

10 Facts About LED Lamps and Their Use In Color Matching



1. As more retail, office, and home environments switch to LED lighting it is becoming increasingly necessary to evaluate color in LED viewing conditions. To help manufacturers meet this requirement GTI is now offering LED lamps as an optional source in its multi-source viewers.
2. LED is an attractive choice for retailers because it saves money by reducing energy consumption.
3. With the rapid pace of advancement in LED lamp technology it is difficult to ensure consistency of color temperature from lamp-to-lamp, batch-to-batch, and manufacturer-to-manufacturer.
4. There is not an official LED lighting standard for color matching.
5. All stakeholders in the supply chain need to evaluate color under a consistent light source that is compliant with published industry standards. All GTI D65 daylight lamps are compliant with the ASTM D1729-2009 standard.
6. LED lamps do not currently conform to the ASTM D1729-2009 standard.
7. LED lamps are best utilized as an optional light source to gauge how the product may appear in an environment illuminated by a comparable LED source.
8. More product supply chains are adopting LED light sources. To meet end user specifications and to simulate/replicate retail store environments LED lamps are available as an optional source in new GTI color matching booths.
9. Linear LED lamps which operate off electronic T8 fluorescent ballasts may be added to an existing GTI color matching booth. Older viewers with T12 lamps cannot be easily converted.
10. Color quality of LED lamps continues to improve. However, the red region of the spectrum does not render as well as incandescent lamps.



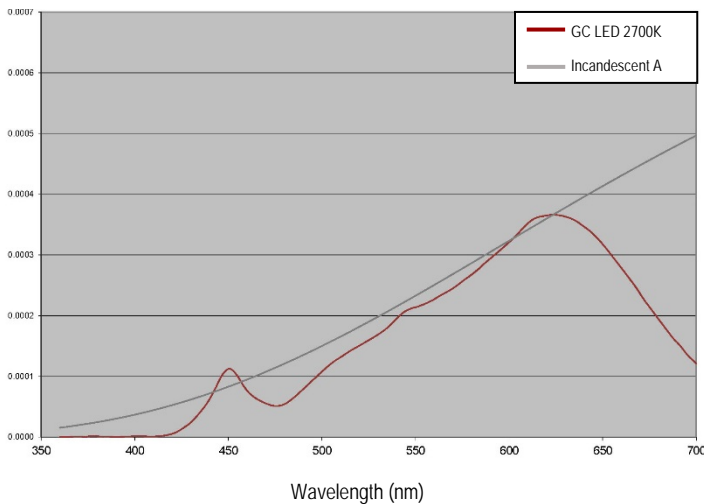
“GTI is excited about the potential of LED lighting technology and we look forward to further implementing LED technology into our product portfolio as it matures and stabilizes. Until that time we recommend that critical color judgements be made under ASTM D1729-2009 viewing conditions and that LED be used as a secondary source to further check metamerism.”
*Robert McCurdy
President, GTI*

GTI Color Matching Systems are available with LED lamp technology.

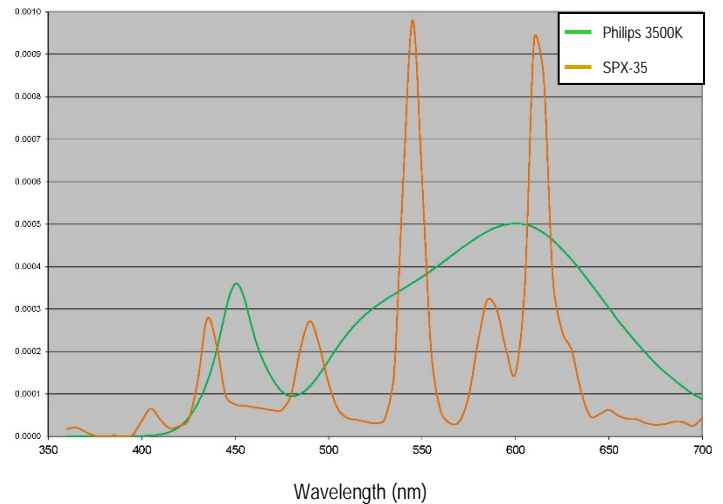
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The following graphs show the spectral characteristics of several optional LED light sources compared to their 'traditional' fluorescent predecessors.

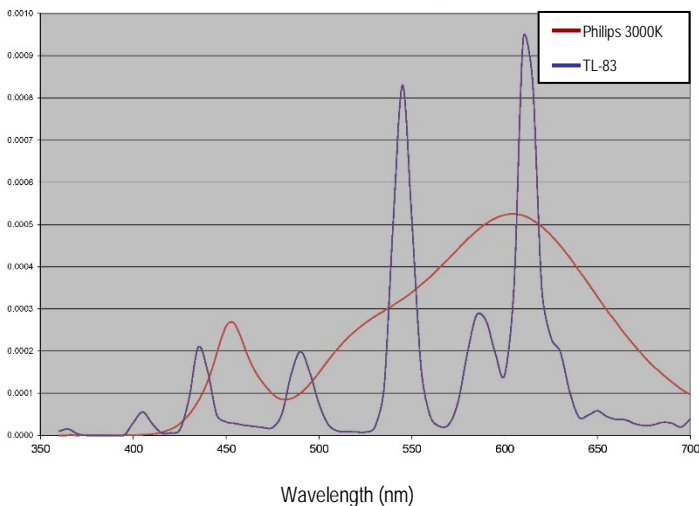
GC 2700K LED vs. Incandescent A



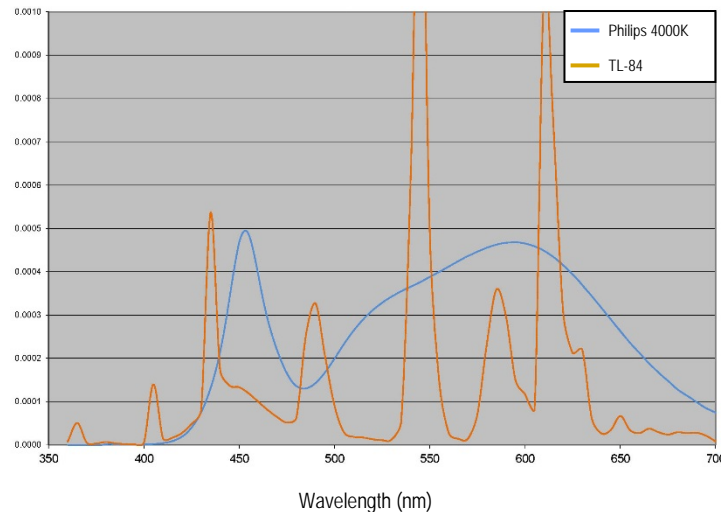
3500K LED vs. SPX-35



3000K LED vs. TL-83



4000K LED vs. TL-84



As can be seen by the spectral comparisons above, LED lamps achieve the same Correlated Color Temperature of the target "store" light but generate a significantly different spectral power distribution, thus a different color rendition.

For this reason it is imperative that when a retailer changes to an LED light source, the supply chain must implement that same LED light source in order to maintain visual agreement.