



SLOVENSKI STANDARD
SIST EN 17317:2020

01-maj-2020

**Netekstilne, tekstilne, laminirane in modularno mehansko spojene talne obloge -
Vrednost odbojnosti svetlobe (LRV) talne površine**

Resilient, textile, laminate and modular mechanical locked floor coverings - Light
reflectance value (LRV) of a flooring surface

Elastische, textile, Laminat- und modulare mechanisch verriegelte Bodenbeläge -
Lichtreflexionswert (LRV) einer Bodenoberfläche

Revêtements de sol résilients, textiles, stratifiés et modulaires à clipsage mécanique -
Coefficient de réflexion lumineuse (LRV) d'une surface de sol

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ICS:

97.150 Talne obloge Floor coverings

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EUROPEAN STANDARD

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Resilient, textile, laminate and modular mechanical locked floor coverings - Light reflectance value (LRV) of a flooring surface

Revêtements de sol résilients, textiles, stratifiés et modulaires à clipsage mécanique - Coefficient de réflexion lumineuse (LRV) d'une surface de sol

Elastische, textile, Laminat- und modulare mechanisch verriegelte Bodenbeläge - Lichtreflexionswert (LRV) einer Bodenoberfläche

This European Standard was approved by CEN on 18 November 2019.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (EN 17317:2020) has been prepared by Technical Committee CEN/TC 134 “Resilient, textile and laminate floor coverings”, the secretariat of which is held by NBN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by August 2020, and conflicting national standards shall be withdrawn at the latest by August 2020.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

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EN 17317:2020 (E)**1 Scope**

This document establishes a test and calculation method for resilient, textile, laminate and modular mechanical locked floor coverings.

This document is also intended to provide guidance for manufacturers, specifiers and consumers, to enable them to choose the appropriate performance of floor covering regarding the light reflectancy of the use surface.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp/ui>

3.1

**light reflectance value
LRV**

proportion of visible light reflected by a surface, weighted for the sensitivity to light of the human eye

3.2

**colour depth
L**

proportion of colour in range from black (0) to white (100)

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3.3

non-opacity

specimens that are detected by the observer as light-permeable

4 Symbols (and abbreviated terms)

LRV = Light reflectance value

L = Colour depth

Y_{10} = CIE Tristimulus value

ρ (rho) = alternative notation of the light reflectance value LRV

5 Principle

The amount of light reflected from the surface at a number of wavelengths evenly spaced across the visible spectrum is to be measured. These measurements shall include the spectral component of reflected light.

The specimen of the surface is prepared and presented to the aperture of the instrument and its LRV is measured.

6 Apparatus

Sphere-type spectrophotometer, capable of measuring LRV to a precision compatible with the reproducibility of 1 unit ΔE CIE $L^*a^*b^*$.

The instrument shall have a spectral range capable of measuring the LRV of a specimen at 16 wavelength points spaced at 20 nm wavelength intervals from 400 nm across the visible spectrum.

The instrument shall be capable of measuring a 10° visual field (Y_{10} or the 10° standard colorimetric observer).

The instrument shall be designed such that a correctly positioned specimen is irradiated uniformly from all directions within the hemisphere bounded by its plane.

The instrument aperture shall be delimited by the area over which the receiver senses flux rather than the area illuminated. Radiation reflected at the sampling aperture shall be evaluated uniformly at all directions within 5° of the axis of the collection beam.

The axis of the reflected beam shall be 8° off the normal of the centre of the specimen plane in which the specimen is placed during measurements. The reduction in sphere efficiency due to specimen absorption shall be corrected to produce a linear output.

Where a single beam integrating sphere is used, the treatment of the outputs needs to include a correction for the reduction in sphere efficiency caused by specimen absorption. Without such a correction the instrument will give a nonlinear output.

Standard illuminant, CIE D65. This is generally representative of a phase of daylight with a correlated colour temperature of approximately 6 500 K.

Measurement area, of at least 7 mm diameter compatible with that provided by commercially available spectrophotometers.

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7 Test specimens

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7.1 General

Three specimens shall be selected as being representative of the surface for the test. Where there is variability in the colour of the three specimens, then nine specimens shall be selected, see below note to decide on.

NOTE Variability in the colour of the three specimens will be deemed to have occurred where the difference between the highest and lowest LRV is ≥ 4 .

7.2 Preparations of test specimens

The surface of the specimens shall be clean and representative of the surface of the material. There shall be no pressure marks on, or foreign matter attached to, the surface of the specimens to be tested.

Cut pile carpets (textile floor coverings) shall be brushed with a clothing brush in the direction of the natural pile lay before measurement.

Where there is concern with regard to the stability of the colour and appearance of a specimen over the period of the test, the specimen shall not be measured.

Specimens shall be large enough to extend beyond the measurement area of the instrument.

For specimens which do not have a patterned or textured surface a specimen size of 150 mm \times 150 mm shall be used.

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Where patterns on surfaces cannot be fully represented by a specimen of this size then a specimen size of 450 mm × 450 mm shall be used and the LRV measurements shall be taken at the 9 centre points of each of the 150 mm × 150 mm grid, set out to place the measurement point at the centre of equal areas of the specimen surface.

8 Test procedure**8.1 Calibration procedure**

Switch on the instrument and allow sufficient time for stabilization in accordance with the manufacturer's recommendations.

Where applicable, ensure that the instrument has the capacity to undertake the required measurements.

The instrument shall be calibrated in accordance with the manufacturer's recommendations.

Select the measurement conditions required for calibration of the instrument being used as follows:

- wavelength range and interval;
- size of aperture;
- specular component included;
- standard illuminant type;
- where there is choice of % UV, select 100 % UV.

During the use of the instrument, repeat the calibration at regular intervals in accordance with the manufacturer's recommendations. Where appropriate, re-calibration may be required at regular intervals during measurements.

8.2 Standard test procedure

Measure the LRV of the specimen in accordance with this document, using CIE Tristimulus Y_{10} , Illuminant D65 and the 10° colorimetric observer.

All measurements shall be taken with the instrument using even pressure without deforming the specimen.

The measuring points for specimens that have a texture or surface structure shall be distributed over the surface so as to ensure that all differences in surface texture or structure are measured.

The specimens shall be measured on a measurement grid as shown in Figure 1 and Figure 2. LRV measurements shall be taken at the centre points of a grid that covers the surface of the specimen, as shown in Figure 2. The results of each measurement shall be recorded and the average LRV (LRV_{av}) for the specimen determined.

For multi-coloured specimens where areas of the surface are composed of different uniform colours, as defined in 7.1, the LRV shall be measured as follows: At least four measurement points shall be located on each distinct area of colour. Following the first measurement at each measurement point the instrument shall be turned 90° three times and measurements taken after each 90° turn. The results of each measurement shall be recorded and the average LRV for each area of distinct colour determined. The average LRV (LRV_{av}) will be calculated according to 9.2.

Dimensions in millimetres

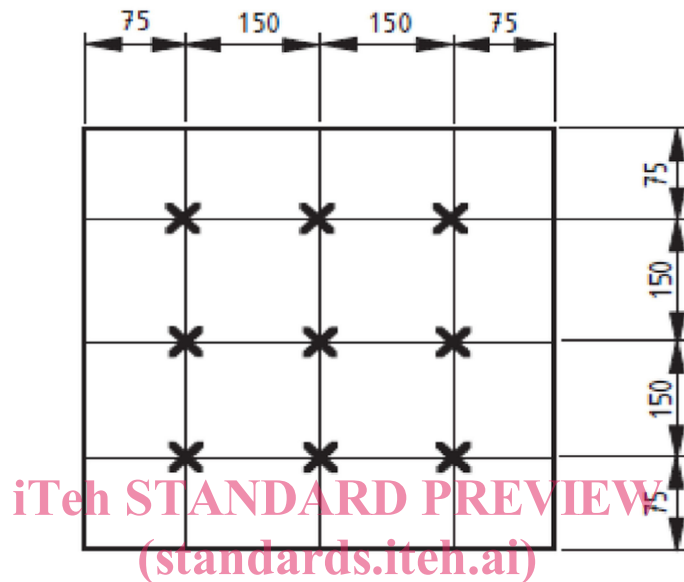


Figure 1 — Measurement grid for 450 mm x 450 mm specimen

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Dimensions in millimetres

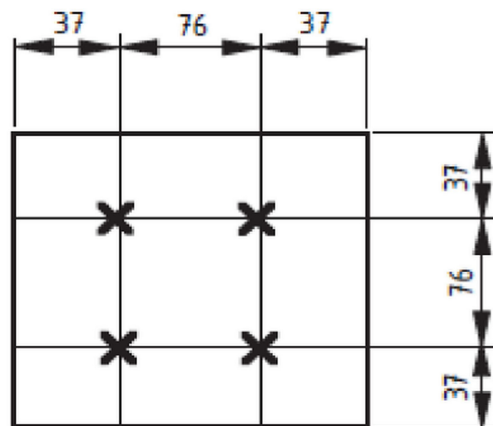


Figure 2 — Measurement grid for 150 mm x 150 mm specimen

9 Expression of the results

9.1 General

The instrument shall, either independently or with additional software and hardware, calculate the average LRV (LRV_{av}) from the measured individual LRV values, which is the CIE Tristimulus Y_{10} value.