intensity scale) sensitometer, the most common method of modulating the illumination falling upon the sample employs a step tablet. The exposure is made with the emulsion of the sample in contact with the modulator except for a thin, transparent acetate cover which protects the modulator against abrasion and foreign matter. The opening and closing of a shutter admits light for the required period of time. Step tablets may be cast with gelatin

containing dyes or colloidal carbon or, alternatively, may be produced photographically by suitable exposure and development of film or plates.

3.2 With a step tablet as the exposure modulator, the illumination reaching the sample is dependent upon the transmittance of the various steps of the modulator. This assumes uniformity of illumination. Density, being the common logarithm of the reciprocal of the transmittance, is a more convenient method for specifying the light-stopping power of the segments of the modulator. Density may be measured with a densitometer calibrated in reference to ANSI/ISO 5-2, ANSI/NAPM IT2.19, and ANSI/ISO 5-3, ANSI/NAPM IT2.18.

3.3 The Ib (intensity scale) sensitometer exposure modulator should typically have step-to-step increments of 0.15 diffuse transmission visual density; however, other increments can be used for specific needs. As modulators vary somewhat from this 0.15 increment, it may be necessary to adjust the step reference points on the exposure axis (horizontal coordinate) of the sensitometric graph paper to represent the actual densities of each step in the tablet. (Single step departures of the order of 0.015, or less, from the ideal 0.15 density increment, when known, would not be considered significant. However, cumulative errors, especially those which occur in the same direction, are significant and can lead to erroneous results (see figure 1).

4 Method of correction

4.1 The steps of the exposure modulator shall be measured with a densitometer reading in diffuse transmission visual density, specified in