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

PROCEEDINGS of CIE 2010 "Lighting Quality and Energy Efficiency"

14-17 March 2010

Hilton Vienna
Vienna, Austria

CIE x035:2010 **(including Addendum 1)**

UDC: 628.9 Descriptor: Lighting. Illuminating engineering

THE INTERNATIONAL COMMISSION ON ILLUMINATION

The International Commission on Illumination (CIE) is an organisation devoted to international co-operation and exchange of information among its member countries on all matters relating to the art and science of lighting. Its membership consists of the National Committees in about 40 countries.

The objectives of the CIE are:
1. To provide an international forum for the discussion of all matters relating to the science, technology and art in the fields of light and lighting and for the interchange of information in these fields between countries.
2. To develop basic standards and procedures of metrology in the fields of light and lighting.
3. To provide guidance in the application of principles and procedures in the development of international and national standards in the fields of light and lighting.
4. To prepare and publish standards, reports and other publications concerned with all matters relating to the science, technology and art in the fields of light and lighting.
5. To maintain liaison and technical interaction with other international organisations concerned with matters related to the science, technology, standardisation and art in the fields of light and lighting.

The work of the CIE is carried on by seven Divisions each with about 20 Technical Committees. This work covers subjects ranging from fundamental matters to all types of lighting applications. The standards and technical reports developed by these international Divisions of the CIE are accepted throughout the world.
A plenary session is held every four years, at which the work of the Divisions and Technical Committees is reviewed, reported and plans are made for the future. The CIE is recognised as the authority on all aspects of light and lighting. As such it occupies an important position among international organisations.

LA COMMISSION INTERNATIONALE DE L'ECLAIRAGE

La Commission Internationale de l'Eclairage (CIE) est une organisation qui se donne pour but la coopération internationale et l'échange d'informations entre les Pays membres sur toutes les questions relatives à l'art et à la science de l'éclairage. Elle est composée de Comités Nationaux représentant environ 40 pays.

Les objectifs de la CIE sont :
1. De constituer un centre d'étude international pour toute matière relevant de la science, de la technologie et de l'art de la lumière et de l'éclairage et pour l'échange entre pays d'informations dans ces domaines.
2. D'élaborer des normes et des méthodes de base pour la métrologie dans les domaines de la lumière et de l'éclairage.
3. De donner des directives pour l'application des principes et des méthodes d'élaboration de normes internationales et nationales dans les domaines de la lumière et de l'éclairage.
4. De préparer et publier des normes, rapports et autres textes, concernant toutes matières relatives à la science, la technologie et l'art dans les domaines de la lumière et de l'éclairage.
5. De maintenir une liaison et une collaboration technique avec les autres organisations internationales concernées par des sujets relatifs à la science, la technologie, la normalisation et l'art dans les domaines de la lumière et de l'éclairage.

Les travaux de la CIE sont effectués par 7 Divisions, ayant chacune environ 20 Comités Techniques. Les sujets d'études s'étendent des questions fondamentales, à tous les types d'applications de l'éclairage. Les normes et les rapports techniques élaborés par ces Divisions Internationales de la CIE sont reconnus dans le monde entier.
Tous les quatre ans, une Session plénière passe en revue le travail des Divisions et des Comités Techniques, en fait rapport et établit les projets de travaux pour l'avenir. La CIE est reconnue comme la plus haute autorité en ce qui concerne tous les aspects de la lumière et de l'éclairage. Elle occupe comme telle une position importante parmi les organisations internationales.

DIE INTERNATIONALE BELEUCHTUNGSKOMMISSION

Die Internationale Beleuchtungskommission (CIE) ist eine Organisation, die sich der internationalen Zusammenarbeit und dem Austausch von Informationen zwischen ihren Mitgliedsländern bezüglich der Kunst und Wissenschaft der Lichttechnik widmet. Die Mitgliedschaft besteht aus den Nationalen Komitees in rund 40 Ländern.

Die Ziele der CIE sind:
1. Ein internationaler Mittelpunkt für Diskussionen aller Fragen auf dem Gebiet der Wissenschaft, Technik und Kunst der Lichttechnik und für den Informationsaustausch auf diesen Gebieten zwischen den einzelnen Ländern zu sein.
2. Grundnormen und Verfahren der Meßtechnik auf dem Gebiet der Lichttechnik zu entwickeln.
3. Richtlinien für die Anwendung von Prinzipien und Vorgängen in der Entwicklung internationaler und nationaler Normen auf dem Gebiet der Lichttechnik zu erstellen.
4. Normen, Berichte und andere Publikationen zu erstellen und zu veröffentlichen, die alle Fragen auf dem Gebiet der Wissenschaft, Technik und Kunst der Lichttechnik betreffen.
5. Liaison und technische Zusammenarbeit mit anderen internationalen Organisationen zu unterhalten, die mit Fragen der Wissenschaft, Technik, Normung und Kunst auf dem Gebiet der Lichttechnik zu tun haben.

Die Arbeit der CIE wird in 7 Divisionen, jede mit etwa 20 Technischen Komitees, geleistet. Diese Arbeit betrifft Gebiete mit grundlegendem Inhalt bis zu allen Arten der Lichtanwendung. Die Normen und Technischen Berichte, die von diesen international zusammengesetzten Divisionen ausgearbeitet werden, sind von der ganzen Welt anerkannt.
Alle vier Jahre findet eine Session statt, in der die Arbeiten der Divisionen überprüft, berichtet und neue Pläne für die Zukunft ausgearbeitet werden. Die CIE wird als höchste Autorität für alle Aspekte des Lichtes und der Beleuchtung angesehen. Auf diese Weise unterhält sie eine bedeutende Stellung unter den internationalen Organisationen.

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Lighting Quality & Energy Efficiency

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ADDENDUM 1 (2010-Mar-25)

OP25: J. A. Veitch, G. R. Newsham, C. C. Jones, C. D. Arsenault, S. Mancini. HIGH-QUALITY LIGHTING: ENERGY-EFFICIENCY THAT ENHANCES EMPLOYEE WELL-BEING

Copyright notice has been added (p. 204).

PP25: R. Saraiji. STREET LIGHTING UNIT POWER DENSITY

Full paper has been added (pp. 830- 838).

PP43: D. Lee, S. Park, S. Park, J. Lee and Y. Kim. ARTIFACT PREPARATION FOR COMPARISON ON TOTAL LUMINOUS FLUX OF SSL PRODUCTS AMONG TESTING LABORATORIES IN KOREA

Full paper has been added (pp. 839- 841).

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The following table provides an overview of the Papers and Posters presented at the Conference. The papers are published in the Proceedings in consecutive order of presentation. The presenting author is indicated in **bold**. The authors are responsible for the contents of their papers.

* Full paper has not been received.

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IEC'S ROLE IN INTERNATIONAL STANDARDS FOR LIGHTING

Jonathan Buck

IEC (International Electrotechnical Commission), Geneva, Switzerland

This keynote speech explains the role of the IEC in facilitating international trade for the lighting industry. It points out how:

- The lighting industry uses the IEC platform to develop the International Standards it needs;
- The three IEC Conformity Assessment Systems and how they complement IEC International Standards;
- IECEE helps ensure the safety and performance of lighting products and systems, reducing time and cost for market access;
- The combination of IEC International Standards and IECEE can broaden market access of existing and new lighting technologies.

The presentation goes on to describe the cooperation of the IEC with CIE, WTO and other global organizations, and how developing and developed countries alike benefit from International Standards in lighting. It points out why many regulators consider IEC International Standards "state of the art" and use them in their legislative work.

It further offers insight into the drivers for lighting standardization that takes place in the IEC Technical Committee (TC) 34, and points to special projects that are in the works. It underlines the continuous focus of the IEC on safety, the environment and its globally recognized work on electromagnetic compatibility and immunity.

Finally, it offers an overview of how a given International Standard may impact many different fields and therefore requires the cooperation of many different IEC Technical Committees for its development.

The IEC contributes significantly to the development of Smart Grids globally, as well as improved electrical energy efficiency. The presentation outlines how the IEC has organized itself to help industry and governments achieve energy savings through safer and more efficient lighting products and systems