

# Lamp/Ballast Combination Testing for Dimming Impact

## Objective

LRC researchers are working with the National Electrical Manufacturers Association (NEMA) to gain a sufficient understanding of the relationship between cathode voltage and discharge current to write a dimming lamp and/or ballast standard.



## Experiments

The LRC is examining products from multiple ballast manufacturers and multiple lamp manufacturers. Products include 32 W T8 lamps with different cathode designs. Only cathode voltage and discharge current, the major factors that impact lamp life, are being considered. The products are being tested under continuous operation (no cycling on and off).

Researchers are conducting a rigorous analysis of data to get useful, reliable, and statistically significant results.

## Schedule

Life testing began in June 2005 and will continue to at least 2007.

## Sponsors

Advance Transformer Co.  
GE Lighting  
OSRAM SYLVANIA  
Philips Lighting  
Universal Lighting Technologies  
U.S. Department of Energy

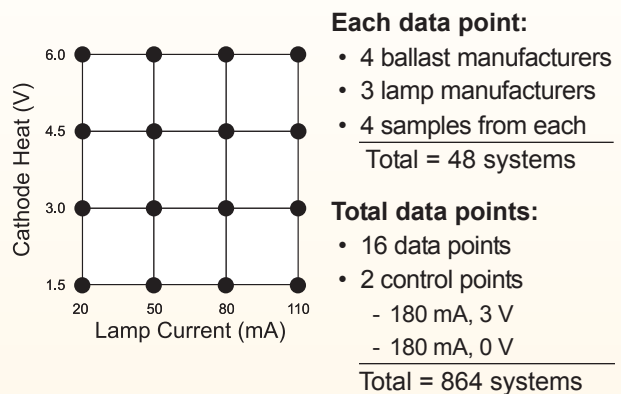


## Test method

- Range of lamp current:  $20 \text{ mA} \leq I_L \leq 110 \text{ mA}$
- Range of cathode heat:  $1.5 \text{ V} \leq V_H \leq 6.0 \text{ V}$

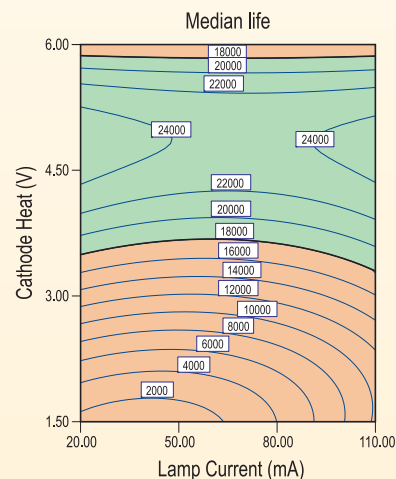
This range was chosen due to previous publications and engineering experience and is expected to include space with both long and short lamp life.

## Experiment design



## Simulated results

- Expect lines of constant life within the design space
- Need to determine what life is good in order for a standard to be written



Lighting  
Research Center