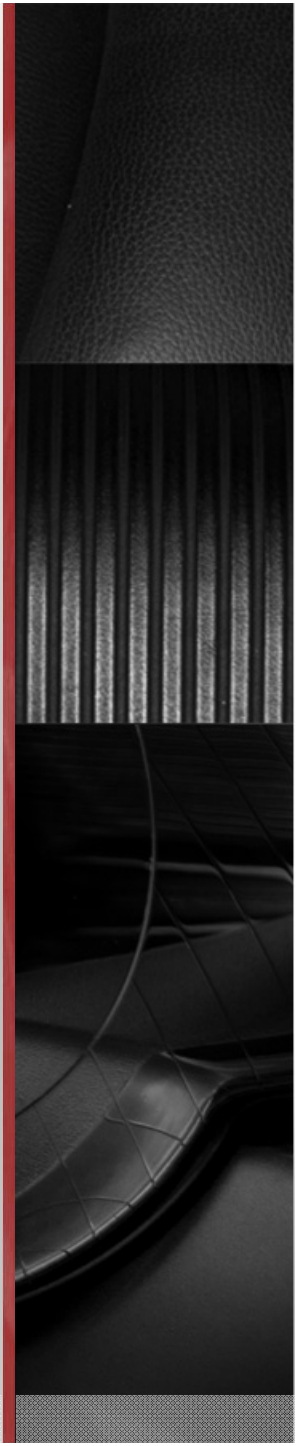
North American Region update for Solid State Lighting Standards Activity

Robert Hick

VP Engineering Leviton Lighting and Energy Solutions, USA

Representing NEMA, USA

Member of Global Lighting Association



Topics

- EPA - Energy Star draft 4 of Lamps Specification
- Design Lights Consortium - (DLC) specifications
- Underwriters Laboratories Standards update
- IES Activities
- ANSLG Activities
- California Quality LED Lamp Specification
- NEMA – Standards update

EPA ENERGY STAR® Program
Lamp Specification v1.0 Draft 4

- Applies to general and reflector LED and CFL lamps intended for incandescent replacement.
- Includes Requirements for :
  - Efficacy, depending on type, from 40-60 LPW
  - Light output (in regards to incandescent reference wattage and elevated temperature), Center beam intensity and distribution.
  - CCT, CRI, Lumen maintenance, Lifetime
  - Electrical ratings and performance
  - Dimming – Min/Max light output, flicker, noise
  - Dimensional requirements

EPA – Energy Star

- Draft 4 Changes
  - Clarified reporting requirements for products covered by ENERGY STAR and federal efficiency standards.
  - Updated definitions for flicker, lumen maintenance, omnidirectional, directional and decorative lamps, and new definitions for flicker index, percent flicker, periodic frequency and reflector.
  - Further reductions in testing burden with reduced sample size requirements for several tests and expanded opportunities to share test data among minor product variations.
  - Revised minimum light output requirements for directional (non PAR or MR) lamps to provide a more realistic benchmark for efficient products replacing popular products that have been phased out due to federal standards.
  - Revised luminous intensity distribution requirements for omnidirectional lamps to better align with variations in incandescent technology, and for decorative lamps, to account for limitations in the current technology.
  - Revised correlated color temperature passing criteria consistent with existing passing requirements due to stakeholder feedback on manufacturing variances.
  - Revised testing for lamps labeled not for use in recessed or enclosed fixtures, or the like.
  - The addition of several toxics exemptions consistent with those included in the European Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) Directive.

NEMA working with EPA in following areas

- Specifications that have a direct effect on manufacturers' business and marketing.
- Longer transition period
- Concerns over elevated temperature testing
- Requests to relax LPW for high CRI (>90) lamps
- Various other comments from NEMA members.

For more information see www.energystar.gov/lamps.

Design Lights Consortium

- The DesignLights Consortium® (DLC) is a project of Northeast Energy Efficiency Partnerships. The DLC promotes quality, performance and energy efficient commercial sector lighting solutions through collaboration among its federal, regional, state, utility, and energy efficiency program members; luminaire manufacturers; lighting designers and other industry stakeholders throughout the U.S. and Canada.
- Since 2010, the DLC has administered the Qualified Products List (QPL), a leading resource that distinguishes quality, high efficiency LED products for the commercial sector. Today, the QPL sets the bar for efficiency program incentives across the U.S. and into Canada while informing manufacturer product development.

DLC product qualification criteria

- Commercial Luminaires
  - Exterior
  - Interior
  - Retrofit kits
- Requirements
  - Zonal Distribution
  - Efficacy, CRI, CCT
  - Lifetime

For more information see: www.designlights.org

Underwriters Laboratories (UL)

- UL 8750 Standard for Light Emitting Diode (LED) Equipment for Use in Lighting Products
  - Revisions published in October 2012
- UL 8752 - Organic Light Emitting Diode (OLED) Panels
  - First OLED specification published
- UL 1598C - Proposed First Edition of the Standard for LED Retrofit Kits
  - First meeting to discuss comments in July.

IES Activities

- Recently published documents
  - LM-82: LED Light Engine Measurements
  - TM-21: Lumen Maintenance Projection for LEDs
- Documents under revision
  - LM-80: Flux and Color Maintenance Test for LED
  - LM-79: SSL Photometry Measurements
- New documents under development
  - LM-84: Lumen and Color Maintenance Test for LED Lamps, Light Engines and Luminaires
  - LM-85: High Power LED Measurements
  - TM-26: Projection of LED Rated Life
  - TM-28: Lumen Maintenance Projection for LED Lamps, Light Engines, and Luminaires
  - LM-xx: AC LED Measurements
  - LM-xx: LED Reliability Testing
  - LM-xx: Remote Phosphor Device Luminous Flux and Color Maintenance Test

ANSI (ANSLG)

Work is progressing on following Items:

- Proposed LED Package Data Sheet – standard format for reporting key performance data.
- Proposed Special Report – Lamp Code Designation System for SSL Retrofit and Replacement Lamps.
- MRX 16 Maximum outline drawing – LED lamps similar to MR16
- Proposal to review C78.377 (Chromaticity for white light solid state lighting sources).

California Quality Light-emitting Diode (LED) Lamp Specification

- Proposed voluntary standard – Effective January 2014
  - Color Appearance
  - Color Consistency
  - Color Rendering
  - Dim-ability
  - Longevity
  - Power Factor
  - Light Distribution

    Omnidirectional Lamps

    Floodlamps

    Spotlights .

NEMA

Recent Standards:

- NEMA SSL7A – Phase Cut Dimming for Solid State Lighting: Basic Compatibility

Current Work:

- NEMA SSL7B – Phase Cut Dimming for Solid State Lighting: Performance
- NEMA White paper on Remote Phosphor is nearing ballot
- NEMA Whitepaper on LED Retrofit for T8 Replacements

Other publish NEMA Standards:

- NEMA SSL 1 Electronic Drivers for LED Devices, Arrays, or Systems
- NEMA SSL 4 Retrofit Lamps: Minimum Performance Requirements
- NEMA SSL 6 Solid State Lighting for Incandescent Replacement—Dimming

Questions

End

Thank you