U.S. Standard for the Color of Signal Lights


• THE COORDINATION draft of the U.S. Standard for the Colors of Signal Lights has been completed and is now being reproduced. It will be mailed to all members of the U.S. National Committee on the Colors of Signal Lights sometime during January 1962. This draft is composed of six sections, each of which has been approved by the Committee at one of its meetings. It is now being circulated to the members of the Committee so that they can present it to their sponsoring organizations for final adoption. The present plan is to publish the standard as a National Bureau of Standards handbook.

The Standard has three purposes: (a) to bring U.S. specifications for signal light colors into agreement with the recommendations of the International Commission on Illumination; (b) to eliminate meaningless differences among the specifications issued by different organizations in this country; and (c) to set up a technically sound basis on which relatively brief procurement specifications can be based.

The application of the standard to the various types of signal lights seen on the highway affords a good illustration of what the standard is intended to accomplish. There are at present three specifications that control the colors of most of the red signal lights used on the highways, and each of these specifications calls for a different color. The specification covering the red lights used in urban traffic signals is sponsored by the Institute of Traffic Engineers, but it is based on the requirements of the railroads for red lights for use as wayside and train signals. These lights are a deep red designed for use under relatively difficult conditions where the utmost certainty of correct recognition is paramount. The red lights used on highways at railroad crossings, however, are governed by a specification which is the responsibility of the Association of American Railroads. This specification does not require as deep a red as that now being used on most urban traffic signals. The most commonly seen red lights on highways are those of the intervehicular signals carried by the automobiles and trucks. The specifications for these lights are sponsored by the Society of Automotive Engineers and are based on the requirements for aviation red lights. The aviation specification was designed to provide for signals that could be seen at a maximum distance under conditions which make the recognition of the color secondary to the observation of the light itself. Presumably this specification was used as a basis for the automotive red lights because at the time when it was applied to intervehicular use the electrical power available on vehicles was much more limited than it is at present. The standard recommends the adoption of an intermediate red for all three of these highway applications. This recommendation has already been adopted for use in the 12-in. traffic lights that are being installed on open highways and appears to be giving good satisfaction for that use. (Subsequent to the presentation of this report the S. A. E. Lighting Committee has appointed a subcommittee to consider the adoption of the U.S. Standard for intervehicular signals.)

Another example of a slight change that might be brought about as a result of adopting the standard is the specification of the Institute of Traffic Engineers for yellow lights for use in highway traffic signals. This specification as presently written would permit the use of lights that are paler than those allowed under the recommendations of the International Commission on Illumination. The range of yellow colors permitted by this specification, however, appears somewhat larger than is necessary. The standard would recommend a deeper yellow as a pale-limit for this type of signal but would not recommend any redder red-limit for them. The actual effect on the lights in service might not be as large as might be thought from a comparison of the chromaticity definitions in the two specifications. Under the standard, more attention would
be given to the color temperature of the light source used with the filter. It is the practice of most traffic signal departments to use lamps of very long life for traffic signal purposes. These lamps have a redder light source than that used for testing the filters. Consequently, the lights as actually shown on the highways probably seldom reach the pale-limit yellow allowed by the specification. The change recommended in this case might turn out to be rather a case of setting the records straight than one of changing the actual colors in service. In any case, inasmuch as the recommendation of the standard does not permit the use of redder yellow lights than are presently acceptable, no risk of confusion could arise from the adoption of the standard for the control of traffic signal yellow.

Engineers and highway officials who would find the U. S. Standard of assistance in connection with their work may obtain copies by writing to the National Bureau of Standards, Washington 25, D. C. Such requests should be sent to the Photometry and Colorimetry Section.