SPECTRAL EVOLUTION

Testing and Binning LEDs for Automotive Use

According to a report by LED research group Strategies Unlimited, the total market for LED lighting in automotive for 2015 will be USD $2.5 billion with a CAGR of 15% expected to 2019. LEDs are finding uses beyond inside indicator lights. While only 5% of vehicles used LED headlamps and running lights in 2015, that number is expected to increase to 70% from 2015-2019. The factors driving LED acceptance include superior design flexibility, better power efficiency and longer life, and better dimming and turn-on speed performance. While cost remains higher, LED initial costs are expected to reach parity by 2020 with traditional lighting technologies.

While a small portion of the market today, LED-based headlamps are expected to dominate by 2020.

Light Emitting Diodes – LEDs – compared to conventional lights use less power and last longer. They represent potential savings as well as more reliable operation. However, manufacturing LEDs has its challenges. Slight variations in the manufacturing process especially in lumens, color temperature and voltage make it difficult to consistently make individual LEDs exactly alike. Output even within the same batch can be affected by encapsulation, different wafer lot efficiency, and other process variables. LED manufacturers handle the inconsistencies by testing and binning LEDs according to lumens, color and voltage.

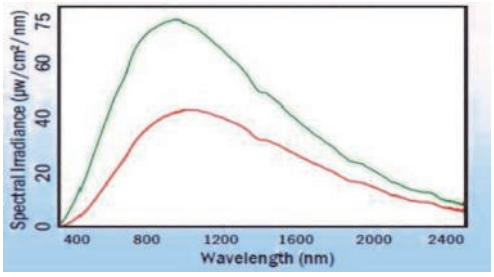
The SR-3501, SR-1901 and SR-1901PT are ideal for testing and measuring LEDs for automotive applications.

Testing LEDs is therefore a critical part of the manufacturing process. Binning depends on effectively measuring lumens, color and voltage. Spectral Evolution spectroradiometers provide reliable and cost-effective ways to test LEDs to CIE 1931 and ANSI standards. The spectroradiometers include DARWin SP Data Acquisition software with pull down menus to calculate chromaticity coordinates and correlated color temperature from the spectra collected. The following colorimetry capabilities are included in the software:

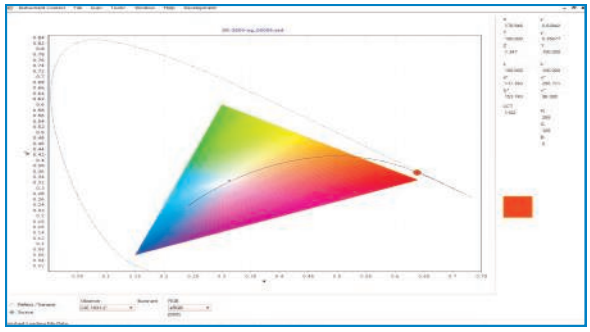
- CIE 1931 chromaticity diagram with RGB gamut
- Scan results displayed graphically with a cross-hair overlay
- Text display of X,Y, XYZ, and RGB coordinates and correlated color temperature

Spectral Evolution works with lighting vendors in the automotive industry to provide superior LED test spectroradiometers.

Measure the power levels of LEDs



Display chromaticity



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