



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

**Annual Report  
of the  
National Illumination Committee  
of Great Britain**

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**1st October 2009 to 30th September 2010**





## Report for the year ending 30 September 2010

As I reported last year, the CIE Board of Administration has proposed Dr Ann Webb of Manchester University as the 24th President of the CIE for the Quadrennium 2011-15. In recognition of this, I also suggested that the UK had given notice that we may bid to host the 28th Session of the CIE in Manchester for 2015. I can now report that both the Trustees and your National Committee have decided to put forward a formal bid at the 27<sup>th</sup> Session Meeting in South Africa next July.

### **Administration**

Following Liz Peck's resignation as a Trustee of CIE-UK due to pressure of work, I am pleased to report that Peter Raynham has agreed to take her place.

### **Membership**

There were no new members this year.

### **Finance**

The attached accounts again show the relatively healthy state of our affairs although we have unfortunately had to further limit our travel funds to those travelling to meetings in order to balance our books. I thank our new Treasurer, Peter Clarke for seamlessly taking over this role which for next year's Main Session will be even more difficult to help finance.

### **Technical**

The technical work of the CIE Divisions is ongoing as ever, and can be examined in detail on their respective Division websites.

As I reaffirm every year, it is good to see from these that so much of the current work of TCs provides "public benefit" which has been highlighted as an important aspect of our UK charitable status. The importance of light and vision to humankind is obvious and the application of good lighting practices both indoors and out equally so. Add to these the work on monitoring the efficacy of artificial light sources and the safety aspects of the radiation from such sources, not forgetting their wider impact on the natural environment, including the night sky – and there can hardly be a more direct link to public benefit than lighting and the role of CIE.

With regard to the formal links between CIE, ISO, IEC and CEN, as noted last year CIE-UK now have a seat on the main BSI "Light and Lighting Committee" CPL/034/10 and on your behalf I have attended their annual meeting and our Secretary passes on the regular updates of all relevant BSI Committees.

Of our Sponsoring members may I wish the ILE all success in its new life as the ILP (Institution of Lighting Professionals) which we will continue to meet also within the Lighting Liaison Group (LLG) of which the CIE-UK has since become a formal member.

Finally, my annual plea to you all to examine the TC's within your Divisional interests and to help ensure that the UK has members and a voice in as many of these as possible.

Signed

A handwritten signature in cursive script, reading "Nigel E. Pollard", with a long horizontal flourish underneath.

Nigel E. Pollard

Chairman

# CIE Division 1: Vision and Colour

The Terms of Reference of Division 1 are:

To study visual responses to light and to establish standards of response functions, models and procedures of specification relevant to photometry, colorimetry, colour rendering, visual performance and visual assessment of light and lighting.

Photometry is the science of measurement of visible light in terms of its perceived brightness to human vision and it plays an important part in, for example, assessing the quality of the living and working environment, lit by either artificial light or natural daylight. Colorimetry is the science of measurement of colour in terms of perceived attributes and it plays an important part in many aspects of, for example, industrial process control, imaging systems, and signalling systems.

The emphasis in Division 1 is on the perceptual aspects of these subjects leading to a further understanding of how we see what we see.

CIE Division 1 held its annual meeting at Princeton University, New Jersey, USA on Thursday 17 and Friday 18 June 2010. Mike Pointer attended as Division Secretary and UK Division Representative. Ronnier Luo was present as Division Director. Several TCs had meetings on the morning of the 17 June. Eight member countries were represented, 9 TC chairs and 1 reporter were present.

## New Publications:

- CIE 185:2010 *Reappraisal of colour matching functions and Grassmann's Laws* has been published. This report was written by TC1-56 *Improved Colour Matching Functions*. Ronnier Luo, David Oulton and Arthur Tarrant were GB members.
- CIE 191:2010 Recommended system for mesopic photometry based on visual performance. This report was written by TC1-58 *Visual Performance in the Mesopic Range*. Teresa Goodman and Malcolm Nicholson were GB members.
- CIE S 014-5/E:2009 *Colorimetry - Part 5: CIE 1976  $L^*u^*v^*$  colour space and  $u'$ ,  $v'$  uniform chromaticity scale diagram* is now published as an ISO standard.

## New Technical Committees:

- TC1-80 (V) Research Methods for Psychophysical Studies of Brightness Judgements  
Terms of Reference:  
To report on research methods (both research design and statistical analysis) for psychophysical studies of spatial brightness judgements. The aim is to bring best practices from psychology into the wider awareness of people in the lighting community who wish to use such tools in their own work, to avoid errors that plague the existing literature.  
Chairman: Steve Fotios GB
- TC1-81 (C) Validity of Formulae for Predicting Small Colour Differences (C)  
Terms of Reference:  
1. To evaluate available formulae for small colour differences ( $<2.0$  CIELAB).  
2. To define a visual threshold colour difference.  
Chairman: Klaus Richter DE
- TC 1-82 (V) The Calculation of Colour Matching Functions as a Function of Age and Field Size  
Terms of Reference  
1. Following on from CIE TR 170, to recommend a procedure for calculating XYZ-like colour matching

- functions from cone fundamentals, as a function of age and field size.
2. To deliver a computer programme for the calculations.
- Chairman: Jan Henrik Wold NO

### New Reporters:

- R1-51 (V) Reconciling Maxwell vs Maximum Saturation Colour Matches  
Terms of Reference
  1. To examine the CIE TR 185 rod-cone model.
  2. To examine the viability of the uniqueness of stimulus C for a Maxwell match.
  3. To examine the hypothesis of pigment-bleaching distinction between the matching methods.
  4. To examine in u'v' space the Wyszecki & Stiles reported discrepancy of the spectrum loci and to assess the significance of the difference.
  5. To consider the recommendation of a new TC to carry out further study.
 Reporter: Michael Brill US
- R1-52 (C) Spectral Data Interpolation  
Terms of Reference  
To review the methods, and make a recommendation for the interpolation of existing, highly structured source spectra, including the FL illuminants, for colorimetric calculations.  
Reporter: Hugh Fairman US

The next meeting will be held in Sun City, South Africa, as part of the CIE Quadrennial Meeting to be held from 11-14 July 2011.

### Active Technical Committees + UK Members

|        |  |   |
|--------|--|---|
| TC1-27 | Colour appearance for reflection/VDU comparison                  | Andrew Hanson, Robert Hunt, Ronnier Luo, Mike Pointer     |
| TC1-36 | Fundamental chromaticity diagram                                 | John Mollon, Jack Moreland                                |
| TC1-37 | Supplementary system of photometry                               |   |
| TC1-41 | Extension of $V(\lambda)$ beyond 830 nm                          |   |
| TC1-42 | Colour appearance in peripheral vision                           | Lindsay MacDonald   |
| TC1-44 | Practical daylight simulators for colorimetry                    | Gilbert Dakin, Robert Hunt, Ronnier Luo, Mike Pointer     |
| TC1-55 | Uniform colour space for industrial colour difference evaluation | Gui Cui, Ronnier Luo, Jim Nobbs, Mike Pointer, Bryan Rigg |
| TC1-57 | Standards in colorimetry   | Mike Pointer  |
| TC1-58 | Visual performance in the mesopic range                          | Teresa Goodman, Malcolm Nicholson, E Yandek               |
| TC1-60 | Contrast sensitivity function                                    | Lindsay MacDonald   |
| TC1-61 | Categorical colour identification                                | Mike Pointer, Ronnier Luo                                 |
| TC1-63 | Validity of range of CIEDE2000                                   | Ronnier Luo, Jim Nobbs                                    |
| TC1-64 | Terminology for vision, colour and appearance                    | Mike Pointer  |
| TC1-67 | The effect of dynamic and stereo visual images on human health   |   |
| TC1-68 | Effect of stimulus size on colour appearance                     | Ronnier Luo, Malcolm Nicholson                            |
| TC1-69 | Colour rendition by white light sources                          |   |
| TC1-70 | Metameric samples for indoor daylight evaluation                 |   |
| TC1-71 | Tristimulus integration  | Mike Pointer  |
| TC1-72 | Measurement of appearance network: MAnet                         | Mike Pointer (TCC)  |

|        |  |                                   |
|--------|--|-----------------------------------|
| TC1-73 | Real colour gamuts   | Mike Pointer                      |
| TC1-74 | Methods for re-defining CIE D-illuminants                            |                                   |
| TC1-75 | A comprehensive model of colour appearance                           | Ronnier Luo (Chair), Robert Hunt  |
| TC1-76 | Unique hue data  | Galena Paramei, Kaida Xiao        |
| TC1-77 | Improvement of the CIE whiteness and tint equations                  | Phil Green, Ronnier Luo,          |
| TC1-78 | Evaluation of visual performance in the real lit environment         |                                   |
| TC1-79 | Limits of normal colour vision                                       | John Barbur (TCC)                 |
| TC1-80 | Research methods for psychophysical studies of brightness judgements | Steve Fotios (TCC), David Simmons |

### **Active Reporters**

|       |   |  |
|-------|---|--|
| R1-36 | Action spectra for glare                                      |  |
| R1-37 | Definition of visual field for conspicuity                    |  |
| R1-40 | Scene dynamic range   |  |
| R1-42 | Extensions of CIECAM02  |  |
| R1-48 | Colour emotion and harmony                                    |  |
| R1-49 | Above threshold pulsed lights: Ian Tutt GB                    |  |
| R1-50 | 3D aspects of visual appearance measurement: David Simmons GB |  |

Mike Pointer  
UK Representative CIE Division 1

## CIE Division 2: Measurement of Light and Optical Radiation

Most of the work in CIE Division 2 relates to the provision of guidance on the correct measurement of the optical radiation (ultraviolet, visible and infrared radiation) emitted by lamps, luminaires and other sources and on the correct characterisation of detectors and materials. Such measurements are essential to ensure the safe and effective working of a very wide range of products with which the public come into regular contact, including: traffic lights, car headlamps, airport runway lights and railway signals; high visibility clothing; ultraviolet lamps used in medical treatment of skin conditions and for curing of dental epoxies etc; barcode readers in supermarkets; lighting in homes, offices, schools, shops etc; and visual displays used not only for entertainment applications (television, computer gaming, cinema etc) but also 'serious' applications such as medical diagnosis and surgical training. Optical radiation measurements are also essential for monitoring the impact of human activity on the environment e.g. ozone depletion, changes in land use, deforestation and global warming.

Activities and achievements of the Division during the year October 2009 – September 2010 were as follows:

- One new CIE publication has been produced by Division 2 during this period: 121-SP1:2009: The Photometry and Goniophotometry of Luminaires - Supplement 1: Luminaires for Emergency Lighting.
- The Division met in Bern, Switzerland, on 3 September 2010 in conjunction with a CIE Expert Symposium on Spectral and Imaging Methods (organised by Division 2). The meeting was attended by Teresa Goodman and Emma Woolliams from the UK.
- A total of 14 Division 2 Technical Committees (TCs) also met during the period 1 – 2 September 2010, covering a range of topics such as characterising the performance of measurement equipment, evaluation of important potential sources of measurement error (e.g. linearity, instrumental bandpass function), measurement of LEDs and implementation of the new CIE system for mesopic photometry. UK representatives are actively contributing to the work of all these TCs.
- No new TCs or Reporterships have been established during the year. Several have been proposed, related to different aspects of measurements and applications of LEDs and LED assemblies. However it has been decided that prior to establishing any further TCs or Reporterships for LEDs, the Division will establish a strategy for how to address the growing demands in this area, in order to ensure that needs are addressed in a coherent and timely fashion and to focus expertise available within the Division where it will have greatest impact.

Full details of recent activities within Division 2, including status reports for all the Technical Committees, are available on the Division 2 website: <http://div2.cie.co.at/>

The next meeting of Division 2 will take place during the Quadrennial Session in South Africa in July 2011.

### Active Technical Committees + UK Members

|        |  |                                    |
|--------|--|------------------------------------|
| TC2-17 | Simulated solar radiation  |                                    |
| TC2-19 | Measurement of the spectral coefficient of retroreflection         | Christine Stratford                |
| TC2-23 | Photometry of street-lighting luminaires                           | Christine Stratford                |
| TC2-28 | Methods of characterising spectrophotometers                       | Teresa Goodman TCC                 |
| TC2-29 | Measurement of detector linearity                                  | Teresa Goodman<br>Theo Theocharous |
| TC2-32 | Measuring retroreflectance of wet horizontal road markings         |                                    |
| TC2-37 | Photometry using detectors as transfer standards                   | Teresa Goodman                     |
| TC2-40 | Characterising the performance of illuminance and luminance meters | Teresa Goodman                     |
| TC2-43 | Determination of the measurement uncertainties in photometry       | Teresa Goodman                     |



|        |  |                         |
|--------|--|-------------------------|
| TC2-44 | Vocabulary matters   |                         |
| TC2-46 | CIE/ISO standard on LED intensity measurements   | Teresa Goodman          |
| TC2-47 | Characterisation and calibration methods for UV radiometers                              | Teresa Goodman          |
| TC2-48 | Spectral responsivity measurement of detectors, radiometers and photometers              | Teresa Goodman          |
| TC2-49 | Photometry of flashing lights  | Teresa Goodman Ian Tutt |
| TC2-50 | Measurement of the optical properties of LED assemblies                                  | Teresa Goodman          |
| TC2-51 | Calibration of diode-array spectrometers   | Teresa Goodman          |
| TC2-53 | Multi-geometry colour measurements of effect materials                                   | Mike Pointer            |
| TC2-56 | CIE/ISO standard on retroreflection measurements   | Christine Stratford     |
| TC2-57 | Revision of CIE S014-2   | Mike Pointer            |
| TC2-58 | Measurement of LED radiance and luminance  | Teresa Goodman          |
| TC2-59 | Characterisation of imaging luminance measurement devices                                |                         |
| TC2-60 | Effect of instrumental bandpass function and measurement interval on spectral quantities | Emma Woolliams TCC      |
| TC2-62 | Imaging-photometer-based near field gonio-photometry                                     |                         |
| TC2-63 | Optical measurement of high-power LEDs   |                         |
| TC2-64 | High speed testing methods for LEDs  |                         |
| TC2-65 | Photometric measurements in the mesopic range  | Teresa Goodman TCC      |
| TC2-66 | Terminology of LEDs and LED assemblies   |                         |
| TC2-67 | Photometry of lighting and light-signalling devices for road vehicles                    |                         |

#### Active Reporters

|       |  |
|-------|--|
| R2-23 | ISO/CIE standards for the measurement of reflectance and transmittance           |
| R2-32 | Visual appearance measurement (Mike Pointer)                                     |
| R2-33 | Measurement of laser based projection displays                                   |
| R2-34 | Methods for characterising and calibrating detectors in a photon counting regime |
| R2-38 | Measurement of spectral properties of photometers and colorimeters               |
| R2-39 | Display measurement standards  |
| R2-40 | Spectral and colorimetric electronic data exchange (Mike Pointer)                |
| R2-41 | Retroreflection intercomparison  |
| R2-42 | Measurement methods for LED luminaires   |
| R2-43 | Measurement of integrated LED light sources                                      |
| R2-44 | Photometric characterization of large area flat sources used for lighting        |
| R2-45 | Measurement of the illumination uniformity for critical applications             |
| R2-46 | Photobiological safety measurement of lighting products                          |
| R2-47 | Photometry of curved surface sources   |

Teresa Goodman  
UK Representative CIE Division 2

## CIE DIVISION 3: Interior Environment and Lighting Design

Division 3 of the CIE has an overall aim to examine the various factors which influence the satisfaction of the occupants of a building with their environment, including the effects of both daylighting and electric lighting. The objectives of the Division are to study and evaluate those factors, to provide guidance on relevant design criteria, to study design techniques (including relevant calculations) for the interior lighting of buildings, to incorporate the findings and those of other CIE divisions into lighting guides for interiors in general or of particular types. These aims and objectives are focussed on providing lit environments which are of direct benefit to the users of those environments. The international nature of the Division allows those benefits to be disseminated to all member countries including the UK. In particular the Division draws on the contribution of several members from the UK who are active on eight active technical committees (TC). The Division 3 Editor, responsible for all publications is also from the UK. The output of these committees is expected to be available in 2010 and 2011 and would then begin to influence the nature and content of UK lighting design guidance.

- The Division met on 19th March in Vienna, Austria where the work of the Division was reviewed. Peter Thorns and Lou Bedocs from the UK were in attendance. The minutes of the meeting will be available from the CIE Division 3 website: [www.cie.co.at/div3/](http://www.cie.co.at/div3/).
- The Terms of Reference of CIE TC 3-48: *CIE standard method of UF table calculation for indoor luminaires* had been modified by email ballot to become:  
To produce a CIE standard methodology for the calculation of utilization factor (UF) tables for indoor luminaires.
- One new TC had been approved by email ballot and was now approved by the BA:  
TC 3-50: *Lighting quality measures for interior lighting with LED lighting systems*  
Terms of reference:
  1. To review relevant CIE publications and standards to evaluate the suitability of existing lighting quality measures when applied to tertiary (commercial) interior light-emitting diode (LED) lighting systems. To identify the gaps and weaknesses in existing quality measures, exhibited in one of two ways: either the criterion is valid, but the evaluation method is not (e.g., colour rendering) or a new criterion needs to be taken into consideration (e.g., overhead glare, binning).
  2. To prepare a Technical Report, which will include the findings of the review and recommendations for new lighting quality measures and evaluation methods. Also to make recommendations for new research if appropriate quality measures and evaluation methods are missing.Chairman: Martine Knoop NL  
Peter Thorns will represent GB.
- TC 3-36 *Use of satellite images to derive daylight data* (D. Dumortier) was closed.
- TC 3-37 *Guide for the application of the CIE general sky* (D. Dumortier) was closed.
- TC 3-39 *Discomfort glare from daylight in buildings* (W. Osterhaus) agreed to changes in the Terms of Reference: To review existing discomfort glare assessment methods with respect to their suitability to daylight glare. To identify strengths/weaknesses and threats/opportunities in these existing methods. To make a recommendation on a provisional method for daylight glare assessment. To identify additional parameters that might influence the perception and assessment of discomfort and glare from daylight. To develop proposals for possible research directions and projects suitable to advance the understanding of these parameters.
- TC 3-44 *Lighting for older people and people with visual impairment in buildings*  
The chairman, Geoff Cook GB, has resigned and replaced by Dr. Yukio Akashi JP.

- Proposed new TC: 3-51 *CIE Standard General Sky guide*  
 Terms of reference  
 To finalise a guide for the application of the CIE General Sky standard for general users and designers.  
 The guide will provide an explanation of the CIE General Sky standard concept and its simplified use by practitioners with available references and recommended prediction methods/tools/computer programs.  
 Chairman: S. Darula SL  
 GB Members: John Mardaljevic, Peter Tregenza

#### **Active Technical Committees + UK Members**

|        |   |                         |
|--------|---|-------------------------|
| TC3-25 | Coordination and development of the international daylight measurement programme and its data | Peter Tregenza          |
| TC3-34 | Protocols for describing lighting   | Peter Boyce, Lou Bedocs |
| TC3-39 | Discomfort glare from daylight in buildings   |                         |
| TC3-42 | Indoor work space application guide   |                         |
| TC3-43 | Determination of discomfort glare   | Luo Bedocs TCC          |
| TC3-44 | Lighting for the elderly  | Geoff Cook              |
| TC3-45 | Luminance based design approach   |                         |
| TC3-46 | Research roadmap for healthful interior lighting applications                                 |                         |
| TC3-47 | Climate-based daylight modelling  | John Mardaljevic TCC    |
| TC3-48 | Standard method of UF table calculation for indoor luminaires                                 | Peter Thorns TCC        |
| TC3-XX | Lighting quality measures for interior lighting with LED lighting systems                     | Peter Thorns            |

#### **Active Reporters**

|       |   |
|-------|---|
| R3-13 | International lighting vocabulary             |
| R3-24 | The assessment of overhead glare              |
| R3-28 | Lighting requirements for night-shift workers |

Geoff Cook  
 UK Representative CIE Division 3

## CIE Division 4: Lighting for Signalling and Transport

The Terms of Reference of Division 4 are:

To study lighting and visual signalling and information requirements of transport and traffic, such as road and vehicle lighting, delineation, signing and signalling for all types of public roads and all kinds of users and vehicles, and visual aids for modes other than road transport.

The primary aim of the work of the Division is to enhance safety in transport by the publication of relevant technical reports and standards. The Division currently has 14 active technical committees working on a wide variety of topics.

- The annual meeting of the Division was held in Vienna, Austria, during 6th to 8th September 2010. The UK delegate, Douglas Simpson attended: he was also present in his capacity as Divisional Editor and acted a Secretary to the meeting due to the absence of the Divisional secretary. Nine technical committees met.
- Two workshop were held to discuss the establishment of new TCs, described below.
- Reports were received from the chairmen of four TCs which did not meet at this session.
- During the last year, the following new publications have been issued:

**TC 4-45** (With UK Chairmanship and input)

CIE 188: 2010 Performance Assessment Method for Vehicle Headlighting Systems

DS 021.2/E: 2010 Vehicle Headlighting Systems – Photometric performance – Method of Assessment

**TC 4-24** (With UK input)

CIE 189: 2010 Calculation of Tunnel Lighting Quality Criteria

**TC 4-44** (With UK input)

CIE 115: 2010 Lighting of Roads for Motor and Pedestrian Traffic

- A number of draft publications are currently going through the final voting and editing processes:
  - TC4-19 Road visibility in fog
  - TC4-26 Guide to in loco automatic measurement systems for the photometric characterization of road and tunnel lighting
  - TC4-43 Emergency lighting in road tunnels
  - TC4-36 Visibility design for road lighting
- It has been agreed to set up a new TC to consider road surface photometry: Nigel Townsend has volunteered to be a UK member. The photometric properties of road surface materials have a major effect on the performance of road lighting installations. Existing data have been superseded by changes in road surface technology, and new methods are becoming available to measure the properties and make use of them in road lighting design.
- It has been agreed to set up a new TC on the optimisation of road lighting design related to accident reduction and the driving task, taking full account of the relationship with traffic density and the potential for reducing light levels and thus energy consumption at times of low usage. There will be UK input to this TC.
- The next meeting of Division 4 will take place in July 2011. The location will be Sun City, South Africa, in conjunction with the CIE quadrennial conference.

### Active Technical Committees + UK Members

|        |  |                               |
|--------|--|-------------------------------|
| TC4-15 | Roadlighting calculations, test data and measurements                            |                               |
| TC4-19 | Road visibility in fog   |                               |
| TC4-21 | Interference by light with astronomical observations                             |                               |
| TC4-26 | Systems for measurement of photometric quantities of road lighting installations |                               |
| TC4-32 | Surface colours for traffic signs  |                               |
| TC4-33 | Discomfort glare in road lighting  |                               |
| TC4-36 | Visibility design in roadway lighting  |                               |
| TC4-40 | Requirements for retroreflective traffic signs                                   |                               |
| TC4-43 | Emergency lighting in tunnels  | John Rands, Doug Simpson      |
| TC4-44 | Management and maintenance of road lighting                                      | Bryan Shortreed, Doug Simpson |
| TC4-45 | Performance assessment method for vehicle headlamps                              | Terry Carter, Geoff Draper    |
| TC4-46 | 300 mm roundel traffic signals   | Hugh Barton                   |
| TC4-47 | Application of LEDs in transport lighting and signalling                         | Hugh Barton, Ian Tutt         |
| TC4-48 | White light in road lighting   | Steve Fotios                  |

### Active Reporters

|       |  |
|-------|--|
| R4-14 | Road lighting and accidents  |
| R4-33 | Review of CIE publication 72: Guide to the properties and uses of retroreflectors at night                                       |
| R4-34 | Retroflective and other passive devices as energy savers   |
| R4-35 | To investigate if a TC on "crime and lighting" is feasible   |
| R4-36 | To report items from CEN TC169 Light and Lighting that may be of interest to D4  |
| R4-37 | To report items from CEN TC 226 Road Equipment that may be of interest to D4   |
| R4-38 | To report items from the International Astronomical Union that may be of interest to D4  |
| R4-39 | To report items from GTB that may be of interest to D4 (GTB is the association responsible for the UNECE Automotive Regulations) |
| R4-40 | To report items related to mesopic vision from D1 that may be of interest to D4  |
| R4-41 | To elaborate on lighting for the elderly and accessibility guidelines together with reporters from other divisions               |
| R4-42 | To report items from LUCI (Lighting Urban Community International) that may be of interest to D4                                 |
| R4-43 | To report items from PIARC that may be of interest to D4   |
| R4-44 | To report items from IALA related to marine lighting and signalling that may be of interest to D4: Reporter Ian Tutt UK          |

Doug Simpson  
UK Representative CIE Division 4

## CIE Division 5: Exterior Lighting and Other Applications

The Terms of Reference of Division 5 are:

*To study procedures and prepare guides for the design of lighting for exterior working areas, security lighting, flood lighting, pedestrian and other urban areas without motorized traffic, areas for sports and recreation, and for mine lighting.*

The Technical Committees in Division 5 tend to provide indirect/long-term benefits for the public. Examples of long term benefits are improvements to night-time ambience that will result from TC 5.21 *Urban master planning* and the control of night-time artificial lighting that is potentially harmful to wildlife: TC5-27 *Artificial lighting and its impact on the natural environment*.

- Meetings of the technical committees of D4 and 5 were held in Vienna, 6-8 September 2010. UK attendees were Kelvin Austin, Steve Fotios, Nigel Pollard, Alan Smith, Martin Morgan-Taylor and Doug Simpson. Six division 5 TCs met to review progress on technical reports (5-18, 21, 22, 26, 27 and 28): three TCs were not able to meet (5-20, 23 and 24).
- The division director for the past session was Nigel Pollard. For the 2011-2015 session this role will be taken over by Peter Schwarz.
- There are no new publications from D5 this year.
- There are no new Technical Committees from D5 this year; one existing TC was dissolved (TC5-25: Guide for the photometric specification and measurement of sports lighting installations ), two previous Reporters were dissolved (R5-13 and R5-15); two new reporters were proposed: Environmental Impact Assessments and Glare Assessment Methods.
- Alan Smith (UK) has taken over as TC chairman for TC 5.26 *Guide for the lighting of sports events for colour TV and film systems*.
- The next D5 meeting will be held on 10-15 July 2011 in Sun City, South Africa.

### Active Technical Committees + UK Members

|         |  |                                     |
|---------|--|-------------------------------------|
| TC5-18  | Practical design guidelines for the lighting of exterior work areas                | Kelvin Austin                       |
| TC5-20  | Sports lighting  | Kelvin Austin                       |
| TC5-21  | Urban master planning  | Nigel Pollard                       |
| TC5-22  | Beam patterns for exterior floodlighting luminaires                                | Nigel Pollard                       |
| TC5-23  | Guidelines for the use of different Illuminance parameters in outdoor applications | (none)                              |
| TC5-24  | Guide for architectural and decorative lighting                                    | Nigel Pollard                       |
| TC5-26  | Guide for the lighting of sports events for colour TV and film systems             | Alan Smith                          |
| TC 5-27 | Artificial lighting and its impact on the natural environment                      | Martin Morgan-Taylor                |
| TC5-28  | Guide on the Limitation of the Effects of Obtrusive Light                          | Nigel Pollard; Martin Morgan-Taylor |

Steve Fotios

UK Representative CIE Division 5

## CIE Division 6: Photobiology and Photochemistry

The Terms of Reference of Division 6 are:

To study and evaluate the effects of optical radiation on biological and photochemical systems (exclusive of vision).

The work of Division 6 is directly related to the health of people and more generally to the ecosystem. It considers both the beneficial and detrimental implications of exposure to optical radiation.

- The annual meeting of Division 6 took place at the American Society of Photobiology annual meeting in Rhode Island, USA on 14 June 2010. UK attendees were Ann Webb (DD6) and Katarzyna Baczynska (representing John O'Hagan).
- Two reports have been published during the year:
  - CIE 186:2010 UV-A Protection and sunscreens
  - CIE 187:2010 UV-C Photocarcinogenesis risks from germicidal lamps
- Two further reports are nearing completion: TC6-58: Lower limits of UV and TC6-21 Cataractogenesis by low-level exposure to ambient ultraviolet radiation. However, there is some concern about the title of the former, which is more related to a minimum level rather than a suggestion to lower the limits.
- The next meeting is planned for Sun City, South Africa, in conjunction with the CIE Quadrennial Session in July 2011.
- Ann Webb (DD6) will take up the position of President of CIE from the Quadrennial Session. A new DD6 is to be appointed.

### Active Technical Committees

|        |   |  |
|--------|---|--|
| TC6-08 | Guidelines for obtaining action spectra   | A final draft is imminent.                                     |
| TC6-15 | A computerized approach to reflection, transmission and absorption characteristics of the human eye | Draft is available, but needs to be put into the CIE template. |
| TC6-20 | Phototoxicity in domestic and industrial environments   | No information available.<br>Recommended for closure in 2011.  |
| TC6-21 | Cataractogenesis by low-level exposure to ambient ultraviolet radiation                             | With DE6.  |
| TC6-24 | Sunscreen and UVA   | Report published (CIE 186)                                     |
| TC2-28 | Standardization of sunscreen testing: Method of UV-A sunscreen testing                              | This TC needed input from TC6-24.                              |
| TC6-32 | Action spectrum for photocarcinogenesis (Non-melanoma skin cancers)                                 | The standard needs to be reviewed by the TCC.                  |
| TC6-33 | Photoimmunological effects mediated through the skin  | Recommended for closure in 2011.                               |
| TC6-36 | UVR protective materials used in shading  | Recommended for closure in 2011.                               |
| TC6-37 | Light and retinal disease   | A mature draft exists.   |
| TC6-39 | UV radiation in lighted environments  | Awaiting input of more recent data.                            |
| TC6-41 | International Standard Global Solar UV Index  | Progressing towards a standard.                                |

|        |   |   |
|--------|---|---|
| TC6-42 | Lighting aspects for plant growth in controlled environments  | Second draft expect by end of 2010.   |
| TC6-43 | UV water disinfection   | No information available.<br>Recommended for closure in 2011.                               |
| TC6-44 | Illuminators for treatment of infant hyperbilirubinemia   | Further work required.  |
| TC6-45 | Optical radiation hazard measurements in the work space   | Progressing slowly.   |
| TC6-46 | Standard action spectrum for uv disinfection  | New TCC and progressing.  |
| TC6-47 | Photobiological safety of lamps and lamp systems  | Mature draft of revised S009 standard is available.<br>Plan to finalise report "soon".      |
| TC6-48 | Typical minimal erythema doses  | Second draft in progress.   |
| TC6-49 | Infrared cataract   |   |
| TC6-50 | Photodegradation of pharmaceuticals   | A publication has been submitted on this subject and this will be used to draft the report. |
| TC6-51 | Standardized solar simulator spectral irradiance for sunscreen  | No information available.<br>Recommended for closure in 2011.                               |
| TC6-52 | Proper measurement of passive UV air disinfection sources   | TC members are being recruited.   |
| TC6-53 | Personal dosimetry for UV radiation   | No information available.<br>Recommended for closure in 2011.                               |
| TC6-55 | Photobiological safety of light emitting diodes   | Had been awaiting input from TC2-58, but in the absence of information will be progressed.  |
| TC6-57 | Standardization of terms and action spectra for blue light and retinal thermal hazard functions           | No information available.<br>Recommended for closure in 2011.                               |
| TC6-58 | A Recommendation on lower limits for UV exposure  | Report has been reviewed by DE6 and is back with authors for revision.                      |
| TC6-59 | UVC photocarcinogenesis risks from germicidal lamps   | Report published (CIE 187)  |
| TC6-60 | Spectral weighting of UVR from solar surrogate sources  | Recommended for closure at 2010 annual meeting.   |
| TC6-61 | Measurement of radiation using the phytometric system for plant applications                              | First draft produced.   |
| TC6-62 | Action spectra and dosimetric quantities for circadian and related neurobiological effects                | Preliminary report expected by the end of 2010.   |
| TC6-63 | Photobiological strategies for adjusting circadian phase to minimize the impact of shift work and jet lag | Report is progressing.  |
| TC6-64 | Optical Safety of Infrared Eye Trackers Applied for Extended-Durations                                    | Awaiting final draft.   |
| TC6-65 | Photobiological Dosimetry for Low Level Laser/Light Phototherapy  | Awaiting paperwork from Central Bureau.   |



## **Reporterships**

A survey of action spectra in the scientific literature: 19XX – 200X

Definition of UV wavebands

The issues of vitamin D kinetics

Almost complete.

Almost complete

New work started in 2009.

John O'Hagan

UK Representative CIE Division 6

## CIE Division 8: Image Technology

The Terms of Reference of Division 8 are:

To study procedures and prepare guides and standards for the optical, visual and metrological aspects of the communication, processing, and reproduction of images, using all types of analogue and digital imaging devices, storage media and imaging media.

The overall goal of Division 8 can be summarized as seeking to provide methods for better understanding the components of imaging systems with a view to providing both the professional user and home picture-taker with consistent colour images over a wide variety of media.

- CIE Division 8 met in Budapest, Hungary, in March 2010. Eleven countries were represented.
- There have been no Technical Reports published during the year in question.
- The next meeting at will be held in Sun City, South Africa, as part of the CIE Quadrennial Meeting to be held from 11-14 July 2011.
- As usual an informal meeting will be held during the IS&T Color and Imaging Conference, San Antonio, Texas, USA, 8-12 November 2010.

### Active Technical Committees

|        |  |
|--------|--|
| TC8-02 | Colour difference evaluation in images |
| TC8-07 | Multispectral imaging                  |
| TC8-08 | Spatial appearance models              |
| TC8-09 | Image archiving                        |
| TC8-10 | Office illumination for imaging        |
| TC8-11 | CIECAM02 mathematics                   |
| TC8-12 | Video compression assessment           |

### Active Reporters:

|       |                                  |
|-------|----------------------------------|
| R8-08 | Image appearance model framework |
|-------|----------------------------------|

Mike Pointer  
UK Representative CIE Division 8

## **APPENDIX A**

### **THE CIE & NIC**

Each country participating in the work of the International Commission on Illumination (the CIE) forms a National Illumination Committee (NIC). This Committee is representative of all bodies in that country which have an interest in light and lighting.

The CIE:

- provides an international forum for the discussion of all matters relating to science technology and art in the fields of light and lighting
- co-ordinates the international activities of individuals and organisations, to identify outstanding and fundamental issues pertaining to light and lighting and to find solutions
- develops basic standards for measurement and application design
- publishes Technical Reports and Standards and maintains liaison with other international standards organisations.

The CIE technical programme seven Divisions covering Vision and Colour; Physical Measurement of Light and Radiation; Interior Environment and Lighting Design; Lighting and Signalling for Transport; Exterior and Other Lighting Applications; Photobiology and Photochemistry; and Image Technology. Each Division establishes Technical Committees (TCs) with international representation of experts, to undertake specific tasks. Each TC is disbanded when the work is complete.

The CIE holds a Sessional Conference every four years, which reviews the latest developments in the field and plans the work of the divisions and their Committees for the next quadrennium.

The CIE Central office is based in Vienna. The Executive Director and his assistants are responsible for the administration associated with co-ordinating the activities of all member countries and for publishing the Commission's Technical Reports and Standards.

The CIE is supported through the time and expertise of individuals, most of whom are associated with companies, institutions and organisations interested in light.

The CIE is supported financially by each country's National Illumination Committee which contributes according to a Central Office allocation based on the scale of assessments for the contribution of Member States of the United Nations Organisation, but with modified upper and lower limits. Each NIC depends on contributions from supporting organisations, income from the sale of published Technical Reports and Standards and from the organisation of seminars.

The National Illumination Committee of Great Britain is supported by sponsoring and co-operating organisations. Many universities and colleges participate, as do Government Departments and official bodies interested in or concerned with the design, development and use of light. There are also representatives of the lighting industry as well as independent consultants and architects representing professional bodies.

The NIC selects and sends delegates to the sessions of the CIE. It keeps in close touch with developments throughout the world, both in research and in practical applications, by personal contact as well as via the issues of the CIE News and CIE Division Activity Reports. It also ensures that the British contributions are made known and properly recognised in other countries.

Great Britain, one of the founder members of the CIE, established its National Illumination Committee in 1913 and since then has played a major part in the development of the Commission. The original decision to establish the CIE was considerably influenced by Leon Gaster, the founder of the British Illuminating Engineering Society, now the Society of Light and Lighting.

## **APPENDIX B**

### **CONSTITUTION OF THE NATIONAL ILLUMINATION COMMITTEE AT 30 SEPTEMBER 2010**

#### **Officers and Trustees**

|                    |                |
|--------------------|----------------|
| Chairman           | Nigel Pollard  |
| Vice Chairman      | Teresa Goodman |
| Vice Chairman      | John O'Hagan   |
| Honorary Secretary | Peter Raynham  |
| Honorary Treasurer | Peter Clarke   |

#### **Secretariat**

|                     |   |
|---------------------|---|
| Executive Secretary | Michael Pointer<br>9 Bishops Drive, East Harnham, Salisbury SP2 8NZ |
|---------------------|---|

#### **Sponsoring Organisations**

|                                       |  |
|---------------------------------------|--|
| Institution of Lighting Professionals | Stuart Bulmer<br>David Coatham<br>Allan Howard |
| Society of Light & Lighting           | Steve Langford<br>Liz Peck<br>Peter Raynham    |

#### **Cooperating Organisations**

|                                   |                    |
|-----------------------------------|--------------------|
| Abacus Lighting                   | Kelvin Austin      |
| Ceravision Limited                | Steven Leigh       |
| City of London Corporation        | Jim Jeram          |
| College of Optometrists           | Alan Smith         |
| Colour Group (Great Britain)      | Valerie Bonnardel  |
| D W Windsor Ltd                   | Tom Webster        |
| Health Protection Agency          | John O'Hagan       |
| Institute of Physics              | Lawrence Whittaker |
| Lighting Association Laboratories | Steve Poole        |
| Lighting Industry Federation      | Bernard Pratley    |
| National Physical Laboratory      | Teresa Goodman     |
| Society of Dyers and Colourists   | Ronnier Luo        |
| Thorn Lighting Ltd                | Peter Thorns       |
| Trinity House Lighthouse Service  | Ian Tutt           |
| Urbis Lighting Ltd                | Patrick Baldrey    |
| VeriVide Ltd                      | John Dakin         |

#### **Participating Universities**

|   |                 |
|---|-----------------|
| University of Liverpool                   | David Carter    |
| University of Manchester                  | Ann Webb        |
| University of Reading                     | Geoff Cook      |
| University of Sheffield                   | Steve Fotios    |
| University College, London (The Bartlett) | Kevin Mansfield |

### **Individual Members**

Hugh Barton  
Peter Clarke  
Leslie Lyons  
Joshua Mahinda  
Martin Morgan-Taylor  
Nigel Pollard  
William Rothwell  
Douglas Simpson  
Christopher Wilkes

OptiConsulting  
The Tintometer Ltd  
Bentham Instruments Ltd  
Enfis Ltd  
De Montfort University  
NEP Lighting Consultancy  
British Telecommunications  
DS Consultancy  
Holophane Europe Ltd

### **CIE Division Representatives**

Division 1  
Division 2  
Division 3  
Division 4  
Division 5  
Division 6  
Division 8

Michael Pointer  
Teresa Goodman  
Geoff Cook  
Douglas Simpson  
Steve Fotios  
John O'Hagan  
Michael Pointer



**NATIONAL ILLUMINATION COMMITTEE OF GREAT BRITAIN**  
**TRUSTEES' ANNUAL REPORT**  
**FOR THE YEAR ENDED 30 SEPTEMBER 2010**

The Trustees present their annual report and accounts for the year ended 30 September 2010

The charity number is 257185 and the working name of the charity is CIE-UK

**Reference and Administrative Information**

Trustees

|                       |                    |
|-----------------------|--------------------|
| Mr Nigel E Pollard    | Chairman           |
| Miss Teresa M Goodman |                    |
| Dr John O'Hagan       |                    |
| Dr Peter J Clarke     | Honorary Treasurer |
| Mr Peter Raynham      | Honorary Secretary |

Chief Executive Officer /Executive Secretary

Dr Michael R Pointer

Principal Office

c/o CIBSE, Delta House, 222 Balham High Road, London, SW12 9BS

Independent Examiner

R A Nelson FCA, MacIntyre Hudson, Lyndale House, Ervington Court, Harcourt Way, Meridian Business Park, Leicester LE19 1WL

Bankers

CAF Bank Ltd, 25 Kings Hill, West Malling, Kent ME19 4JQ

Solicitors

None appointed

Investment managers

Brewin Dolphin Securities

**Structure, Governance and Management**

The Committee is an association governed by rules which were originally adopted on 22 October 1969. It was registered as a charity on 4 December 1969.

The objectives of the charity are the advancement, for public benefit, of the science and art of lighting together with the advancement and publication of the related research, through making grants to appropriate organisations and individuals, providing advice and sponsorship or undertaking research.

The Board of Trustees consists of five trustees who meet two or three times a year and serve for one full year. They may then offer themselves for re-election at the Annual General Meeting. Due to the size and nature of the Committee it is not considered necessary for new trustees to receive any formal training or induction.

The Committee is made up of the trustees, a representative from each of the sponsoring organisations, the cooperating organisations, and the participating universities, and the individual members. It meets on an ad hoc basis. Its primary function is to set the technical policy of the Committee in relation to all fields of lighting research and provide related strategic advice.

## Achievements and Performance and Financial Review

The Accounts are in accordance with the Trustees' expectations and objectives and further details are shown in the accounts and the accompanying notes.

It is the policy of Committee to maintain sufficient free reserves to generate sufficient investment income in order to continue to support UK researchers at the current levels.

Approved by the Trustees on 2nd December 2010 and signed on their behalf by

*Nick Pollack*  
Chairman

..... P. J. Clarke  
Treasurer