Grid Images: Use in Assessment of Definition — A Technical Note

By A. G. TULL

An abridgment of a paper by Ivan Putora ("The Sharpness Indicator," *Journal*, pp. 956–960, Nov. 1969) was especially interesting to the author of this Technical Note since Technicolor Ltd. has used grid images for the assessment of definition for ten years or more. For this reason, it was thought that a Technical Note on this subject might be apropos.

The basic principle, at least as we understand it, antedates the reference given in the Editorial Note preceding the paper by Mr. Putora ("Image Sharpness Meter" by Dwin R. Craig in the Nov./Dec. 1961 issue of *Photographic Science and Engineering*). For example, a paper by G. V. Kujawa on this subject appeared in 1931 in *Veroff Agfa Bd. II* and was reprinted that same year in *Sciences et Industries Photographiques*.

At Technicolor Ltd., the normal practice is to relate an integrated grid density with a reference density (solid field) produced at the same time and, by printing these two items in pairs over an exposure range, the relationship of grid density to printing level can be explored for varied conditions. Grid frequency is constant in such a series, but can be chosen to suit the interests involved, and the process can be repeated at different frequencies.

The negative we use consists of a high-contrast grid image surrounded by a clear field and a length of 8 to 12 frames of this subject suffices. This item is printed in such a way as to modulate exposure from frame to frame, either by means of a fade device or by superposing a step wedge on the negative. A plot is then made of integrated grid densities vs. corresponding reference densities and the curve so obtained can be used as a quantitative measure of sharpness in that process. On the other hand, visual comparisons between different samples at matched reference levels will often identify the better sample (lower integrated grid density).

In practice, this procedure is very simple and appears to be less complicated than the other methods described, although there may be some differences of purpose. Fuller details and references have already been published ("Grid Images Applied to the Assessment of Definition," by A. G. Tull and C. J. Bell, *J. Phot. Sci., 11:* 78–83, 1963).

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standards and recommended practices

Approved American National Standards

On May 12, 1970, the American National Standards Institute approved a new American National Standard Super 8 Motion-Picture Film Camera Cartridge Notches for Exposure Control and Stock Identification, PH22.166-1970, which is published here for your information.

Inasmuch as compliance with American National Standards is purely voluntary, these Standards will become truly effective only when broad publicity is given to their existence. ANSI and SMPTE would appreciate any personal influence to promote the use of these Standards where such action is appropriate. Copies of the Standards may be obtained for a nominal fee from the American National Standards Institute, 1430 Broadway, New York, NY 10018.

Draft American National Standard

A Draft American National Standard is published here for a trial period and public review. Comments should be addressed to Alex E. Alden, Staff Engineer, at Society Headquarters before September 30, 1970. The proposal has been submitted to the appropriate American National Standards Committee. Consequently, all comments received through *Journal* publication will be reviewed prior to conclusion of action by this committee.

PH22.153, Dimensions for Printed Area in Super 8 Printing on 16/8mm Film Perforated 1–4, is a revision of the 1967 issue and should be carefully reviewed by anyone concerned with its use.