



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

Canadian National Committee Comité National Canadien



---

# CNC/CIE Annual Report 2013

Minutes of 58th Annual Meeting

2013-November-08

and

Canadian Division Members' Reports



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

Canadian National Committee Comite National Canadien



---

**MINUTES OF THE 58th ANNUAL CNC/CIE MEETING**  
**Held at the 9<sup>th</sup> Biannual Joint Meeting of the CIE/USA and CNC/CIE**  
2013-November-08

The 58th annual meeting of the Canadian National Committee of the Commission Internationale de l'Éclairage (CNC/CIE) was held on Friday, November 8, 2013 at the UC Davis Conference Center in Davis, California.

**Note:** the following acronyms may be used in this report:

CIE	Commission Internationale de l'Éclairage
CIE-BA	CIE Board of Administration
CIE-CB	CIE Central Bureau
CIE-DD	CIE Division Director
NC	CIE National Committee
TC	CIE Technical Committee
CNC	Canadian National Committee
CNC/CIE	Canadian National Committee of the CIE
CIE/USA	US National Committee of the CIE
ISO	International Organization for Standardization
IESNA	Illuminating Engineering Society of North America
SCC	Standards Council of Canada
NRC-MSS	Measurement Science and Standards portfolio of the National Research Council of Canada
CONST	Construction portfolio at the National Research Council of Canada
NRC-IRO	International Relations Office at the National Research Council of Canada
CISSET	NRC Advisory Committee on International Science, Engineering and Technology
NRCan	Natural Resources Canada
DRDC	Defence Research and Development Canada
M/AM	Members/Advisory Members

The Canadian Division Members had submitted, prior to the meeting, written reports for the purpose of our CNC/CIE annual meeting and annual report. Division reports were also presented in collaboration with the CIE/USA Division Members at the joint meeting of the CNC/CIE and the CIE/USA held just before this CNC/CIE meeting.

### **1. Call-to-Order and Approval of Agenda:**

The 58th annual meeting of the Canadian National Committee of the Commission Internationale de l'Éclairage (CNC/CIE) was called to order at 11:15 PST on Friday, November 8, 2013 by V. Venkataramanan, President.

Sixteen Members, Advisory Members and Guests were in attendance in person or by teleconference. The list of all attendees is given in Appendix A. Teleconferencing using the Government of Canada teleconference system was arranged and hosted by J.A. Veitch.

The agenda is given in Appendix B.

## **2. Minutes of the 57th CNC/CIE Annual Meeting:**

Minutes of the 57th Annual Meeting were posted on the CNC/CIE webpage. The action items (Appendix C) were reviewed, with the current status of the action items also reported in Appendix C. Unfinished action items have been carried over into new Action Items #1 to #6 (Appendix J). The Minutes were accepted as posted.

## **3. President's Report:**

V. Venkataramanan presented his report with discussion. His written report is given in Appendix D.

## **4. Vice-President's Report:**

J.A. Veitch presented her report with discussion particularly on the factors that adversely affected the organizing of this meeting and also on the role of NRC in relation to the CNC/CIE. Her written report is given in Appendix E.

## **5. Secretary's Report:**

W.S. Neil briefly summarized each item in his report via teleconference. His written report is given in Appendix F.

With respect to item 5 of the report, Requests for Funding, there has been a request for CNC/CIE sponsorship and participation in an information outreach session in conjunction with the IEC TC113 working group meetings scheduled for the week of June 2, 2014 in Mississauga at CSA. This request was received from Dr. Haridoss Sama, Chair of the SCC mirror committee for IEC TC 113. The members present at the meeting were supportive of this request for approximately \$500 and an opportunity to network with IEC TC113, which covers topics of common interest in lighting applications and displays involving nanotechnology. However, it was decided to send out an email ballot to the full membership to determine their support for this request. (See AI-7 on action items list, Appendix J)

## **6. Financial and Publications Report:**

V. Venkataramanan presented the Treasurer's report since K.F. Lin was unable to be present. The report was discussed and is given in Appendix G.

## **7. Subcommittee Reports:**

### **7.1 Website Report:**

J.A. Veitch presented her report, which included discussion on the new CNC/CIE webpage URL. This has been updated on the CIE webpage, along with the new CNC/CIE secretariat email address. Her written report is given in Appendix H.

### **7.2 Proxy Report:**

This item was discussed with the Action Items in Section 2 above.

## **8. CISET Annual Performance Review (APR) of the CNC/CIE:**

J.A. Veitch discussed the CNC/CIE ranking and some of the reasons that the CNC/CIE ranking has fallen in recent evaluations. There was general consensus that the CNC/CIE should focus on networking and membership development. J.A. Veitch will prepare this year's response to the questionnaire and circulate a draft in the coming weeks. (AI-8).

**MOTION:** Moved by J.A. Veitch, seconded by: V. Venkataramanan, that the CNC/CIE establish a "Membership sub-committee" focused on membership development. Motion passed with all in

favour. V. Venkataramanan offered to chair the sub-committee. Volunteers to serve on this sub-committee were J.C. Zwinkels, J.A. Veitch, M.K. Timmings and Michelle Mossman.

J.A. Veitch proposed that the “General Interest” mailing list be renamed to the “Expert Network”. This was accepted positively by those attending.

## **9. Revision of the Code of Procedure**

S.M. McFadden suggested that templates be used for CNC/CIE Division Member reports, such as for Microsoft PowerPoint®, with common header, footer and general formatting. She volunteered to review the various formats currently used and to propose a format for CNC/CIE use. This was accepted positively by those attending. (AI-9)

## **10. Nominations and Appointments (CNC/CIE):**

The current list of CNC/CIE Members and Advisory Members is given in Appendix I.

### **10.1 CNC/CIE Officers:**

The position of secretary is up for renewal. W.S. Neil has agreed to continue as interim secretary, as proposed by J.A. Veitch.

MOTION: Moved by V. Venkataramanan, seconded by J.C. Zwinkels that W.S. Neil continue as interim secretary until the plans of the current secretary (R. Baribeau) are determined. The motion passed with all in favour.

### **10.2 Canadian CIE Division Members:**

S.M. McFadden agreed to contact a potential candidate for Division 1 (see AI-1).

Due to the present uncertainty concerning the Canadian Division 8 member, it was discussed whether the position should be filled on an interim basis. J.C. Zwinkels indicated that there is a potential candidate from Simon Fraser University and will provide contact information.

J.A. Veitch indicated that L.A. Whitehead also might know of a potential candidate.

### **10.3 CNC/CIE Members and Advisory Members:**

A letter is to be sent to the Advisory members (see AI-6) to confirm their continued willingness to serve. The membership sub-committee is tasked with this action. When their responses have been received, membership matters will be dealt with by e-mail ballot before the next AGM.

## **11. Other Business:**

### **11.1 International Year of Light 2015:**

J.A. Veitch described the background for the IYL, the advantages of CNC/CIE participation, and indicated that she is on a CIE international task force regarding this activity. Another consideration is for the CNC/CIE to spearhead a Canadian National Committee supporting activities for the IYL.

MOTION: Moved by J.A. Veitch, seconded by S.M. McFadden, that the CNC/CIE form an IYL sub-committee. Passed. V. Venkataramanan offered to chair the sub-committee.

S.M. McFadden, J.C. Zwinkels, A. Rosemann and S. Coyle volunteered to be members of the sub-committee.

Action Item (AI-10) W.S. Neil to communicate to the CIE-CB (in response to its request in October) that V. Venkataramanan is to be the Canadian contact for the CIE working group on the IYL.

## **11.2 Correspondence:**

The correspondence received was already discussed (request for sponsorship, see AI-7 and Section 5 (Secretary's Report) above).

## **11.3 Date and place for next year's meeting:**

J.A. Veitch and J.C. Zwinkels propose that the CNC/CIE meet in Ottawa next year. Discussion followed with proposals for a possible workshop, thus extending the meeting over 2 days, and the opportunities for CNC/CIE to network with local lighting industry. Following discussion of potential conflicts with other meetings in November, the proposed time for the meeting is the last week of October 2014.

## **11.4 Other business:**

There was a question concerning whether there was any update available on status for the new CRI standard. J.A. Veitch reported that discussion during the Division reports at the joint meeting that morning indicated that the task committee is close to completing a report but there are no current recommendations. A new committee is working on the revision of the standard.

## **12. Adjournment**

V. Venkataramanan expressed his thanks to the participants. The meeting was adjourned at approximately 13:00 PST.

W.S. Neil  
Interim-Secretary, CNC/CIE  
NRC - MSS  
Ottawa, ON  
Tel: (613) 993-2555  
Fax: (613) 952-1394  
Email: CNC-CIE-Secretariat@nrc-cnrc.gc.ca

## **LIST OF APPENDICES**

APPENDIX A: Attendees to the 58th CNC/CIE Annual Meeting  
APPENDIX B: Agenda for the 58th CNC/CIE Annual Meeting  
APPENDIX C: Action Items from the 57th CNC/CIE Annual Meeting  
APPENDIX D: President's Report  
APPENDIX E: Vice-President's Report  
APPENDIX F: Secretary's Report  
APPENDIX G: Financial and Publications Report  
APPENDIX H: CNC/CIE Web Site Report  
APPENDIX I: CNC/CIE Members and Advisory Members  
APPENDIX J: Action Items from the 58th CNC/CIE Annual Meeting

## APPENDIX A

### CNC/CIE 58th Annual Meeting

2013-November-08

#### Attendees

<sup>1</sup> S. Coyle	Cree Lighting Canada
A.C. Crelly	California Lighting Technology Center
<sup>1</sup> A.A. Gaertner	NRC-MSS
<sup>1</sup> B. Kolesnik	AECOM
A. Laperrière	Hydro Québec
<sup>1</sup> Rui Li	Lumentra Inc.
<sup>1</sup> S.M. McFadden	Toronto
<sup>1</sup> M. Mossmann	University of British Columbia
<sup>1</sup> W.S. Neil	NRC-MSS
<sup>1</sup> S.S. Qutob	Health Canada
<sup>1</sup> M.K. Timmings	Studio Four Technical Services
J.A. Veitch	NRC-CONSTRUCTION
V. Venkataramanan	University of Toronto
L.A. Whitehead	University of British Columbia
<sup>1</sup> H. Wolfman	Independent Consultant
J.C. Zwinkels	NRC-MSS

<sup>1</sup> Attended via teleconference.

## APPENDIX B

### CNC/CIE 58th Annual Meeting

2013-November-08

10:30 to 12:00

#### PROPOSED AGENDA:

The reports from Division Members will be presented in collaboration with the CIE/USA at the Joint CNC/CIE and CIE/USA meeting to be held 08:30 to 10:30 on Friday, 2013-November-08.

- |   |                   |
|---|-------------------|
| 1. Call to Order and Approval of Agenda           | V. Venkataramanan |
| 2. Minutes of the 57th Annual CNC/CIE meeting     | V. Venkataramanan |
| - Action items                                    |                   |
| - Matters arising                                 |                   |
| 3. President's report                             | V. Venkataramanan |
| 4. Vice-President's report                        | J.A. Veitch       |
| 5. Secretary's report                             | W.S. Neil         |
| 6. Financial and Publications report              | K.F. Lin          |
| 7. CNC/CIE Subcommittee reports:                  |                   |
| 7.1 CNC/CIE website report                        | J.A. Veitch       |
| 7.2 CNC/CIE proxy report                          | S. M. McFadden    |
| 8. Ciset Annual Performance Review of the CNC/CIE | J.A. Veitch       |
| 9. Revision of CNC/CIE Code of Procedure          | S. M. McFadden    |
| 10. Nominations and Appointments (CNC/CIE)        | V. Venkataramanan |
| 10.1 CNC/CIE Officers                             |                   |
| 10.2 Canadian CIE Division Members                |                   |
| 10.3 CNC/CIE Members and Advisory Members         |                   |
| 11. Other Business                                | V. Venkataramanan |
| 11.1 International Year of Light 2015             | J.A. Veitch       |
| 11.2 Correspondence                               |                   |
| 11.3 Date and Place for next year's meeting       |                   |
| 11.4 Any other business                           |                   |
| 12. Adjournment                                   | V. Venkataramanan |

---

The annual meeting of CAC-ISO-TC 274 (the mirror committee to ISO TC 274, Light and Lighting) will be held in the same location at 13:00 on 2013-November-08. See separate agenda.

**APPENDIX C**  
**CNC/CIE 58th Annual Meeting**  
2013-November-08

**Action Items from the 57<sup>th</sup> Annual Meeting**

<b>57<sup>th</sup> Minutes AI#</b>	<b>Responsible</b>	<b>Action</b>	<b>Status</b>
1	A.A. Gaertner, S.M. McFadden, J.A. Love	Nominate a Div. 1 member	S.M. McFadden to contact a potential candidate in the following week (Carried over to 2014.)
2	R. Baribeau, K.F. Lin	Transfer money from the CB	Complete
3	K.F. Lin, A.A. Gaertner	Solve signing authority issues with the bank	V. Venkataramanan will visit bank next week to determine/change signing requirements. Ideally secretary would be signatory but the status of this position is indeterminate. (Carried over to 2014.)
4	A.A. Gaertner, S.M. McFadden	Investigate how to appoint proxies when no Canadian present.	Process is determined and accepted but needs to be incorporated into the Code of Procedure. Complete
5	J.A. Veitch	Prepare response to APR questionnaire.	Complete
6	A.A. Gaertner, S.M. McFadden, R. Baribeau, N. Renaud	Revise the Code of Procedure	Awaiting decisions from NRC MSS management. (Carried over to 2014.)
7	R. Baribeau	Communicate K.F Lin nomination to GM of MSS	Currently unknown. W.S. Neil will determine and carry out this action if not done. (Carried over to 2014.)
8	R. Baribeau	Advise K.F. Lin of acceptance by GM	Has not been advised. W.S. Neil will follow-up. (Carried over to 2014.)
9	M. Timmings	Prepare a letter to the Advisory Member for R. Baribeau to circulate.	Preparation completed. New membership sub-committee tasked with further actions.
10	J.A. Veitch, J.C. Zwinkels	Respond to SCC request about ISO TC274	Complete
11	V. Venkataramanan	Liaise with USNC regarding next joint meeting	Complete. Thanks to CLTC because we could not have organized this event without them.



## **APPENDIX D**

CNC/CIE President's Report  
October 2013

Venkat Venkataramanan  
vvenkat@optics.utoronto.ca

I am pleased to present this brief report on my activities this year as CNC President. This is my first year as the president and I thank the collegial National Advisory Committee for smooth and efficient conduct of affairs and for their continued efforts in popularizing lighting and advancement of lighting research.

I hosted the 57<sup>th</sup> AGM of CNC/CIE and a one-day workshop on 'Opportunities and Challenges in Energy Efficient Lighting' in Toronto on November 30, 2012.

I presented an invited talk in SPIE Photonics West at San Francisco, CA in January 2013 on Near Field Photometry for Organic Light Emitting Diodes Characterization.

I attended the CIE Centenary Conference, "Towards a New Century of Light", held at Paris between 12<sup>th</sup> to 19<sup>th</sup> April 2013 representing the Canadian National Committee of the CIE in the General Assembly. Other CNC/CIE members, Prof. Lorne Whitehead and Dr. Jennifer Veitch attended the General Assembly in their capacities of the Treasurer and Director of Division 3, respectively.

I have been active in TC-2 63 - Optical Measurements of High Power LEDs.

I have been continuing my activities as a lighting researcher and educator at the University of Toronto:

- We continue to strengthen the Solid State Lighting Network (SSLNet) with increasing participation from the industry and academia.
- In partnership with OLED Research Group at Philips, my laboratory is developing a photometric characterization facility for lighting-class OLED devices.

## APPENDIX E

### CNC/CIE Vice-President's Report November, 2013

**Jennifer A. Veitch, Ph.D.**  
*jennifer.veitch@nrc-cnrc.gc.ca*

In my capacity as Vice-President of the CNC, this year I undertook six tasks.

1. I led the preparation of the annual report to the NRC International Relations Office. This was submitted on time. We were successful, but the rating was not what I had hoped. We will discuss this under another item on the agenda.

2. Dr. Joanne Zwinkels and I consulted with the Standards Council of Canada concerning the establishment of the mirror committee to ISO TC 274. As you know, the CNC subsequently voted in favour of the arrangement, under which the CNC Division members, the President, and the Vice-president act as the core of the committee. The committee was duly established (CAC-ISO-TC 274) with me (as CNC/CIE VP) as its Chair.

3. I co-ordinated our responses to a survey from CIE concerning NC structure and operations.

4. I was unexpectedly a leader in the planning of the joint meeting with the CIE/USA, because their lead on the task was interrupted in his duties by the furlough of the US government in early October.

5. Dr. Zwinkels, Dr. Gaertner, Mr. Neil and I undertook to manage the Secretary's responsibilities during Dr. Baribeau's absence. This event made us realize the need for a central e-mail ([CNC-CIE-Secretariat@nrc-cnrc.gc.ca](mailto:CNC-CIE-Secretariat@nrc-cnrc.gc.ca)) to which more than one person has access, so that continuity can be maintained despite one person's absence. We also are establishing a central file archive on an NRC server for the same reason.

6. Dr. Zwinkels and I began a discussion with management of NRC Measurement Science and Standards (NRC-MSS) concerning the place for the CNC/CIE in the new NRC program structure. At issue is the continuing participation of NRC-MSS as the partner organization with NRC International Relations Office for the purpose of hosting the secretariat for the CNC/CIE. We believe this is important and warranted as part of NRC's program of Scientific Support for National Measurement Standards. At time of writing, we await their response.

## APPENDIX F

### CNC/CIE SECRETARY'S REPORT TO THE 58th ANNUAL MEETING

08Nov2013

The following acronyms may be used in this report:

CEN:	Comité Européen de Normalisation
CIE-CB:	CIE Central Bureau in Vienna, Austria
CIE-BA:	CIE Board of Administration
CIE/USA:	US National Committee of the CIE
CISET:	NRC advisory Committee on International Science, Engineering and Technology
CNC/CIE:	Canadian National Committee of CIE
GA:	CIE General Assembly
ISO:	International Organization for Standardization
MSS:	NRC Measurement Science and Standards portfolio
NC:	National Committee
NRC:	National Research Council of Canada
NRC-IRO:	NRC International Relations Office
NRC-INMS:	NRC Institute for National Measurement Standards
NRC-IRC:	NRC Institute for Research in Construction
NRCan:	Natural Resources Canada

This report covers the period from 01Jan2013 to 01Nov2013.

#### **CIE MATTERS:**

1. Annual Membership Fee:

The NRC-International Relations Office has continued to make these payments on our behalf.

The NRC, through a Grant Transfer Program, supports Canadian scientific organizations to affiliate with their corresponding international union and program bodies. As part of what NRC calls its Committee on International Science, Engineering and Technology (CISET), we are also affiliated with the International Council for Science (ICSU) and 29 other international scientific unions. The NRC membership to these international scientific organizations allows active participation by members of the Canadian scientific community in international scientific endeavors.

2. Mailings:

CIE announcements and Press Releases are available on the CIE website ([www.cie.co.at](http://www.cie.co.at))

#### **CNC/CIE MATTERS:**

1. New NRC structure:

The NRC-INMS had been responsible for creating and maintaining a Canadian National Committee (CNC) for the CIE. As a result of the present restructuring within NRC, which dissolved the former Institutes and created a new structure of Portfolios, this responsibility is presently under consideration by the Measurement Science and Standards portfolio. Our Code of Procedures will need to be modified to reflect the changing NRC structure.

2. CNC-CIE Secretary:

Secretary Réjean Baribeau is on extended medical leave. To accommodate continuity in communications with the secretariat there is now a generic email address at the NRC which is [CNC-CIE-Secretariat@nrc-cnrc.gc.ca](mailto:CNC-CIE-Secretariat@nrc-cnrc.gc.ca). W.S. Neil is presently acting as Interim Secretary.

3. CNC/CIE 2013 Annual Meeting:

The 58th annual CNC/CIE meeting will be on Friday, November 8, in Davis, California from 10:30 - 12:00 PST (1:30 - 3:00 EST). It will be followed at 13:00 by the Annual General Meeting of the Canadian mirror committee to ISO TC 274, Light and lighting (known by its Standards Council of Canada number, CAC-ISO-TC 274). This meeting is part of the 9th Biannual Joint Meeting of the CIE/USA and CNC/CIE, hosted by the CIE/USA this year at the California Lighting Technology Center in Davis, California,

November 7-8, 2013. There is a welcome reception on the evening of Nov. 6, technical day on Nov. 7, and business meetings on Nov. 8.

4. Annual Performance Review of the CNC/CIE:

The NRC International Relations Office has developed an Annual Performance Review (APR) questionnaire, requested by the NRC advisory Committee on International Science, Engineering and Technology (CISSET), that focuses on assessing the impact of Canada's international affiliations supported through the NRC Grant Transfer Program. The questionnaire is distributed to all NRC Partners/CNCs. Annual dues and any other payments will be withheld until receipt and successful review of the questionnaire by CISSET. We continue to score well above the pass mark and are in the middle of the pack of 28 CNCs. However, we should note that our score this year has declined in the past three years from 43.7 to 38 (out of a possible 45), and our rank dropped a lot from 2011.

5. Requests for Funding: See the minutes.

6. Relationship to SCC:

In 2013, ISO created a new technical committee, ISO TC 274 Light and Lighting. The Standards Council of Canada independently made Canada a Participating member country. SCC then needed to establish a mirror committee, CAC-ISO-TC 274, and sought the assistance of the CNC/CIE in doing so. Following a meeting of J. Zwinkels and J. Veitch with C. Geraghty at SCC, there was an electronic ballot of the CNC/CIE Members and Advisory Members on the following 5 motions. The Secretary, R. Baribeau, conducted the ballot in April 2013. There were 19 ballots cast, 10 of them from CNC/CIE Members (quorum is 7 Members).

Motion 1: Moved (Veitch/Zwinkels): That the CNC/CIE should indicate to the Standards Council of Canada its willingness to take on the role of providing the core of the Canadian Mirror Committee to ISO TC 274 Light and Lighting.

**Result: 19 in favour, none opposed. Carried.**

Motion 2: Moved (Veitch/Zwinkels): That the Chair and Vice-Chair of the Canadian Mirror Committee should be the Vice-President and President of the CNC/CIE, respectively.

Intent: This avoids putting a large amount of extra work on the President of the CNC/CIE.

**Result: 19 in favour, none opposed. Carried.**

Motion 3: Moved (Veitch/Zwinkels): That the core members of the Canadian Mirror Committee would be the Canadian delegates to the CIE Divisions.

**Result: 18 in favour, 1 opposed. Carried.**

Motion 4: Moved (Veitch/Zwinkels): That appointments of other CNC/CIE members to the Canadian Mirror Committee be made by the Executive of the CNC/CIE from time to time, and reported to the CNC/CIE at the Annual General Meeting in each year.

**Result: 19 in favour, none opposed. Carried.**

Motion 5: Moved (Veitch/Zwinkels): From time to time, experts who are not already members of the CNC/CIE might be appointed to the Canadian Mirror Committee, either by invitation through the Canadian Mirror Committee or by their having directly communicated with the SCC. These individuals would be invited to become Advisory Members of the CNC/CIE.

**Result: 19 in favour, none opposed. Carried.**

As a consequence of these votes, the Secretary communicated with the SCC, and SCC staff set up the mirror committee with the initial membership of J. Veitch (Chair), V. Venkataramanan (Vice-Chair), S.M. McFadden, J.C. Zwinkels, A. Laperrière, M.K. Timmings, S. Qutob. Business related to this committee and to our relationship with SCC and ISO will be discussed more fully at the meeting of CAC-ISO-TC-274 on November 8, 2013.

7. CNC/CIE website:

The website operates at the web address of [www.cnc-cie.ca](http://www.cnc-cie.ca). If anyone has suggestions for corrections, updates, or additions, please contact the Secretary or J.A. Veitch, our website coordinator. A report on the website will be given at the annual meeting.

8. Mailing Lists:

At present we maintain 3 mailing lists: Members, Advisory Members, and General Interest. In general, the difference between the first two and the third is that the third list tends to receive only CIE material (press releases of CIE publications, *CIE NEWS*) and notices of international conferences. Members and Advisory Members receive, in addition to the CIE material, more CNC information such as various ballots, and the Minutes of the annual meeting and related information.

9. Membership:

A list of our Members and Advisory Members is available and will be discussed during the annual meeting for the purposes of making any changes.

9.1. Officers:

Réjean Baribeau's term as Secretary expires this year.

9.2. Members:

9.3. Advisory Members:

9.4. General Interest:

9.5 Removals:

W.S. Neil, Interim Secretary

## APPENDIX G

### CNC/CIE 2013 financial statement:

1. 2012 bank balance	27106.35	
2. Income, CIECB	1429.84	
3. Web service	-75.00	
4. Bank monthly charge	-65.45	@5.95 X 11
5. 2013 Bank balance	28395.74	
6. Outstanding: Web ser.	-75.00	
	McGowan	-552.90
	Wolfman	-635.41
		subtotal: -1263.31

### CNC/CIE 2012 financial statement:

1. 2011 balance	27678.83	
2. Robertson's claim	-1718.13	
3. Income CIE CAN/USA	2882.85	
4. Catering service	-1758.00	
5. Hotel service	-1055.19	
6. Bank monthly charge	-77.35	@5.95 X 13
7. Income from CIE CB	1153.34	
8. 2012 Nov Bank balance	27106.35	
9. Outstanding: Web ser.	-75.00	(Will show in 2013)

Frank

---

Lighting Sciences Canada Ltd.  
160 Frobisher Drive, Unit 5  
Waterloo, Ontario, Canada N2V 2B1

Tel: (519)746-3140  
Fax: (519)746-3156  
Email: [lsc@lightingsciences.ca](mailto:lsc@lightingsciences.ca)  
Web: <http://www.lightingsciences.ca>

---

## APPENDIX H

### CNC/CIE Web Site Report November 2013

Jennifer A. Veitch, Ph.D.  
[jennifer.veitch@nrc-cnrc.gc.ca](mailto:jennifer.veitch@nrc-cnrc.gc.ca)

#### **Domain**

Through an error on the part of our contract webmaster, our URL was not renewed at its deadline in April. This resulted in the domain [www.cie-cnc.ca](http://www.cie-cnc.ca) being scooped by someone else. This was not discovered (to our shame) until the late summer. For at least three months we were offline.

The solution to this problem was to re-register with a new domain: [www.cnc-cie.ca](http://www.cnc-cie.ca). This went online in early September. It is set up for automatic renewal, chargeable to the webmaster (who will invoice us), so there is no risk of recurrence of this problem.

The URL was updated at the Central Bureau, so we are now findable again through the CIE web site.

#### **Usage**

As a result of the problem, we have no useful usage statistics for this year.

#### **Content**

We need to resume our work to keep the content up-to-date. This needs a new effort this coming year, as the more good content we can get there, the better.

#### ***History of Lighting in Canada***

I remain interested in adding content on the history of lighting in Canada, but other pressures have prevented making any progress on this task. This remains a task that could be a great student thesis or research project and I would welcome any volunteers to take it on.

#### **Maintenance**

The cost for the domain registration, site hosting, and maintenance remains low.

## APPENDIX I

### CNC/CIE MEMBERS

<u>CNC/CIE</u>			<u>TERM (expiry)</u>	<u>CIE</u>
President	V. Venkataramanan	Ontario	2015-12-31	
Vice President	J.A. Veitch	Ontario	2015-12-31	Division 3
Secretary	R. Baribeau	Ontario	2013-12-31	Division 8
Publications/Treasurer	K.F. Lin	Ontario	[2016-12-31]	
	J. Bastianpillai	Ontario	2015-12-31	
	André Laperrière	Québec	2015-12-31	Division 4
	J.A. Love	Alberta	2015-12-31	
	S.M. McFadden	Ontario	2015-12-31	Division 1
	S.S. Qutob	Ontario	2015-12-31	Division 6
	C. Suvagau	British Columbia	2015-12-31	
	M.K. Timmings	Ontario	2015-12-31	Division 5
	L.A. Whitehead	British Columbia	2015-12-31	
	J.C. Zwinkels	Ontario	2015-12-31	Division 2
<i>ex officio</i>	A.A. Gaertner	Ontario		NRC/MSS Member

[?] = needs final NRC approval

### CNC/CIE ADVISORY MEMBERS

Martin Aitkenhead	Ontario	Ken Loach	Ontario
Santo Aguanno	Ontario	P. Manning	Nova Scotia
Eduard Alf	Ontario	J. Bruce McArthur	Ontario
Chantal Arsenault	Ontario	S.W. McKnight	Ontario
Ian Ashdown	British Columbia	Arthur H. Mendel	Québec
M.G. Bassett	Ontario	Tim Moggridge	Ontario
Chrisnel Blot	Québec	Guy Newsham	Ontario
Mario Bucci	Ontario	Keith Niall	Ontario
J. Allyson Chrysler	Ontario	T. Nilsson	P.E.I.
Vince Cimino	Ontario	Karen Pero	Ontario
W.B. Cowan	Ontario	J.B. Roberge	Québec
Biman Das	Nova Scotia	A.R. Robertson	Ontario
R.V. Day	Ontario	Alexander Rosemann	British Columbia
Walter T. Delpero	Ontario	Mankajee Shrestha	British Columbia
Marie Dumont	Québec	Andrew D. Silbiger	Ontario
Marcin Gorzkowski	Ontario	Dyoni Smith	Ontario
John W. Harron	Ontario	Ralph A. Smith	New Brunswick
Kurt Ising	British Columbia	Nikolay Stoev	Ontario
S.M. Kaye	Manitoba	Eli Szamosi	Ontario
Donald Kline	Alberta	B.W. Tansley	Ontario
Barbara Kolesnik	Ontario	Thanos Tzempelikos	Ontario
R. Lakowski	British Columbia	R.W. White	Québec
Denis Lavoie	Québec	Ernest Wotton	Ontario



**APPENDIX J**  
**CNC/CIE 58th Annual Meeting**  
2013-November-08

**Action Items from the 58<sup>th</sup> Annual Meeting**

<b>Action Item Number</b>	<b>From 57<sup>th</sup> Minutes AI#</b>	<b>Responsible</b>	<b>Action</b>	<b>Status</b>
AI-1	1	A.A. Gaertner, S.M. McFadden, J.A. Love	Nominate a Div. 1 member	S.M. McFadden to contact a potential candidate in the following week.
AI-2	3	V. Venkataramanan	Solve signing authority issues with the bank	V. Venkataramanan will visit bank next week to determine/change signing requirements. Ideally secretary would be signatory but the status of this position is indeterminate.
AI-3	6	A.A. Gaertner, S.M. McFadden, R. Baribeau, N. Renaud	Revise the Code of Procedure	Awaiting decisions from NRC MSS management.
AI-4	7	R. Baribeau, W.S. Neil	Communicate K.F Lin nomination to GM of MSS	Currently unknown. W.S. Neil will determine and carry out this action if not done.
AI-5	8	R. Baribeau, W.S. Neil	Advise K.F. Lin of acceptance by GM	Has not been advised. W.S. Neil will follow-up.
AI-6		Membership sub-committee	Correspond with Advisory Members to confirm willingness to serve.	
AI-7		J.A. Veitch, W.S. Neil	Send out email ballot to determine support for sponsorship of CNC mirror to TC113	
AI-8		J.A. Veitch	To prepare this year's APR and circulate for comment.	
AI-9		S.M. McFadden	To prepare a common report software template and circulate for comment.	
AI-10		W.S. Neil	Contact CIE-CB re Canadian contact for IYL	



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

Canadian National Committee Comité National Canadien



---

# Canadian Division Members' Reports

**CNC/CIE 58th Annual Meeting**

2013-November-08

# Division 1 Vision and Colour Report to CNC/CIE Annual Meeting

Sharon M. McFadden

Email: sharon\_mcfadden@rogers.com

The annual meeting of Division 1 was held 5-6 July 2013 in Leeds, UK. The meeting was attended by 5 officers, 13 country representatives (plus an additional 11 by proxy), 16 TC Chairs, and several guests. Ellen Carter (US) acted as a proxy for Canada. Twelve Technical Committees (TC) met in conjunction with the meeting: TC1-55 Uniform colour space for industrial colour difference evaluation, TC1-61 Categorical colour identification, TC1-77 Improvement of the CIE whiteness and tint equations, TC1-81 Validity of formulae for predicting small colour differences, TC1-82 The calculation of colour matching functions as a function of age and field size, TC1-83 Visual aspects of time-modulated lighting systems, TC1-84 Definition of visual field for conspicuity, TC1-85 Update CIE Publication 15:2004 Colorimetry, TC1-89 Enhancement of images for colour defective observers, TC1-90 Colour fidelity index, TC1-91 New methods for evaluating the colour quality of white-light sources, TC1-92 Skin colour database

## Highlights

Four new TCs and one Reportership were proposed at the Division meeting. They are:

### TC1-93 (V) Calculation of Self-luminous Neutral Scale (Chair: Robert Carter US)

Terms of Reference: To recommend a formula or computational method for an achromatic, neutral or gray scale for self-luminous (i.e. non-reflective) surfaces. (This computation complements CIE Lightness,  $L^*$ , which serves a similar purpose for reflective surfaces.)

### TC1-94 (V) Visually Meaningful Spectral Luminous Efficiency Functions (Chair: Janos Schanda HU)

Terms of Reference: To propose new 2 degree and 10 degree photometric observers based on the work described in CIE Publications 086-1990 and 165:2005, as well as that of CIE TC1-36 Fundamental chromaticity diagram, and study their use in practical photometry.

### R1-60 (C) Future Colour-Difference Evaluation (Reporter: Guihua Cui CN)

Terms of Reference: To report on publications that relate to colour-difference evaluation and uniform colour spaces.

Two TCs (TC1-57 Standards in Colorimetry, and TC1-74 Methods for Re-defining CIE D Illuminants) and four Reporterships (R1-40, R1-50, R1-56, and R1-57) were closed.

## Future Meetings

The next meeting of CIE D1 will be at the National Institute of Standards and Technology, Gaithersburg, Maryland, 16-17 June, 2014. The Division meeting immediately precedes a symposium organized by the Inter-Society Color Council (June 18) and a meeting of ASTM E12 Color and Appearance (June 19-20).

## Canadian Participation in Division 1

Based on the latest information available to me, Canada has representatives on 12 Technical Committees in Division 1. They are as follows:

TC1-42	S. McFadden	TC1-70	A. Rosemann
TC1-55	A. Robertson	TC1-71	B. Jordan, A. Robertson
TC1-64	S. McFadden (Chair)	TC1-77	B. Jordan, J. Zwinkels
TC1-67	Brian Tansley	TC1-80	Keith Niall
TC1-68	T. Nilsson	TC1-85	A. Robertson
TC1-69	I. Ashdown, L. Whitehead		

J. Zwinkels is also a liaison between Division 1 and ISO TC6/WG3. If anyone is interested in participating in one of the TCs, especially the newer ones, please contact Sharon McFadden.

### **CIE Publications**

200:2012: CIE Supplementary System of Photometry

204:2013: Methods for Re-defining CIE D Illuminants

CIEDS 014-6/E:2012: Joint ISO/CIE Standard: CIE Colorimetry – Part 6: CIEDE2000 Colour-Difference Formula

### **Summary of Progress of Technical Committees and Reporterships**

The following summaries of activities in the various Technical Committees of Division 1 are based on the minutes from the 2013 Division 1 meeting. Additional information on some of the TCs can be found in the minutes as well as the Activity Report for 2013. These are available in PDF format on the Division 1 website at <http://div1.cie.co.at/>. The activity report includes the terms of reference and membership for all TCs and Reporterships.

### **Progress in Vision Section (M. Ayama, Associate Director (AD))**

TC1-36 Fundamental Chromaticity Diagram with Physiologically Significant Axes (F. Viénot) The draft of Part II of the Technical Report has been agreed among the TC members, and it will proceed to the TC vote after minor editorial revisions.

TC1-42 Colour Appearance in Peripheral Vision (M. Ayama) A TC vote for the TR has been completed and the draft TR has been submitted to the Division and the BA.

TC1-67 The Effects of Dynamic and Stereo Visual Images on Human Health (H. Ujike) The latest draft of a TR on photosensitive seizures has recently been circulated to members. The draft TR was also sent to Division 6 because they are interested in the work dealt with by the draft report. The title of the TR is: Undesirable Biomedical Effects of Photosensitive Seizures - Effects of Flash and Pattern, Their Measurements and Countermeasures. A tentative schedule for processing the draft is to have comments by 31 July and a revised draft by mid August with the TC ballot at the end of August.

TC1-78 Evaluation of Visual Performance in the Real Lit Environment (R. Luo) Following the resignation of the TCC, Monica Bilger, the Division Director (DD) received responses from some of the TC members indicating the importance and validity of the work of the TC. Taking this into consideration, the DD will take over the TCC.

TC1-80 Research Methods for Psychophysical Studies of Brightness Judgments (S. Fotios) A draft TR has been approved by the TC members and sent to the Division Editor.

TC1-82 The Calculation of Colour Matching Functions as a Function of Age and Field Size (J. H. Wold) TC meetings were held in Paris and Leeds. Suggestions from this meetings are:

- Restrict the age parameter to 20–70 (or 20–60) years
- Include tables and plots for CIE 1931 and CIE 1964 Standard colorimetric observer
- Include data for stimuli represented on the purple line, i.e. XYZ tristimulus values and xy chromaticity coordinates as a function of complementary wavelength
- Include option for choice of wavelength domain (used in tabulations)
- investigate data for elderly people in order to determine the cut-off with respect to age.

TC1-83 Visual Aspects of Time-Modulated Lighting Systems (D. Sekulovski) A publication with the definitions of different temporal artifacts and comparison of models for their visibility is in preparation. Experiments have been carried out at Philips Research Europe (Sekulovski, Perz) and at the South East University (Wang). After discussion, the words “ghosting, and digital artifacts” in the Terms of Reference were changed to “the phantom array effect.” The working plan of the TC is as follows:

- Write up literature study (Summer 2013)

- Agree on best practices for methodologies (before end of 2013)
- A paper with definitions and best practices on methodologies (before end of 2013)
- Reconcile data and identify where more data are needed (before end of 2013)
- Agree on sensitivity curves for simple stimuli (before end of 2014)
- Agree on the methods to extend to complex stimuli (before end of 2014)
- Write up the TC Report (2015)

The TCC plans to have a web meeting in August 2013, and a physical meeting in November in Taipei.

TC1-84 Definition of the Visual Field for Conspicuity (N. Itoh) The TC had a meeting in Leeds. The TCC introduced that there exist two ways to represent the visual field function, one is by depicting the functional property as a function of eccentricity, and the other is by showing the value of functional field size. The method of classification and aspects of classification were discussed and the following suggestions were given in the TC meeting:

- Consider other aspects of two different groups of visual field function.
- Add “adaptation” as an important factor for all functions of visual field.

Work for the next meeting is as follows:

- Preparation for guidelines for visual signs, displays, markings.
- Point out the important considerations for guidelines.
- Collect more references on the value of functional field size.

TC1-88 Scene Brightness Estimation (Y. Nakamura) The working program is as follows. In 2013, 2014, all members will investigate current research on brightness estimation methods using a calibrated luminance image of a real indoor scene, list them, and provide explanatory descriptions of each of them. In 2015, several members in different laboratories will carry out experiments to compare brightness estimations of real indoor scenes with those predicted by different estimation methods. In 2016, the TC will finalize the activity and recommend a method to predict the brightness of specified regions of a scene from a luminance image of that scene.

TC1-89 Enhancement of Images for Colour Defective Observers (Po-Chieh Hung) The TC was proposed and accepted in Division 1 in 2012, and had 4 Web meetings from February to June; further it is going to have the 5th Web meeting in August 2013. The TC had a physical meeting in Leeds. The TCC showed highlights of presentations in the past meetings from the TC members. It was agreed that the Terms of Reference be changed to: To study, evaluate and recommend image enhancing techniques for colour defective observers and to provide test procedures for the evaluation of those techniques.

JTC-1 Implementation of CIE 191 Mesopic Photometry in Outdoor Lighting (L. Halonen) This TC had a meeting in April 8 2013 in Paris. Seven presentations were given as contributions to the work of the TC. The 5th meeting will be held at the time of the CIE 2014 Lighting Quality & Energy Efficiency Conference in Kuala Lumpur, Malaysia.

R1-40 Scene Dynamic Range (Jack Holm) There was no report from this Reporter again. Ballot to close this Reportership was approved.

R1-49 Above-threshold Pulsed Lights (M. Nicholson & D. Couzin) Malcolm Nicholson submitted a report written by Dr. Peter Rhodes entitled “Apparent Intensity of Flashing Light.” This report is appended to the 2013 Division 1 Minutes. The report was written independently from Dennis Couzin, and his comments will be sent to Malcolm Nicholson and the Division officers.

R1-51 Reconciling Maxwell vs Maximum Saturation Colour Matches (M. Brill) There was no report to this meeting. The Reporter continues this work, and thus the Division gave the Reporter another one-year extension.

R1-57 Border between Luminous and Blackish Colours (T. Seim) The Reporter submitted a report, which will be circulated and uploaded to the Division website. Ballot to close this Reportership was approved.

## **Progress in Colour Section (E. Carter, Associate Director)**

TC1-55 Uniform Colour Space for Industrial Colour Difference Evaluation (M. Melgosa) This TC met July 2013. The main conclusions were:

- Amongst noteworthy developed colour spaces (e.g. DIN99, CAM02, OSA-GP, IPT-based spaces, etc.), at this moment we cannot recommend just one colour space for industrial colour-difference evaluation. From existing experimental datasets, none of the formulas associated with such colour spaces is statistically significantly better than CIEDE2000.
- We can produce a Technical Report focusing on the STRESS method to assess the merit and statistical improvement of any colour-difference formula with respect to a given set of visual data, as well as the intra- and inter-observer variability associated with visual experiments
- Research in colour-difference evaluation must be continued. To follow-up advances in this field and give advice on possible new TC/TCs I think that nomination of a Reporter may be highly useful.

A proposal for the Technical Report is included in the 2013 D1 minutes.

TC1-57 Standards in Colorimetry (A. Robertson) This TC was established in 2000 and since then four standards covering CIE 1976 L\*a\*b\* Colour Space, CIE 1976 L\*u\*v\* Colour Space and u', v' Uniform Chromaticity Scale Diagram, CIE Tristimulus Values, and CIEDE2000 Colour-Difference Formula have been published. Since the work of the TC is now completed, the TC was closed at this meeting.

TC1-61 Categorical Colour Identification (T. Ishida) This TC met at Leeds to discuss the third draft of the TR. An outline of the third draft is provided in the Division 1 minutes. If this draft is accepted, the report will proceed to publication.

TC1-63 Validity of the range of CIEDE2000 (K. Richter) While there was no progress in this TC over the last year, a first draft is intended to be completed by the end of 2013.

TC 1-64 Terminology for Vision, Colour and Appearance (S. McFadden) This TC has been collecting terms, relevant to Division 1, that were recommended for addition to the ILV. Two drafts of a Technical report, containing the terms on which consensus had been reached previously, were prepared and reviewed by members. After review, it appears that members still have significant concerns about a few of the terms. These concerns will hopefully be addressed in the third draft. A subset of the terms will also be sent to Division 2 for their input.

TC1-68 Effect of Stimulus Size on Colour Appearance (P. Bodrogi) The TC has agreed upon the text of the Technical Report of CIE TC 1-68 and the document has been edited by the Division Editor. Now the minor editorial changes must be incorporated, and then the TR will be sent to the CB for ballot.

TC1-69 Colour Rendering of White Light Sources (W. Davis) The TR from this TC is in the writing stage. The report will summarize the main work but will issue no recommendations. The two new TCs will take up the work where this TC has left off. Once the report is completed the plan is to close the TC.

TC1-70 Metameric Samples for Indoor Daylight Evaluation (B. Kranicz) No report.

TC1-71 Tristimulus Integration (C. Li) Various methods of tristimulus integration have been selected and compared in the past year. Preliminary results have shown that the least squares method, referred to as the Li-Wang-Luo (LWL) method is best when the interval length is not greater than 10nm. When the interval length is 20nm, the optimum weighting tables method, referred to as the Li-Luo-Rigg (LLR) method is the best and LWL is second. It would be nice to recommend a single method (LWL) for computing the tristimulus values independent of the measured interval length. It is hoped that the results are valuable to CIETC1-85 for the revision of CIE Publication 152004 Colorimetry.

TC1-73 Real Colour Gamut (C. Li) The time line for the TC is to evaluate further the new gamut developed by Li, Luo, Pointer, Cho and Kim Firstly, reflectance data were accumulated. The available 3D gamuts were compared, which shows the available gamuts do not represent real data well and a new gamut in terms

of reflectance functions is necessary. Based on the accumulated data, a new gamut named as the object colour gamut (OCG) was developed. It will be further evaluated. It is hoped that the OCG will provide the starting point for a CIE recommendation, once sufficient testing and perhaps further refinements are completed. Finally it is hoped the TC work will be completed by the end of 2014.

TC1-74 Methods for Re-defining CIE D illuminants (J. Schanda) The Division and BA ballot have been conducted with all comments and questions answered. The TR has been published as CIE Publication 204:2013: Methods for Re-defining CIE D Illuminants. Thus the TC was closed at this meeting.

TC1-75 A Comprehensive Model of Colour Appearance (R. Luo) The 2010 work plan for this TC proposed that the TR be completed by June 2012. It turned out not to be so simple. Work on the Forward Model is nearing completion, but some problems especially related to the size effect and unrelated colours remain. The current plan is to complete the forward model in July 2013 and to circulate the first version of the Technical Report to TC members in September 2013.

TC1-76 Unique Hue Data (S. Wuerger) There have been no changes since last year's report. However, the next step is that the chair is meeting with Renzo Shamey to discuss if he can provide data for surface colours. She has provided data for self-luminous stimuli.

TC1-77 Improvement of the CIE Whiteness and Tint Equations (R. Hirschler) This technical committee met in Leeds. During the meeting, a wide range of ongoing research in this area was reviewed.

TC 1-81 Validity of Formulae for Predicting Small Colour Differences (K. Richter) This TC met at Leeds. An extensive report on the problem of predicting small colour differences is provided in the minutes.

TC1-85 Update CIE Publication 15:2004 Colorimetry (J. Schanda) The first full meeting was held in Paris. The following are the agreed main parts of the Colorimetry document and leading authors:

1. CIE Observers: Jan Henrik Wold (CIE standards and TC 1-36 XYZ observers)
2. CIE illuminants and sources: J. Schanda (include indoor daylight and smoothed illuminants)
3. Information on simulators: R. Hirschler
4. Reflectance standards: D. Rich (include available information from TC 2-70)
5. Geometric conditions for colorimetry: D. Rich
6. Calculation of tristimulus values: E. Carter, C. Li, Y Ohno
7. Uniform color spaces and colour difference formulas: M. Melgosa
8. Color appearance model: R. Luo
9. Dominant wavelength, purities, CCT: Y. Ohno, M. Rea
10. Whiteness: R. Hirschler

Progress on each section was discussed at the meeting held in Leeds..

TC1-86 Models of Colour Emotion and Harmony (Li-Chen Ou) A review of the work carried out to date can be found in the minutes of the D1 meeting.

TC1-90 Colour Fidelity Index (H. Yaguchi) The work plan for this TC is to 1) gather reliable experimental data assessing colour fidelity 2) analyze the data by proposed colour fidelity indices 3) write a report to propose the new CIE CRI. At the TC meeting in Leeds, discussions centered on the proposed CFI and related visual experiments, calculation of nCRI with various light sources, a visual experiment on CFI, and test color samples.

TC1-91 New Methods for Evaluating the Colour Quality of White-Light Sources (Y. Lin) This TC met at Leeds. Several colour quality metrics were reviewed. The TC work plan proposes gathering reliable experimental data assessing colour quality. Analysis of the data from proposed methods should be completed by the end of 2013. In 2014 some parallel experiments for comparison of the indices will be carried out. Finally, a report to propose the methods for industrial use will be written in 2015.

TC1-92 Skin Colour Database (K. Xiao) This TC was formed by email ballot earlier this year. The Terms of Reference are 1. To investigate the uncertainty in skin colour measurement and to recommend protocols

for good measurement practice, and 2. To tabulate skin colour measurements that accord with these protocols covering different ethnicity, gender, age and body location. The TC held its first meeting in Leeds. The plan is to target skin colour spectral reflectance data. The methods for measurement will include both conventional skin colour measurement (using spectrophotometers and spectroradiometers) and skin imaging with spectral estimation (using RGB cameras, multi-spectral cameras, hyper-spectral cameras). The work plan timetable is to investigate uncertainty of skin colour measurements (1-12 months), recommend the protocol for skin colour measurements (13-18 months), combine the existing skin colour database (19-36 months), conduct skin colour measurement (19-36 months), develop a skin colour database (37-42) and write the TC report (42-48 months).

R1-42 Extensions of CIECAM02 (C. Li) This Reportership evaluates potential additions to CIECAM02. A summary of the progress of TC8-11 which is working on this topic is provided in the minutes.

R1-50 3D Aspects of Visual Appearance Measurement (D. Simmons) A report was submitted earlier in the year and this Reportership was closed at this meeting.

R1-51 Spectral Data Interpolation (H. Fairman) The reporter stated that he expects to complete the report by the end of 2013.

R1-53 Gloss Perception and Measurement (F. Leloup) The completed report has been submitted to Color Research and Application as a Review Article and is currently in the review process. When a decision has been made on publication the report can also be submitted to Division 1.

R1-56 Skin Colour Database (K. Xiao) The report was completed and a new TC (TC 1-52) was established in 2013. Thus this Reportership was closed at this meeting.

R1-58 Liaison with ISO TC130 Graphic Technology (P. Green) This Reportership was formed in Taipei last year and the major effort of the reporter during this year was to organize the workshop that was held prior to this year's Division 1 meeting. The Workshop on Colorimetry in Graphic Arts and Colour Management was held on July 4 2013, with participation from CIE, ISO TC130 and ICC. The topics covered were CIEDE2000 applications in graphic arts (including neutrals), Progress on CIE colour rendering indices, Colour gamuts, and Over-range  $L^*$  values on fluorescent substrates.





## Division 2: Physical Measurement of Light and Radiation

Report to 9<sup>th</sup> Biannual Joint US/CIE and CNC/CIE Meeting  
CLTC, Davis, CA, 8 November 2013

Joanne C. Zwinkels  
National Research Council of Canada  
Measurement Science and Standards  
Ottawa, Ontario, Canada K1A 0R6

Phone: (613) 993-9363

FAX: (613) 952-1394

E-mail: [Joanne.zwinkels@nrc-cnrc.gc.ca](mailto:Joanne.zwinkels@nrc-cnrc.gc.ca)

The most recent CIE Division 2 (D2) General and TC meetings were held in Paris, France in conjunction with the CIE Mid-term meeting, 16-19 April 2013. D2 now has 42 country members with Kenya being the most recent addition. At the D2 meeting, there were 25 country members or proxies present. I attended this meeting as country member for Canada and as one of the D2 Associate Division Directors (ADDs).

There were the following changes in the D2 Officers: Dr. Hiroshi Shitomi (Japan) has replaced Guy Vandermeersch (Bel) as one of the ADDs. Dr. Armin Sperling (DE) has replaced Georg Sauter (DE) as one of the ADDs. Dr. Tony Bergen (AU) is the new D2 editor replacing Armin Sperling (DE).

Attendees to the meeting observed a duration of silence in respect for Dr Gerhard Rösler (DE), Chair of TC2-53, who passed away late last year.

Twelve Technical Committees (TCs) met in Paris: TC 2-47 *Characterization and Calibration Methods of UV Radiometers* (Sperling); TC2-51 *Calibration, characterization and use of array spectroradiometers* (Young); TC2-59 *Characterization of imaging luminance measurement devices* (Krüger); TC2-63 *Optical measurement of high-power LEDs* (Zong); TC 2-64 *High speed testing methods for LEDs* (Heidel); TC 2-68 *Optical measurement methods for OLEDs used for lighting* (Gerloff); TC 2-70 *Standards for the measurement of reflection and transmittance properties of materials* (Rich); TC2-71 *CIE standards on test methods for LED lamps, luminaires and modules* (Ohno); TC2-73 *Measurement of quantities relating to photobiological safety of lighting products* (Mou); TC 2-74 *Goniospectroradiometry of optical radiation sources* (Pan); TC 2-76 *Characterization of AC-driven LED products for SSL applications* (Chou); and JTC2 *CIE-CCPR Principles Governing Photometry* (Ohno)

### Highlights

Four (4) new TCs, one (1) joint TC, and five (5) new Reporterships were proposed at the D2 meeting. Three of the new TCs came from proposals from two Reporterships (R2-62 and R2-63) and the fourth new TC (2-77), given that it has no technical content, was approved by the D2 members at the meeting (subject to Board approval).

Editorial and publication activities since the D2 meeting in Hangzhou:

Edits have been provided to the following reports:

- TC2-37 Photometry using Vlambda detectors
- TC2-49 Flashing Lights
- TC2-47 UV Radiometers
- TC2-60 Bandwidth Correction – this was significantly edited following advice of a new method,
- TC2-57 Array Spectrometers

### Proposals for New D2 Technical Committees and Joint TCs:

The CIE Board has approved the following four new TCs and one joint TC:

**(1) Technical Committee 2-77** (approved by D2 members at the meeting)

**Title:** *Fundamental Concepts*

**TCC:** Tony Bergen (AU)

**Motivation:** It was proposed by T. Bergen to have a standing TC which is geared to social interaction of D2 members at division meetings, in line with D4's unofficial TC 4-11.

**ToR:** To facilitate informal collaboration and sharing of ideas on fundamental concepts in photometry, radiometry and colorimetry with a special focus on dedicated activities at D2 division meetings.

**(2) Technical Committee 2-78** (approved by email ballot after the meeting)

**Title:** *The Goniophotometry of Lamps and Luminaires*

**TCC:** Tony Bergen (AU)

**Motivation:** CIE 121-1996 and CIE 084-1989 still have consistently good sales for the CIE despite being quite old. It has been recognised that these publications are somewhat out of date and in need of update [see R2-62]. This TC will update and amalgamate the relevant parts of these documents, as well as the relevant parts of CIE 070-1987, to provide a single, up-to-date reference for goniophotometry, incorporating the latest techniques and requirements. Note: The title of CIE 121-1996 is "The Photometry and Goniophotometry of Luminaires", however the term "Photometry" has been removed from this title to make it clear that the TR will only be covering goniophotometry and not other photometric techniques.

**(3) Technical Committee 2-79** (approved by email ballot after the meeting)

**Title:** *Integrating sphere photometry and spectroradiometry*

**TCC:** Dong-Hoon Lee (KR)

**Motivation:** Although CIE 121-1996 and CIE 084-1989 still have consistently good sales for the CIE, it has been recognised that these publications are somewhat out of date and in need of update [see R2-62]. In particular, there are currently no publications that are specifically dedicated to integrating sphere photometry. CIE 084-1989 covers integrating sphere photometry for measurement of luminous flux. However it is missing



some of the designs and techniques currently employed for the photometry of SSL devices. It also contains only a brief assessment of the sources of error and uncertainty. This TC will provide a single, up-to-date reference for integrating spheres used for photometry and spectroradiometry of sources by updating the relevant parts of the old document CIE 084-1989 and incorporating the latest techniques and practices.

**(4) Technical Committee 2-80** (approved by email ballot after the meeting)

**Title:** *Spectroradiometric measurement of light sources*

**TCC:** Richard Young (DE), [young@instrumentsystems.com](mailto:young@instrumentsystems.com))

**Motivation:** Although Publication 63 has been valuable and frequently referenced, it is now 29 years old. Much has changed in terms of equipment, technology, techniques and types of sources during that time. Some of the systems described can still be found today, but the scope must be extended to encompass modern systems. In general, much of the fundamental principles described still hold but work since 1984 (e.g. bandpass correction algorithms) requires the text to be updated. For greater detail on evidence of need, see Report of R2-63 "Revision of CIE 63-1984" and proposal of new TC.

**(5) Joint Technical Committee, JTC-5 (CIE-IEC)** (email invitation for expert members sent after the meeting)

**Title:** *Revision of IEC 62471/CIE S009*

**D2 Co-Chair:** H. Shitomi (JP)

**ToR:** To update CIE S009; to take account of revised exposure limit guidelines from the International Commission on Non-Ionizing Radiation Protection; to provide a clearer rationale for the definition of the risk groups; and to improve the guidance on measurements in conjunction with Division 2. To work with IEC TC76 and IEC TC34 on the development of product-specific requirements of the revised standard. However, responsibility for the product-specific requirements will rest with IEC. To work with IEC to produce a dual-logo standard to replace CIE S009/IEC 62471.

.....

**Proposals for new Reporterships (5):**

**(1) Reportership R2-64**

**Title:** *To summarise the key points from the TC 2-28 draft report on characterization of spectrophotometers and make recommendations for a new TC*

**Reporter:** T. Goodman (UK)

**(2) Reportership R2-65**

**Title:** *Multi-geometry colour measurements of effect materials*

**Reporter:** G. Obein (FR)

**(3) Reportership R2-66**

**Title:** *To prepare a TN on the colour difference of light sources*

**Reporter:** Y. Ohno (US)

**Note:** since Paris meeting, the Reporter has completed a working draft of this TN and it has been sent for D2 commenting; Deadline 2013-10-27.

**(4) Reportership R2-67**

**Title:** *To prepare a TN relating photobiological and photochemical quantities to photometric quantities*

**Reporter:** P. Blattner (CH)

**(5) Reportership R2-68**

**Title:** *Measurement of light output degradation of LED light sources*

**Reporter:** Pei-Ting Chou (TW)

**Dissolution and Changes of TCs and Reporterships:**

The following 4 TCs have been closed because of decisions at Paris meeting

TC 2-28 *Characterization of spectrophotometers* (Goodman)

TC 2-32 *Wet horizontal road markings* (Johnson)

TC 2-53 *Multi-geometry colour measurement of effect materials* (Roesler)

TC 2-56 *Standard on retroreflectance* (Miller)

The following 3 TCs have changes in TCC or ToR because of decisions at Paris meeting:

TC 2-60 *Effect of instrumental bandpass function and measurement interval on spectral quantities* (new TCC, Gardner).

TC 2-72 *The evaluation of uncertainties in measurements of the optical properties of solid state lighting devices, including coloured LEDs* (Young, new TCC ad interim).

TC 2-77 *Fundamental Concepts* (Tony Bergen, ToR to be approved by Board)

The following 2 joint TCs have new D2 co-chairs:

JTC-1 (D1/D2/D4/D5) *Implementation of CIE 191:2010 Mesopic Photometry in Outdoor Lighting* (D2 Co-chair: T. Goodman)

JTC-5 (CIE/IEC) *Review of IEC 62472/CIE S009* (D2 co-chair: H. Shitomi)

The following Reportership has a change in Reporter:

R2-60 *Discussion on the definition of luminance/radiance – TN* (Goodman)

The following 3 Reporterships have closed since Paris meeting:

R2-45 *Measurement of the Illumination Uniformity for Critical Applications* (Lysko)

R2-62 *Revision of D2 documents related to luminous flux and luminous intensity distribution* (Bergen)

R2-63 *Revision of CIE 63-1984* (Young)

**D2 Ballots since 2012 meeting in Hangzhou**

2013-03-04: New D2 officers

2013-04-11: New JTC on Revision of S009

BA/Division Commenting on Enquiry Draft of TC 2-49 “Measurement of Effective Intensity of Flashing Lights” (Deadline: 2013-06-09).

## D2 Director's Report

P. Blattner reported on the following items:

- The outcome of the CIE Strategic Workshop (Manchester, Nov. 2012 with BA, CB and stakeholders)
- The International Year of Light 2015 (suggested by EPS in 2009; now has support from more than 50 organizations ; received UNESCO approval in 2012; currently at UN)
- News from CIE – Technical Notes (TN)
  - A CIE TN is a short technical paper summarizing information of fundamental important to CIE members and its stakeholders. It is intended to be made freely available at a public area on the CIE website. A TN can be prepared as part of the work of a TC or by a Reportership established for that purpose. The commenting and balloting procedure to be followed for TNs was also described.
- ISO TC 274 “Light and Lighting”
  - CIE and ISO are negotiating structure and co-drafting business plan. The 1<sup>st</sup> constitutional meeting is planned for July 2013. Two SCs are proposed: SC1: Coordination of CIE Standards (to help streamline the process for joint CIE/ISO standards); SC2: for light + lighting product + system application standards
- News from the CIE BA Bylaws Amendments:
  - Amendments have been made to the following sections: membership, organization of CIE conferences, deadlines for distribution of official documents for all CIE technical meetings, procedure for election of BA
- DD Report
  - Important Decisions by BA: Harmonization with ISO in the development of Standards:
    - TC ballot – only one vote per country
    - Head of delegation to be appointed by Division member
    - Replace unanimity by consensus for TC ballots: Consensus – resolution of all substantive objections; in case of doubt, approval by 2/3 majority).
- CIE Code of Procedures Amendment
- CIE Delegation to IEA-GLA meeting, Tokyo, March 2013. Tony Bergen and M. Paul (CIE) attended this meeting for information flow on: IEA 4E SSL Annex, proficiency testing and future directions. Key outcomes: MOU with GLA; new CIE Standard for LED photometry (TC 2-71) will be used for future SSL Annex.

## Overview of the Status of TCs

### Overview of the Status of Technical Committees

Additional information on the terms of reference and membership for all Technical Committees and Reporterships can be found at the website: <http://cie.co.at/div2>

**TC2-17 *Simulated solar radiation*** (Myers). There have several developments since the last meeting to address the 1 negative vote on the WD ballot (2012-10-04). Clarification was received from Mario Blumthaler (an independent expert consulted by DD2) to report back to the CIE review panel. The review panel asked the TCC to prepare new (revised) draft with suggested changes incorporated. A minority report has been provided by objecting member and sent to the TCC. The TCC has replied but not all comments considered so far. During the course of this review process, it was confirmed that experts in the field of the weatherability test (ISO TC61/SC6 for plastics and ISO TC35 SC9 for paints) still need CIE85 and its update as a reference to their standard documents.

**TC2-28 *Characterization of spectrophotometers*** (Goodman). A questionnaire was sent to TC members and experts (5 of 12 returned); most considered the information in the TR out of date.

Decision: Close the TC and create a Reportership to produce a TN summarizing the key points of the TC 2-29 draft and to give recommendations for a new TC.

Reportership: T. Goodman (UK)

After the meeting, this Reportership is **R2-64**.

**TC2-29 *Measurement of Detector Linearity*** (Eppeldauer). The TCC has been in place more than 4 years and according to the CIE COP needed reconfirmation.

Decision: TCC was reconfirmed for 6 months but needs to: update membership list and register members, and provide a work plan.

After the meeting: these actions were completed and the CIE D2 Management is currently reviewing this information.

**TC2-32 *Wet horizontal road markings*** (Johnson). No CD was provided for the Paris meeting as required by the "Automatic procedure for closure" under CIE COP. A questionnaire was sent to TC members and experts (2 of 9 returned); diametrically opposed views: one said TR was state-of-the-art; the other said it needed significant revision.

Decisions: TC was closed. Current report will be archived using ColTool. The TCC was requested to contact D4 if he wishes to pursue publication of report; if D4 does not take on this TC, it will be re-considered at the next D2 meeting.

**TC2-37 *Photometry using Detectors as Transfer Standards*** (Ohno). This technical report was sent to CD ballot; deadline: 2013-04-21.

**TC2-40 *Characterization of luminance/illuminance meters*** (Blattner). The CIE Standard 023 was ready for final FDIS NC voting (2013-02-17). The TCC reported that there was one open point on the problem of limiting aperture plane versus reference plane. The TCM agreed to take the definitions from TC 2-37. It was also decided to replace throughout the document, the term "reference plane" with "limiting aperture plane". The TCC proposed a new term: "photometric reference plane" for the case where there is no

“physical limiting” aperture, e.g. a photometer with a diffuser; the proposal is that this reference plane would be where the inverse square law holds.

**TC2-47** *Characterization and Calibration Methods of UV Radiometers* (Sperling). The TC has had several Webex meetings and met in Paris. Comments to the latest draft have been received by the DE and the TC members were asked to reply by 2013-05-05.

**TC2-49** *Flashing lights* (Ohno). The CD of this report was sent for BA/Division commenting just before the Paris meeting.

**TC2-50** *Measurement of the optical properties of LED assemblies* (Distl). The TCC was reconfirmed for another four years. There was no meeting in Paris due to lack of input and short time since the last meeting in Hangzhou.

**TC2-51** *Calibration, characterisation and use of array spectroradiometers* (Young). The TC met in Paris.

**TC2-53** *Multi-geometry colour measurement of effect materials* (Roesler). The TCC passed away late last year. A questionnaire was sent to the TC members and experts (15 sent, 9 responses); there was a large variation in the responses on the relevance; many suggesting that it was outdated and that the needs of industry had changed; no volunteers for TCC.

Decisions: Close the TC; save the current draft in the CIE archives and provide as input to EMRP IND52 project; create a D2 reportership on this topic.

Reportership: Gaël Obein (France)

After the meeting: this Reportership is: **R2-65**

**TC2-56** *Standard on retroreflectance* (Miller). No CD was provided by the Paris meeting as required by the “Automatic procedure for closure” under CIE COP. A questionnaire was sent to TC members and experts (1 of 10 returned); the Standard would be useful but no possibility to contribute.

Decision: Close TC.

**TC2-57** *Revision of CIE S014-2* (Kránicz). The TCC reported that he has recalculated D50, D65 and D75 as presented in CIE 15.3:2004. Excel files of these results have been sent to the TC members for their review. In these tables, D50 has been calculated with the original  $S_0$ ,  $S_1$  and  $S_2$  characteristic distributions to a step size of 10 nm and then linearly interpolated to give values for 5 and 1 nm. Thus, the work of this revised Standard is essentially completed and the TC members have been consulted on the number of decimal places to include. This Standard should be ready for ballot before April 2013.

**TC2-59** *Characterization of imaging luminance measurement devices* (Krüger). The TC met in Paris.

**TC2-60** *Effect of instrumental bandpass function and measurement interval on spectral quantities* (Gardner). The TCC changed from Woolliams (UK) to Gardner (AU) at the Paris 2013 meeting. The document is nearly finished (still in WD stage). An additional section on sampling/system theory shall be incorporated.

**TC2-62** *Imaging-photometer-based near-field goniophotometry* (Steuertner). The TC met in Hangzhou and discussed Draft 2 of this report. Since then, Udo Kreuger distributed to TCM some comments on the ray file format specification and asked for input to an IESNA WG meeting,

**TC2-63** *Optical measurement of high power LEDs* (Zong). The TC had a meeting in Paris.

**TC2-64** *High speed testing methods for LEDs* (Heidel). The TC met in Paris.

**TC2-65** *Photometric measurements in the mesopic range* (Goodman). The TCC has been in place more than 4 years and according to the CIE COP needed reconfirmation. No TC status report was provided for the Paris meeting. There will be two TNs prepared. Decision: TCC was reconfirmed for 4 more years.  
Action: TCC needs to submit a status report within 4 weeks.

**TC 2-66** *Terminology of LEDs and LED assemblies* (Schanda). The Terms of Reference have been changed to prepare a Standard (approved by BA in 2013-06) and was transferred to AD/IS. The approval stage on AD/IS started 2013-08-02 with deadline: 2013-09-02. The ballot results were: BA 3/0/0, D2: 10/2/0 (Y/N/A). Thus, it can be published as CIE DIS ; in NC commenting stage (deadline: 2014-02-27).

**TC 2-67** *Photometry of lighting and light-signalling devices for road vehicles* (Manz). No report.

**TC2-68** *Optical measurement methods for OLEDs used for lighting* (Gerloff). It is proposed to prepare a TN on definitions "Terminology of OLEDs". IEC is also working on a performance standard for OLEDs, also on definitions. It is hoped that IEC and CIE can achieve common definitions and perhaps create a liaison. The intention is to produce a TN this year, also to have a TC meeting in Slovenia.

**TC2-69** *CIE classification system of illuminance and luminance meters* (Blattner). The TC had their first meeting in Hangzhou and did not meet in Paris. The only information on this TC posted on ColTool is a collection of relevant national standards from China, Germany, Italy, UK and Japan.

**TC2-70** *Standards for the measurement of reflection and transmittance properties of materials* (Rich). The TC had its first meeting in Paris. The TCM discussed the two draft documents on: hemispherical diffuse spectral reflectance factor and bidirectional diffuse spectral reflectance factor. It was decided that BRDF was outside the scope of this TC and that the standard documents will define only the minimum requirements for reflectance factor and transmittance measurements. The scope would also be limited to



the air UV-visible spectral range; although near and mid-IR had been included in the original proposal. The TCC will distribute to the TCM a draft survey to be sent to instrument manufacturers to request information on the required minimal spectral range, illuminated area, geometry so that specimen induced errors like translucency and non-Lambertian behaviors can be identified.

**TC2-71** *CIE Standard on test methods for LED lamps, luminaires and modules* (Ohno). The TC voting on WD had nearly 200 comments. The TCC prepared a revised document and there was a 2<sup>nd</sup> TC ballot on WD (Deadline: 01-09-2013) with the following results: 4 votes with approval (no comments), 10 votes for approval (with comments) and one vote for disapproval (with comments). In addition, several comments from 3 members of IEC TC34 LED panel (not voting members). Thus, WD2 has been approved to go to next ballot stage. TCC is preparing a revised document to address the total of 108 comments (most editorial but some technical) to be balloted as a next-stage draft (probably CD).

**TC 2-72** *The evaluation of uncertainties in measurements of the optical properties of solid state lighting devices, including coloured LEDs* (Sauter). This TC is awaiting the outcome of TC 2-60. TCC resigned because he no longer has support for CIE activities and Richard Young (DE) volunteered to take on this role since his TC (2-51) should be finished its work within 12-18 months. However, Richard Young also proposed another new TC at the Paris meeting which he would chair. Concern was raised that this would violate the CIE informal guideline for “one TC chairmanship per person”. Decision: Change TCC from Sauter to Young, as an interim measure and call for new TCC and TC members using ColTool.

**TC 2-73** *Measurement of quantities relating to photobiological safety of lighting products* (Mou). This TC met in Paris.

**TC 2-74** *Goniospectroradiometry of optical radiation sources* (Pan). The TC met in Paris.

**TC 2-75** *Photometry of curved and flexible OLED and LED sources* (Yu). The TCC had a Webex meeting on 2013-6-14. There was a presentation on the angular dependence of OLED lighting by TCM from Philips and discussions about the angular dependence of the responsivity correction of the integrating sphere and of the sample luminance measurements for different test areas.

**TC 2-76** *Characterization of AC-driven LED products for SSL applications* (Chou). The TC met in Paris.

### **Progress of Reporterships**

**R2-49** *Standardization of Broad-Band UV Measurements*

**Reporter:** Eppeldauer (US)

The reporter sent a written report *proposing a new TC* and has received support from D2 members from several countries.

**Discussion:** Several issues were raised at the meeting regarding – use of a single line source, possible contradiction with TC 2-47, an ISO Standard (3059:2012 Non-destructive testing covers this subject, whether UV range is included in scope of D2 and also concerns that the reporter is already TCC of one TC.

**Decision:** The D2 Management and VPP will compile the list of issues raised at the meeting and send to the reporter for addressing. If the reporter wishes to still propose a TC, to use the new TC impact form.

#### **R2-50** *Metric for Comparison of Luminous Intensity Distributions*

**Reporter:** Udo Kruger (DE)

The reporter presented a report (tabled).

**Discussion:** a wider test comparison should be organized, perhaps within D2. The handling of measurement uncertainties for luminous intensity are challenging. The suggested metric should be used in TC 2-62. Software will be made available to demonstrate the LID comparison.

#### **R2-51** *Characterization and Measurement of LED Lighting Sources with Dynamic Control*

**Reporter:** Jiangping Wang (CN)

The reporter presented a report (tabled) and *proposed a new TC*.

**Discussion:** It was considered that this is an important topic but perhaps should await until TC 2-71 Standard is implemented. Other issues raised: consult experts from other divisions, study current gaps and what problems need to be solved, what is the demand for these products, and is IEC or other organisations already working on this?

**Decision:** The D2 Management and VPP will compile the list of issues raised at the meeting and send to the reporter for addressing. If the reporter wishes to still propose a TC, to use the new TC impact form.

#### **R2-52** *Flicker measurement and flicker index: study on solid state lighting*

**Reporter:** Kuei-Neng Wu

The reporter presented a report (tabled).

**Discussion:** there is work on-going in D1 but this focusses on the effects rather than the measurement methods. There needs to be cooperation and collaboration with D1 but also IEEE committee working on this (measurement). A metric is also needed.

#### **R2-53** *Glare Rating Measurement by Image Luminance Measuring Device ( ILMD)*

**Reporter:** Kuei-Neng Wu

The reporter presented a report (tabled).

**Conclusion:** the ILMD method is good; more work is on-going.

#### **R2-54** *Internal quantum efficiency measurement for LED wafers*

**Reporter:** Cong Chen

The reporter gave proxy to Jiangen Pan who gave a brief presentation (tabled).

**Decision:** Intention is to complete the report within the next year; no TC is proposed.

**R2-62** *Revision of D2 documents related to luminous flux and luminous intensity distribution*

**Reporter:** Tony Bergen (AU)

The reporter gave a presentation (tabled) and *proposes the creation of two new TCs*: The Photometry and Goniophotometry of Lamps and Luminaires (TCC: T. Bergen) and Integrating Sphere Photometry and Spectoradiometry (TCC: Dong-Hoon Lee).

**Discussion:** Should the two TCS be run in tandem or in parallel – poll of D2 members present suggested parallel is OK.

**Decision:** Two new TCs to be created; to be confirmed by D2 ballot once the work plans and TC impact form are complete.

**R2-63** *Revision of CIE 63-1984*

**Reporter:** Richard Young (DE)

The reporter gave a presentation (tabled) and *proposed a new TC*.

**Discussion:** Other TCs cover the principles of this document but not all aspects. This document is intended to be a comprehensive document for spectroradiometry of sources: fundamentals of the equipment and quantities, whereas other reports and TCs use spectroradiometers.

**Decision:** Create a new TC for revision of CIE 63-1984 “Spectroradiometry of Sources” with Richard Young as interim Chair (since he is already Chair of two other TCs); to be confirmed by D2 ballot once the title, ToR, work plan and TC impact form are completed.

**R2-57** *Monitoring Progress of IEC TR 62776*

**Reporter:** H. Shitomi (JP)

The reporter gave a presentation (tabled) and commented that there is a new JTC5 which is covering this area.

**R2-59** *Discussion on Definition of BRDF*

**Reporter:** J. Zwinkels (CAN)

The reporter gave a presentation (tabled). The reporter has consulted experts from several NMIs regarding problems with existing definition and presented a recommendation for an improved definition to be considered by D2 when the ILV is next undergoing revision.

**Decision:** The reportership is to stay open since no changes to the ILV are being considered at the moment.

**R2-45** *Measurement of the Illumination Uniformity for Critical Applications*

**Reporter:** Meena Lysko (SA)

No reports have been received for some years.

**Decision:** Close R2-45.

**R2-60** *Discussion on the Definiton of Lumnance/Radiance*

**Reporter:** G. Sauter (DE)

It was proposed to change reporter from G. Sauter to T. Goodman. This was approved unanimously by D2 members present.



**Decision:** Change Reporter to T. Goodman (UK)

## Reports of Liaisons

Liaison reports are posted at ColTool.

The following four liaison reports were presented at the meeting;

**L2-3 ISO/TC6** (Paper, pulp and board: optical properties): a written report (tabled) was prepared by the liaison officer, J. Zwinkels (CAN)

**L2-4 IEC TC34:** the liaison officer Guy Vandermeersch (BE) gave a brief verbal report.

**L2-7 IALA:** DD and DS visited IALA at their HQ and had good discussions with IALA management. There is the possibility for a MOU – to be taken up at a higher level.

**L2-9 PRESCO:** the liaison officer, Yoshi Ohno (USA) gave a brief verbal report. This has mainly been addressed in TC2-65 which is in AD stage.

## D2 Strategy/ Technical Discussions

**JTC2 (CIE-CCPR)** – The Chair, Yoshi Ohno (USA), gave a status report. The role of this JTC is to implement the mesopic system defined in CIE 191 into a revision of the Principles Governing Photometry; a 3<sup>rd</sup> draft is under review.

**CIE/CCPR Workshop** – The Co-Chair of this Workshop, Maria-Louisa Rastello (Italy) gave a verbal report. This workshop would be held at the BIPM on the Monday following the Paris meeting. One of the topics of discussion is whether to change the base unit for photometry from the candela to the lumen. Other topics include the *mise en pratique* and current activity relating to mesopic photometry.

### Co-Chair D2 for JTC1

T. Goodman was proposed and approved as D2 Co-chair.

### Review of D2 Publications

DD2 conducted a survey in 2011 and tabled a report; feedback was to be provided within 1 month.

Decision: Ask all D2 members to send feedback to DD2 on “13.11

Div2\_Publications\_Review\_xls” by 2013-05-29.

## Future D2 Meetings and Symposia

**2013** Slovenia, 8-9 October; “CIE Expert Workshop on Measurement Uncertainty and Sampling Theory in Photometry and Radiometry” to be followed by Slovenia national conference; plans to have CIE D2 TC meetings prior to workshop.

**2014** Kuala Lumpur, Malaysia, 29-30 April, “CIE Lighting Quality and Energy Efficiency 2014 and D2 meeting and CIE Expert Workshop on OLEDs” in conjunction with D4 meeting.

**2015** Manchester, UK, 25 June – 4 July, in conjunction with CIE Quadrennial Meeting.



## **Canadian Participation in Division 2**

*Canada has representation on 8 Technical Committees:*

TC2-57	J.C. Zwinkels
TC2-59	T. Moggridge (Westboro Photonics)
TC2-60	J.C. Zwinkels, R. Baribeau (NRC)
TC2-63	V. Venkatarananan (UoT) , R. Li (Lumentra)
TC2-65	J.C. Zwinkels (NRC)
TC2-70	J.C. Zwinkels, N. Rowell (NRC)
TC 2-71	M. M. Sisto (INO)
TC 2-77	J.C. Zwinkels

### *Two Liaisons:*

ISO TC6: Paper, Pulp, Board:	J.C. Zwinkels (NRC)
ISO TC 145/SC 2 Safety colours and safety signs	J.C. Zwinkels (NRC)

**COMMISSION INTERNATIONALE DE L'ECLAIRAGE  
DIVISION 3 – INTERIOR LIGHTING AND LIGHTING DESIGN**

**2013 Activity Report to the Canadian National Committee**  
2013-October-29

Jennifer A. Veitch, Ph.D. – Canadian Delegate and Division Director (2011-2015)  
*jennifer.veitch@nrc-cnrc.gc.ca*

**2013 Division 3 Meeting**

The meeting was held in Paris, April 17, 2013. I was in attendance, serving as Division Director and as Canadian delegate. Minutes of the meeting are available from me or on the CIE web site (<http://div3.cie.co.at>).

**Current Division 3 Activities**

**Completed reports and publications**

One publication was completed between November 2012 and today: CIE 205:2013, *Review of lighting quality measures for interior lighting with LED lighting systems*. This is the final report of TC 3-50, which will be closed in 2013. A Canadian, Dr. Erhan Dikel, is among the authors.

**Active TCs and Reporterships**

There are 14 active technical committees and two reporterships in Division 3. There is one Joint Technical Committee, JTC 4 (with D3 and D6). JTC 4 is new, having been established by web ballot during 2013, and had its first meeting in Paris. Terms of Reference and current status of the committees are available on the Division 3 web site.

TC	Title	Chairman
JTC4 (D3/D6)	<i>Visual, Health, and Environmental Benefits of Windows in Buildings during Daylight Hours</i>	<i>M. Knoop (D3)</i> <i>F. Bisegna (D6)</i>
3-34	Protocols for describing lighting	J. Veitch
3-39	Discomfort glare from daylight in buildings	W. Osterhaus
3-44	Lighting for the elderly	Y. Akashi
3-45	Luminance-based design approach	Y. Nakamura
3-46	Research roadmap for healthful interior lighting applications	J. Veitch
3-47	Climate-based daylight modelling	J. Mardaljevic
3-48	CIE standard method of UF table calculation for indoor luminaires	P. Thorns
3-49	Decision scheme for lighting controls for tertiary lighting in buildings	P. Dehoff
3-50	Lighting quality measures for interior lighting with LED lighting systems	M. Knoop
3-51	CIE standard general sky guide	S. Darula
3-52	Energy performance of buildings – Energy requirements for lighting	D. Schornick
3-53	Revision of CIE S 008 Joint ISO*CIE Standard: Lighting of Work Places - Part 1: Indoor	Y. Koga
3-54	Revision of CIE 16-1970: Daylight	A. Pellegrino
3-55	Metrics for sunlighting and daylight passing through sunshading devices	M. Fontoyont
R	Title	Chairman
3-29	Variable Transmission Glazing (VTG): Current Trends and Future Prospects for Uptake by the Building Sector	J. Mardaljevic
3-30	Daylight Systems Metrics - Evaluation of Daylight Systems and Products	M. Fontoyont

At the 2013 meeting it was decided to convert the output of R 3-30 into a Technical Note for distribution through the web site.

*Key highlights of TC activities:*

The establishment of JTC 4 was the most exciting thing that happened this year, as for the first time we will have documents clearly establishing the importance of windows in buildings for health and well-being through visually-mediated processes.

TC 3-34, spent a year waiting for a decision concerning an impasse that had developed over one TCM who was asking for changes that contravened the International Lighting Vocabulary. The matter has been resolved and the document has moved to ED stage, where it will go out for ballot shortly. (Future TCs will not have this problem, as there are changes to the Code of Procedure to address this type of difficulty.)

Several TCs remain close to having final reports: TC 3-39, 3-44, 3-45, 3-48, 3-51.

TC 3-46, which I also chair, also fell behind this year again. As DD I am attempting to put in place supports to enable TCCs to stay on track with these tasks, and trying to apply them to me as well. We are now working to assign parts of the document to committee members to move beyond the fruitful discussions we have at meetings, to a complete document.

TC 3-53 was established to review and possibly revised CIE S008/ISO8995, Lighting for Indoor Work Places. I am a member of this TC. I will be seeking input on this matter from others in the CNC/CIE as the committee proceeds.

*Current Canadian Participation in D3 Technical Committees (October 2013)*

TC#	Title	Canadian Members
3-34	Protocols for describing lighting	J. Veitch (Chairman); D. Smith (Corresponding Member)
3-46	Research roadmap for healthful interior lighting applications	J. Veitch (Chairman)
3-47	Climate-based daylight modelling	I. Ashdown (Member)
3-49	Decision scheme for lighting controls for tertiary lighting in buildings	C. Suvagau (Member); J. Veitch (Corresponding)
3-52	Energy performance of buildings – Energy requirements for lighting	A. Rosemann (Member)
3-53	Revision of CIE S 008 Joint ISO*CIE Standard: Lighting of Work Places - Part 1: Indoor	J. Veitch (Member)
3-54	Revision of CIE 16-1970: Daylight	A. Rosemann (Member)

**Other D3 Activities**

With the establishment of ISO TC 274 as a formalization of links between CIE and ISO, standardization activities have taken on a new importance within CIE. It remains to be seen how this will affect work in the divisions, particularly the application divisions (D3, D4, D5, D8).

D3 is in the process of establishing an invitation-only, moderated LinkedIn discussion forum as a means to promote ongoing interaction between people on the mailing list. All formal work and votes will remain within the CollTool and established processes; this is intended for more flexible discussions leading to formal proposals for TCs, Reporterships, etc. Contact me if you wish to be included as a 'friend' of CIE D3.

The two current issues that are expected to lead to new work items are

- Discomfort from small-area sources (e.g., LEDs)
- Reportership on available daylighting metrics

Both are currently under discussion on the LinkedIn forum.

D3 also voted in 2012 to form an advisory task group co-chaired by the Associate Directors and with members being the editors of the leading journals. The working group is to consult annually on the current state of knowledge in order to provide input to the Division about topics that merit the formation of international consensus committees. Its first reports were rather tentative, but we hope that this approach will bear fruit in future years.

**Next Meetings**

There is general agreement that having Webex meetings in even-numbered years is wise, as it reduces the carbon footprint for D3 activities and increases participation. We will need to fine-tune the time-of-day for this meeting.

Webex, Spring 2014 (date to be determined)

Manchester, UK, July 2015





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

Canadian National Committee Comité National Canadien



---

**Division 4: Lighting and Signaling for Transport  
Report to CNC/CIE Annual Meeting**

**André Laperrière**

**Email: [laperriere.andre@lte.ireq.ca](mailto:laperriere.andre@lte.ireq.ca)**

**CIE DIVISION 4 MEETING –2012**

**Date: 17-04 -2013 19-04-2013**

**Office CIE France AFE**

**17, rue de l' Amiral Hamelin**

**75016 Paris**

**Room: 07-08 and Commission**

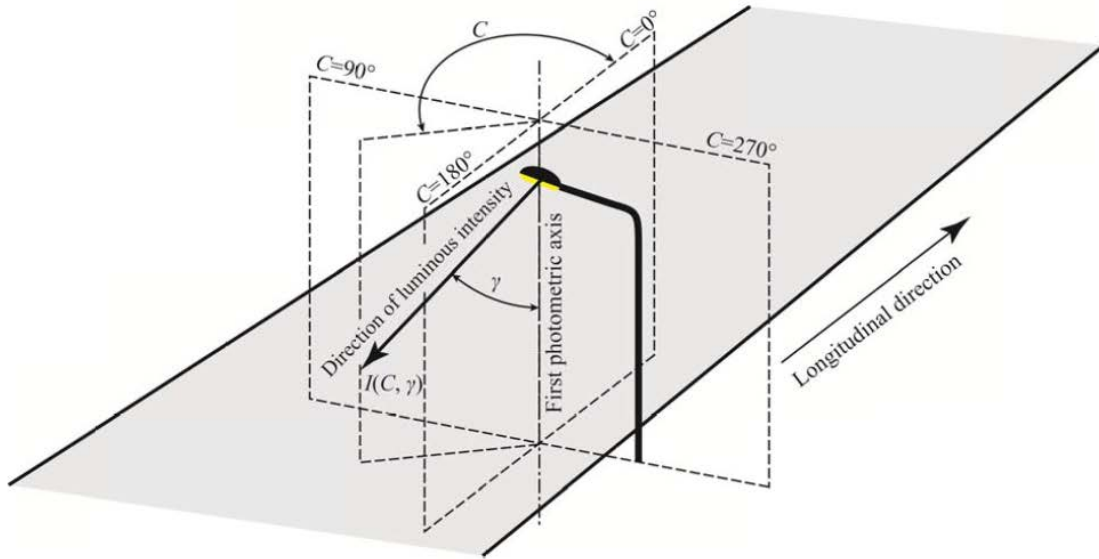
***Technical Committees***

- TC 4-15: Road Lighting Calculations
- TC 4-21: Interference by Light with Astronomical Observations
- TC 4-32: Surface Colours for Traffic Signs
- TC 4-33: Discomfort Glare in Road Lighting
- TC 4-36: Visibility Design for Roadway Lighting
- TC 4-40: Requirements for Retroreflective Traffic Signs
- TC 4-45: Performance Assessment Method for Vehicle Headlamps
- TC 4-46: 300 mm Roundel Signals
- TC 4-47: Application of LEDs in Transport Signalling and Lighting
- TC 4-48: White Light on Road Lighting
- TC 4-49 Guide to the Properties and Uses of Retroreflectors at Night
- TC 4-50 Road Surface Characterization for Lighting Applications
- TC 4-51 Optimization of Road Lighting

**1) TC4-15 Road Lighting calculations**

Final draft was supposed to be ready before the end of 2012. However, TC4-15 was not received yet. Dionyz Gasparovsky only received 2 comments from the division but there

were still comments coming in. New calculations needed to be done after the ballot and he expected to finish in May.



**Figure 1: Calculation of road lighting.**

The annex B of the draft *TC4-15 Road Lighting calculations* provides TEST DATA for assessment of the accuracy of computer programs. Several type of situation (seven) are provided (spacing of luminaires, number of lanes, mounting position,...). Input data files of specific luminaires are provided and then the several photometric quantities can be benchmarked such as average luminance, average illuminance, uniformity,...

## 2) TC4-21 – Impact of Roadway Lighting on Astronomical Observation

Still on hold until TC5-28 would conclude do avoid duplication effort. TC5-28 : *Guide on the Limitation of the effects of Obtrusive Light*.

## 3) TC4-32 - Surface Colours for Traffic Signs

Revision of Publication CIE 39-2:1983:

Chair: Jürgen Ewald

From his report:

The database of the colour standards using the analyzing software would be extended. New input was necessary to be provided to complete the overview of existing standards and specifications. The work would then be continued by collecting all relevant colour standards in the world and to summarize in the CIE diagram. The target was then to minimize all the variations to a guideline of general colour boxes. Relevant standards for pavement marking should be summarized as well.

The structure of the report was discussed.  
A WebEx session was foreseen for end 2013.

#### **4) TC4-33 Fundamentals of Disability Glare**

Chair: Ronald B. Gibbons  
Vice-Chair: Stephan Völker

This was the seven meeting of the committee with the new chair. The terms of reference for this group are: *“To study the known mathematical description of the discomfort glare in road and vehicle lighting, its scaling and comparisons with field studies and to condense the outcome in a report that should result in methods for discomfort glare assessment.”* Slow progress has been made on the draft however the document was reviewed and some discussion was held.

The discussion included:

- i) Work being performed at Darmstadt University with the GTB to investigate the Needs for Automatic Headlamp Levellers in automobiles;
- ii) The work of the Technical University of Berlin on the spectral components of glare;
- iii) The work of Philips in China investigated both the CCT and the beam shape. 3000K has a higher level of comfort than 6000K

The chair noted that an internship has been found to work on this document and future efforts would therefore move faster. As an item of housekeeping, the membership had to be reviewed to ensure that the membership forms and the copyright forms are up to date.

#### **5) TC4-36 Visibility Metric in Roadway Lighting**

Chair a/i: Ron Gibbons  
Secr: Otto Letamandi  
Ron would send the report to Nigel Parry DE4 for editing.

#### **6) TC4-40 Requirements for Retro reflective Traffic Signs**

Chair a/i: Paul Carlson  
Secr: Gernot Sauter

Draft 19 was the basis of the discussion at this meeting. The calculator still needed to be updated with the 2003 European beam data. Comments to the draft were discussed in detail and changes would be introduced in draft 20. The negative vote could be resolved, provided that respective comments were addressed in draft 20. It was proposed to

validate the tables and calculations prior to publication by another review. Send final draft to CIE editor for review.

## **7) TC4-45 Performance Assessment Method for Vehicle Headlamps**

Chair: Gert Langhammer  
Secr: Christian Ziehl

In 2012 TC4-45 had an intermediate meeting/nightdrive in Munsingen (Germany) where they drove some cars to get a better feeling how they can get forward to rate the high beam in a more sufficient way as it is the actual report. At the meeting in Paris the first results were shown.

## **8) TC4-46 300 mm Roundel Signal**

Chair: Carl Andersen, USA  
Meeting chaired by: Ron Gibbons

The document was reviewed. The progress is very close to complete. The work from 200 mm Roundels will be combined with this document. A discussion on Universal Design was also held with an update on the progress of adding a blue 'X' to red stop signal for colour abnormal. The results show a high level of acceptance to the blue 'X' for both colour normal and colour abnormal. This work will be included in the Annex of the document.

The other issue discussed was that of a colour uniformity standard. It is proposed that the colour will be measured at the same locations as the intensity measures. The metric will be having the same colour appear in the colour box but this will be verified with the efforts of TC 4-47

These issues as well as those from the document review are on-going. As an item of housekeeping, the membership will be reviewed to ensure that the membership forms and the copyright forms are up to date.

Carl Andersen informed the DD4 that he had regretfully to resign from chairmanship of this committee due to another internal assignment. Since the work of this TC was close to final, DD4 proposed Ron Gibbons as interim chair. The Division agreed to ask approval from the BA for this nomination. Carl was thanked for many years of active service to CIE and to this committee.

## **9) TC 4-47 Application of LEDs in Transport Signalling and Lighting**

Chair Steve Jenkins Australia

### *Roadlighting*

The meeting began at 9:00 a.m. and was attended by 24 people of which 9 were members. The TC considered Draft 6 (with additional input on glare) of the Road Lighting Report section by section. It was decided that the scope should not include public space lighting.

In the light of new data, the sections on maintenance factor, adaptive lighting and photo biological effects will be updated.

An action list for members will be compiled and sent out in early May.

### *Signs and signalling*

At 10:15 a.m. the committee then considered Draft 4 of the Signs and Signals Report with additional input in the railways section and in the maritime section.

It was decided that the vehicle head lighting and vehicle signalling section should be deleted unless some expert close to the vehicle lighting industry can be persuaded to write this section.

It is intended that both Reports should be ready for TC voting by May 2014. ”

### **10) TC4-48**

Chair: Stephan Völker

Almost ready, voting is going on at this moment.

### **11) TC4-49 Guide to the Properties and Uses of Retro reflectors at Night**

Chair: Gernot Sauter

The TC met for a 2 hour session in Paris. Second meeting of the newly established committee. Publication 72 (1987) was the basis of the discussion at this meeting. The active committee members are encouraged to circulate the meeting minutes to interested CIE members, in order to attract a broader group.

### **12) TC4-50 Road Surface Characterization for Lighting Applications**

Giuseppi Rossi: split road marking and road surface in 2 separate documents, because these are 2 total different things. Technical report 44 is marking and 47 is about road

reflections aspects. Giuseppe asks permission on the new proposal of the terms of reference. Wet road surfaces will also be included.

### **13) TC 4-51 Report – Optimization of Roadway Lighting**

Chair: Carl Andersen

Meeting Chaired by Ron Gibbons

Terms of reference:

*“Develop guidance on optimization of road lighting to balance the benefits and costs. Primary issues include accident risk and energy consumption.”*

This was the third meeting of the committee. The past results were reviewed. Also the designation of the chair of the committee was discussed.

- The work of the committee was reviewed. A presentation was made by Paolo Soardo and Ron Gibbons with respect to efforts being made on this project. Paolo Soardo highlighted the importance of weather and the possibility of using retro reflective of low level LED systems instead of lighting. Ron Gibbons showed some very initial results from his project on implementing adaptive lighting in the United States. His work will be complete at the end of September.
- Additionally, projects in France, Germany, Finland, Belgium and England were brought forward. It was agreed to collect projects and case studies and adaptive and warranting efforts in all countries. The scope of the TC remains considering Roadway lighting only but data will be gathered for all road sizes.
- Most of the projects considered as input to the committee are due to be complete sometime in the fall. A summary of the work of these efforts will be gathered for the use in the project.
- A review of the CIE 93 and the Etoli Document will also be conducted and delivered before the end of the summer.
- A discussion of the needs of the utility in terms of billing and peak hours was conducted. As many utilities bill roadway lighting as a flat rate and dimming will not provide any significant cost reduction. Additionally, utilities bill differently between peak loads and off peak time. As a result, the money gained through adapting may not be significant due to the rate changes. This needs to be included in the cost and benefit analysis.
- An initial outline of the document was developed to capture all of the ideas discussed for the TC.

From the TC there was a proposal for a new chair of the TC: Per Ole Wanvik, Norway. The Division agreed to ask approval from the BA for this nomination. Carl Andersen was thanked for many years of active service to CIE and to this committee.

## **JTC001 - Implementation of CIE 191 Mesopic Photometry in Outdoor Lighting**

From the report:

This joint TC did meet in Paris for the second time and had a huge program to fulfill!

There was a lot of input from the members.

30 members for this JTC

- Task 1. Investigate adaptation (4 subtasks)

What is the field of view?

What is the adaptation field?

What is the shape, ellipse, round, other?

Where is it centred: middle, beside, ex-central

What is happening with temporal changes? High luminance light sources do they have impact on the mesopic state of the eye?

- Task 2. Define lighting application (2 subtasks)

Can we average the luminance?

- Task 3. Provide guidelines (4 subtasks)

-Jan Winter (University Berlin), Peter Brodogi (University Darmstad) and Xioayang Zhu (Philips Research Shanghai) had a presentation.

- Next meeting was planned in September same time as Lux Europe and a Web-Ex in November.

CIE CNC Div. 5 Report 2013

Martyn K Timmings LC

I attended the CIE Centenary Conference April 15-16 in Paris, I also attended the Div 5 meeting following the conference. The minutes and action items are attached as well. It was nice to meet other members (18 countries represented)

I also attended TC5-27 Artificial Lighting and its impact on the Natural Environment, Bob Parks from the Dark Sky Association has agreed to take over this committee, I offered to participate, but have not seen any further action as of today. We did have discussion on the name of the committee; I did suggest it be Electric light not Artificial light. It's a European thing I understand.

Attached

CIE Division 5 Minutes April 18, 2013 Paris

CIE Division 5 todo list

CIE Division 5 Publications update

Sorry I can't be with you, I just returned from the IES Annual Conference which was in CA,

PS to Lorne I saw you on stage, and looked for you after.



# CIE DIVISION 5

## Exterior and other lighting applications

AFE – CIE France, Paris (FR)  
April 18, 2013

### 1) Opening of the Division 5 meeting

---

Division director (DD) P. Schwarcz opened the meeting at 9.00 and welcomed all the participants.

### 2) Approval of the Draft Agenda

---

Agenda of the meeting was approved unanimously.

### 3) Roll call, attendance and roster update

---

Start-up was dedicated to the memory of late Mary Crawford, former editor of Division 5, who passed away since the last division meeting.

The attendance sheet was distributed and signed by the participants. Present delegates self-introduced themselves. DD welcomed new division members. Present participants checked the roster for update and made necessary corrections. The roster will be kept updated by DS in connection with CIE CB.

#### Present members (M), substitutes (S) and guests (G):

P. Schwarcz	HU	DD	P. Larsen	NO	S
D. Gasparovsky	SK	DS	A. Korobko	RU	M
J. Warren	AU	DE	P. Hafdell	SE	M
P. Rombauts	BE	M	L. Djokic	SR	M
M. K. Timmings	CA	M	R. Kuo	TW	S
S.-X. Wang	CN	M	S.-W. Hsu	TW	S
A. Stockmar	DE	M	A. Smith	UK	M
C. Chain	FR	M	N. Pollard	UK	M
J. Lecocq	FR	M	A. Walkling	DE	G
C. Rocca	IT	M	P. Soardo	IT	G
T. Saito	JP	M	T. Goven	SE	G
J.S. Han	KR	M	B. Parks	US	G
M. Donners	NL	M			

DS required TCCs to provide list of active TC members within two weeks as current information on TC membership in Div 5 is very poor. Inactive TC members should be excluded from the list. List of TC members should be regularly reviewed by TCCs and changes communicated with DS.

#### **4) Approval of the minutes of the meeting in Virginia (USA) 2012**

---

The minutes from the last DIV5 meeting held in Blacksburg, Virginia (USA) were unanimously approved w/o comments.

#### **5) Division Director's Report**

---

Division Director's Report has been distributed via e-mail to division members prior to the meeting.

DD introduced *CollTool* to the participants – handling the system and overview of documents that are uploaded.

DD informed participants about news presented in the Board of Administration (BoA): CIE strategy workshop (action planning, amendment of by-law), JTCs (joint technical committees between divisions within CIE and with other organizations), new agreements with GLA and IALD and best selling CIE publications (including CIE 150 which belongs to Div 5).

2015, upon proposal of the UN, will be the International Year of Light. CIE holds quadrennial session in Manchester that year.

In ISO, new TC274 on light and lighting is being established. Secretariat of the new ISO TC will be hosted by DIN and chairmanship appointed to the CIE General Secretary (actually M. Paul). Work of the ISO TC should be complementary to the CIE, double work should be avoided. Division members discussed the future relationship between CIE/ISO and CEN/ISO, taking into account current reportship R5-21 of A. Stockmar. DD P. Schwarcz explained the voting rules in ISO which will fully apply to CIE standards – at least 2/3 in favour and maximum 1/4 can be against for approval.

#### **6) Division Secretary's Report**

---

DD uploaded Division Secretary's Report on CollTool during the meeting. DS informed about changes in NC representatives during last year, nomination of NC NL has to be yet checked/confirmed with the CB.

#### **7) Division Editor's Report**

---

Warren Julian replaced Mary Crawford in this position and last week BoA already gave his approval. During last period there were no new publications. There are persisting problems with three publications submitted in the previous period. These publications need improvements before further processing (discussed under corresponding TC reports below).

#### **8) Technical Committee Progress Reports (TC chairmen)**

---

##### **TC 5-18 Practical Design Guidelines for the Lighting Of Exterior Work Areas**

Short message, having not the form of report but acceptable, was sent by e-mail together with new draft of the document (Draft 7a).

### **TC 5-20 Guide for Sports Lighting**

Since Tom Lemons resigned as TCC, unavailable for CIE anymore, TC is currently not active. Gy. Major sent an e-mail explaining the situation stating that the draft is too old and not used by the main target players. DD warned that if restarting of works fails, CB will advice to close this TC. Several participants expressed their opinion that ToR needs a total revision and extension, having LEDs included. It has been concluded that a small Task Force Group (Smith, Lecocq, Major) will be set up to harmonize ToRs of two TCs (5.20 and 5.26) within 1 month deadline, i.e. end of May 2013.

### **TC 5-21 Urban Masterplanning**

TCC could not attend the meeting. TC almost finalized the work last year but FR voted against in TC ballot because social aspects of urban lighting were not properly worded out. C. Chain (FR) explained his position on the negative vote. As the main problem it was the lack of opportunity to contribute, although FR and even LUCI wanted to volunteer. The document itself is not bad but social aspects are underestimated. Last 9 months was a stand-still without any progress. The draft should be extended by one chapter on social aspects, with involvement of C. Chain in its preparation and contribution of LUCI possibly in September 2013. Thus, new draft is expected in September 2013 what depends on negotiations. N. Pollard and L. Djokic (amongst others) wish to have the document published as soon as possible because years have been spent on its elaboration. As further steps, current draft will be put on CollTool and DD P. Schwarcz will meet with TCC to discuss the problems (not decisions but action plan), informing Div5 about the results afterwards. Membership of C. Chain in the TC has to be communicated.

### **TC 5-22 Beam Patterns for Exterior Floodlighting Luminaires**

TC was chaired by Tom Lemons and has the same status as TC 5-20 though this document is of less interest. Upon proposal of DD and unanimous approval of Div5 the TC will be closed without publication. DD will thank Tom Lemons for his valuable contribution to CIE during his active period in spite of his last document will remain unfinished.

### **TC 5-23 Guidelines for the Use of Different Illuminance Patterns in Outdoor Applications**

P. Rombauts gave a brief report on the progress of this TC.

### **TC 5-24 Guide for Architectural and Decorative Lighting**

The last TC meeting was held two years ago in Sun City (ZA). TCC required to hire a professional writer to complete the document. DD together with CB tried to work out the funding but failed. As such, TC is inactive 2 years. N. Pollard pointed to ToR that aim is to update an older CIE document and not to write a book. Chain, Timmings and Djokic together with DE Warren Julian volunteer to form a Task Force Group in order to review the document (which should be complementary to the urban masterplanning) and to establish links with LUCI and IALD.

### **TC 5-26 Guide for the Lighting of Sports Events for Colour TV and Film Systems**

Alan Smith gave a brief report. The TC can be possibly merged with TC 5-20 (see above).

### **TC 5-27 Artificial Lighting and its Impact on the Natural Environment**

TC met on April 17. Before, last TC meeting was held in 2009 in Budapest. B. Parks volunteered to take over the TC chairmanship after P. Strasser but has no information on the progress in period 2009-2013. TCC would like to have 2-3 new members, new NL representative is working in research in this field, willing to contribute. N. Pollard offered his contribution for TC as well. DD reminded that ToR is to collect data and documents on the topic. IDA can help to collect research data and there also exist a document (IDA guidelines) for national parks. China works on night-time impact on the natural

## DIVISION 5 – EXTERIOR LIGHTING AND OTHER APPLICATIONS

environment. Recommendations should focus on spectrum and illumination levels. Within 1 month, TCC is required to write the scope of TC. By the end of year 2013 there should be the 1st draft available. Next TC meeting is planned in Germany.

### **TC 5-28 Guide on Obtrusive Light – Review of Publication 150:2003**

TC was very active during last couple of weeks. TC will hold a meeting in Paris the same day afternoon (April 18) to agree on the final work document. P. Soardo explained the existing problems and knowledge with the scope of the document. J. Lecocq emphasized that obtrusive light is the issue not only for astronomers. Review of the most sold publication CIE 150 should be finalized as soon as possible.

## **9) Reporter's Reports**

---

**R 5-19 IAU (International Astronomical Union):** Report from E. Alvarez is available at DD and will be uploaded to CollTool. Memorandum of Understanding between IAU and CIE is available in draft version.

IAU recommends:

1. Full cut-off luminaires
2. Spectral output
3. Limits of lighting levels (helping astronomers)

IAU is not happy with progress of TC 4-21 which will continue in Div5.

**R 5-21 CEN/ISO:** EN 12464-2 is out and the obtrusive light is not updated. It is not expected to have any update upcoming 4 – 5 years. CEN WG14 is handling a funded project (500.000 €) regarding the outdoor maintenance; measurements are to be performed in 4 countries.

**R 5-23 LUCI:** C. Chain gave a presentation and report. Four events are planned for 2013. Documents on LUCI will be distributed in Div5 later on.

No other report are received.

## **10) Liaisons Officer's Report**

---

All liaisons are shifted to reporterships. There are no liaisons active.

## **11) Reports from Division Members**

---

Reports neither received nor presented on the meeting.

## **12) Regular review of CIE publications and standards**

---

CIE publications and standards in the scope of Div5 have been reviewed. Actions and appointments are presented on a separate sheet.



### **13) Strategy review**

---

From strategic point of view it is very important to keep deadlines and provide deliveries in due time.

### **14) New items: Suggestions for new TC's, reporters, liaisons**

---

There are no suggestions to new items at the moment. If any suggestion emerges. It should be addressed to DD immediately, not waiting for the next division meeting.

### **15) R&D and Education**

---

Running research activities have been discussed under TC reports in point 8. No other information on R&D and education was shared during the meeting.

### **16) Date and venue of the next meeting**

---

Next meeting of Div5 is planned in Kuala Lumpur, MY. Div5 accepts the invitation under the condition that there will be a sufficient quality internet connection with WebEx service.

### **17) Any other business**

---

Web page of Div5 will be updated soon, DS informed.

### **18) Close of the Meeting**

---

DD closed the meeting at 13.10.

### **ANNEX: Attendance sheet**

---

1. Attendance sheet
2. List of reviewed CIE publications in scope of Division 5
3. To Do List

Dionyz Gasparovsky  
TC secretary

No.	Year	TC	Title	Status / Reviewer
<b>PUBLICATIONS</b>				
169	2005	5-11	Practical Design Guidelines for the Lighting of Sport Events for Colour Television and Filming	A. Smith
154	2003	5-14	The Maintenance of Outdoor Lighting Systems	D. Gasparovsky (+ P. Haffdel, A. Stockmar, Division 4) to define ToR until 30-June-2013
150	2003	5-12	Guide on the Limitation of the Effects of Obtrusive Light from Outdoor Lighting Installations	N. Pollard
129	1998	5-13	Guide for lighting exterior work areas	K. Austin
128	1998	5-03	CIE Guide to the Lighting for Open-Cast Mines	K. Austin
126	1997	4-21	Guidelines for minimizing sky glow	N. Pollard, after revision of CIE 150 is finished by 31-December-2013
112	1994	5-04	Glare Evaluation System for Use within Outdoor and Area Lighting	A. Stockmar
94	1993	5-06	Guide for Floodlighting	A. Tammes
83	1989	5-05	Guide for the Lighting of Sports Events for Colour Television and Film Systems (2nd edition)	A. Smith
67	1986	4.4	Guide for the Photometric Specification and Measurement of Sports Lighting Installations	A. Smith
62	1984	4.4	Lighting for Swimming Pools	Gy. Major
57	1983	4.4	Lighting for Football	Gy. Major
1	1980		Guidelines for Minimizing Urban Sky Glow Near Astronomical Observatories	N. Pollard (+ aid of an astronomer)
42	1978	4.4	Lighting for Tennis	Gy. Major
33	1977	4.6	Depreciation of Installation and their Maintenance (in Road lighting)	D. Gasparovsky (together with the review of CIE 154)
<b>STANDARDS</b>				
S 015	2005		Lighting of Outdoor Workplaces	D. Gasparovsky (there is a new CEN standard)
S 016	2005		Joint ISO/CIE Standard: Lighting of Work Places - Part 3: Lighting Requirements for Safety and Security of Outdoor Work Places	D. Gasparovsky

## CIE DIVISION 5 To Do List 2013

Deadline	Responsible	Action
	DD	Put the current draft of TC5-21 to CollTool
	DD	Inform about the results of meeting with TCC 3-52
	DD	Thank Tom Lemons for his valuable contribution to CIE during his active period
	DD	Upload Report from E. Alvarez (IAU) to CollTool
2013-05-15	DS	Confirm NL nomination with CB
	DS	Communicate requirements to sufficient quality internet connection and WebEx service with MY for the next Division Meeting in Kuala Lumpur
	DS	Update the webpage of Division 5
2013-05-15	TCCs (all)	Provide list of active TC members (name, country, e-mail)
2013-05-31	TFG 5-20 (Smith, Lecocq, Major)	Harmonize ToRs of TC 5-20 and TC 5-26
	TFG 5-24 (Chain, Timmings, Djokic) + DE	Review the document (which should be complementary to the urban masterplanning)
	TFG 5-24 (Chain, Timmings, Djokic) + DE	Establish links with LUCI and IALD
2013-05-31	TCC 5-27 (B. Parks)	Write the scope of TC 5-27
2013-12-31	TCC 5-27 (B. Parks)	Submit the 1st draft
	R 5-23 (Chain)	Distribute documents on LUCI (CollTool)
2013-06-30	Gasparovsky	Define Terms of Reference for update of the CIE 154 Publication

## **DIVISION 6**

### **PHOTOBIOLOGY AND PHOTOCHEMISTRY**

#### **Report to the Canadian National Committee November 04, 2013**

Sami Qutob, Ph.D.  
Consumer and Clinical Radiation Protection Bureau  
Health Canada  
6301A, 775 Brookfield Road  
Ottawa, ON, K1A 1C1

Phone: (613) 954-0303  
Fax: (613) 941-1734  
E-mail: sami.qutob@hc-sc.gc.ca

#### **Introduction.**

The Division 6 Annual Meeting took place on April 17th, 2013 in Paris, France.

Terms of Reference of Division 6: To study and evaluate the effects of optical radiation on biological and photochemical systems (exclusive of vision). The list of TCs, their terms of reference and current status is available on the Division web page: <http://www.cie.co.at/div6/tcs.htm>

#### **Division Officers.**

Director:	Dr. Ann Webb (UK)
Associate Director, Photobiological Standards:	Dr. Kohtaro Kohmoto (JP)
Associate Director, Photobiological Measurements and Dosimetry:	Dr. Karl Schulmeister (AT)
Secretary:	Dr. Andrew Smedley (UK)
Editor:	Dr. John O'Hagan (UK)

#### **1. Progress Report from Director.**

As Martina Paul from Central Bureau was present and available for questions for the first hour of this meeting this item was given over to a presentation of news from CB followed by discussion. There has recently been a consultation by TC chairs and other parties within CIE on a new Code of Procedure. One of the main amendments has been on the issue of unanimity for technical committee votes. In all cases the vote should be guided by scientific principles, but the Board has decided to separate the requirements for technical reports from those for standards. For technical reports the principle of unanimity has been replaced by one of consensus, defined by the absence of sustained opposition with a two-thirds majority required by TC members, only the authors (not advisers) having a vote. Sliney clarifies details that a minimum of 5 countries are required to be involved, but it is possible that an (old) TC may only have two authors who can vote.

Martina Paul: an ISO TC on Light and Lighting has been formed which CIE has decided to join. One



weakness until now is that CIE standards are sometimes not properly channelled if there is not a mirror committee in ISO. Involvement in the new ISO TC is a new model where the CIE secretariat holds the chair of the ISO TC which should bring the benefits of strong coordination with ISO, CIE being able to provide input for immature TCs and all CIE standards being processed under the fast track system.

Vincent enquires about coordinating new work items from ISO on CIE side. MP states that will be able to check new work items coming through the system, so will contact Divisions and TCCs as necessary. Vincent has info on relevant ISO work which he will pass to DD6 O'Hagan. Sliney comments on IEC TCs 34 and 76. Notes that there is concern from IEC side that ISO is poaching work. DD6 O'Hagan gives further details. DS clarifies details of review procedure with Martina Paul. In first instance the report should be passed to the original TC chair if still active, or an alternative expert found. The situation is straight forward for simple, minor comments, but more complex for major comments. In this case a new TC should be formed (as is being done for the revision of S009). Luc Schlangen asks what shadow committees are in ISO TC. More details to follow on 2 July.

## **2. Secretary's Report.**

DS notes that plans to use this agenda item to deal with some short notices, so can quickly move onto dealing with TC business. The Division currently has a total of 285 contacts on the D6 circulation list. DS should be notified of changes in details, new additions etc. The D6 portion of the CIE website is now mainly kept up to date by Central Bureau staff, but there are certain pages which are under the control of the Division. If there are any areas which you feel require alterations please just get in touch with the DS and the necessary changes will be made. DS reminds everyone about the Webex system, a voice over IP system with the added capability to share electronic files and view remote desktops. It is particularly useful for TC work as it removes the need to travel. For further information please contact Central Bureau.

There are a few changes to D6 NC reps during the last year:

**Belgium:** Thomas Conniasselle has taken over from Rik ROELANDTS

**China:** Tongsheng Mou takes over from Yang MING

**Croatia:** D6 has a new NC representative of Damir Dracic

**Czech Republic:** Milena Jiraskova has stepped down and as yet we do not have a replacement

**Italy:** Fabio Bisegna has taken over from Guiseppa MIGALE

**Malaysia:** D6 has a new representative, Chang Kee KWONG

**Norway:** Terje Christensen has taken over from Kjell Inge Daae

**Romania:** Constantin Ion taken over from Georgeta RASINA

**Sweden:** Thorbjörn LAIKE replaces Per NYLÉN

**Slovenia:** Katja REBEC replaces Rasa URBAS

### **DS notes that D6 has no NC representative from the following countries:**

Czech Republic, France, Greece, India, Israel, New Zealand, Singapore, the Slovak republic and Ukraine

Jean-Pierre Cesarini states that involvement in CIE can be difficult in France as medical doctors cannot be paid for travelling, and Sliney notes that TC members can be encouraged to be NC representatives. Vincent comments that can use Webex to lower participation costs as no travel budget is required. Martina Paul agrees.

DD6 O'Hagan points to Code of Procedure for rules on being nominated as a NC representative. DS Smedley also notes that has held the post for last 6 years and plans to step down, with this his last meeting as Division Secretary. Has already spoken to DD6 concerning this and finding a successor. DS notes that a possible candidate has already been found, but that is planned to put out a call to the Division for other candidates before holding a ballot of the NC representatives. DD6 provides further details on procedure: no quorum is needed, so could be balloted at Paris meeting, but notes that candidate is also from same institute as DD6 and DE6. One option is that DE6, who is happy to carry on, could stand down.

### **3. Editor's Report.**

DD6 provides report in DE's absence. DE has no drafts in his inbox. All those received have been sent back to the TCC with comments, or onwards to CB for approval.

### **4. Progress Reports from Technical Committee Chairs.**

Reports on TCs were provided by the TCC or a proxy where present. Only currently open TCs are listed below. Please note that the CIE Code of Procedure requires TCs to submit an activity report in advance of the annual meeting to include a review of TC members, a review of work carried out during the last year and a work plan with dates and milestones to complete the technical report. If no activity report is received then the TC will be considered for closure. Action items are highlighted in yellow. TCs identified for closure are highlighted in red. Where the Division feels that TCs highlighted as "to be closed" should still remain the subject of a technical report, there is, of course, the option of reopening the subject.

#### **6-08 Guidelines for Obtaining Action Spectra (TCC: Sliney).**

The final draft of this TC has been submitted to DE. The last TC vote only resulted in one response. Voting issues have continued, but should be out soon. DS to provide TCC with current email addresses for two members before rebalot. –*Action: DS to provide email addresses; TCC Sliney to rebalot.*

#### **6-21 Low Level UV-A Cataract (TCC: Sliney).**

Has been seen by DE and required references completing. Sliney states that didn't realise had been returned. DD6 O'Hagan notes that as work is not recent, report may be out of date. TCC to check that latest draft is up to date. –*Action: Sliney to complete refs and check report is up to date.*

#### **6-25 Spectral Weighting of Solar Ultraviolet Radiation (TCC: Wengraitis).**

Published as CIE 151-2003 and currently being updated to include Vitamin D action spectrum. DE has commented and returned to TCC Wengraitis. DD6: shouldn't be controversial. Sliney will get in touch with Steve Wengraitis to finalise. –*Action: Sliney to contact Wengraitis; Wengraitis to address DE's comments and return*

#### **6-28 Standardization of Sunscreen Testing (TCC: Césarini / Osterwalder).**

TCC Uli Osterwalder was waiting on input from 6-24 before working this TC, although no contact has been received since 2010. Cesarini notes that TCC Osterwalder is in Paris and that there is a need for an international standard, but no consensus on a method. Cesarini stated that Osterwalder is very involved and that he will speak to him about making contact. DD6 notes that if there is no report and no consensus on a method, then TC should be closed. –*Action: TCC Osterwalder to update Division on progress / closure candidate?*

**6-36 UV Protective Materials Used in Shading (TCC: Nel-Sakharova).**

A report was presented in 2011 to say that the work was nearly complete, but no further information or contact has been forthcoming. Division NC representatives recently balloted for closure with a positive vote (YES: 11; NO: 0; ABSTAIN: 2). –*TC Closed*

**6-37 Light and Retinal Disease (TCC: Sliney).**

DD6 met with TCC Sliney recently to discuss. Sliney will review TCMs and rebalot. May need to consider a minority opinion of one of the TC members, but can proceed under new rules. –*Action: Sliney to review TCMs and rebalot*

**6-42 Lighting Aspects for Plant Growth in Controlled Environments (ATCC: Navvab).**

An activity report has been received and TC is proceeding. Completion of a final report has been scheduled by the end of 2013.

**6-44 Illuminators for Treatment of Infant Hyperbilirubinemia (Vacant).**

The draft report was reviewed by Mike Lynn and Graham Hart in 2012, who work in this area in the UK. At the last Division meeting it was decided that Graham Hart and Mike Lynn should take this forward by way of closure of TC6-44 and reopening as a reportership. A ballot of D6 NC representatives was held recently with a positive outcome (YES:11; NO: 0; ABSTAIN: 1). Note: the work done by members of the TC6-44 is to be acknowledged in the report. Cesarini questions whether LEDs will be included. DD6: reporters have expertise to know about relevant points, and will move quickly. –*Action: Hart and Lynn to proceed with reportership*

**6-45 Optical Radiation Hazard Measurements in the Workplace (TCC: Angelo).**

A draft has been circulated to TC members and some comments have been received; there are ongoing issues with balloting and reaching a consensus. A key issue is the inclusion of exposure limits. Schulmeister says that the ones that are being used at present are out of date. Sliney notes that they are only example exposure limits, and that ICNIRP limits are needed for S009 anyway. Sliney has responded to all comments from Schulmeister. DD6 to follow up and check that all comments have been addressed in latest draft. –*Action:DD6 to check exposure limit comments have been addressed in latest draft*

**6-48 Typical Minimal Erythema Doses (TCC: Beer and Miller).**

DE's comments have been addressed and draft has been sent to Peter Zwick at CB for approval / balloting.

**6-49 Infrared Cataract (TCC: Okuno).**

Activity report received with completion scheduled for 2013/14. DS has suggested Webex to assist completion (before 2013 deadline). Sliney sees no reason why shouldn't complete by end of 2013.

**6-50 Photodegradation of Pharmaceuticals (TCC: Tønnesen).**

Issues concerning merger of two published scientific papers to produce CIE report. Option of a TN was suggested, but now not possible in this case. TCC has contacted Division stating that would prefer to close. A Division ballot has recently been held on closure with a positive outcome (YES: 10; NO: 1; ABSTAIN: 2). –*TC Closed*

**6-52 Proper Measurement of Passive UV Air Disinfection Sources (TCC: Vincent).**

TCC Vincent has hard copies of report which he expects to be completed by end of year. Asks for input from interested parties. Vincent explains that the report describes goniophotometry of UVC germicidal

installations, e.g. for bird flu. A paper on the subject is available in the centennial conference proceedings. –*Action: comments to Vincent; to be completed by end of 2013*

#### **6-55 Photobiological Safety for LEDs (TCC: Horak).**

Da Costa presents work. Asks interested parties to email him if want to receive copy of report. Presents relative quantum efficiency curve  $P(\lambda)$ , similar to  $V(\lambda)$  by CIE, but for standard leaf.  $SPD \times RQE$  gives phytometric flux, then in turns irradiance, exitance, radiance etc. Advantages for greenhouse luminaire calculations. Have drafted paper. Blumthaler raises point that conversion from lux to phytometric units depends on lamp. Bergman agrees, stating that is basically conversion for type of lamp, but worked for GE and expects manufacturers to be very interested if have quantification method. Issue raised whether have enough members and countries (only 3 at present). Sliney questions whether there might be differing opinions in the plant community. DD6 says if don't get enough members, could be TN. Offer of contribution from Sweden, Netherlands and Finland. –*Action: comments to Da Costa; TC to proceed to completion*

#### **6-62 Action Spectra and Dosimetric Quantities for Circadian and Related Neurobiological Effects (TCC: Cooper).**

No progress report received from Cooper. Cesarini notes that Cooper is busy, and Sliney states that there is an ISO TC considering this subject.

#### **6-63 Photobiological Strategies for Adjusting Circadian Phase to Minimize the Impact of Shift Work and Jet Lag (TCC: Lockley).**

No progress report received. More activity is anticipated in coming year. DD6 relates the method he used to minimise jetlag provided by Lockley. Luc Schlangen (present) also involved in TC. Sliney will be meeting Lockley next month, and so will speak on this subject. –*Action: Sliney to speak with Lockley about TC progress*

#### **6-xx/1-67 The Effects of Dynamic and Stereo Visual Images on Human Health (D6 rep: Sliney)**

Joint TC with D1. D1 noted in late 2011 that if no progress would be closed in 2012, but TC was given a second chance after a redraft of ToRs. DS has chased TCC Ujike to ensure Sliney gets a copy of any report. –*Action: TCC Ujike to include D6 rep Sliney in any communications*

#### **6-64 Optical Safety of Infrared Eye Trackers Applied for Extended-Durations (TCC: Sliney).**

TC had voted in 2011. DD6 spoke with Sliney recently concerning progress. Sliney will get in touch with TC secretary for a list of TCMs, review and ballot. –*Action: TCC Sliney to review TCMs and ballot*

#### **6-65 Photobiological Dosimetry for Low Level Laser/Light Phototherapy (TCC: Lyon).**

TCC would prefer to close TC at present due to lack of support. Division ballot on closure held recently with positive outcome (YES: 8, NO: 2; ABSTAIN: 3). –*TC closed*

#### **JTC-3 Rationalising UV Units (TCC: McKenzie).**

Proposed by then-DD Webb at 2011 meeting. Progressing rapidly and had completed TC vote before last year's meeting. Has been passed to DE for CIE editing and comments addressed. DE has sent report onto CB for next stage of balloting / approval. –*Action: to continue through approval process*

#### **6-66 Maintaining summer levels of 25OH vitamin D during winter by minimal exposure to artificial UV sources; requirements and weighing the (dis)advantages (TCC: Webb).**

TC was proposed in principle at last year's meeting. ATCC has since been found and a Division ballot to open the TC has been held. Could be very controversial (say Cesarini and DD) as hard to find the balance. Also Gerber says other options including diet should be considered. Cesarini notes that in France there is a recommendation that artificial UV for tanning should be banned. Fought by industry, although DD6 O'Hagan says spectrum is wrong for Vitamin D anyway. DD6 notes issues with banning, as opens up home-use. Query over whether was approved by BA as no work schedule was supplied [update: further to the meeting it was confirmed that this TC has been approved, but a work schedule was pending]. –Action: TC to begin work

**JTC-4 Visual, Health, and Environmental Benefits of Windows in Buildings during Daylight Hours (TCC: Knoop; no D6 co-chair).**

Proposed by D3 in 2012 and subsequently agreed by D6. Both Divisions balloted since last meeting with positive outcomes. No offers for D6 co-chairmanship, although several will attend meeting this afternoon. To be considered by all attending. –Action: all D6 members to consider chairmanship

**JTC-5 Joint Technical Committee to Revise CIE S009/IEC 62471 (TCC: O'Hagan).**

Proposed at last year's Division meeting to update S009. Will meet in Paris day after Division meeting. Complicated as joint with D2 and also with IEC TC34 and 76. DD6 O'Hagan will be TCC to give some weight in IEC and D6. Mature draft already based on S009. Has been restructured and updated as of 2011. Needs revisiting, but challenge is that standard relevant to products (unlike most of CIE work). At tomorrow's meeting have to decide split of work program between IEC and CIE. CIE will deal with risk groups and measurements to determine them. Labelling and user information requires handing over to IEC. Would like more specific rationale behind risk groups as current one is sometimes misunderstood. DS to obtain email address for potential Japanese member so can be included in communications and set up on collab tools. –Action: TC to proceed; DS to obtain contact details

**5. Progress Reports from Reporters**

**R 6-37 Definition of UV wavebands (Sasaki).**

Draft has been commented on by DE and returned to Reporter who has addressed points raised. Sliney mentions that proposal was made several years ago in US. Decided to be review of limits, but not to change them. However report shows use of differing limits in various publications. Conclusion is that should use CIE limits. Cesarini says medically limit is 320nm as safer as further from Hg line at 313nm; a boundary at 315nm would be too close. If draft is final version needs to be balloted by NC Reps. –Action: DE to confirm that is ready for balloting

**R 6-40 A survey of action spectra in the scientific literature: 19XX – 200X.**

Part 1 of a long report was provided to DE in 2009, and Part 2 is progressing. Main issue is how to publish as if costed by pages, price may be prohibitive.

**R 6-41 The issues of vitamin D kinetics (Terenetskaya).**

Recent contact from reporter indicating that report will be completed by end of April 2013. If necessary set deadline for possible closure next year. [update after meeting: draft received from Terenetskaya as promised]. –Action: Terenetskaya to send draft to DE

**R 6-42 Report on the 1st International Workshop for Action Spectra of Non-Image Forming Photobiological Effects of Light, IWAS 2013 (Price).**

Proposed in Montreal and recent ballot of Division to open was positive (YES: 12; NO: 1). DD explains that German lighting industry paid for experts to come together to discuss action spectra for

non imaging forming processes. No industry present. O'Hagan attended as DD6. Output will be scientific paper. Agreed that CIE report will be available free online. Paper to ready by June. Also spreadsheet being developed to convert between power-based and quantal units. Paper to be open access, possibly in Nature Neuroscience. Cesarini queries whether non image forming includes skin (No).–

*Action:reportership to proceed as per schedule*

### **R 6-43 Illuminators for Treatment of Infant Hyperbilirubinemia (Hart and Lynn).**

Progress dealt with under closure of TC6-44.

### **6. Progress Reports from Liaisons with ICNIRP, CEN, WHO, IEC and ISO**

Vincent offers to investigate issue of liaison in WHO. ADD6 Schulmeister is our liaison with ICNIRP. In the absence of Schulmeister, DD6 gives details of the revision of the ICNIRP guidelines for laser and broadband optical radiation. These are expected to be published in Health Physics journal in late 2013 and will be free to download from the ICNIRP website.

### **7. Dissolution of TCs and reporterships**

This agenda item was mainly dealt with as part of item 7 (above).

### **8. Proposals for new TCs and Reporterships**

DD O'Hagan notes that Kohtaro Kohmoto would like to reopen TCs6-39 and 57. Vincent suggested that give firm deadline. DS notes that there is a suggestion under the new Code that each expert is only chair / reporter of one TC at a time to assist with completion. Bergman not sure of the benefit of action spectrum interpolation as discussed for TC6-57. Sliney not sure that TC6-39 is much benefit. DD proposes to open action spectrum reportership, with deadline of end of 2013. No negative votes. –

*Action:Kohmoto to proceed with action spectrum reportership*

Bergman notes that blue light issue with LEDs doesn't go away. Says worth investigating w.r.t. blue light as LEDs going to stay.

Sliney notes a two-fold blue issue. In an experiment with amber, blue and clear canopies over lab animals the circadian rhythm gets distorted. Clear physiological effect is seen. but unless stay indoors all the time, less of an issue. Cesarini comments that there is a particular issue with lights illuminating upwards especially for children as they have lens that is more transparent at blue wavelengths. Should be aware of angle in specific conditions e.g. theatres and car headlights.

DD6 notes that under IEC TC34 if a manufacturer wanted to supply blue light then could be Risk Group 2, but as want to sell them tend to ensure they are Risk Group 1 or Exempt.

No real proposal.

DD6 notes that other conference issue relevant to D6 was flicker.

### **10. Division Officers**

DD6 notes that he is half way through first term, so could do second, if no other offers, but Division needs to have a plan for replacement.

Further to the DS stepping down names of any potential candidates should be sent to DD6, and likewise if anyone interested in being DE they should get in touch with DD O'Hagan.

Finally both Division ADDs Schulmeister and Kohmoto have indicated a desire to continue in their posts.

### **11. Future Meetings.**

At the last meeting Tongsheng Mou offered Division 6 to hold its 2014 meeting in China for next year, but CIE has been invited by Malaysia to run Lighting Quality and Energy Efficiency conference in 2014 (23-26 April). Three Divisions have also planned to meet in conjunction with this meeting and Division 6 has also been invited to hold its annual meeting in Kuala Lumpur. We have the opportunity to run a workshop to cover benefit of optical radiation as ICNIRPs revised guidelines as well as IWAS report will both be complete. DD notes lots of interest in lighting in the region and so could well be a better option with improved turnout. Bergman agrees. Sliney says used to alternate between photobiology conferences and those organised by CIE. DD6: but got little additional interest from holding last year's meeting in conjunction with ASP. In any event the 2015 D6 meeting will be held in conjunction with the quadrennial meeting in Manchester, UK. DD6 reminds those present about other meetings relevant to Division 6 being held over the remainder of the week. Sliney asks that Webex be used if possible for future meetings.

### **12. AOB**

None raised.

### **13. Adjournment and Closing Remarks**

DD thanked everyone for attending and the meeting was adjourned at 12:42 pm.