

# SMPTe RECOMMENDED PRACTICE

RP 14-1988



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

### 1. Scope

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

### 2. Exposure Method

2.1 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.

2.2 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 American National Standard for Photography (Sensitometry)—Density Measurements—Geometric Conditions for Transmission Density, ANSI/ISO 5:2 1985, ANSI PH2.19:1986, and American National Standard for Photography (Sensitometry)—Density Measurements—Spectral Conditions, ANSI/ISO 5:3 1984, ANSI PH2.18:1985.

2.3 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

\*Lund, A. J., "Photographic Sensitometry," Part I, *J. Opt. Soc. Am.*, 1952, 42, 324-333, 334-335, 336-337, 338-339, 340-341, 342-343, 344-345, 346-347, 348-349, 350-351, 352-353, 354-355, 356-357, 358-359, 360-361, 362-363, 364-365, 366-367, 368-369, 370-371, 372-373, 374-375, 376-377, 378-379, 380-381, 382-383, 384-385, 386-387, 388-389, 390-391, 392-393, 394-395, 396-397, 398-399, 400-401, 402-403, 404-405, 406-407, 408-409, 410-411, 412-413, 414-415, 416-417, 418-419, 420-421, 422-423, 424-425, 426-427, 428-429, 430-431, 432-433, 434-435, 436-437, 438-439, 440-441, 442-443, 444-445, 446-447, 448-449, 450-451, 452-453, 454-455, 456-457, 458-459, 460-461, 462-463, 464-465, 466-467, 468-469, 470-471, 472-473, 474-475, 476-477, 478-479, 480-481, 482-483, 484-485, 486-487, 488-489, 490-491, 492-493, 494-495, 496-497, 498-499, 500-501, 502-503, 504-505, 506-507, 508-509, 510-511, 512-513, 514-515, 516-517, 518-519, 520-521, 522-523, 524-525, 526-527, 528-529, 530-531, 532-533, 534-535, 536-537, 538-539, 540-541, 542-543, 544-545, 546-547, 548-549, 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