



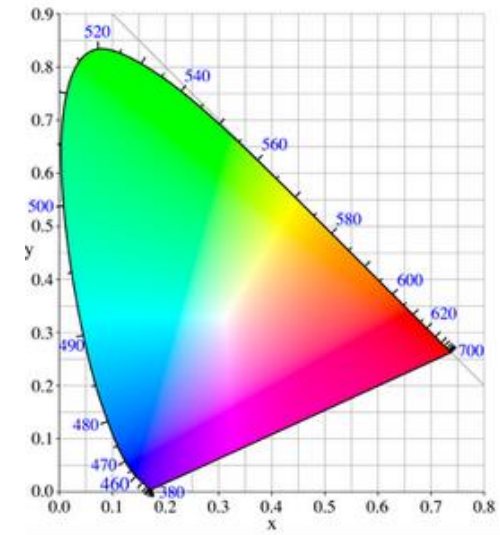
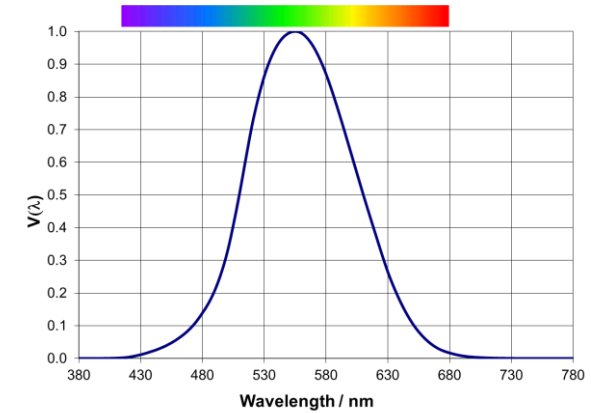
Anthropogenic Light at Night: CIE's Scientific Support as a Basis for Regulations

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What is the CIE?

The International Commission on Illumination (CIE) is a **global non-profit** organization dedicated to advancing the **science, technology, and art of light and lighting**, encompassing the full range of related topics including **scientific fundamentals** such as **vision, colour**, the **metrology** of optical radiation, **photobiology**, and **photochemistry**, as well as lighting applications indoors, outdoors, and in image technology. The CIE provides a forum for diverse **open expert discussion** and information exchange within, between, and beyond these fields.





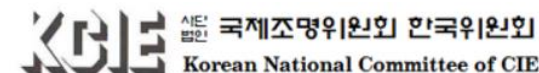
National Committees are the heart



International Commission on Illumination
Commission Internationale de l'Éclairage
Internationale Beleuchtungskommission



Canadian National Committee Comité national canadien



LYSKULTUR



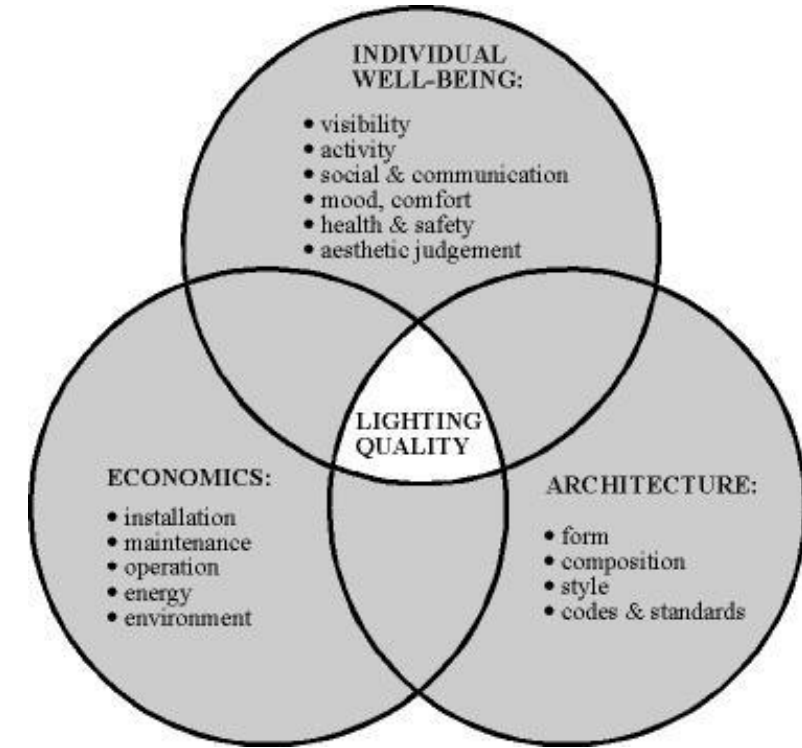
A sample from our:
38 National Committees (NCs)
2 Associate NCs
17 Associate Members

Our aim: lighting quality

lighting quality

degree of excellence to which the totality of lighting characteristics fulfils user needs and expectations or other applicable requirements

Note 1 to entry: The degree of excellence is not a quantitative measure but depends on the application area and covers individual end-user well-being, safety and public security, architecture and lit environment.



The proper light, in the proper time, at the proper place



Anthropogenic Light at Night?

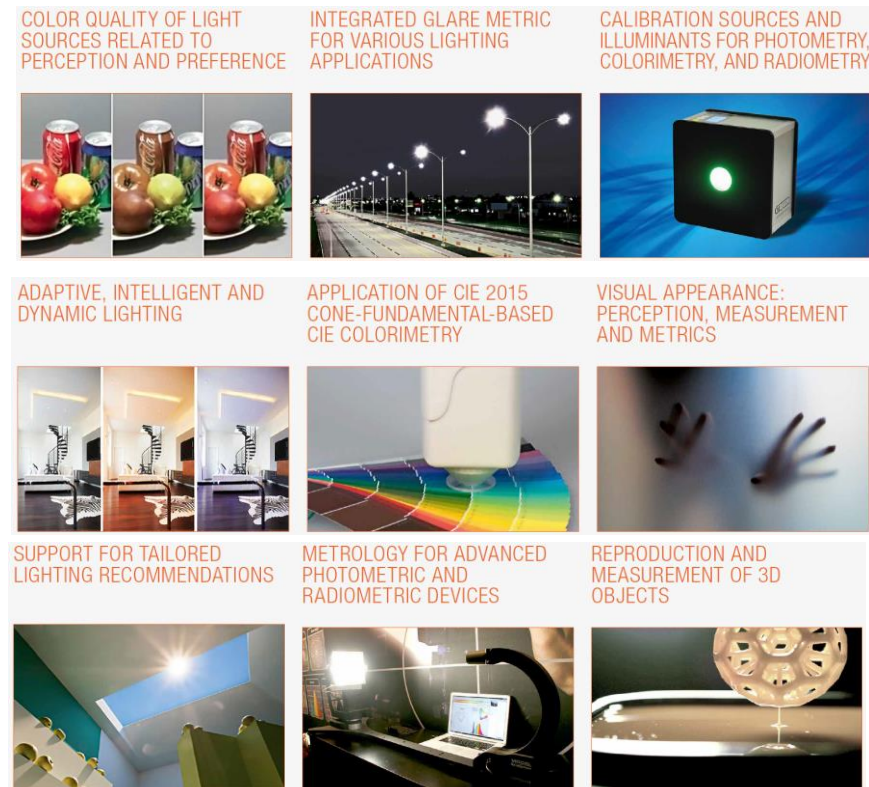
- The phrase 'artificial light' has been deprecated for over 30 years; regardless of its source, the optical radiation is real.
- What is of concern is the light that originates from human activity: light on roads, light from buildings, light from displays, even light from fires – hence,

***Anthropogenic: of, relating to, or resulting from
the influence of human beings on nature***

- Some of this light serves human needs: safety while driving, security while walking, evening activities at home and work – but doing so in a high-quality way requires balance with the needs of others, including other species

Our activities

- Support science, promote discussion and information exchange:
 - [Conferences, workshops, symposia, tutorials](#)
 - [Research fora](#) – discussion groups for researchers on a focused topic
 - [Research strategy](#) – knowledge gaps
- Develop and promote consensus within our scope:
 - [Position statements](#) – short official statements on topics with public importance
 - [Technical publications](#) – international expert consensus documents on specific topics
 - [International Standards](#) – international expert consensus on rules, guidelines, & characteristics on a specific topic



How we work



- Our 6 [Divisions](#) each establish work plans in which technical committees (TCs) form to address a specific question; some may be inter-divisional, and others may be joint with another organization.
- TC proposals are reviewed and approved by the national members in the sponsoring Division(s) and by the CIE Board of Administration.
- TCs must have at least 5 expert members from 5 countries to initiate work.
 - TC Chair accepts members on the basis of having relevant expertise and willingness to contribute.

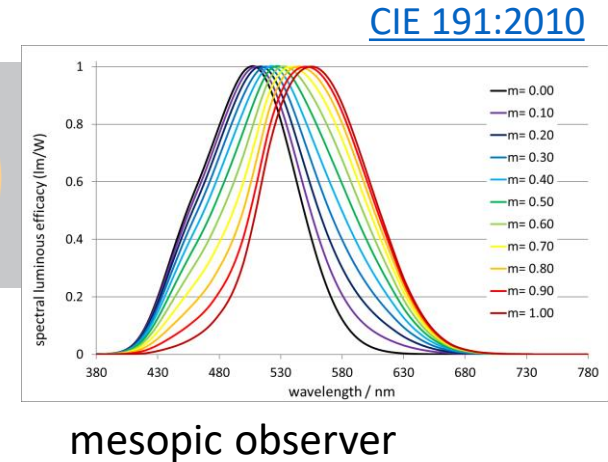
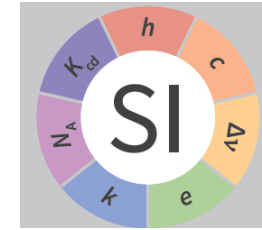


How CIE documents get published

- Expert scientific consensus underpins the work, following an established [Code of Ethics](#).
- Documents developed by TCs are reviewed for comment and for approval by the national members in the sponsoring Division(s) and by the CIE Board of Administration
 - Technical Notes and Technical Reports require unanimous approval within the TC before proceeding to the commenting and approval ballots.
 - International Standards are also reviewed and approved by the National Committees.
- [Rules](#) establish the criteria for document approval or disapproval.



Working with others



- CIPM (Comité International des Poids et mesures)
 - CIPM : defines photometric units in the SI system
 - CIE: establishes standardized action spectra for spectral luminous efficiency (including photobiological and photochemical)
- ISO, IEC – agreements in place for joint development of relevant standards
- Discussions are ongoing concerning an MOU with the IAU

Obtrusive light guidance

Guide lines for minimizing Urban Sky Glow near Astronomical Observatories



Street lighting in Canberra from
Mount Stromlo Observatory: 1972

Publication IAU/CIE No. 1: 1980



ISBN 978 3 900734 83 1

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

TECHNICAL REPORT

GUIDELINES FOR MINIMIZING SKY GLOW

CIE 126-1997

UDC: 628.971.7
628.971.6:625.712
681.782.2

Descriptor: Street lighting
Exterior lighting
Astronomical observation



International Commission on Illumination
Commission Internationale de l'Eclairage
Internationale Beleuchtungskommission

ISBN 978-3-902842-48-0
DOI: 10.25039/TR.150.2017

TECHNICAL REPORT

Guide on the Limitation of the Effects of Obtrusive Light from Outdoor Lighting Installations, 2nd Edition

CIE 150:2017

UDC: 628.931
628.971

Descriptor: Artificial lighting: Design and calculation
Exterior lighting

Obtrusive light...current activities

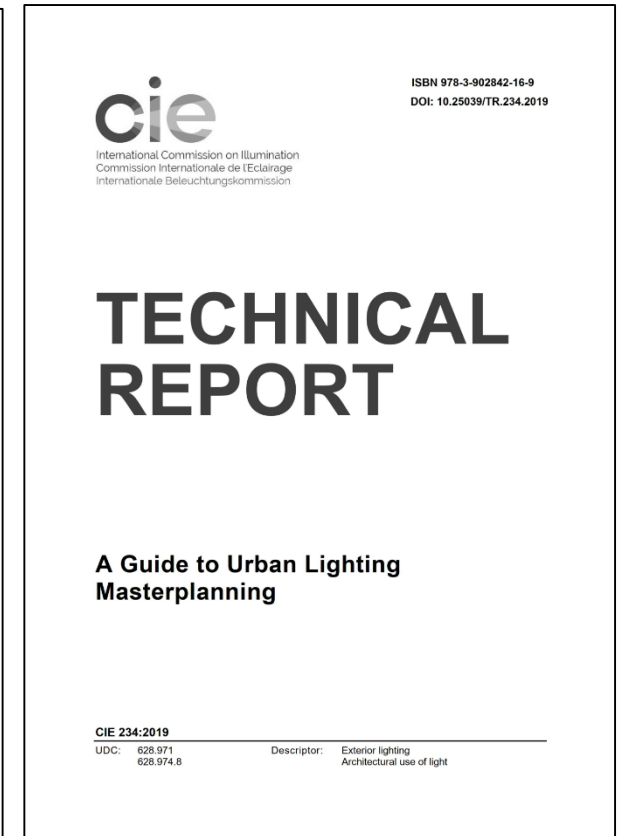
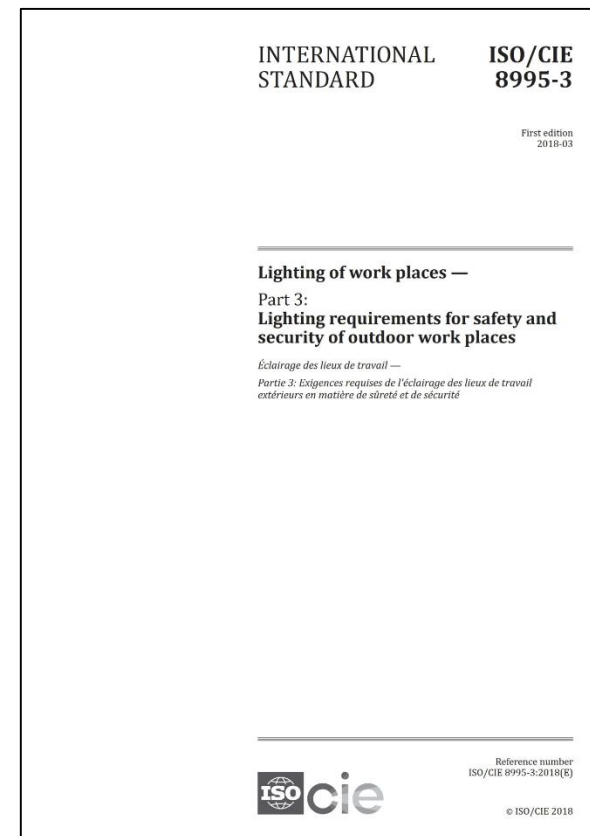
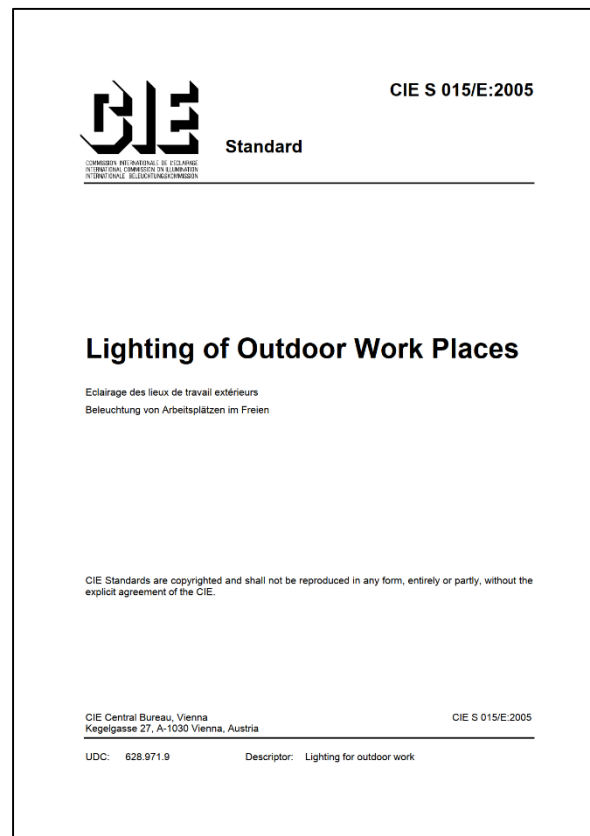
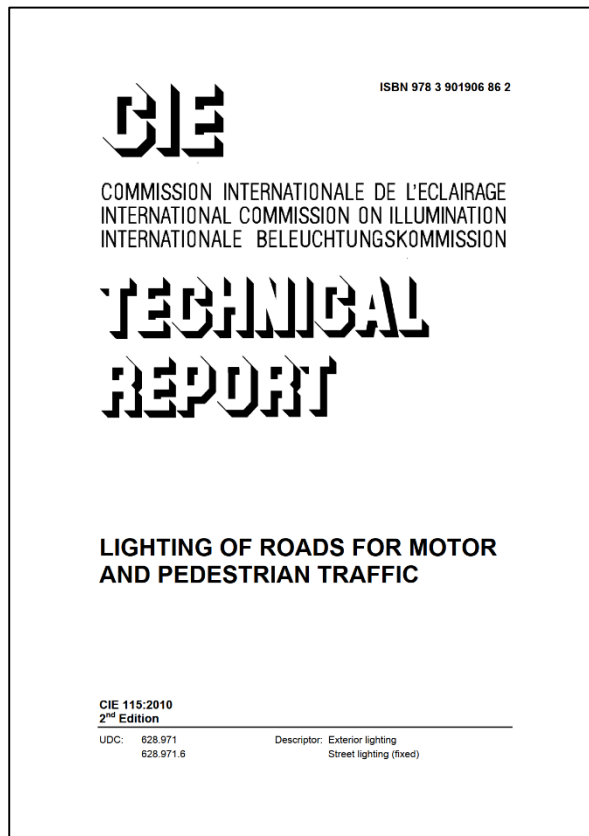


- November 2020: CIE Workshop on the Calculation and Measurement of Obtrusive Lighting
 - Basis for current work to be presented in this conference session
- Active technical committees:
 - [4-58 Obtrusive Light from Colourful and Dynamic Lighting and its Limitation](#)
 - [4-61 Artificial Lighting and its Impact on the Natural Environment](#)
 - [4-62 Adaptive Road Lighting](#)
 - [2-95 Measurement of Obtrusive Light and Sky Glow](#)
- Position statement in development



Outdoor lighting recommendations

- Recommending effective lighting in service of human needs outdoors:





From science to adoption

- Science establishes
 - The effects of light on people and wildlife
 - The characteristics of light that support needed applications
 - The measurements required to characterize the light
- Consensus process integrates this knowledge into recommendations and sometimes standards
- Regulators and legislators may adopt these documents by reference



Thank you

- For more information, contact

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