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Road vehicles — Rear view mirrors — Test method for determining reflectance

Véhicules routiers — Rétroviseurs — Méthode d'essai pour la détermination du facteur de réflexion

Second edition — 1982-02-15

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 5740 was developed by Technical Committee ISO/TC 22, *Road vehicles*, and was circulated to the member bodies in November 1980.

It has been approved by the member bodies of the following countries :

Austria	Italy	South Africa, Rep. of
Belgium	Japan	Spain
Brazil	Korea, Dem. P. Rep. of	Sweden
China	Korea, Rep. of	Switzerland
Egypt, Arab Rep. of	Netherlands	United Kingdom
France	New Zealand	USSR
Germany, F.R.	Poland	
Iran	Romania	

No member body expressed disapproval of the document.

This second edition cancels and replaces the first edition (i.e. ISO 5740-1978).

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Road vehicles — Rear view mirrors — Test method for determining reflectance

1 Scope and field of application

This International Standard specifies a test method for determining the reflectance of rear view mirrors for road vehicles.

It applies to flat and convex surface mirrors intended for internal and external mounting.

2 References

IEC Publication 50(45), *International Electrotechnical Vocabulary, Group 45: Lighting*.

CIE — Publication No 17 (1970), *International lighting vocabulary* — Vol. 1 (published by the Central Office of the International Commission on Illumination).

NOTE — The texts of the above are identical.

3 Definitions

3.1 CIE standard illuminant A [as defined in 45.15.145 of IEC Publication 50(45)]: (Colorimetric illuminant), representing the full radiator at $T_{68} = 2\,855,6\text{ K}$.

3.2 CIE standard source A [as defined in 45.15.150 of IEC Publication 50(45)]: Gas filled tungsten filament lamp operating at a correlated colour temperature of $T_{68} = 2\,855,6\text{ K}$.

3.3 CIE 1931 standard colorimetric observer [as defined in 45.15.050 of IEC Publication 50(45)]: Receptor of radiation whose colorimetric characteristics correspond to the spectral tristimulus values $\bar{x}(\lambda)$, $\bar{y}(\lambda)$, $\bar{z}(\lambda)$ adopted by the International Commission on Illumination in 1931. (See 3.4 and the annex.)

3.4 CIE spectral tristimulus values [as defined in 45.15.035 of IEC Publication 50(45)]: Tristimulus values of the spectral components of an equi-energy spectrum in the CIE (XYZ) system.

NOTES

1 Formerly CIE distribution coefficients.

2 In the CIE 1931 standard colorimetric system, applicable to observing fields of angular subtense between 1° and 4° (0,017 rad and 0,07 rad), these tristimulus values $\bar{x}(\lambda)$, $\bar{y}(\lambda)$, $\bar{z}(\lambda)$ are so chosen that

the values of $\bar{y}(\lambda)$ are identical with the spectral luminous efficiencies $V(\lambda)$. (See annex.)

3.5 photopic vision [as defined in 45.25.055 of IEC Publication 50(45)]: Vision by the normal eye when it is adapted to levels of luminance of at least several candelas per square metre.

NOTE — The cone receptors of the retina are considered to be the principal active elements under these conditions and the spectrum appears coloured.

3.6 reflectance: The ratio of reflected luminous flux to the incident luminous flux (ρ).

NOTE — Where mixed reflectance occurs the total reflectance may be divided into two parts, regular reflectance (ρ_r) and diffused reflectance (ρ_d), hence the equation $\rho = \rho_r + \rho_d$.

4 Apparatus

4.1 General

The apparatus shall consist of a light source, a holder for the test sample, a reflectometer with a photodetector and an indicating meter (see figure 1), and means for eliminating the effects of extraneous light.

The reflectometer in figure 1 measures the regular component of reflectance.

The reflectometer may incorporate a light integrating sphere to facilitate measuring the reflectance of non-flat (convex) mirrors (see figure 2).

In this case the reflectometer measures the total reflectance, i.e. the sum of the regular and diffused components.

4.2 Spectral characteristics of light source and reflectometer

The light source shall consist of a CIE standard source A and associated optics to provide a near-collimated light beam. A voltage stabilizer is recommended to maintain a fixed lamp voltage during instrument operation.

The reflectometer shall have a photodetector with a spectral response proportional to the photopic luminosity function of the CIE (1931) standard colorimetric observer (see the annex).