Understanding Color Rendering Index

What is CRI?

CRI is probably a familiar term, as it is one of the most ubiquitous metrics in lighting. CRI (or Color Rendering Index) has been around for a long time, first developed in the 1960s as a quantifiable measurement of a specific light emitting source or illuminant. The highest possible CRI rating is 100, which would be given to an idealized reference source of natural lighting (like the sun) or a source nearly identical to daylight (like an incandescent lamp).

The process of measuring CRI is essentially comparing the appearance of various Test Color Samples (referred to as R-Values) between the reference source and the tested illuminant source. Any illuminant with CRI nearing a perfect 100 score will be the most faithful to the reference source and is an indication of good color rendition. The total CRI score is an average result of the first 8 Test Color Samples. These samples, also known as R1-R8, are relatively low saturated colors with various hues. However, there are a total of 15 samples, with R9-R15 missing from the CRI calculation.

Conclusions from CRI

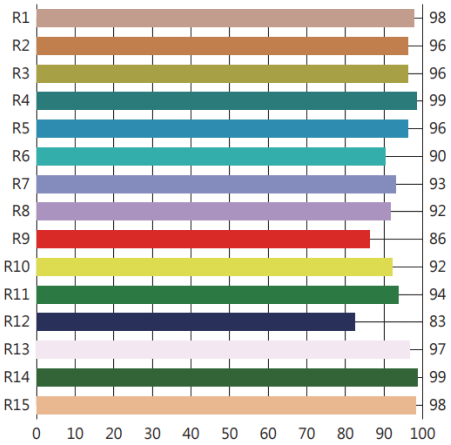
While CRI scores play a role when comparing different lighting sources, it does not necessarily tell the whole story of how great an LED is at reproducing color. The last color samples R9-R15 which are omitted from the CRI calculation are especially important for color rendering applications such as film, art lighting, medical lighting, etc. For example, R9 "saturated red", R13 "light skin color" and R15 "medium skin color" are all very prevalent in our daily lives, and crucial considerations for lighting designers. Often these results are included in supplemental "extended CRI" specifications from lighting manufacturers, but not always.

Consider a product like our Premium FloppyTape, a versatile product which can be used in a variety of lighting scenarios ranging from theatrical scenery to film sets and even museum installations. Not only does FloppyTape have a high CRI, but it can also deliver excellent color rendition for all R-Values.

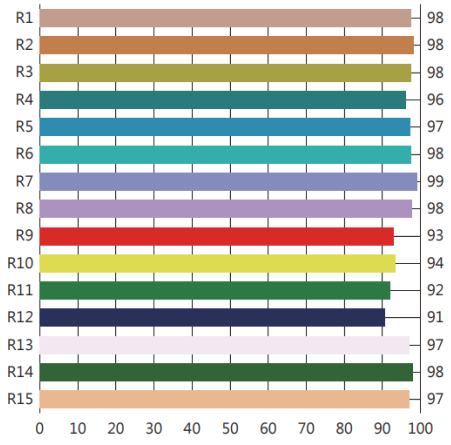
Remember that CRI is a good starting point to determine a quality light source. But CRI is a color fidelity measurement only (the faithful rendition of color) and does not take into consideration the gamut of a source (the range of saturation). Additional advanced metrics may be necessary depending on the application.

FloppyTape Premium Color Rendering Index

Tungsten



Daylight



sales@tmb.com
www.tmb.com

Los Angeles
+1 818.899.8818

London
+44 (0)20.8574.9700

New York
+1 201.896.8600

Beijing
+86 10.8492.1587

Toronto
+1 519.538.0888