A Proposed New System for Communicating Color of Light Sources

Advisory Committee:
US Department of Energy (DOE)
US Environmental Protection Agency (EPA)
National Electrical Manufacturers Association (NEMA)
Consortium for Energy Efficiency (CEE)

Contractor:
Lighting Research Center (LRC)
Color temperature is not understood by consumers – slowing adoption

Better communication can help consumers choose and select light sources

In the future, ENERGY STAR will likely adopt some form of “color communication” system for CFLs

This presentation summarizes background, progress to date and identifies potential next steps...
Background

Convergence of interests

- In 2003, NEMA and others in the lighting industry began discussing “Color Communication”
- Soon after, CEE began discussing this same topic

A shared focus

- How can lighting manufacturers communicate the color-related aspects of light sources – particularly EE light sources such as CFLs?

One outcome

- A multi-stakeholder effort to assess consumer understanding and interest in lamp color and assess effectiveness of a proposed communication system, initially developed by the LRC
Dr. Mark Rea, LRC, proposed a method of communicating lamp color appearance (CCT) that could be tested with consumers.

**Technical considerations**

- Important that a robust technical consensus would underlie the colors in the circles (e.g., MacAdam ellipses, which are part of ENERGY STAR specs).
- Ideally, the new system of communication could apply to CFLs, linear fluorescent, and LEDs.
Testing the Proposal

- NEMA thought the idea had merit, and was worth testing
- A Color Communications Group (CCG) was formed to manage the details of testing
- CCG comprised of representatives from:
  - US DOE
  - US EPA
  - NEMA membership (GE, OSI, Philips, Color Kinetics)
  - CEE
  - LRC
- Methodology chosen: focus groups
Focus Groups

In August 2005, 6 focus groups were conducted in 3 cities
- Sacramento, Columbus, and Atlanta

Total of 66 participants
- All were paid
- Males and females in separate groups
- All owned their own homes and half had purchased at least one CFL

No significant differences in response attributable to gender or geography
Overarching Findings

- Lighting is a low involvement category
- Consumers don’t connect color with light
- “Warm” and “cool” actually meant something, but not much
- Participants did not see the need for a communication system until they were shown 4 colors of lamps (behind shades)
  - Suddenly participants became energized with an “a-hah” moment
  - Participants were amazed at the variations in color
Once participants saw that there were different color appearances, they wanted a communication system.

Several systems were tested:
- Most consumers liked a series of abutting rectangles.
- This evoked the “spectrum” from blue to yellow.
Preferred Nomenclature

Acceptable
- Check marks that indicate the lamp color and/or…
- Letters that indicate the lamp color (A, B, C, etc., similar to system used with batteries)

Not acceptable
- Numbers
- Words
- Icons
Other Preferred Aspects

- **Universal participation**
  - All manufacturers should use the system

- **Multiple communication channels**
  - POP displays should show consumers that there are shades of white available (likely first in CFLs)
  - TV & print ads should coordinate with the POP
  - No bill stuffers through utilities and no educational brochures – too much information

- **Guidance on proper application**
  - Manufacturers should tell consumers where to use each color – too much uncertainty at first
Interim Recommendations

Three-part color communication system
- Package
- Lamp
- Point-of-Purchase display

Consumer education on where to use various lamp colors
Color Communication System

Interim recommendation for package


Color Communication System

Interim recommendation for lamp
Color Communication System

Interim recommendation for POP display

Choose your light bulb's color by the letter:

A B C D E F

Application tip or marketing message (manufacturer-supplied)

Battery-operated LED color display
Next Steps

- Obtain input from lamp manufacturers’ marketing departments
- Present concept to major retailers
- Finalize details of the system
  - Lettering scheme
  - Colors to print within rectangles
  - POP display design
- Beta test concept in selected retailers and assess results
Questions?

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