

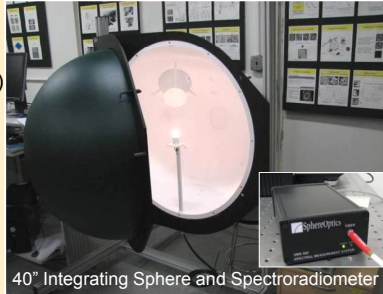


Integrating Sphere and Spectroradiometer

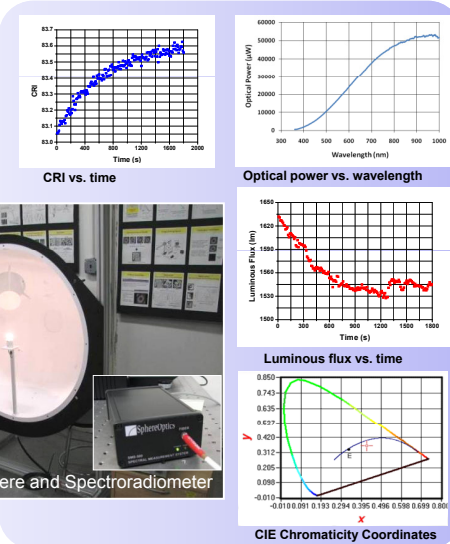
The light measurement system consists of a 40 inch diameter integrating sphere and a spectroradiometer

< Measurement parameters >

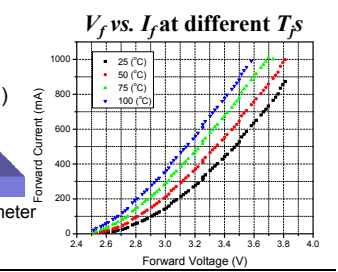
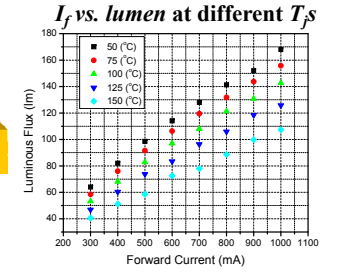
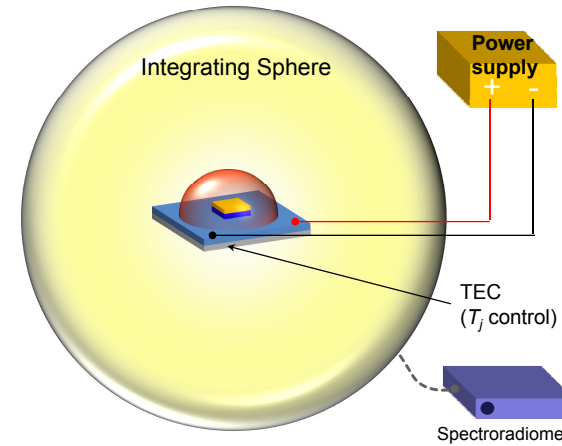
- Optical power vs. wavelength plot
- Luminous flux (lm)
- Dominant wavelength (nm)
- Peak wavelength (nm)
- CIE chromaticity coordinates
- Color correlated temperature (K)
- CRI



40" Integrating Sphere and Spectroradiometer



Light measurement system with TEC

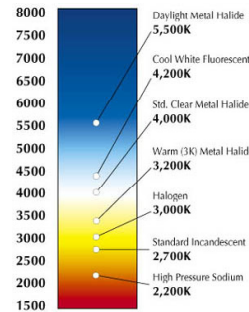


Correlated Color Temperature

Color temperature of a white light source is the temperature of a Planckian black-body radiator that has the same chromaticity location as the white light source considered. If the color of a white light source does not fall on the Planckian locus, the correlated color temperature is used. CT is a description of the warmth or coolness of a light source (1).



Comparison of color temperature(2)

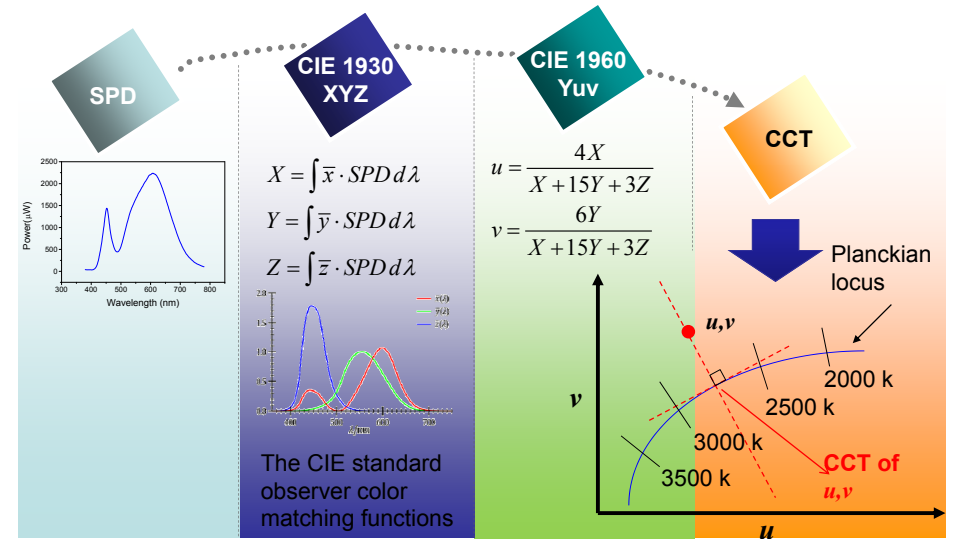


CCT chart(3)

(1) E. F. Schubert, Light-Emitting Diodes, 2nd ed. New York: Cambridge University Press.
 (2) <http://www.myledlightingguide.com/Blog/Images/color.png>
 (3) http://blog.mapawatt.com/wp-content/uploads/2010/06/color_temperature_charts.jpg



How to Determine CCT





Color Rendering Index

The **color rendering index (CRI)** is a quantitative measure of the ability of a light source to reproduce the colors of various objects faithfully in comparison with an ideal or natural light source.⁽¹⁾



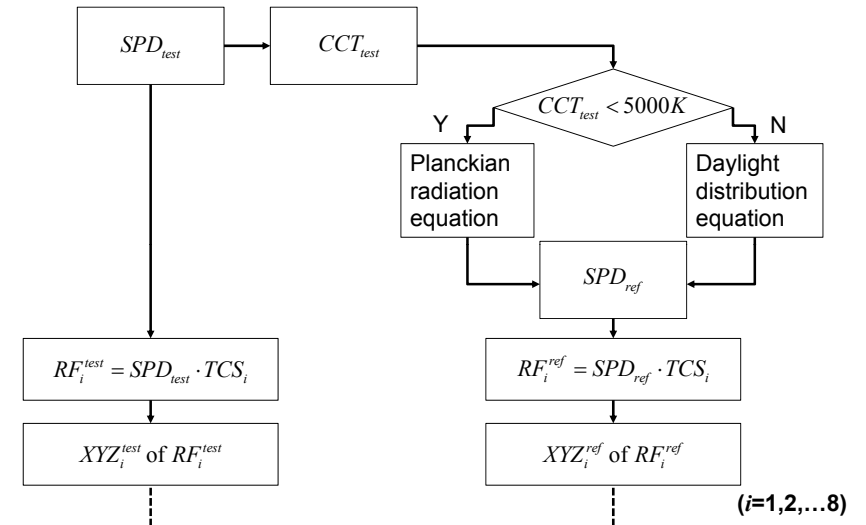
Warm White 3000k - 52 CRI SPX 30 3000k - 82 CRI SPX 65 6500k - 82 CRI

Effect of CRI⁽²⁾

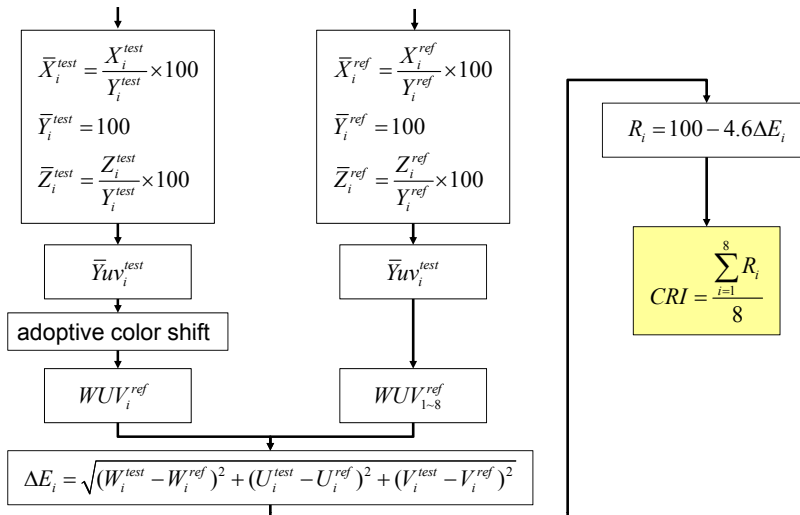
(1) E. F. Schubert and J. K. Kim, "Solid-State Light Sources Getting Smart", Science, Vol 308, 5726, P1274-1278
(2) http://www.lightcalc.com/lighting_info/glossary/files/colortempskintone.jpg



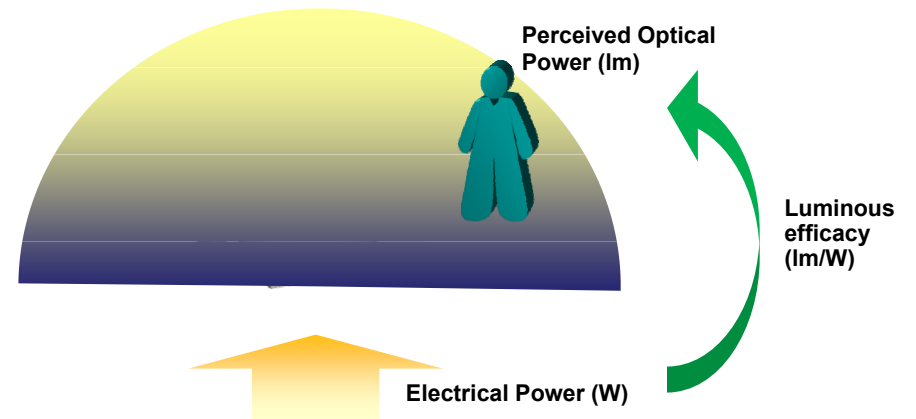
How to Determine CRI



How to Determine CRI



Luminous Efficacy



Luminous efficacy	Luminous flux / electrical unit power	lm/W
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