Television Studio Lighting

Committee Report by RICHARD BLOUNT

THE TELEVISION STUDIO LIGHTING COMMITTEE of the SMPTE met in New York City on April 16, 1952, to discuss means of measuring studio lighting. As originally planned, the meeting was attended by numerous lighting directors from the various networks who provided the practical approach to this problem. From the discussion, it became apparent that incident light is measured because simple meters are available, but that brightness would be measured if a meter of similar simplicity and size were available. Since such a device will probably be somewhat more difficult to obtain, the Committee decided to establish desirable characteristics of both types of meters with the thought that an incident meter could be made without any great delay. This would give the studio personnel a standard measuring device which could be used until a convenient brightness meter can be produced.

The following listing of specifications was tentatively agreed to at the meeting, and these are to be given wide publicity among meter manufacturers and users for further suggestions. These proposed specifications are being published here to encourage comment from any interested reader of this report.

Specification for an Incident Light Meter

1. The spectral sensitivity shall conform closely to that of the 5820 image orthicon camera tube.

2. The coverage angle shall closely approach a cosine distribution, i.e., the response shall be maximum perpendicular to the plane of the photocell and shall be 70% of the maximum at ±45° from the perpendicular.

3. The meter shall have a single scale and shall respond from 0 to 300 ft-c. The scale shall be logarithmic with 0 to 30 ft-c covering approximately 25% of full scale.

4. The size, and weight and shape shall be such as to be conveniently carried in a suit coat pocket. Rounded edges are desirable since the meter will be hand held in use. A maximum thickness of one inch is desirable.

5. An adjustable-length neck cord is required. The maximum length should allow the meter to rest in a trousers pocket.

6. The meter should withstand reasonably rough handling similar to that experienced by photoelectric exposure meters. A storage case may be provided at the manufacturer's option.

Preliminary Specifications for a Portable Brightness Meter

1. The instrument shall incorporate a photoelectric device for light measurements and shall be dependent upon the human eye for aiming only.

2. The spectral response shall be similar to that of the 5820 image orthicon camera tube.

A report submitted on April 23, 1952, by the Committee's Chairman, Richard Blount, General Electric Co., Nela Park, Cleveland 12, Ohio.

3. The angle of coverage shall be $1^{\circ}{}^{+1^{\circ}}_{-0}$.

4. The instrument shall measure brightness from 70 ft-L max down to 1 ft-L, with 0.1 ft-L as a very desirable minimum. This range may be covered by a number of steps—perhaps in multiples of 10. Switching between steps should be accomplished internally. No separate, external filters or other devices shall be used.

5. A sight or viewfinder which provides an upright image shall be incorporated. It shall enable the operator to quickly and positively identify the area to be measured. Parallax shall be kept to a minimum.

6. The meter shall be designed so that the operator can make a single measurement in less than five seconds, but will allow him to read the actual value at his leisure.

7. The meter shall not require external power and shall be built as a single unit.

8. If battery-operated, it shall be able to operate continuously for at least 10 hours on a single set of batteries.

9. The calibration shall be stable throughout the battery life. A simple external calibration device shall be made available.

10. The meter should not exceed 400 cu in. and the weight shall be no greater than 5 lb.

The Committee appreciates that the brightness meter specifications may be difficult to meet, but in the apparent absence of any meter that meets the needs of television stations, it was decided to state the precise requirements and compromise later if necessary.