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International Energy Agency Energy Efficient End-use Equipment Solid State Lighting (IEA 4E SSL) Update

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- Test Standards and Laboratory Testing 4 Tasks
- Market Support and Performance 3 Tasks
- Monitoring, Verification and Enforcement 3 Tasks
- Communications and Outreach 1 Task

However several tasks serve multiple groups









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Task 1: CIE Test Method Application Study

Study technical coverage of CIE DIS 025



- Communicate with Regulatory Agencies
 - Encouragement to using standard in regulations
 - Inform regulatory agencies and accreditation bodies that are involved or interested in SSL.

Feedback to CIE

 Prepare recommendation to CIE on any additional items needed to support SSL regulations.









Task 2: Characterisation of Product lifetime

Definition of lifetime

- Identify list of lifetime / failure related parameters (performance phenomenon)
- Identify the functionality under specific application

Method for the lifetime testing and evaluation

- Analysis of different methodologies for testing and evaluation
 - Testing
 - Projection
 - Prediction









Task 3: Guidance on Lifetime Testing

Review the test methods.

- Existing standards for luminous flux and colour maintenance of modules
- Investigate applicability for lifetime testing of lamps and luminaires
- Investigate development of methods for projection of colour maintenance
- Investigate feasibility of accelerated lifetime testing
- Develop improvements to standards
- Perform validation of standards
 - Prepare protocols and available SSL (arrays, packages, modules);









Task 4: Interlaboratory Comparison - Goniophotometer

Focus on parameters not covered in IC 2013

- Total luminous flux (by gonio)
- Luminous intensity distribution (specified angles)
- Centre beam intensity
- Beam angle
- Partial flux (useful flux)
- Colour uniformity
- Provide comparison data for street/road lighting luminaires
- Provide resulting test data for near-field goniophotometers (for use in accreditation)











Task 5: Market Lessons Learned

- Review the lessons learned by SSL Annex member governments through the introduction of SSL products
 - How the markets developed and evolved
 - Extracting lessons learned and pitfalls to avoid (i.e., not repeating the mistakes surrounding the introduction of new technologies)
- Prepare report designed to support policy makers in make planning choices as they work to promote quality SSL products in their respective markets



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Task 5: Market Lessons Learned

Key questions to address

- How did the SSL markets evolve in the member countries?
- What were the main barriers to quality LED products in these markets?
- What policy tools did governments put in place to try and encourage good practice?
- How effective were they?
- What would be done differently now?
- In an ideal world, what policy measures would be put in place and why?









Task 6: Quality and Performance Tiers

Identify technology progress

- Monitor technical literature
- Compile national test data

Target new product classes

- Most common product classes
- Special product classes of interest

Health & Life Cycle Assessment (LCA) updates

- Monitor literature on new studies
- Possibly focus on risks from:
 - Flicker
 - Violet LED technology
 - White light generated from laser technology

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Task 7: New Features that Impact on Energy Consumption

Possible Features

- User desires
 - Colour tunability
 - Wireless control (on/off, dimming, colour)

Product functions

- Prolonging life by active thermal control
- Maintain flux by driver current regulation

Focus on

- Metrics and test methods
- Claimed vs tested results













Task 8: Benchmarking Performance of SSL Products

- Establish an *internal* benchmarking performance database of SSL Products
 - For use by SSL Annex member country governments ONLY
 - Including both catalogue and test data results
- Develop tools for running queries, generating graphics and exporting values for member country use

Focus on:

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- Performance parameters of concern to policy makers
- Monitoring rate of technology performance evolution











Task 9: : Lighting Facts International

- Identify & report on key issues and concerns for implementation as an international database
- Develop and implement a pilot project
- Refine features and make improvements based on pilot project
- Develop a detailed proposition to participating countries on how they could participate
 Light Output/Luness Messare light output/Luness Index for the lighting facts.
 - include information on operation, management, costs and benefits



Task 10: Best Practice in International MV&E Programs

- Gather information and experience of MV&E programs globally
- Conduct analysis, based on the principles of cost effectiveness and program efficiency
- Develop recommendations of best practice for MV&E programmes which would serve as guidance for policy makers









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Task 11: Communications & Outreach

- Establish a formal Communications and Outreach Function for key stakeholders:
 - Members of the SSL Annex
 - Policy-makers and regulators
 - Standardisation bodies and lighting organisations
 - Lighting industry and other stakeholders
- General outreach through conferences and website
- Target key stakeholders with relevant material policy analysis, standardisation
- Magazines, trade press, technical journals









Further Information

http://ssl.iea-4e.org/

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