

BS 8493:2008+A1:2010



BSI Standards Publication

Light reflectance value (LRV) of a surface –

Method of test

bsi.

...making excellence **Documents**
AVA Document Sharing Hub

Publishing and copyright information

The BSI copyright notice displayed in this document indicates when the document was last issued.

© BSI 2010

ISBN 978 0 580 67695 6

ICS 11.040.70

The following BSI references relate to the work on this standard:

Committee reference B/559/1

Drafts for comment 08/30154536 DC, 09/30203004 DC

Publication history

First published November 2008

Amendments issued since publication

Date	Description
31 March 2010	A1. Changes to Clause 8, addition of two new figures and changes to Table A.1.

Contents

Foreword *iii*

1	Scope	1
2	Normative references	2
3	Terms and definitions	2
4	Principle	3
5	Apparatus	3
6	Preparation of test specimens	4
7	Procedure	5
8	Test	5
9	Expression of results	9
10	Test report	9

Annexes

Annex A (informative) Comparison between the BS colour code and the LRV of colours within BS 4800 10

Bibliography 14

List of figures

Figure 1	– Measurement grid for 450 mm × 450 mm specimen	7
Figure 2	– Measurement grid for 150 mm × 150 mm specimen	8
Figure 3	– Measurement grid for 100 mm × 100 mm specimen	8
Figure 4	– Measurement grid for 50 mm × 50 mm specimen	8

List of tables

Table A.1	– BS 4800 range of colours and LRV	10
-----------	------------------------------------	----

Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 14, an inside back cover and a back cover.

Foreword

Publishing information

This British Standard is published by BSI and came into effect on 30 November 2008. It was prepared by Subcommittee B/559/2/-/1, *Light reflectance values*, under the authority of Technical Committee B/559, *Access to buildings for disabled people*. A list of organizations represented on this committee can be obtained on request to its secretary.

Supersession

BS 8493:2008+A1:2010 supersedes BS 8493:2008, which is withdrawn.

Information about this document

The use of contrast by people who are visually impaired in a range of search and navigation tasks within buildings was examined by a consortium including the Royal National Institute for the Blind (RNIB), ICI Paints and The University of Reading (Cook, G.K., Bright, K.T., 1999, Project Rainbow: A Research Project to Provide Colour and Contrast Design Guidance for Internal Built Environments, Occasional Paper 57 [1]). This work identified that the difference in light reflectance value (LRV) between two visually adjacent surfaces could be used to predict the ability of people who are visually impaired to see a difference. The greater the LRV difference between two visually adjacent surfaces, the more likely that the difference would be identified. This work has influenced the content of other regulations and guidance documents that establish criteria for the provision of accessible, and therefore, inclusive environments.

BS 8300:2001 recommended the use of contrast to assist disabled people in search and navigation tasks within and around buildings. The 1st Amendment to BS 8300:2001, published in 2005, expanded the content of the standard to include reference to LRV, how it can be assessed and advice on the selection of an LRV difference between surfaces. This amendment to BS 8300 allowed the content to align more closely with the need for surfaces to “contrast visually” which was included in the Approved Document relating to Part M of the Building Regulations (England and Wales) 2000 [2]. AD (M) recommended a difference in LRV for a range of different surfaces within buildings. ^[A1] The guidance on LRVs was fully incorporated and expanded in BS 8300:2009. ^[A1]

In addition the Government used the power granted to it under Section 46 of the Disability Discrimination Act 1995 (DDA) [3] to bring the Rail Vehicle Accessibility Regulations 1998 (RVAR) [4] into force on 1 November 1998. Some small amendments were later made to the RVAR by the Rail Vehicle Accessibility Amendment Regulations 2000 [5]. Amongst the general requirements of the RVAR is the provision of adequate contrast between features on rail vehicles. The guidance in Appendix A of the RVAR identifies the role of chromaticity, light reflectance value (LRV) and hue in providing sufficient contrast between two coloured surfaces and recommends a difference in LRV for a range of different surfaces on rail vehicles.

All of the guidance documents mentioned here give information concerning the application of LRV to provide an accessible and inclusive environment. This standard describes how LRV can be measured for a range of surfaces. It draws on existing standards, where applicable, and the use of existing colour measurement equipment to produce LRVs that are accurate for the task of providing an accessible environment and can be used with confidence in the design of those environments.

The start and finish of text introduced or altered by Amendment No. 1:2010 is indicated in the text by tags **A1** **A1**. Minor editorial changes are not tagged. Amendment A1 introduces the following principal changes:

- changes to Clause 8;
- addition of two new figures;
- changes to Table A.1.

Use of this document

It has been assumed in the preparation of this British Standard that the execution of its provisions will be entrusted to appropriately qualified and experienced people, for whose use it has been produced.

Presentational conventions

The provisions of this standard are presented in roman (i.e. upright) type. Its methods are expressed as a set of instructions, a description, or in sentences in which the principal auxiliary verb is “shall”.

Contractual and legal considerations

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

1 Scope

This British Standard specifies the method of test to determine the Light Reflectance Value (LRV) of different surfaces of materials, including preparation of representative specimens of surfaces of materials in standardized conditions.

The method of test is applicable to:

- opaque paint coatings and paint systems, including those that cause extreme angular dependences of reflected light and those that have a surface texture of <2 mm;
- opaque coverings including those that cause extreme angular dependences of reflected light, and those that have an unyielding texture of <2 mm;
- opaque coverings with a yielding pile, e.g. carpet;
- opaque materials, including those that cause extreme angular dependences of reflected light, and those that have a texture of <2 mm, e.g. finished metals;
- opaque materials coated with non-opaque coatings or coverings, e.g. timber door coated with a woodstain, including those that cause extreme angular dependences of reflected light, and those that have a texture of <2 mm;
- multi-coloured surfaces;
- ordinary materials.

The method of test is not suitable for the following surfaces:

- thermochromic;
- photochromic;
- retroreflecting;
- fluorescent;
- phosphorescent;
- surfaces involving electrical power for light emission;
- self-luminous characteristics or for free-standing, non-opaque materials, e.g. glass and clear plastic for curved surfaces.

NOTE 1 The results of the measurements could then be published as complying with the measurement method described in this standard.

The method described in this standard is not appropriate for making on-site measurements.

Therefore it is recommended that published LRV data, determined in accordance with this standard, are used for the determination of visual contrast.

NOTE 2 See BS 8300 which offers guidance on the application of LRV to provide an inclusive environment.

For opaque paint coatings and systems the LRV values are valid for coatings and systems, whatever the optical nature of the substrate, to which they are applied as long as the specified number of coats are applied at the specified spreading rate.

For opaque coverings, the LRV values determined by the use of this standard are valid for those coatings and systems whatever the optical nature of the substrate they are covering.