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)

Introduction

- **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

Proposed Communication System

- **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
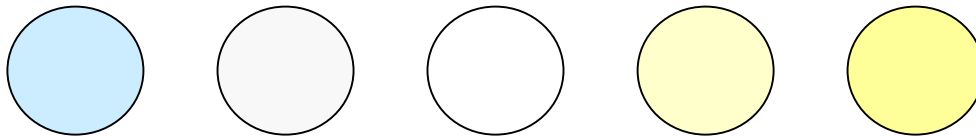
Testing the Proposal

- **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**

5

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

Preferred Format

- **Once participants saw that there were different color appearances, they <u>wanted</u> a communication system**

- **Several systems were tested**
  - Most consumers liked a series of abutting rectangles
  - This evoked the "spectrum" from blue to yellow
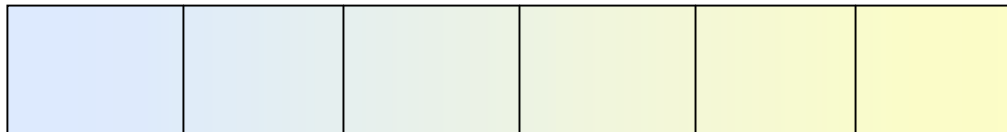
Preferred Nomenclature

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

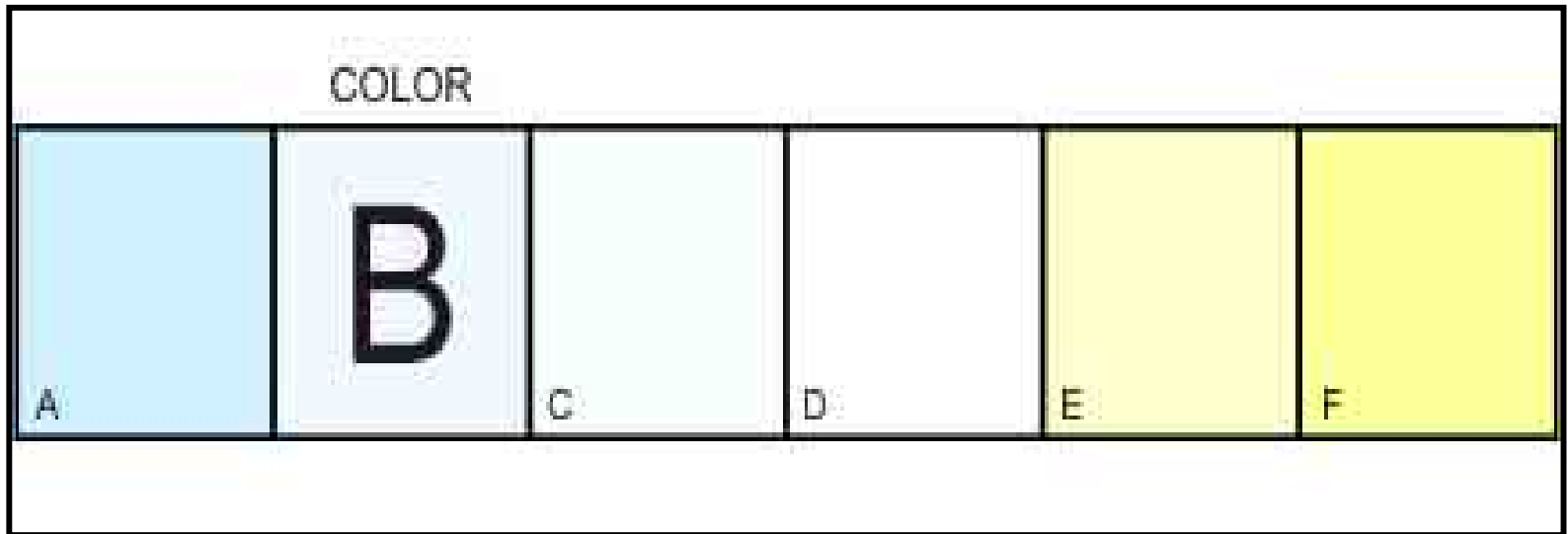# Interim Recommendations

- **Three-part color communication system**
  - Package
  - Lamp
  - Point-of-Purchase display
- **Consumer education on where to use various lamp colors**

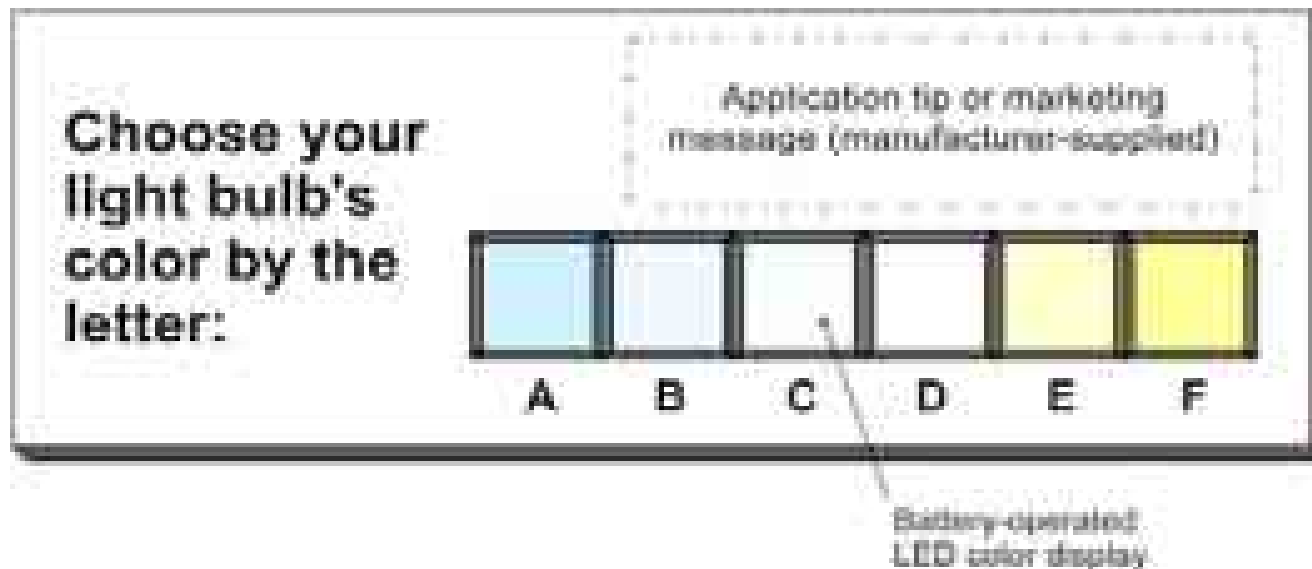# Color Communication System

- **Interim recommendation for package**

COLOR

A	B	C	D	E	F

Color Communication System

Interim recommendation for lamp

COLOR

B

Color Communication System

Interim recommendation for POP display

Choose your light bulb's color by the letter:

Application tip or marketing message (manufacturer-supplied)

A   B   C   D   E   F

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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