



U.S. Department of Energy
Energy Efficiency and Renewable Energy

DOE SSL Commercial Product Testing Program (CPTP) Workshop

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for
US Department of Energy
Office of Energy Efficiency and Renewable Energy
Buildings Technologies Program



DOE SSL Commercial Product Testing Program Workshop Agenda

- 9:00 — Introductions/Workshop Objective**
- 9:15 — Welcome Address**
- 9:45 — Commercial Product Testing Program
Description**
- 10:30 — Break**
- 10:45 — Discussion of Specific Points/Issues and
Participant Feedback**
- 11:15 — Discussion of CPTP Partners**
- 11:45 — Wrap-up Group Session**



Outline

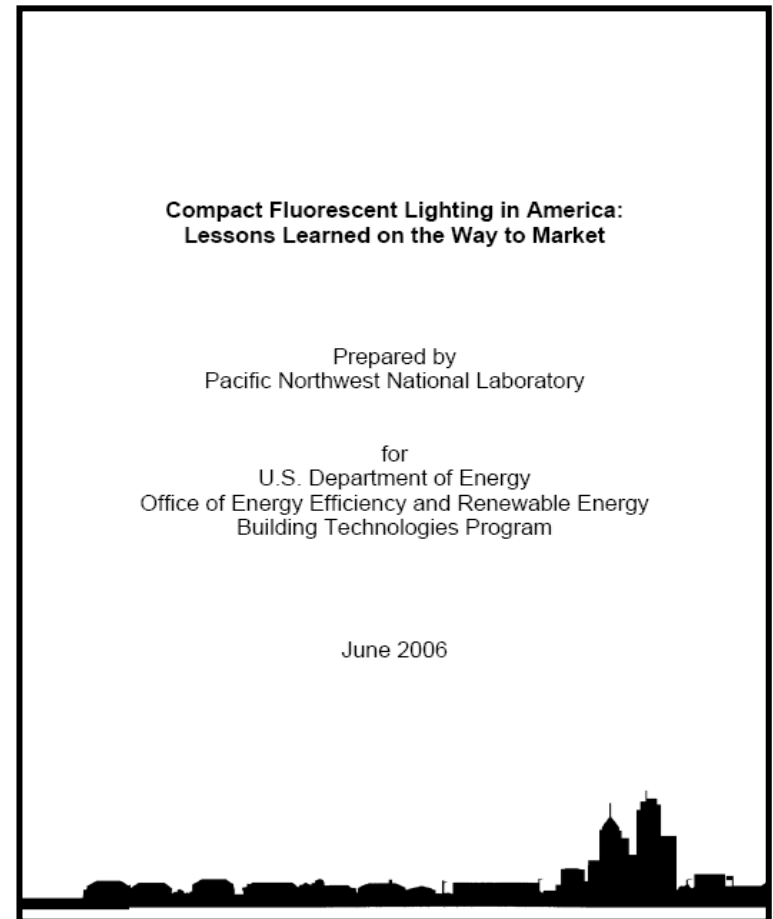
- Key Actors in the CPTP
- Testing Program Scope & Process Overview
- Product Selection Process & Guidelines
- Product Testing
- Test Results and Reports
- Q & A on CPTP Description
- CPTP Partners Concept & Discussion



CFL Lessons Learned

Some key lessons:

- Be aggressive about dealing with technology failures that affect main benefit claims.
- Performance is more important than appearance.
- Know and admit technology limitations.
- Manufacturers and energy-efficiency groups should coordinate to establish minimum performance requirements.



Download available:

<http://www.netl.doe.gov/ssl/publications.html>



The Need for Product Testing

- SSL market at risk due to buyer dissatisfaction from products that do not perform as claimed
- Current lack of standards, codes, measures, expert knowledge and market familiarity

**YOU MAY NEVER CHANGE
ANOTHER LIGHT BULB**

- ✓ *Long life*
- ✓ *Energy efficient*
- ✓ *Easy to install (standard socket)*
- ✓ *Natural white, superb color rendering*

**True_{2700K}
Color**

**The Last Light Bulb You
Will Ever Change at Home**



Objectives and Need

- Provide objective, high quality performance information
- Know performance of market available products
 - To support R & D planning
 - To support ENERGY STAR
- Inform industry test procedures and standards development
- Discourage low quality products



Key Actors in the CPTP

- US DOE (EERE, Building Technologies, Jim Brodrick)
- Independent testing laboratories
 - Upcoming solicitation
- Pacific Northwest National Laboratory
 - Technical assistance and coordination
- Standards organizations
 - Developing SSL testing procedures
- CPTP Partners



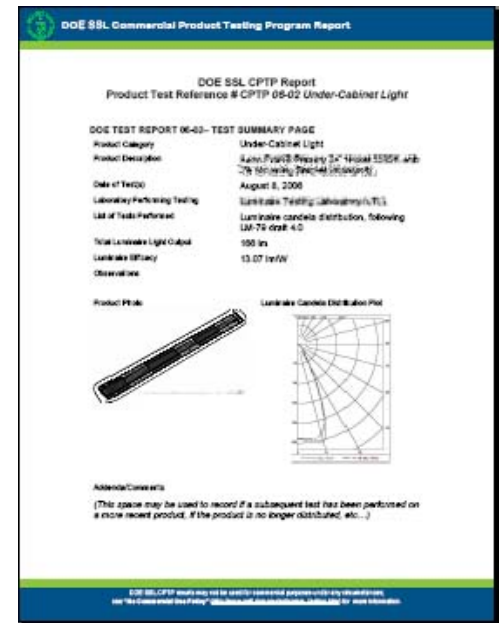
Testing Program Scope

- Selection and testing of commercially-available SSL products for the general illumination market
 - Focus on luminaires (fixtures)
 - Focus on white light
 - Includes both residential and commercial markets
 - Includes both indoor and outdoor luminaires



Testing Program Process Overview

- Product selection & acquisition
 - Approximately 4 products per quarter
- Testing by independent testing laboratories
- Assembly and analysis of results
 - Courtesy sharing of results with manufacturers
- Publication of results
 - Summary reports
 - Detailed test reports



Note: Based on pilot phase, near completion



Product Selection Process

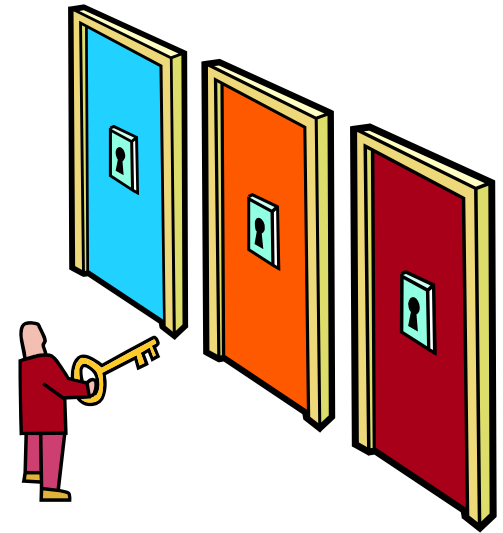
- Product and market tracking
 - Active monitoring and identification of SSL products on the market
 - Tracking product characteristics
 - Active monitoring of market directions and issues
- Prioritization of testing needs
 - Key product characteristics
 - Recommendations of CPTP Partners
 - History of characteristics already tested
- Product selection & acquisition
 - At bat, on deck, in the dugout
 - Market available products, purchased whenever possible from normal production runs





Product Selection Guidelines

- Spread (diversity of products)
 - Product categories
 - Luminaire manufacturers
 - LED/LED module manufacturers
 - Source technologies
- Reported performance
 - Efficacy, light quality, thermal, optics, controls
- Salience
 - Potential for SSL applicability
 - Market presence and/or penetration
 - Potential for impact on SSL credibility
 - Product visibility
 - Value to DOE SSL R&D management and planning
 - Validating (repeatability, benchmarking, range of test variables...)
 - Insightfulness for research/testing guidance
- Random element





Product Testing

- Independent lighting testing laboratories
 - Competitively selected
 - Required equipment, reputation, credibility, records of calibration
- DOE provides instructions for
 - Tests to perform and testing procedures to employ
 - Results requested
 - Specific guidance
- Protection of confidentiality and non-bias
- Employing standardized test procedures whenever possible
 - IESNA LM-79 (latest draft)
 - IESNA LM-80 (when available)

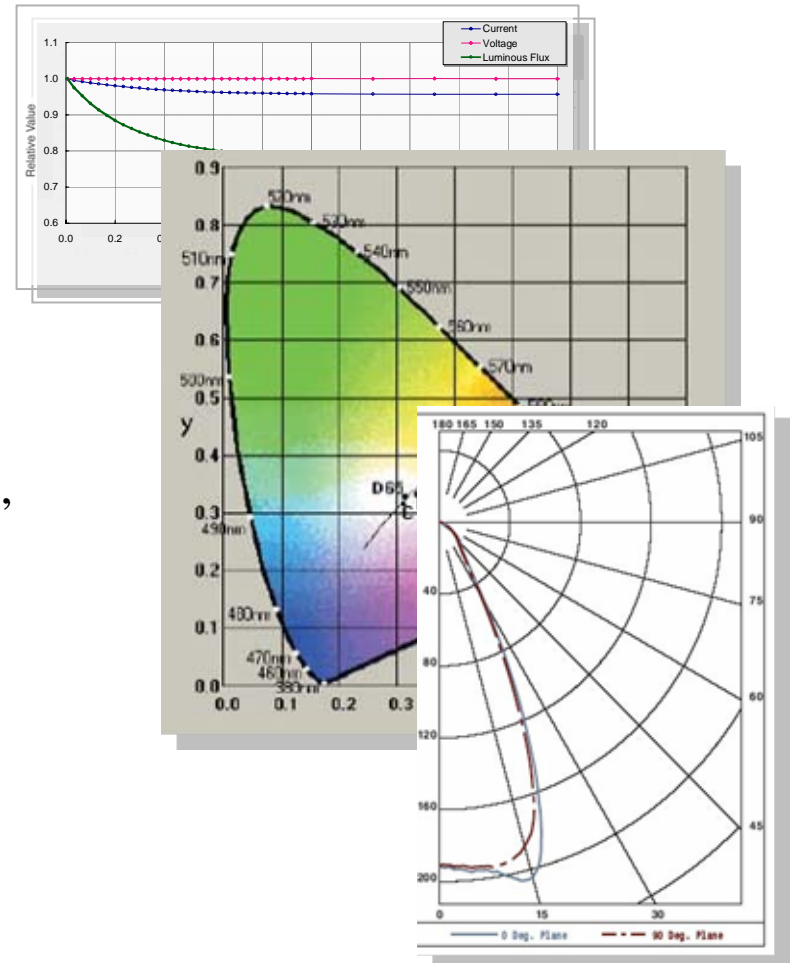


Source: www.labsphere.com



Tests May Include

- Electrical quantities
- Light output and efficacy
 - Total luminous flux
 - Luminous efficacy
- Beam and intensity
 - Angular intensity distributions
- Color metrics & radiant flux
 - Chromaticity coordinates, CCT, CRI, Spatial uniformity of color
 - Spectral power distribution
- Time based testing
 - Stability
 - Life testing/lumen maintenance
- In situ characteristics
 - Thermal measurements
 - Varying conditions





Testing Variations & Sequences

- Repeatability (across same models, across instrumentation options, across testing facilities...)
- Benchmarking (e.g., same model other light sources)
- Range of test variables (testing apparatus, size of apparatus, configuration, environment...)



Test Results

- Individual test result reports—uniform format
 - Test results
 - Known (manufacturer published) product information
 - Feedback about testing processes, configurations...
- Prior to publication of results
 - Courtesy letter to manufacturers
 - Internal review and insight
- Compilation (database) of all test results
- Periodic summaries of results and observations (de-identified)



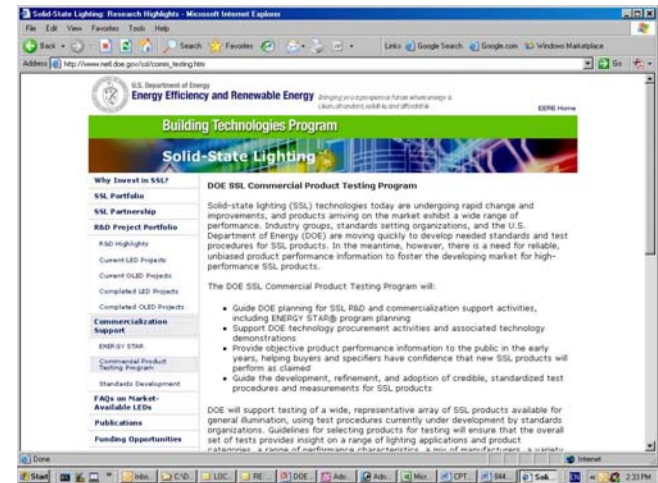
Publication of CPTP Reports

- Via website:

www.netl.doe.gov/ssl/comm_testing.htm

- Summary reports (de-identified)
- Detailed reports

- Must be requested via web form
- Requestor's contact information must be provided
- Must agree to adhere to 'No Commercial Use Policy'





No Commercial Use Policy

The U.S. Department of Energy (DOE) is a federal agency working in the public interest. Published information from the DOE SSL Commercial Product Testing Program, including test reports, technical information, and summaries, is intended solely for the benefit of the public, in order to help buyers, specifiers of new SSL products, testing laboratories, energy experts, energy program managers, regulators, and others make informed choices and decisions about SSL products and related technologies. **Such information may not be used in advertising, to promote a company's product or service, or to characterize a competitor's product or service.** This policy precludes any commercial use of any DOE SSL Commercial Product Testing Program published information in any form without DOE's express written permission.



Appeals and Challenges

- Allowed, if prepaid by challenger
- Results of test shared simultaneously with both DOE and challenger
- New test results made available to public



Questions/Concern/Discussion

- CPTP context
- Overall format
- Actors
- Product selection
- Testing process
- Handling and releasing of results



CPTP Partners





Concept of CPTP Partners

- For DOE, obtain help and broad stakeholder participation
 - Help identify and select new products to consider for CPTP
 - Help identify market issues
 - Provide review and comment
 - Assist with dissemination of results, program promotion, program improvements
- For partners, have active role in contributing to the SSL CPTP
 - Early access to preliminary results
 - Voice in structuring testing program, orienting choices, directions
 - Forum/information exchange
- Informal structure in near-term



CPTP Partners Ideas

- Who
 - DOE, state agencies, utilities, market transformation organizations, efficiency program administrators
- What
 - Advice on products selected, market issues, tests performed, procedures, information dissemination, objectives
 - Periodic outreach and exchange with other stakeholders (NGLIA, standards organizations, manufacturers, retailers,...)



Discussion

- Concept of stakeholder participation through program partners
 - Questions, ideas, concerns
- Buy-in and tentative engagement



Next steps and timeline for CPTP

- Pilot round of product testing completed
 - Online soon: Interim Summary of Results, Detailed Reports from pilot round
- Q4 2006 testing cycle commencing
- Solicitation
- CPTP Partners



Wrap-up group session

- Summarize what was learned from the discussion
- Key Issues



Thank You

To be posted shortly:

Presentation pdf

Detailed Test Reports – Pilot Phase

http://www.netl.doe.gov/ssl/comm_testing.htm