



COMMISSION INTERNATIONALE DE L'ECLAIRAGE  
INTERNATIONAL COMMISSION ON ILLUMINATION  
INTERNATIONALE BELEUCHTUNGSKOMMISSION

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CIE -

## International Commission on Illumination

The role of CIE and the U.S. National  
Committee in establishing standards for  
measurement and characterization of Solid  
State Lighting equipment and products



- The CIE—an International Standards Body
- Objectives of the CIE
- Structure of the CIE
  - National Committees
  - Divisions
- CIE Standards
- On-going work on SSL
- CIE/USA



# International Standards Body

- Recognized by International Bureau of Weights and Measures (BIPM) as the organization responsible for establishment of the candela.
- Accepted by ISO and IEC as an International Standards Body
- Agreement on technical co-operation with CEN
- CIE Standards and Recommendations are bases for many IES and ASTM specifications



## ISO Council Resolution 10/89

“Council, deeming that the Internationale Commission on Illumination (CIE) fulfills the prerequisites laid down in 1.1 and 1.2 of Council resolution 19.1984, accepts the International standardizing body for the purpose of Council resolution 19/1984 with a view to CIE documents being processed as ISO International Standards following the procedure set out in Council resolution 19/1984”

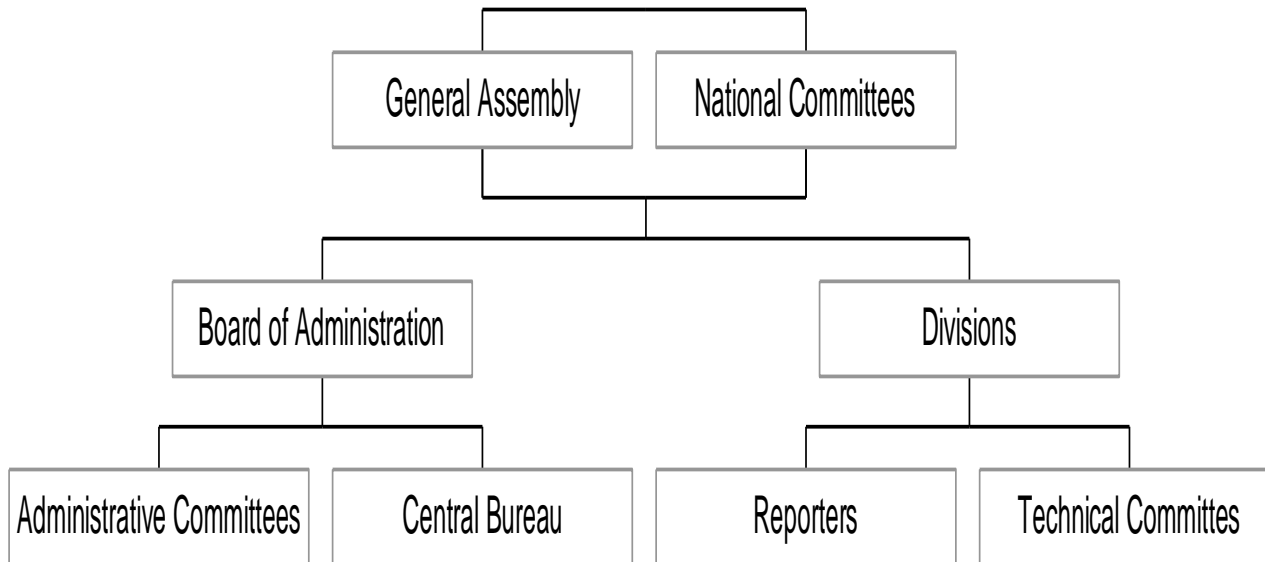


# CIE Objectives

- Provide an international forum for the discussion of all matters relating to the science, technology and art in the field of light and lighting.
- Develop basic standards for measurement and application design.
- Publish standards and reports and maintain liaison and technical interaction with other international standards organizations.



# CIE Structure





# National Committees

- The Presidents of the National Committees compose the membership of the General Assembly of the CIE
- National Committees provide member representatives to each CIE Division
- National Committees are the source of the people that work on Technical Committees and serve as Reporters
- The National Committees are the member states electors for CIE Standards



# CIE Divisions

- Div.1: Vision and colour
- Div.2: Physical measurement of light and radiation
- Div.3: Interior environment and lighting design
- Div.4: Lighting and signalling for transport
- Div.5: Exterior and other lighting applications
- Div.6: Photobiology and photochemistry
- Div.8: Image Technology





# Joint ISO/CIE Standards

- ISO 10526/CIE S 005: CIE Standard illuminants for colorimetry (1999)
- ISO/CIE 10527: Colorimetric observers (1991)
- ISO 16508/CIE S 006.1: Road traffic lights – photometric properties of 200 mm roundel signals (1999)
- ISO 17166/CIE S 007: Erythema reference action spectrum and standard erythema dose (1999)
- ISO 8995/CIE S 008: Lighting of indoor work spaces (2001)



# Joint ISO/CIE Standards

- ISO 23539/CIE S 010: The CIE system of physical photometry (2004)
- ISO 15469/CIE S 011: Spatial distribution of daylight - CIE standard general sky (2003)
- ISO 23603/CIE S 012: Standard method of assessing the spectral quality of daylight simulators for visual appraisal and measurement of colour (2005)



# CIE Standards

- CIE S 004: Colours of light signals (2001)
- CIE S 009: Photobiological safety of lamps and lamp systems (2002)
- CIE S 013: International standard global solar UV index (2003)
- CIE S 014-1: Colorimetry – Part 1: CIE standard colorimetric observers (2006)
- CIE S 014-2: Colorimetry – Part 2: CIE standard illuminants (2006)



## CIE Standards

- CIE S 015: Lighting of outdoor work places (2005)
- CIE S 016: Lighting of outdoor work places – lighting requirements for safety and security (2005)
- CIE 17.4-1986: International Lighting Vocabulary
- CIE S 019: Photocarcinogenesis action spectrum (non-melanoma skin cancers) (2006)
- CIE S 020: Emergency lighting (2007)



## CIE Guides

- CIE 127:2007: Measurement of LEDs (2<sup>nd</sup> ed.)
- CIE 177:2007: Colour rendering of white LED light sources



# CIE Draft Standards

- CIE Draft Standard DS 014-4.2: Colorimetry - Part 4: CIE 1976 L\*a\*b\* Colour Space
- CIE Draft Standard DS 018.2: Standard File Format for Luminaire Photometric Data



## On-going work in CIE on SSL

- TC1-62: Color rendering of white LED light sources;
- TC2-46: CIE/ISO standards on LED intensity measurements;
- TC2-49: Photometry of flashing lights;
- TC2-50: Measurement of the optical properties of LED clusters and arrays;
- TC2-58: Measurement of LED radiance and luminance; and
- TC6-55: Light Emitting Diodes.



U.S. National Committee

CIE/USA

<http://www.cie-usnc.org/>





## Role of USNC in CIE

- U.S. member of the CIE – *Provides the means by which U.S. interests are officially transmitted to and represented within the CIE*
- Principle source of U.S. membership on Technical Committees
- Casts U.S. vote on CIE standards



# The Organization of the USNC

- Membership composed of Constituent Societies, Contributing Organizations and Individual Members
- Organizational work completed by Executive Committee (5 officers and 6 directors)
- Technical Council – composed of U.S. Member and Alternate for each CIE Division – provides input to CIE/USA on the work of Technical Committees
- Meets annually – October 2007 in Ottawa (joint meeting with Canadian NC)



## USNC & DOE SSL Program

- DOE SSL program provided \$25,000 annual grant, renewable for 5 years, to CIE/USA to assist in developing the right standards and procedures for SSL product development



# USNC Procedures

## USNCP 1.20

- Provides a documented process for CIE/USA to review and recommend individuals who will represent the CIE/USA on CIE Technical Committees, ISO Technical Committees and U.S. Technical Advisory Groups involved in the writing of standards relating to the work of the CIE.



# USNC Procedures

## USNCP 1.30

- Provides a documented process for receipt, distribution, solicitation of comments, and recording of CIE/USA official vote on CIE Draft Standards



# U.S. National Committee

## Recap

- Provides the people that work on the CIE Technical Committees drafting new international recommendations and standards relating to illuminating engineering, radiometry photometry and colorimetry.
- Provides the means by which the interests of U.S. industry and government are transmitted to and represented within the CIE



# U.S. National Committee

- **Benefits of Membership:**
  - Receive information on problems being addressed by Technical Committees
  - Better situated to participate in a Technical Committee
  - Active voice in decisions by CIE
    - Work items under Technical Committees
    - How standards are written
  - Notices of Expert Symposiums on a variety of topics
  - 50% savings on standards and publications



# U.S. National Committee

- **Membership dues:**
  - Constituent Societies (15)
    - Annual Dues are \$900
    - 3 representatives
  - Contributing Organizations (35)
    - Annual Dues are \$450
    - 1 representative
  - Individual Members
    - Annual Dues are \$75