



# Measuring Light Reflectance Value

Measuring LRV for Construction, Building Products,  
Design and Maintenance of Buildings



Giving Shape to Ideas

# Measuring Light Reflectance Value (LRV)

**Light Reflectance Value is an important figure to a number of industries involved in the design construction and maintenance of buildings.**

Light Reflectance Value is a measurement of the percentage of visible light reflected by a surface, weighted for the sensitivity of the human eye. Light reflectance values range from 0 (no reflectance) to 100 (absolute reflectance). This value is used to specify and control contrasts between materials and surfaces within the built environment.

Any premises that is accessible for the public must take LRV into account. The Equality Act 2010 (which replaced the 2004 Disability Discrimination Act) requires that all new and refurbished public buildings and work places comply with current regulations via their 'Access Statement', ensuring safe entry, exit and safe passage throughout the building.

BS 8300:2009 and BS8493:2008+A1:2010 established the CIE Y value as the single consistent method and defined that adequate visual contrast is provided if the Light Reflectance Values (LRV) of contrasting areas differ by at least 30 points or 20 where illumination is over 200 lux. The contrast is calculated using the formula  $[(B1 - B2) / B1] \times 100$ , where B1 is the LRV of the lighter area, and B2 is the LRV of a darker area.

Previous to this standard both the CIE L value (fluorescent light) and the CIE Y value (natural daylight) were commonly used, causing confusion and potentially dangerous specifications.



CIE Y values using Illuminant D65 (natural daylight) and the 10° colorimetric observer are easily obtained with a sphere type spectrophotometer which should have a calibration certificate to show traceability back to international standards. For many manufacturers of building materials or specifiers of lighting this enables them to quickly and easily obtain and record accurate and traceable data which can be supplied to customers.

A portable spectrophotometer may be required to take measurements in-situ, either when assessing the building as a whole or to test over time when considering the impact of sun exposure, wear, cleaning, areas of concern or where lighting is regularly dim or non standard.



The most cost effective method for measuring LRV values would be the entry level portable spectrophotometer CM-23d, although more advanced models will provide additional features that may expedite or simplify the process.

The CM-23d utilises the new user friendly firmware shared with the new top of the range CM-26dG, a built in colour screen, ambidextrous measurement button and built in sample viewer. The naming, organising and reviewing of data in stand alone mode is quick and easy.

Konica Minolta Sensing has a network of Service and Calibration Centres to ensure that your instrument remains accurate and traceable with a minimum of downtime. Konica Minolta also manufacture some of the most trusted traceable solutions for luminance or illuminance measurements such as the T-10A illuminance meter and LS-150 luminance meter. Premium service agreements are available for all light and colour measurement instruments to budget for an annual calibration.



**To discuss your requirements for a measurement system for LRV please contact [info.uk@seu.konicaminolta.eu](mailto:info.uk@seu.konicaminolta.eu)**