

The scenes below appear very different. This is because in one scenario the light source is **undersaturated** while the other is **oversaturated**. Yet, in both cases the light source has a CRI of 80. This reveals one of several flaws in the current CRI metric that the new TM-30 addresses.



Image courtesy of Randy Burkett Lighting Design



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TM-30-15 is a new method for evaluating light source color rendition. It was developed by a team of lighting experts from the Department of Energy (DOE), Illuminating Engineering Society (IES), academia and manufacturers to augment and possibly even replace the old Color Rendering Index (CRI) method, which has many well-known limitations.

This document provides an introduction to TM-30 data, how to interpret and apply it.

Hubbell Lighting remains committed to lighting education and training. For additional TM-30 information, or to schedule an AIA accredited presentation, please contact your local Hubbell Lighting representative.



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SPAULDING LIGHTING
WHITEWAY

HLI-1101 Rev 09/16
701 Millennium Blvd. Greenville, SC 29607
Tel 864.678.1000
www.lightingsolutionscenter.com/content/resources/files/TM-30-Primer.pdf

An Introduction To TM-30 Color Rendering Metric

www.lightingsolutionscenter.com



TM-30

Color Rendering Metric

Testing Method 30

Established by the Illuminating Engineering Society of North America (IESNA), the organizations which sets lighting standard in North America.

Purpose

To provide a method for measuring light source color rendering which provides more information than the traditional Color Rendering Index (CRI) metric.

Values

TM-30 data uses two distinct values, **Fidelity (Rf)** and **Gamut (Rg)** along with two graphics (a color vector graphic and a **color distortion graphic**) that allow lighting professionals to better understand the effects of any given light source on an environment.

Documentation

TM-30 data will be included on Hubbell Lighting specification sheets with critical color quality requirements. If TM-30 data is needed on any Hubbell Lighting product and it is not currently included on the data sheet, contact your Hubbell Lighting representative for additional information.

4 Easy Steps to TM-30

1

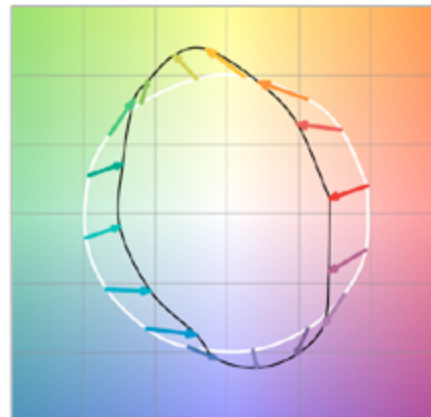
- The **Fidelity Index (Rf)** is calculated using 99 samples.
- Similar method to CRI but more accurate due to greater sample population.
- Range: 0-100 with 100 being a perfect match between sample and reference.

TM-30: 99 Color Samples



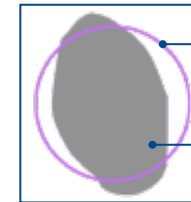
2

- 99 test points are then averaged to 16 points and plotted on a graph.
- Delta between test source and reference source is drawn with vectors creating a **Vector Graphic**.



3

- The inside area of the Vector Graphic is calculated and compared to the area of the reference source (which is a circle) and the ratio between the two is calculated. This ratio is the **Gamut Index (Rg)** and can range from about 60-140. A value less than 100 indicates an overall under-saturation, while a value over 100 indicates an overall over-saturation. Note the word **overall** (only the total areas are compared, not the shape of these areas).

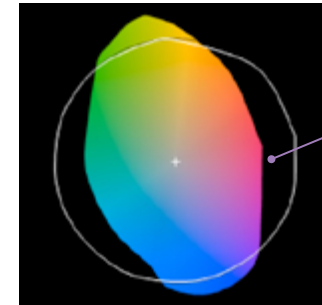


Reference source area (always round)

Test sample source area (example)

4

- The Gamut Index area is plotted over the reference source (again a circle) forming the **Color Distortion Graphic**. This tells us what parts of the gamut are over or under saturated, giving the Rg value some perspective.



Undersaturation
Test sample area is less than reference area.



Oversaturation
Test sample area is greater than reference area.