



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



Canadian National Committee Comité national canadien

2016 CNC/CIE Annual Report

including

Minutes of the 61st Annual Meeting
2016-November-08



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



Canadian National Committee Comité national canadien

MINUTES OF THE 61st ANNUAL CNC/CIE MEETING

2016-November-08

The 61st annual meeting of the Canadian National Committee of the Commission Internationale de l'Éclairage (CNC/CIE) was held on Tuesday, November 8, 2016 at Axis Lighting Inc., 2505 Rue Senkus in Lasalle, QC.

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
CISSET	NRC Advisory Committee on International Science, Engineering and Technology
CNC/CIE	Canadian National Committee of the CIE
CNC-BA	Canadian National Committee Board of Administration
CoP	CNC/CIE Code of Procedure
CIE/USA	US National Committee of the CIE
ICSU	International Council for Science
IESNA	Illuminating Engineering Society of North America
ISO	International Organization for Standardization
IRO	International Relations Office of the NRC
M/AM	Members and Advisory Members of the CNC/CIE
NC	CIE National Committee
NRC	National Research Council of Canada
NRC-IRO	NRC Government and International Relations office
NRC-MSS	NRC Measurement Science and Standards portfolio
NRC-CONST	NRC Construction portfolio
NRCan	Natural Resources Canada
TC	CIE Technical Committee

CNC/CIE Officer and Canadian Division Member reports were submitted electronically and posted on the CNC/CIE website with the 2015 Annual Report (including minutes of 60th annual meeting) prior to the CNC/CIE annual meeting for the purpose of presentation and discussion at this meeting.

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

The 61st annual meeting of the CNC/CIE was called to order at 9:05 EST on Tuesday, November 8, 2016 by V. Venkataramanan, President.

Twelve members of the Board of Administration were in attendance in person or by teleconferencing, which constituted a quorum according to the CoP. The list of all attendees is attached as Appendix B. Teleconferencing using the Government of Canada Webex system was arranged and hosted by J.A. Veitch.

The agenda was approved as written and is attached as [Appendix A](#).

2. Action Items and Matters Arising from the Minutes of the 60th CNC/CIE Annual Meeting:

The minutes of the 60th Annual Meeting were approved without changes.

Action items from the 60th annual meeting minutes (see Appendix D of the Minutes of the 60th Annual Meeting) were discussed. Action items AI-1 to AI-4 and AI-7 to AI-11 are complete. V. Venkataramanan noted that AI-5 would be completed in the next week and distributed. AI-6, an individual effort by all involved in IYL activities to supply information to V. Venkataramanan was done to a degree.

The following Officer Reports are available at the CNC/CIE web site and will be included as appendices in the 2016 Annual Report.

3. President's Report:

V. Venkataramanan presented his report with discussion. This report is attached as [Appendix D](#).

4. Vice-President's Report:

J.A. Veitch presented her report with discussion. It was mentioned that much time as VP is spent on the Canadian Mirror Committee to ISO-TC-274 and that she was grateful for the work that was done through this committee by S. M. McFadden, T. Lau and C. Sampson. It was also mentioned that a NRC management project was established for NRC personnel with activities in the CNC/CIE which in addition to personnel time and budgeting includes a better definition of the relationship between the NRC-IRO, NRC-MSS and the CNC/CIE. This report is attached as [Appendix E](#).

5. Secretary's Report:

W.S. Neil summarized his report and it is attached as [Appendix F](#). It was noted that there is now a new membership database resulting from much time and effort spent by M. Mossman. This would be discussed further during the Membership Subcommittee Report.

6. Financial Report:

S.M. McFadden presented her report with discussion and is attached as [Appendix G](#). It was noted that the balance is down from last year (due to the IYL activities) but still sufficient to support a couple of years funding of the CIE dues if it was ever necessary. This was agreed to be a good plan.

ACTION ITEM (AI-1): The Secretary should go through the archive of paper copy CIE publications (now stored at NRC-MSS in the care of the Secretary) and discard all but a few copies of each.

7. Ciset Annual Performance Review (APR) of the CNC/CIE:

J. A. Veitch reported that the 2015 APR was completed and accepted. The NRC-IRO Director communicated to the CIE that the 2016 dues payment was issued as of March 21, 2016. The APR form will most likely be revised during the next year or two. The 2015 dues were paid without the 2014 APR due to lack of staffing at the NRC-IRO and the review report for 2015 was only an activities update. The process of review is intended to be changed and probably made less onerous for the 2016 APR. However, the NRC-IRO director is on leave so it is difficult to predict what the review process will be at this time.

8. Division Member Reports:

The Division Member reports are available at the CNC/CIE web site and will be included as appendices to these minutes. Division Members presented, with discussion, reports for divisions 1-5. Division 6 and 8 did not have a report presented.

S. M. McFadden thanked L. A. Whitehead for his contributions to Division 1 work and noted that it would be good to see more people become active in this Division.

L. A. Whitehead discussed CIE TC 1-90 (committee working on an update of the CRI) which has been in danger of not reaching a consensus conclusion for some time now. There was a vote yesterday on the final version of the report which resulted in majority approval. There has been ongoing controversy due to misunderstanding what the current CRI is, incorrectly thinking that the CRI score itself is the measure of the overall quality of a lamp when it is only a measure of one aspect of the quality. It is now fairly well established and clear in the new report that, after much confusion, this update or new version of the CRI is only one metric of the overall quality of a light source. He also mentioned that Y. Ohno (President, CIE) was very helpful in establishing this new understanding among light source manufacturers by direct communication and through the wording of the CRI update report.

ACTION ITEM (AI-2): S. M. McFadden to give J. C. Zwinkels updated information regarding the revision of CIE publication 15 in response to her question about the number and type of representative LED spectral power distributions will be included in this document.

As a part of the Division 3 discussion, J. A. Veitch noted that many TC's that were not productive have been closed and there is currently only a small number partly also due to the formation of ISO TC-274 joint activities whose number are much larger than in the past. Also noted was the short supply of active people and that a more active community of members of technical committees would be appreciated. Since most of the committee interaction is via the internet, participation does not require a large commitment of resources for travel to meetings. Interesting activities available include TC 3-39, TC 3-53 and joint activities with ISO TC-274. Participation can be through a Joint Working Group on the ISO side or as part of a Joint Technical Committee on the CIE side. Two new joint activities are: Maintenance Factors that apply to LED lighting products for internal or external applications and an emergency lighting standard.

J. A. Veitch also noted that she has a new assistant in Division 3, Harold Murray, who has been very helpful in the review of lighting controls documents.

ACTION ITEM (AI-3): J. A. Veitch to contact R. Gibbons (Division 4 Director) concerning the American Medical Association report regarding comments concerning streetlighting applications of LED's possibly having negative effects on sleep. This was a request by J. Bastianpillai (by teleconference) to consider the importance of a position statement that should be released by IES and CIE as soon as possible concerning these comments.

S. Qutob, the Division 6 Member, was not present to discuss the Division 6 report that he had submitted.

There is currently no Division 8 Member so no report was presented or is available.

9. Membership Subcommittee Report and Elections:

The current list of the CNC/CIE Board of Administration and Members is given in Appendix J.

9.1 Membership Subcommittee:

M. Mossman presented her report as chair of the Membership Subcommittee and this report can be found in Appendix I.

9.2 Elections:

Division 1 – CNC/CIE member Jeffrey Hovis was the only candidate put forward by the Membership Subcommittee. Following a brief discussion, J.A. Veitch nominated J. Hovis as the Division 1 Member and V.Venkataramanan seconded this nomination. All were in favour. The term accepted was 4 years.

Division 8 – W. Heidrich was the only candidate put forward by the Membership Subcommittee. V. Venkataramanan nominated W. Heidrich as the Division 8 Member and J. A. Veitch seconded this nomination. All were in favour. The term accepted was 4 years.

ACTION ITEM (AI-4): The Secretary will refer W. Heidrich to J. A. Veitch, S. M. McFadden and J. C. Zwinkels for Division Member information.

ACTION ITEM (AI-5): The Secretary will contact the CIE-CB to ensure they are aware that C. Suvagau is the Division 5 member, in addition to the new Division members elected today.

Treasurer – The incumbent, S. M. McFadden stated that she was willing to continue this position for a term of 3 years. A. A. Gaertner nominated S. M. McFadden to the office of Treasurer and J. A. Veitch seconded this nomination. All were in favour. The term accepted was 3 years.

Board of Administration (member at large) – J. A. Veitch nominated CNC/CIE member M. Mossman to the CNC-BA and S. M. McFadden seconded this motion. The term accepted was 4 years.

Board of Administration (member at large) – J. A. Veitch nominated CNC-BA member A. A. Gaertner to another term as his current term is expiring at the calendar year end. V. Venkataramanan seconded this motion. All were in favour. The term accepted was 2 years.

Members (Ex Officio) - The CNC/CIE Code of Procedure states that any member of the SMC ISO TC 2-74 will be appointed as a CNC/CIE Member, therefore it was acknowledged by J. A. Veitch that C. Green and P. Prior of Westboro Photonics are now Members of the CNC/CIE.

Member (new) – H. Murray was nominated by J. A. Veitch as a new Member of the CNC/CIE.

W. S. Neil seconded this motion. All were in favour. The term accepted was 4 years.

Member (new) - K. Poduska (Memorial University, Nfld) was nominated by V. Venkataramanan as a new Member of the CNC/CIE. J. A. Veitch seconded this motion. All were in favour. The term accepted was 4 years.

Member (renewal) – W. S. Neil nominated current members M. Aitkenhead, A. Silbiger, R. White and K. F. Lin for membership renewal to 4 year terms. J. A. Veitch seconded this motion. All were in favour.

Member (pending renewal) – W. S. Neil nominated B. Kolesnik for membership renewal to a 4 year term pending her communicating interest in membership renewal. A. A. Gaertner seconded this motion. All were in favour.

Membership Subcommittee (chair) – J. A. Veitch nominated the incumbent chair M. Mossman to a 4 year term as chair of this committee. V. Venkataramanan seconded this motion. All were in favour.

Membership Subcommittee (member) – J. A. Veitch nominated J. Bastianpillai as a new member of this committee for a term of 3 years. V. Venkataramanan seconded this motion. All were in favour.

Election Subcommittee (chair) – J. A. Veitch nominated the incumbent chair M. Mossman for a 4 year term as chair of this subcommittee. W. S. Neil seconded this motion. All were in favour.

Election Subcommittee (member) – J. A. Veitch nominated A. Gaertner as a member of this subcommittee for a term of 2 years. W. Neil seconded this motion. All were in favour.

Website Subcommittee (chair) – W. Neil nominated the incumbent chair J. A. Veitch for a 4 year Term as chair of this subcommittee. V. Venkataramanan seconded this motion. All were in favour.

Website Subcommittee (webmaster) – W. Neil nominated S. M. McFadden for another 4 year term on this committee. V. Venkataramanan seconded this motion. All were in favour.

S. M. McFadden noted that it would be good to have an additional member of this subcommittee who is bilingual to help with web content such as short length translations (e.g. meeting notices) and also to help include additional creative content to the webpage in general.

ACTION ITEM (AI-6): The Secretary will help recruit a bilingual candidate for membership in the Website subcommittee.

Events/Annual Meeting subcommittee (chair) – J. A. Veitch gave notice that she would like to step down from this position. V. Venkataramanan volunteered to be temporary chair until someone else is found to be willing to take this position.

ACTION ITEM (AI-7): The Secretary to add this position to the list of activities where volunteers are being recruited (possibly as a general recruitment emailing).

Code of Procedure subcommittee – W. S. Neil nominated the incumbent members of this subcommittee to another 1 year term. These members are J. A. Veitch (chair), A. A. Gaertner and S. M. McFadden (and Secretary ex officio). V. Venkataramanan seconded this motion. All were in favour.

10. Website and Events Subcommittee Reports:

10.1 Website Report:

J.A. Veitch presented this report, with discussion, and noted that the upgraded website with a new and more secure platform will be available for testing in the coming months. There has been more visitor activity on the webpage and also an increased amount of downloading of documents that have been posted on the webpage which demonstrates that populating the webpage with this type of content is worthwhile. She also noted that there are plans to add a section to the webpage about the history of lighting in Canada.

This report is attached as [Appendix H](#).

10.2 Events Report:

J.A. Veitch reported that this year's major outreach, yesterday's networking evening, dinner and speaker, Prof. Marc Hébert of Laval University, sponsored by Axis Lighting which took place at Le St-Sulpice Hôtel was a very enjoyable success. It was estimated that about 45 people were in attendance, many through affiliation with Axis Lighting. V. Venkataramanan made the motion to formally thank Axis Lighting for their sponsorship. All were in favour with hearty applause.

11. Other Business:

11.1 Correspondence:

There was no correspondence that required discussion.

11.2 Date and place for next year's meeting:

Next year's meeting will be a joint meeting with the CIE/USA. The date and location has not yet been decided.

11.3 Any Other Business:

There was no other business brought forward for discussion.

12. Adjournment

V. Venkataramanan expressed his thanks to all attendees in person or by teleconference for their participation in the meeting and activities throughout the past year. The meeting was adjourned at 11:55 hours EST.

William S. Neil

Secretary, Canadian National Committee of the CIE

Email: CNC-CIE-Secretariat@nrc-cnrc.gc.ca

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- APPENDIX B: Attendees to the 61st CNC/CIE Annual Meeting
- APPENDIX C: Action Items from the 61st CNC/CIE Annual Meeting
- APPENDIX D: President's Report
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- APPENDIX F: Secretary's Report
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- APPENDIX I: CNC/CIE Membership Subcommittee Report
- APPENDIX J: CNC/CIE Members and Advisory Members List

Division Member Reports

APPENDIX A

CNC/CIE 61st Annual Meeting

2016-November-08
9:00 to 12:00

PROPOSED AGENDA:

- | | |
|---|-------------------|
| 1. Call to Order and Approval of Agenda | V. Venkataramanan |
| 2. Minutes of the 59th 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 | S.M. McFadden |
| 7. Ciset Annual Performance Review of the CNC/CIE | J.A. Veitch |
| 8. Reports from Division Members | |
| Division 1: Vision and Colour | S.M. McFadden |
| Division 2: Physical Measurement of Light and Radiation | J.C. Zwinkels |
| Division 3: Interior Environment and Lighting Design | J.A. Veitch |
| Division 4: Lighting and Signaling for Transport | A. Laperrière |
| Division 5: Exterior and Other Lighting Applications | C. Suvagau |
| Division 6: Photobiology and Photochemistry | S. Qutob |
| Division 8: Image Technology | |
| 9. Membership and Elections: | |
| 9.1 Membership Subcommittee | M. Mossman |
| 9.2 Elections | V. Venkataramanan |
| 10. Ad hoc Subcommittees | |
| 10.1 Website | J. A. Veitch |
| 10.2 Events | J. A. Veitch |
| 11. Other Business | V. Venkataramanan |
| 11.1 Correspondence | |
| 11.2 Date and Place for next year's meeting | |
| 11.3 Any other business | |
| 12. Adjournment | V. Venkataramanan |
-

APPENDIX B
CNC/CIE 61st Annual Meeting

Attendees

Name	CNC/CIE Affiliation	Other Affiliation
Venkat Venkataramanan	President	U of Toronto
Jennifer Veitch	Vice-President, Division 3 Rep.	NRC-Construction
William Neil	Secretary	NRC-MSS
Sharon McFadden	Treasurer, Division 1 Rep.	DND/DCIEM (retired)
Joanne Zwinkels	Division 2 Rep.	NRC-MSS
André Laperrière*	Division 4 Rep.	Hydro Quebec
Cristian Suvagau*	Division 5 Rep.	BC Hydro
Arnold Gaertner	Board of Administration	NRC-MSS
Lorne Whitehead*	Board of Administration	U of British Columbia
Martyn Timmings	Board of Administration	Studio Four Technical Services
Joseph Bastianpillai*	Board of Administration	Lumentech Engineers Inc.
Michele Mossman*	Member	U of British Columbia
Andrew Silbiger	Member	Ontario Ministry of Transportation (retired)
Jeffery Hovis*	Member	University of Waterloo
Shirley Coyle*	Member	Cree Canada
Toby Lau*	Member	BC Hydro
Fran Wilkinson*		York University
Howard Yaphe		Axis Lighting
Nicolas Pourrain		Axis Lighting

* attended via teleconference

APPENDIX C

Action Items from the 61st Annual Meeting of the CNC/CIE

Action Item	Responsible	Action	Status
AI-1	Secretary	Paper Publications Archive – dispose except for a few copies of each	open
AI-2	S. M. McFadden	Provide J. Zwinkels with information on LED representatives SPD's	open
AI-3	J. A. Veitch	Contact Division 4 director concerning AMA comments on LED street lighting	open
AI-4	Secretary	Refer W. Heidrich to J. A. Veitch, S. M. McFadden and J. C. Zwinkels for Division Member information	closed
AI-5	Secretary	Inform the CB of new Division Representatives (also C. Suvagau for Division 5)	closed
AI-6	Secretary	Recruiting email for a bilingual candidate for the Website Subcommittee	open
AI-7	Secretary	Recruiting email for chair of Events Subcommittee (V. Venkataramanan temporary chair)	open

APPENDIX D

CNC/CIE President's Report November 2016

Venkat Venkataramanan
vvenkat@imc.utoronto.ca

I am pleased to present this brief report on my activities this year as CNC President.

I hosted the 10th Biennial Joint CNC/CIE and CIE/USA Technical Conference and Business Meeting 18 – 20 October 2015. Concurrent with this, we also hosted a public lecture by Prof. George Brainard.

I attended various WebEX meetings of the General Assembly throughout the last year, representing Canada.

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

I liaised with the Canadian National Node for the International Year of Light 2015. I chaired the CNC subcommittee on International Year of Light activities. I also coordinated with local Illumination Engineers Society (IES) on various activities.

I Assembled a kit on History of Light/Quality of Light that is used locally in lecture-demonstrations in various schools. This kit was used by my university colleagues in their lectures in schools.

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

- We continue to strengthen the Smart Sustainable Lighting Network (SSLNet) with increasing participation from the industry and academia.
- In partnership with Zhejiang University (China) and Sensing, Hangzhou, China developing new photometric and spectroscopic instruments.

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.

APPENDIX E

CNC/CIE Vice-President's Report October 2016

Jennifer A. Veitch, Ph.D.

j_a_veitch@jdarchitect.ca / jennifer.veitch@nrc-cnrc.gc.ca

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

1. I led the preparation of an update (for 2015) to the 2014 annual performance report (APR) to the NRC Government and International Relations Office (NRC-GIR). (This will be discussed under item 7).

2. I served as Chair of the Canadian mirror committee to ISO-TC 274. Details of this committee's work will be discussed at the meeting of SMC-ISO-TC 274 this afternoon. Highlights of the year are:

- Thanks to financial support from BC Hydro and the Standards Council of Canada, we were able to send a Canadian delegate (Mr. Toby Lau) to the plenary meeting of TC 274 and the meeting of its WG 1 in Turin, Italy in June 2016.
- MrS. M. McFadden and Mr. Lau both serve on the ISO TC 274 Chair Advisory Group, which assists in charting the direction for the committee.
- We cast all our ballots on time.
- Mr. Conor Sampson attended the joint meetings of ISO TC 163 and ISO TC 205 in Berlin, Germany, in September in his role as one of two ISO TC 274 liaison officers to ISO TC 205/WG7 Indoor visual environment.
- Mr. Lau was appointed as the liaison from ISO/TC 274 to ISO/ TC 163 (this means that he reports to ISO/TC 163 concerning the activities of ISO/TC 274).
- The size of the committee expanded by a few new members; these people also become Members of the CNC/CIE.
- I am working with SCC staff to formalize the arrangement for linkage between the CNC/CIE and SCC for the oversight of SMC/ISO TC 274.

3. With the subcommittee, I led the revision of our Code of Procedure, which we shepherded to approval at the end of March 2016. In parallel, the NRC staff involved in the CNC/CIE completed the work to make this activity an official NRC project through which NRC-Government & International Relations pays the dues and NRC staff at Measurement Science and Standards (W. Neil, J. Zwinkels, A. Gaertner, R. Baribeau) and Construction (yours truly) carry out the NRC part of the work.

4. With the Executive, I organized this meeting and the event held on Nov. 7. Many thanks to Axis Lighting for their sponsorship.

5. I assisted as needed to support the President and Secretary in the ongoing work of CNC business.

APPENDIX F

CNC-CIE SECRETARY'S REPORT TO THE 61st ANNUAL MEETING November 2016

William S. Neil
CNC-CIE-Secretariat@nrc-cnrc.gc.ca

This report covers the period from 1Oct2015 to 3Nov2016.

CIE MATTERS:

1. Distribution of Documents via the CNC/CIE Webpage and Electronic Mailings:

CIE notifications, announcements and Press Releases were distributed by the CIE-CB to the NC's via email with supporting documents available on the CIE website (www.cie.co.at) using Collaboration Tools. These documents were downloaded and made available on the CNC/CIE website. General interest documents with no commercial content were downloaded and redistributed to the CNC/CIE-ALL contacts list, while letter ballots were distributed to Members or the Board of Administration as required.

2. Letter Ballots:

National Committee Letter Ballots were distributed to members for voting. A resulting ballot representing Canada was returned to the CIE-CB for 3 voting NCLB's. Letter ballots for 2016 were:

NCLB1504: CIE Budget for 2016; CNC Approved

NCLB1601: Fast track approval procedure for revision of CIE ILV CIE S 017:2011; CNC approved

NCLB1602: CIE membership for Bulgaria; CNC approved

NCLB1603: Application National Committee of India; awaiting results of vote

NCLB1604: Expulsion of National Committee of Ukraine; awaiting results of vote

CNCLB: Funding commitment for CNC/CIE Website upgrade: Approved

CNCLB: For the approval of the revised Code of Procedure: Approved

CNC/CIE MATTERS:

1. CNC/CIE Secretary:

In communication with the Secretary, please use the NRC email address

CNC-CIE-Secretariat@nrc-cnrc.gc.ca. Both the Secretary and Vice-President have access to this mailbox which is monitored at a minimum, every few days.

2. CNC/CIE 2016 Annual Meeting:

The 61st Annual Business Meeting of the CNC/CIE will take place on November 8, 2016, at Axis Lighting Incorporated, 2502 Rue Senkus in Lasalle, QC, 9:00 – 12:00 hours

3. Annual Performance Review of the CNC/CIE:

The Annual Performance Review (APR) questionnaire from the NRC International Relations Office was

submitted for 2015 by the January 29, 2016 deadline. Notice of a successful review by the Ciset was received from NRC-IRO on April 21, 2016. This successful review ensured that the CIE affiliation dues would be paid on behalf of the CNC-CIE for the 2016 calendar year by a grant from the NRC. The NRC notification of payment of the dues was received on March 21, 2016.

4. CNC/CIE Code of Procedure:

The subcommittee for the revision of the Code of Procedure made extensive changes in order for this document to be harmonized with the new project management structure within MSS-NRC for the CNC/CIE. The new revision was approved by the membership by letter ballot and came into effect February 12, 2016. The new CoP can be found on the CNC/CIE webpage www.cnc-cie.ca.

5. Executive Committee Actions:

- 23Aug2016: Letter ballot for funding approval (approximately \$1400) for CNC/CIE webpage update
- 10Nov2016: Decision for funding of Annual Meeting speaker at Networking evening event (up to \$1000)

6. Requests for Funding:

a) A CNC/CIE Executive Committee request by letter ballot to the CNC/BA for a \$1400 funding commitment for upgrades to the CNC/CIE website. Unanimously approved

7. CNC/CIE website:

The website operates at the web address of www.cnc-cie.ca. If anyone has suggestions for corrections, updates, or additions, please contact the Secretary or J.A. Veitch. S. M. McFadden has made many improvements to the website this year. Distribution of notices from the CIE/CB is now normally done via the webpage instead of mass emailing to membership (other than letter ballots). A report on the website is included in the agenda of this meeting.

8. Mailing Lists:

The electronic mailing (Outlook Contact) lists of the Secretary have been revised and updated to conform to the new membership structure as given in the CoP.

9. Membership:

A list of CNC/CIE Members and Affiliates is available from the Secretary and will be included in the 2016 Annual Report. A new membership database has been developed by M. Mossman which is organized with the new membership structure defined in the newly revised CoP and includes only those that have given consent to mailings with commercial content. Much effort by M. Mossman (Membership Subcommittee) has been made this year to update and reorganize this list information. A report from the Membership Committee is included in the agenda of this meeting.

9.1. CNC/BA Members(15):

Executive Members: Treasurer term is expiring

Other Officers: None at this time

Division Members: Division 1 term expiring and Division 8 position became vacant

Members-at-Large: Two positions, one term expiring and one new

9.3. CNC (non-BA) Members(28): Two new ex-officio members due to SMC-ISO-TC-274 membership.

9.4. CNC Affiliates(61): Two new affiliates.

APPENDIX G

CNC/CIE Treasurer's Report to the CNC/CIE 61st Annual Meeting

8 November 2016
Montreal, Quebec

The financial statement for the fiscal year October 1st 2015 to September 30th 2016 is presented below.

Financial Report 1 October 2015 – 30 September 2016

Balance (September 30th 2016)		\$28208.75
Income:		
Payment for publication sales	\$ 286.89	
Sponsorship of IYL activities 2015 meeting	\$1000.00 \$6176.37	
Total Income		\$ 7463.26
Expenses:		
Expenses for IYL Activities	\$4204.83	
Expenses for 2015 meeting	\$5849.73	
Total Expenses		\$10054.56
Net Income (Loss)		(\$ 2591.30)
Balance (September 30 th 2016)		\$25617.45

Respectfully submitted

Sharon McFadden
Treasurer, CNC/CIE

APPENDIX H

CNC/CIE Web Site Report October 2016

Jennifer A. Veitch, Ph.D.

jennifer.veitch@nrc-cnrc.gc.ca

Domain

We are and will remain www.cnc-cie.ca.

Usage

Usage this year is rising, with the 9-month average for 2016 having been 249 unique visitors per month and 407 visits (versus 155 unique visitors per month and 368 visits in 2015). More notably, we have used more bandwidth: 215 MB as compared to 90 MB on average per month in 2015. I attribute this to the presence of documents for download. Notably, two documents from last year's technical day (documentation about Hydro Quebec's exterior lighting demonstrations) have been viewed a combined total of 96 times, and other files also show reasonable attention.

Top countries of origin of visitors, in order: Brazil, Ukraine, Russia, **Canada, USA**. Notably, the bandwidth use is greater for Canada and the USA than the other countries. This suggests that the overseas visitors are automated ones by bots and crawlers, whereas the Canada and USA visitors are more likely to be looking for, and downloading, content.

Upgrade

Following a ballot during the summer, we accepted a quotation from Bob Bridges to update the web site to a new platform. The old one is obsolete and poses security risks. This work is in progress, and a working development site for testing should be available in mid-November.

Content

Sharon McFadden has taken on the job of content co-ordinator, for which we owe her a debt of thanks. Thanks to her, all of the prior years' annual reports are now available through the website. That was completed in 2015 but we had not reported it.

She is doing basic updating at present, until the new web site has been built. With the new platform, she plans to do a few things:

- To create a members-only area. This space will have draft documents posted, where members can access them to provide comments and to post ballots.
- To update the Lighting in Canada links. For this we will need input from all Members and Affiliates.
- To provide more information about how to become involved in CIE technical work, including updated information about the status of TCs.

History of Lighting in Canada

This project remains uncompleted. If you have an interest, or if you know someone who does, we do have lots of material that could be compiled. It would be an interesting student project.

Maintenance

The cost for the domain registration, site hosting, and maintenance remains low, at ~\$100 per year. I recommend we keep our current arrangement, which seems to be working well.

APPENDIX I

CNC/CIE Membership Subcommittee – Chair’s Report November 2016

Prepared by: Michele Mossman

During 2016, the following activities were carried out by the Membership Subcommittee:

- We updated the membership database to be consistent with the membership categories described in the new Code of Procedure. The new membership categories are:
 - Previous Members are now listed as Members of the CNC/CIE Board of Administration
 - Previous Advisory Members are now listed as Members
 - Previous Expert Network members are now listed as Affiliates
 - The Division Member category remains as before.
- Following this new membership categorization, we have:
 - 14 Members of the CNC/CIE Board of Administration
 - 41 Members (includes the 14 Members of the Board of Administration)
 - 61 Affiliates
- The detailed membership database that was put together last year has been maintained and further improved. This database is circulated to subcommittee members whenever entries are updated.
- Members who had not yet indicated their consent to receive electronic mailings were contacted again, and the membership database now includes only those who have explicitly given their consent to receive mailings.
- Fifteen (15) new names were added to membership list since October 2015.
- Thirty-three (33) names were removed from the membership list since October 2015. These members either requested to be removed from the list because they had retired or moved away from Canada, or we were unable to make contact with them because of incorrect contact information or lack of response to our email requests. We moved their names to a “past members” list which we will keep updated. (Many of these people have not been active for some time, but they had not yet been removed from this list, so this number is significantly higher than we would reasonably expect in a typical year.)
- One (1) participant (Harold Murray) has agreed to be nominated as a new Member this year.
- In order to stagger term renewal years for those in the “Members” category as defined in the new Code of Procedure, random term lengths were assigned to each member. As a result of this random term assignment, seven (7) members had terms expiring this year. Three (3) of these members (Martin Aitkenhead, Andrew Silbiger and Michele Mossman) have agreed to have their terms renewed for an additional four years. Other term renewals this year include Frank Lin (4-year member term renewal) and Arnold Gaertner (2-year member term renewal).

APPENDIX J

CNC/CIE Board of Administration				
CNC/CIE	Name	Province	Term Expiry	CIE
President	V. Venkataramanan	ON	2019	
Vice President	J.A. Veitch	ON	2019	Division 3
Secretary	W.S. Neil	ON	2018	
Treasurer	S.M. McFadden	ON	2019	
	J. Bastianpillai	ON	2019	
	A.A. Gaertner	ON	2018	
	Wolfgang Heidrich	BC	2020	Division 8
	Jeffery Hovis	ON	2020	Division 1
	André Laperrière	PQ	2019	Division 4
	J.A. Love	AL	2019	
ex officio, MSS GM delegate	G. MacDonald	ON		
	Michele Mossman	BC	2020	
	S.S. Qutob	ON	2019	Division 6
ex officio, MSS GM	A. Steele	ON		
	C. Suvagau	BC	2019	Division 5
	M.K. Timmings	ON	2019	
ex-officio, CIE VP	L.A. Whitehead	BC	2019	
	J.C. Zwinkels	ON	2019	Division 2

Terms expire at the end of the calendar year indicated.

CNC/CIE MEMBERS					
Name	Prov.	Term Expiry	Name	Prov.	Term Expiry
Martin Aitkenhead	ON	2020	Harold Murray	ON	2020
Chantal Arsenault	ON	2017	Guy Newsham	ON	2017
Ian Ashdown	BC	2018	Keith Niall	ON	2018
Chrisnel Blot	PQ	2019	Thomy Nilsson	P.E.I.	2019
Vince Cimino	ON	2017	Kristin Poduska	NL	2020
Shirley Coyle	ON	2018	Paul Prior	ON	SMC-ISO-TC 274
Marie Dumont	PQ	2019			
Chad Green	ON	SMC-ISO-TC 274	Alan R. Robertson	ON	2017
John W. Harron	ON	2017	Mankajee Shrestha	BC	2018
			Conor Sampson	PQ	SMC-ISO-TC 274
Kurt Ising	BC	2019	Andrew D. Silbiger	ON	2020
Barbara Kolesnik	ON	2018	Dyoni Smith	ON	2017
Toby Lau	BC	SMC-ISO-TC 274	Ralph A. Smith	NB	2018
K.F. Lin	ON	2020	Nikolay Stoev	ON	2019
Tim Moggridge	ON	2019	Robert W. White	PQ	2020

Membership Subcommittee: Michele Mossman (Chair), Joe Bastianpillai, Secretary

Elections Subcommittee: Michele Mossman (Chair), Arnold Gaertner, Secretary

Website Subcommittee (ad hoc): Jennifer Veitch (Chair), Sharon McFadden

Events Subcommittee (ad hoc): Venkat Venkataramanan (interim Chair)

CoP Review Subcommittee(ad hoc): Jennifer Veitch (Chair), Sharon McFadden, Arnold Gaertner, Secretary



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



Canadian National Committee Comité national canadien

2016 CNC/CIE Division Member Reports



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



Canadian National Committee Comité national canadien

Division 1: Vision and Colour

Report to CNC/CIE 61st Annual Meeting
Montreal, Quebec

Sharon McFadden
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1 Introduction

The annual meeting of Division 1 (D1) was held 8-9 September, 2016 in Prague, Czech Republic in conjunction with the 4th CIE Expert Symposium on Colour and Visual Appearance and a CIE Tutorial on Visual Appearance Fundamentals and Measurement. The meeting was attended by 5 officers, 19 country representatives (including 5 proxies), 14 Technical Committee (TC) Chairs, and several guests. Sharon McFadden represented Canada. Fourteen TCs met in conjunction with the meeting.

2 Highlights

2.1 New Technical Committees and Reporterships

Three new TC's were approved following the last meeting:

TC1-95 The Validity of the CIE Whiteness and Tint Equations (R. Hirschler, HU)

Terms of Reference: Based on published and new experimental work, the TC shall seek to recommend modifications to the existing CIE Whiteness and Tint Equations to extend their application to illuminants other than D65. Furthermore the TC shall review the restrictions imposed on the validity of the equations to samples that are measured on the same instrument at nearly the same time, and review the colorimetric limits hitherto set. If enough experimental data justify it, the TC may recommend modifications to the current CIE Equations for Whiteness and Tint.

Members: Ludovic Coppel SE, Ichiro Katayama JP, Ronnier Luo CN, Danielle Oliveira BR, Danny Rich US, Joanne Zwinkels CA

TC1-96 A comprehensive model of colour vision (Ming Ronnier Luo GB)

To derive a model of colour vision that predicts of the appearance of coloured stimuli viewed in typical laboratory conditions. This shall include stimuli that appear as both related and unrelated colours, that are viewed under illumination from photopic down to scotopic levels, and that have varying size. The model shall also include a uniform colour space.

Members: Robert Hunt GB, Chenyang Fu CN, Changjun Li CN, Kaida Xiao CN, Youngshin Kwak KR, Sooyoung Choi KR, Hiroshi Yaguchi JP, Shouting Wei TP/TW, Peter Bodrogi DE, Tsungxian Lee TP/TW, Mike Pointer GB, Mark Fairchild US

TC1-97 Age- and Field-Size-Parameterised Calculation of Cone-Fundamental-Based Spectral Tristimulus Values (Jan Henrik Wold NO)

Terms of Reference; 1. Following on from CIE TR 170, to recommend a procedure for age- and field-size-parameterised calculation of cone-fundamental-based spectral tristimulus values, compliant with the principles of the CIE XYZ concept. 2. To deliver a computer program for the calculations.

Members: CF Andersen DE, M Brill US, M Fairchild US, H Fairman US, I Farup NO, C-S Lee KR, C Li CN, K Richter DE, F Viénot FR, M Withouck BE, Y Yamauchi JP

One new reportership was proposed during the meeting:

R1-67 Revisiting Correlated Colour Temperature (Youngshin Kwak KR)

Terms of Reference: To review the literature related to perception of colour of white light sources with a goal to investigate the concept of correlated colour temperature.

2.2 Division publications

CIE 170-2:2015 Fundamental Chromaticity Diagram with Physiological Axes – Part 2: Spectral Luminous Efficiency Functions and Chromaticity Diagrams (November 30, 2015)

CIE 217:2016 Recommended Method for Evaluating the Performance of Colour-Difference Formulae (February 17, 2016)

CIE TN 006:2016 Visual Aspects of Time-Modulated Lighting Systems – Definitions and Measurement Models (August 31, 2016)

2.3 Future meetings

The 2017 meeting will be held in Jeju, Korea as part of the CIE Mid-term Meeting 20-27 October 2017. The 2018 the meeting will be held in Taipei, Taiwan, in April, as part of a CIE Symposium.

3 Canadian participation in Division 1 activities

Activity	Title	Canadian Members
TC1-83	Visual Aspects of Time-Modulated Lighting Systems	L. Whitehead
TC1-85	Update CIE Publication 15:2004 Colorimetry	L. Whitehead
TC1-90	Colour Fidelity Index	L. Whitehead
TC1-95	The Validity of the CIE Whiteness and Tint Equation	J. Zwinkels
JTC-8	Terminology in Light and Lighting	S. McFadden
Liaison	L1-03 ISO/TC6/WG3 Paper, Board and Pulp – Optical Properties	J. Zwinkels

4 Highlights of Division work programme

4.1 Overview of the status of TCs and Reporterships

The following summaries of activities in the various TCs of D1 are based on the minutes from the 2016 D1 meeting. Additional information on some of the TCs can be found in the minutes as well as the Activity Report for 2016. These are available in PDF format on the D1 website at <http://div1.cie.co.at/>. The activity report includes the terms of reference and membership for all TCs and Reporterships.

4.1.1 Progress in Vision Section (N. Itoh, Associate Director (AD))

TC1-36 Fundamental Chromaticity Diagram with Physiologically Significant Axes (F. Viénot) Although it was closed following publication of the second part of the report, several members of this TC continue to work on a new edition of CIE 170-1:2006. The revised version mainly includes formal changes in order to have the two parts identical in their outer appearance. Additionally, errors have been found in the tables that will be corrected in the new version.

TC1-83 Visual Aspects of Time-Modulated Lighting Systems (D. Sekulovski) A TC meeting was held in Prague. CIE TN 006:2016 Visual Aspects of Time-Modulated Lighting Systems – Definitions and Measurement Models was published in August 2016. Multiple phantom array experiments have been carried out in Korea and China. Further work on flicker in the time domain is underway.

TC1-84 Definition of the Visual Field for Conspicuity (N. Itoh) A TC meeting was held in Prague, where the following were discussed:

- Chapters 1.3 and 2 of the Technical Report
- Comments or questions on the whole working draft. There was general agreement on its content; however, further comments will be accepted until the end of 2016.

TC1-88 Scene Brightness Estimation (Y. Nakamura) A TC meeting was held in Prague, where the following were discussed:

- Experiments on scene brightness carried out by members.
- The outline for the Technical Report. Members were assigned to specific sections.

TC1-89 Enhancement of Images for Colour Defective Observers (Po-Chieh Hung) A webex meeting was held in December 2015. Work on the collection and review of the literature continues. At the moment the TC is about a year behind schedule. A four year extension of the TC was agreed to by Division members.

TC1-93 Calculation of Self-luminous Neutral Scale (Robert Carter) A meeting was held in Prague. The work of the TC is nearing completion. The draft report recommends the use Paul Whittle's formula for Equal Perceptible Differences (EPD), published in Vision Research in 1992, and endorsed in a 2011 review in Vision Research by FAA Kingdom. The current version of the scale is primarily useful in the photopic range of luminances although it performs better than L^* in the mesopic and scotopic range of luminances. The report also recommends the chromaticity coordinates of Bosten, Beer and MacLeod, 2015 Journal of Vision, near D65 for the self-luminous neutral. Based upon a preponderance of evidence, this neutral (i.e., colourless) chromaticity locus is presumed to generalize across photopic luminances.

TC1-97 Age- and Field-Size-Parameterised Calculation of Cone-Fundamental-Based Spectral Tristimulus Values (Jan Henrik Wold) A TC meeting was held in Prague to discuss the proposed work plan. Details of the plan are provided in the minutes.

JTC-1 Implementation of CIE 191 Mesopic Photometry in Outdoor Lighting (S. Mucklejohn) A meeting of the TC was held in Melbourne in March 2016. A Second Draft of the Technical report from Working Group 1, which is 70% complete, was circulated in February. The Chair is waiting for the remaining contributions from members. A draft TN was prepared by Working Group 2 members, as an interim report of JTC-1. It was circulated in July 2016. Some editorial comments were received and already addressed. Now it is moving on to TC ballot.

JTC-7 Discomfort Caused by Glare from Luminaires with a Non-Uniform Source Illuminance: Co-chairs: Naoya Hara JP (D3), Yukio Akashi JP (D1) The Division members voted in favour of appointing Yukio Akashi to replace Miyoshi Ayama as the co-chair of JTC-7 from D1.

JTC-9 Quantifying ocular radiation input for non-visual photoreceptor stimulation The Terms of Reference are:

- To define action spectra and metrics in order to quantify the ocular radiation input to all photoreceptors possibly involved in non-visual responses.
- To provide a method to calculate from a measured spectral irradiance, ideally at the cornea surface, the stimulation of each photoreceptor that can potentially contribute to non-visual responses.
- To demonstrate the validity of such metrics for predicting physiological responses based on existing data in the literature.

The Division approved the appointment of Nana Itoh as the co- chair of JTC-9 for D1.

R1-66 The Effect of Dynamic and Stereo Visual Images on Human Health (Hiroyasu Ujike)

A change for the R1-67 reporter to produce a Technical Note instead of a reporter's report was agreed by the Division. The new terms of reference are: To write a Technical Note that describes the physiological and psychophysical effects of dynamic and stereo visual images in terms of photosensitive seizures, visually induced motion sickness, and eyestrain.

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

TC1-63 Validity of the Range of CIEDE2000 (K. Richter) The TC met in Prague. A summary of the most recent research is available in the minutes. The Technical Report is nearing completion. If all the members accept the next draft, the report will be sent to the Division editor in December.

TC1-76 Unique Hue Data (S. Wuerger) The TC 1-76 report is almost finished. The Chair is waiting for the co-chair to provide her with his full data set as an excel sheet.

TC 1-81 Validity of Formulae for Predicting Small Colour Differences (K. Richter) The draft report has

passed the committee vote and Division editor. It should go for Division comment and ballot in 2017.

TC1-85 Update CIE Publication 15:2004 Colorimetry (E. Carter) The TC met in Prague. Most of the issues have been dealt with and it is expected that the report will be ready for publication in spring 2017.

TC1-86 Models of Colour Emotion and Harmony (Li-Chen Ou) Based on six studies, the new simplified universal colour harmony model performed better than the Ou-Luo model, on average. The next step is to write a paper based on the results and write a working draft of the Technical Report.

TC1-90 Colour Fidelity Index (H. Yaguchi) The TC met in Prague. A TC ballot was carried out in March 2016. Six members voted against the draft. After considerable discussion, it was felt that agreement was only possible if the Terms of Reference were changed. The new Terms of Reference, approved by the Division are: "To evaluate available indices based on colour fidelity for assessing the colour quality of white- light sources with a goal of recommending a colour fidelity index. As well, the duration of the TC was extended for another four years.

TC1-91 Methods for Evaluating the Colour Quality of White-Light Sources (Y. Lin) A TC meeting was held in Prague. The current draft was discussed and tasks necessary to complete the report assigned. A final draft should be ready for TC ballot by the end of the year. The Division approved a change of title. The new title is "Methods for Evaluating the Colour Quality of White-Light Sources".

TC1-92 Skin Colour Database (K. Xiao) Work was carried out on skin colour variation across the same skin measured using different instruments and settings - spectrophotometer vs. TSR vs. camera prediction vs. visual assessment. Two new databases were added - Asian (Pakistani) and Caucasians (Spain). As well, spectral differences were analyzed across different ethnic groups, gender and body area and on the same subject before and after suntan, and before and after exercise.

TC1-95 The Validity of the CIE Whiteness and Tint Equations (Robert Hirschler) This newly formed TC follows on from TC1-77. It has the terms of reference: Based on published and new experimental work, the TC shall seek to recommend modifications to the existing CIE Whiteness and Tint Equations to extend their application to illuminants other than D65. Furthermore, the TC shall review the restrictions imposed on the validity of the equations to samples that are measured on the same instrument at nearly the same time, and review the colorimetric limits hitherto set. If enough experimental data justify it, the TC may recommend modifications to the current CIE Equations for Whiteness and Tint. The TC held its first meeting in Prague. Presentations were given by Ronnier Luo, Michal Vik & Dragan Sekulovski. This was followed by a discussion on samples to be presented, light sources and visual evaluation methods.

TC1-96 A Comprehensive Model of Colour Vision (Ronnier Luo) The TC replaces TC1-75. Its work plan is as follows:

- Year 1: Test the existing comprehensive colour appearance models by accumulating experimental data for analysis using those models.
- Year 2: Integrate the best features from the existing models to form a new comprehensive appearance model and further test it using the available data.
- Year 3: Write a CIE Technical Report presenting a recommendation.

JTC-8 Terminology in Light and Lighting Over the past few months, JTC8 has reviewed all of the definitions in the current version of the ILV with the goal of making the definitions compliant with ISO/IEC rules. In most cases the proposed changes were largely editorial. Within Division 1, all issues have been resolved to the satisfaction of the Chair and the D1 members of JTC-8.

R1-42 Extensions of CIECAM02 (C. Li) The purpose of this Reportership was to monitor and report on the work of TC8-11. That TC has now been closed so the Reportership will be closed.

R1-53 Gloss Perception and Measurement (F. Leloup) The Reporter provided an update on recent publications in this field (see minutes). He also published a review paper: Leloup et al, "Toward the Soft Metrology of Surface Gloss: A Review," Col. Res. Appl., 39, 559-570, 2014.

R1-58 Liaison with ISO TC130 Graphic Technology (P. Green) The Reporter stated that there had been no recent progress in this TC.

R1-60 Future Colour Difference Evaluation (Guihua Cui) There were about 77 papers/books/chapters published/presented on colour difference or colour_spaces in 2015-2016.

R1-61 Source Whiteness Metric (A. David) No report.

R1-62 Typical LED Spectra (S. Jost) A summary of the progress to date is provided in the minutes. The Reporter has collected a wide range of LED Spectra and classified them. The results of this work will be shared with TC1-85 and other groups within Division 1 and 2.

R1-63 Tristimulus Integration (Changjun Li) TC 1-71 on Tristimulus Integration was closed in 2015. This reportership was established during the meeting as well. Based on recent publications in this area
1) third order Spine is the best for interpolation for uniform sampling, which does not support the CIE recommendation [CIE 167:2005] to use the Sprague interpolation method. 2) Second order extrapolation is the best, which does not support the above CIE recommendation. 3) The visible wavelength range from 360nm to 780nm is better than the range from 380nm to 780nm. The former range is used by ASTM and the latter is used by CIE. For computing trisimulus values for object colours, the best method among all available methods including the CIE and ASTM recommendations is the least square (or named as LWL according to the names of authors) method for any uniform sampling intervals.

4.2 Dissolution of and changes to Technical Committees and Reporterships

4.2.1 Technical Committees and Reporterships closed

TC1-36 Fundamental Chromaticity Diagram with Physiologically Significant Axes

TC1-55 Uniform Colour Space for Industrial Colour Difference Evaluation

TC1-75 A Comprehensive Model of Colour Appearance

R1-42 Extensions of CIECAM02

4.2.2 Changes

5 Other Division News

5.1 Division Research Strategy

- Colour Quality of Light Sources Related to Perception and Preference
- Application of New CIE 2006 Colorimetry
- Visual Appearance: Perception, Measurement and Metrics
- A comprehensive colour appearance model based on CIECAM02
- Visual Impairment



Division 2: Physical Measurement of Light and Radiation

Report to the 2016 Meeting of the CNC/CIE
Axis Lighting, Montreal, Quebec
8 November 2016

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The most recent CIE Division 2 (D2) General and TC meetings were held in Melbourne, AU, 7 – 9 March 2016 in conjunction with the CIE Conference on *Lighting Quality & Energy Efficiency*, 3- 5 March 2016. The meeting highlights are listed below.

D2 has 36 country members; 22 official country members or proxies with voting rights were present at the D2 meeting. I attended this meeting as country member for Canada and as one of the three D2 Associate Division Directors (ADDs). The D2 management team is unchanged and all 6 D2 officers were present at the D2 meeting.

Fourteen established Technical Committees (TCs), **Three** new TCs and **One** new Reportership (TR) met in Melbourne: **TC2-50** *Measurement of the Optical Properties of LED Assemblies* (Distl/Young); **TC2-51** *Calibration, Characterization and Use of Array Spectroradiometers* (Young); **TC2-62** *Imaging-Photometer-Based Near-Field Goniophotometry* (Krueger); **TC2-68** *Optical Measurement Methods for OLEDs used for Lighting* (Yamauchi); **TC2-69** *CIE Classification Systems of Illuminance and Luminance Meters* (Blattner); **TC2-72** *The Evaluation of Uncertainties in Measurement of the Optical Properties of Solid State Lighting Devices, including Coloured LEDs* (Gardner); **TC2-73** *Measurement of quantities relating to photobiological safety of lighting products* (Mou); **TC2-74** *Goniospectroradiometry of Optical Radiation Sources* (Pan); **TC2-76** *Characterization of AC-driven LED Products for SSL Applications* (Chou); **TC2-77** *Fundamental Concepts* (Bergen); **TC2-78** *The Goniophotometry of Lamps and Luminaires* (Bergen); **TC 2-79** *Integrating sphere photometry and spectroradiometry* (Lee); **TC2-80** *Spectroradiometric Measurement of Light Sources* (Young); **TC2-81** *Update of CIE 65: 1985 (Absolute Radiometers)* (Smid); **TC2-BRDF** *Recommendation for BRDF measurements* (Obein); **TC2-LED-Data** *Recommendations on LED test data reporting* (Poppe); **TC2-OLED** *CIE Standard on test methods for OLED luminaires and modules* (VanderMeersch); **TR2-71** *Towards LED-based standard calibration sources for photometry* (Poikonen).

Highlights



Two (2) new TCs and four (4) new Reporterships were proposed at the D2 meeting but only the four DTRs were approved at the meeting; no decision was made by the D2 members at the meeting for the two TC proposals. The proposed Chairs were asked to provide further details with a deadline of 2016-04-30.

CIE D2 Publications since the 2015 D2 meeting in Manchester, UK

CIE S 017-SP1/E:2015: ILV: International Lighting Vocabulary –Supplement 1: Light Emitting Diodes (LEDs) and LED Assemblies – Terms and Definitions

CIE 216:2015: Proceedings of the 28th Session of the CIE, 28 June – 4 July 2015, Manchester, United Kingdom.

CIE x041:2016: Proceedings of CIE Expert Symposium on the CIE S 025 LED Lamps, LED Luminaires and LED Modules Test Standard, Braunschweig, Germany

D2 Editorial activities since the 2015 D2 meeting in Manchester, UK

Recent activities have involved viewing/editing drafts of reports from the following TCs: TC2-64, 2-65, 2-29, 2-51, 2-64, 2-63 and 2-50. The final drafts are completed or near completion for the following TCs: 2-51, 2-64, 2-63 and 2-50.

Proposals for 2 New D2 Technical Committees:

(1) Technical Committee

Title: *Standard Reference Solar Spectra*

Proposed Chair: Shigeo Suga (JP)

Motivation: To replace the former TC 2-17 and refer to tabled documents

Proposed new Scope: *To update the CIE 085-1980 “Solar Spectral Irradiance” to produce tabulated data for electronic data processing with an extended wavelength range and shorter sampling intervals where necessary to serve the needs of the user community.*

Decision: Proposer is to update his TC proposal and re-submit by 2016-04-30.

(2) Technical Committee

Title: *LED calibration sources*

Proposer: Tuomas Poikonen (FI)

Motivation: Reporter (Poikonen) has submitted a report recommending the establishment of a TC on this topic but has not prepared a formal TC proposal.

Discussion points: D1 has a reportership looking into standard LED spectra (DR 1-62 Typical LED spectra); D2 is interested in creating a reference LED illuminant to reduce uncertainty in photometric measurements; an illuminant is by definition (eILV) something that influences object colour perception, but CIE illuminant A is also used for photometric calibrations so could a standard LED illuminant L be used for calibrations of LED products?



Decision: the D2 management team, as well as the reporters from D1 and D2, should discuss this issue further to decide whether to proceed with a JTC or separate TCs and what the scope(s) would cover.

More detailed proposals for each of these TCs are available from Joanne Zwinkels, upon request.

Proposals for 4 new D2 Reporterships:

(1) Title: *TN on measurement uncertainties for testing of LED Lamps, Luminaires and Modules*

ToR: To prepare a technical note on guidance for evaluation of the uncertainty of SSL products in support of CIE S025

Reporter: Yoshi Ohno (US)

Decision: After the meeting, this Reportership was given the number, [DR2-76](#).

(2) Title: *Measurement of Quantities Relating to Photobiological Safety of Lighting Products*

ToR: To monitor the progress of the revision of IEC 62471

Reporter: Tongsheng Mou (CN)

Decision: After the meeting, this Reportership was given the number, [DR2-77](#).

(3) Title: *Investigation of the need for documentary guidance relating to 0:d (d:0) reflectance instruments*

Proposer: Annette Koo (NZ)

Motivation: This reportership replaces TC 2-81 that was cancelled because its scope was too broad and TCC had resigned.

Discussion: There were questions whether the geometry should be 0:d or 8:d? It was considered that 0:d is an acceptable geometry and a starting point for expanding to other geometries in future.

Decision: After the meeting, this Reportership was given the number, [DR2-78](#).

(4) Title: *Measurement of total transmittance, diffuse transmittance and transmittance haze*

Proposer: Hsueh-Ling Yu (TW)

Motivation: The importance of haze measurements has increased recently due to the development of LCDs, touch panels and optical thin films, such as thin film solar cells. Current documentary standards (ISO, ASTM) give discrepancies in comparison results. The aim of this reportership is to disseminate information from an APMP TCI project that is studying the parameters that influence the haze measurement technique; this might lead to a new CIE TC to develop a TR to give recommended practices for documentary standards to improve the reliability of these measurements.

Decision: After the meeting, this Reportership was given the number, [DR2-79](#).

More detailed proposals for each of these Reporterships are available from Joanne Zwinkels, upon request.

Dissolution and Changes of TCs and Reporterships:

The following two TCs were closed:

- TC 2-71 *CIE Standard on Test Methods for LED Lamps, Luminaires and Modules* (Ohno). This TC has completed its ToR; TCC is working on a TN on measurement uncertainties in support of CIE S025 including both Monte-Carlo method and “practical” method. It was proposed to change this to a Reportership and close TC 2-71.
- TC 2-73 *Measurement of quantities relating to photobiological safety of lighting products* (Mou). This TC was changed to a Reportership (see details below).

One Reportership was closed: DR 2-56: *Monitoring Progress in Regional Metrology Organizations (RMOs)*; Reporter: M.L. Rastello; this was replaced by a new Liaison: L2-12 (see below).

D2 Ballots since 2015 meeting in Manchester

- LB D02-1506: New JTC on quantifying non visual effects
- LB D02-1507 NC/BA/DIV voting on FDIS 024/E:2015 of TC2-66
- LB D02-1508 DIV commenting on ED/TN(1) of TC2-65
- LB D02-1509 DIV commenting on ED/TN(2) of TC2-65
- LB D02-1510: five new TCs
- LB D02-1601: changes of TCCs
- LB D02-1602 D2 commenting on ED/TR of TC2-47 - Deadline 2016-04-15
- LB D02-1603 D2/BA voting on AD/TN(1) of TC2-65 (approved)
- LB D02-1604 D2/BA voting on AD/TN(2) of TC2-65 (approved)
- LB D02-1605 D2/BA voting on AD/TR of TC2-47 (approved)
- LB D02-1606 results of voting on creation of new TC on revision of CIE 85 (solar spectrum) – Deadline 2016-10-11 (approved)

Five new D2 TCs have been approved since Manchester meeting:

- **TC 2-83** CIE Standard on test methods for OLED luminaires and panels
- **TC 2-84** Recommendations on LED package test data reporting
- **TC 2-85** Recommendation on the geometrical parameters for the measurement of BRDF
- **TC 2-86** Glare Measurement by Imaging Luminance Measurement Device
- **TC 2-87** Broadband UV LED radiometric measurements between 320 nm and 420 nm

Changes in Three D2 TC Chairs since Manchester meeting:

- Udo Krüger Germany as TCC of **TC 2-62**: Imaging-Photometer-Based Near-Field Goniophotometry

- Yasuki Yamauchi, Japan as TCC of **TC2-68**: Optical Measurement Methods for OLEDs used for Lighting
- Jim Gardner, Australia as TCC of **TC 2-72**: The Evaluation of Uncertainties in Measurement of the Optical Properties of Solid State Lighting Devices, including Coloured LEDs

D2 Director's Report

P. Blattner also reported that the CIE Research Strategy can be found at the CIE web-site: <http://www.cie.co.at/index.php/Research+Strategy>

It lists the following 10 strategic items with the items within the scope of D2 shown below in bold:

- Recommendations for Healthful Lighting and Non-Visual Effects of Light
- Colour Quality of Light Sources Related to Perception and Preference
- Integrated Glare Metric for Various Lighting Applications
- **New Calibration Sources and Illuminants for Photometry, Colorimetry, and Radiometry**
- Adaptive, Intelligent and Dynamic Lighting
- Application of New CIE 2006 Colorimetry
- **Visual Appearance: Perception, Measurement and Metrics**
- Support for Tailored Lighting Recommendations
- **Metrology for Advanced Photometric and Radiometric Devices**
- Reproduction and Measurement of 3D Objects

Overview of the Status of Selected TCs

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>

TC2-29 *Measurement of Detector Linearity* (Eppeldauer). The document has completed WD and is very nearly ready to be handled by CB.

TC2-47 *Characterization and Calibration Methods of UV Radiometers* (Sperling). This is now under CB control for preparation of the CD.

TC2-49 *Photometry of Flashing Light* (Ohno). The 3rd CD is out for ballot by TC members with a deadline of end March 2016. There has been a lot of discussion and new experimental results since Manchester meeting. The title has been changed and now the report is not a recommendation but a status of the current research so this is to provide groundwork for a new TC. Because the focus of the report has changed, the ToR need to be changed. This was changed and approved at the D2 meeting to: *“To produce a technical report on the current status of research on measurement of effective intensity of flashing light”*.

TC2-63 *Optical measurement of high power LEDs (Zong)*. The WD will be sent to TC members and DE soon. This TC and TCC were confirmed for 6 months to get to CD stage.

TC2-64 *High speed testing methods for LEDs (Heidel)*. The WD ballot has been closed and the DE has completed his work and it is ready for CB control.

TC2-65 *Photometric measurements in the mesopic range (Goodman)*. It had previously been decided to close this TC and change to Reportership once the TNs had been published. This was not done in order for TC to resolve any issues with Div or BA balloting.

TC2-67 *Photometry of lighting and light-signalling devices for road vehicles (Reinvers)*. The TCC is planning about 3 meetings per year, both face-to-face and Webex. He has prepared a written justification for changing the focus of the TC from producing a TR to producing a Standard, including new ToR. The CIE Standard will define requirements on test and measurement conditions in order to enhance comparability of laboratories following the standard. The document will serve as a basis for laboratory accreditation in the field of lighting and light signalling approval for road vehicles as requested by relevant bodies (i.e. UNECE and national authorities). This change in ToR was voted at the meeting and was approved (one abstention).

New ToR: To prepare a CIE Standard for the measurement of photometric performance of lighting and light-signalling devices for road vehicles. Note: This technical committee is related to GTB Working Group Photometry. The Standard will be based on an existing internal GTB Working Group Photometry Guide (GTB identification: CE-3874) and will incorporate the rules for the determination and the statement of measurement uncertainties as defined in the ISO/IEC Guide 98-3 -"Guide to the Expression of Uncertainty in Measurement"

TC2-69 *CIE classification system of illuminance and luminance meters (Blattner)*. This report is nearing completion. TC and TCC were extended for 6 months.

TC2-72 *The evaluation of uncertainties in measurements of the optical properties of solid state lighting devices, including coloured LEDs (Gardner)*. The TCC has changed from Young (UK) to Gardner (AU). The draft for the first work item is near completion.

TC2-73 *Measurement of quantities relating to photobiological safety of lighting products (Mou)*. There is a lot of duplication between TC 2-73 and other TCs such as TC 2-72 which is working on uncertainty relating to blue-light hazard including geometric aspects. TC 2-73 is therefore no longer required until IEC 62471 revision is completed. It was proposed to close this TC and convert it to a Reportership to monitor the status of IEC 62471 revision (approved).

TC2-74 *Goniospectroradiometry of optical radiation sources (Pan)*. This TC had a meeting in Melbourne to discuss the 5th draft of the TR.



TC2-75 *Photometry of curved and flexible OLED and LED sources* (Yu). Progress has been made in preparing a new draft of the TR. The TC and TCC were confirmed for one more year.

TC2-76 *Characterization of AC-driven LED products for SSL applications* (Chou). The latest draft of this TR was discussed at TC meeting in Melbourne. There are only a few editorial issues and this document should be ready to go to WD ballot within a few months. The TC and TCC were confirmed for one more year.

TC2-77 *Fundamental Concepts* (Bergen). The TC is a “social” TC aimed at meeting in an informal environment and having D2 people have an interesting discussion on a topic of interest. This TC had its sixth meeting in Melbourne where the topic of discussion was Adjustment Factors, SI Units and Traceability. In particular, it was to answer the questions: 1) Can an adjustment factor carry an SI unit and, if so, does this affect traceability?; and 2) Should something that is a ratio of two quantities that have the same unit be dimensionless or have dimension one?

Progress of Selected Reporterships

Reportership reports are posted at ColTool.

The following Reporterships were discussed at the Melbourne meeting;

DR2-52: *Flicker measurement and flicker index study on solid state lighting*

Reporter: Kuei-Neng (Gilbert) Wu

Reporter requested another year.

DR2-56: *Monitoring Progress in Regional Metrology Organizations (RMOs)*

Reporter: Maria Luisa Rastello (It)

No status report was submitted and there was discussion at the meeting of the value of continuing this reportership. It was decided at the meeting to close this reportership and establish a new liaison, **L2-12** *Monitoring progress in EURAMET*, with Liaison officer: M. Smid

DR2-57: *Monitoring Progress of IEC TR 62778*

Reporter: Hiroshi Shitomi

A report was submitted and there was discussion on next steps. It was decided that the DD is to distribute the draft document to the D2 members for commenting (deadline of 2016-03-07) and that all D2 members are to provide feedback on the IEC draft document to the DD (deadline of 2016-03-21).

DR2-58: *Standard lamps: availability of and alternatives to commercially available incandescent sources*

Reporter: vacant

Steffen Goerlich from JETI has expressed interest in taking on this reportership. The DD is to follow up with Steffen to confirm that he will take on this role.

DR2-60: *Discussion on the Definition of Luminance/Radiance*

Reporter: Teresa Goodman

The Reporter had prepared a draft report that was discussed later in the meeting. In addition, a Workshop on Radiance/Luminance was held during the CIE 2016 Conference that introduced a proposed new definition of luminance/radiance. The D2 members were encouraged to provide feedback to the DD on these documents (deadline of 2016-04-07). In the interim, some explanatory notes will be prepared to provide clarification to these definitions. It is still planned for this Reportership to produce a TN which will give some additional information regarding practical considerations.

Reports of Liaisons

Liaison reports are posted at ColTool.

The following liaison reports were presented at the meeting;

L2-1: CCPR

Liaison: Y. Ohno

The written report was tabled. It was noted that the *mise en pratique* was published in July 2015, that there is a new task group working on the use of white LEDs in photometry (Chaired by Tatsuya Zama, NMIJ) and a new task group on the use of LED sources as comparison artifacts (chaired by Erkki Ikonen, MIKES).

L2-3 ISO TC6 Paper, board & pulps

Liaison: J. Zwinkels

The written report was tabled. It was noted that ISO TC6 has three different standards for gloss measurements since the results are very dependent on the details of the measurement beam and geometry used, i.e. collimated or converging beam, 20 or 75 degrees. This is very relevant to the new TC2-BRDF.

L2-4: IEC TC 34: Lamps and related equipment

Liaison: G Vandermeersch

The written report was tabled. It was noted that there is a major concern that IEC draft standards for photometry of LED lighting devices make some fundamental errors in their understanding of measurement techniques and measurement conditions for making reproducible measurements. CIE S025 was accepted for general guidance for goniophotometry but near-field goniphotometry is not accepted. IEC is starting to realize the importance of measurement uncertainties.

JTC2: Principles Governing Photometry

Chair: Y. Ohno; Co-Chair: T. Goodman

The report is almost completed. There was a TC ballot but 3 negative votes mainly due to the definition of luminance/radiance. These definitions have been changed in light of discussions in a JTC8 task group working on definitions for the revision of ISO 80000-7.

JTC5: Review of IEC 62471/ CIE S008

Chair: J. O'Hagan; Co-Chair: H. Shitomi



Written report was tabled.

JTC8: *Terminology in light and lighting*

Chair: P. Zwick

This committee is working on revision of the ILV definitions and harmonization with ISO 80000 and IEC; it has held several Webex meetings including a D2 task group on basic terms such as radiance/luminance, and has several D2 (and D1) contributions (S. McFadden is a D1 member and J. Zwinkels is a D2 member).

One new Liaison was proposed at the D2 meeting: L2-12 (see above)

Recent & Future D2 Meetings and Symposia

- 2016** - CIE Expert Symposium on Appearance, Prague, Czech Republic, August 30 – September 1, 2016
- 2017** - CIE Tutorial on CIE S025 LED Lamps, LED Luminaires and LED Modules Test Standard, METAS, Switzerland, March/April 2017
- 2017** - CIE D2 2017 meeting in conjunction with CIE midterm session, Jeju, South Korea, October 20-28, 2017
- 2018** - CIE D2 2018 meeting - Proposal by Paul Dekker (NE) to host meeting at Eindhoven University of Technology, Netherlands, in conjunction with a workshop, May/June/July 2018 (TBD)

Canadian Participation in Division 2

Canada has representation on 10 Technical Committees and JTCs that include D2:

TC2-59	T. Moggridge (Westboro Photonics)
TC2-63	V. Venkatarananan (UoT) , M. M. Sisto (INO)
TC2-65	J.C. Zwinkels (NRC)
TC2-71	R. Li (Lumentra)
TC2-77	J.C. Zwinkels
TC2-80	J.C. Zwinkels
TC2-82	J.C. Zwinkels
JTC-1	J.C. Zwinkels
JTC-2 (CIE/CCPR)	J.C. Zwinkels
JTC-8 (all Divisions)	Sharon McFadden (D1), Joanne Zwinkels (D2)

One Liaison:

ISO TC6: Paper, Pulp, Board: J.C. Zwinkels (NRC)



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



Canadian National Committee Comité national canadien

Division 3: Interior Environment and Lighting Design

Report to CNC/CIE 61st Annual Meeting
 Montréal, QC, Nov. 8, 2016

Jennifer A. Veitch, Ph.D.
 Email: j_a_veitch@jdarchitect.ca

1 Introduction

The 2016 meeting of Division 3 was held by Webex on Sept. 26, 2016. I represented Canada (and also served in the role of Division Director). Minutes of the meeting will be available online shortly at <http://div3.cie.co.at/>.

A highlight for me was the addition of Harold Murray as my assistant/alternate Division 3 member for Canada.

2 Highlights

2.1 New Technical Committees, Reporterships, and Other Activities

Division 3 formed one new TC at the 2015 meeting, which was subsequently confirmed by the Board of Administration. TC 3-56: Assessment of Discomfort Glare from Daylight in Buildings will continue the work of the former TC 3-39 to produce a report.

Division 3 is also participating in a joint technical committee that was initiated in 2015. JTC 9 (D1/D2/D3/D6): Quantifying ocular radiation input for non-visual photoreceptor stimulation takes up the work of defining action spectra for intrinsically photoreceptive retinal ganglion cells that was reported in CIE TN 003:2015.

2.2 Division publications

Since the last report, D3 has published CIE 218:2016, Research Roadmap for Healthful Interior Lighting Applications. This was the output of TC 3-46, which I had chaired. The committee was closed at the 2016 meeting.

2.3 Future meetings

2017: CIE mid-term meeting, October 20 to 27, Jeju Island, Republic of Korea.

2018: Webex

2019: CIE 29th Session, Washington, D.C.

3 Current Canadian participation in Division 3 activities

List Canadians who Chair or participate in Technical Committees, handle a Reportership, act as a Division Officer or act as a liaison.

Activity	Title	Canadian Members
TC3-49	Decision scheme for lighting controls for tertiary lighting in buildings	C. Suvagau (Member); J. Veitch (Corresponding)
TC3-53	Revision of CIE S 008 Joint ISO*CIE Standard: Lighting of Work Places - Part 1: Indoor	J. Veitch (Member)
Officer	Division Director	J. Veitch

Org. Ctte	CIE Stakeholder Workshop for Light Source Temporal Light Modulation Standards	J. Veitch (Chair)
Org. Ctte	CIE Expert Symposium on Research Methods for the Effects of Lighting	J. Veitch (Member)

In addition, Canadians are active in D3-related activities through the Canadian mirror committee to ISO TC 274. Although these are not, strictly speaking, CIE activities, they are indicative of Canadian participation in the broader work of recommendations and standards for light and lighting.

<i>ISO/TC 274-JWG 1</i> <i>[CIE JTC 6] (CIE-ISO)</i>	<i>Energy performance of lighting in buildings</i>	<i>T. Lau</i>
<i>ISO/TC 274 JWG 2</i>	<i>Commissioning process of lighting systems</i>	<i>T. Lau</i>
<i>ISO /TC 274</i>	<i>Liaison officer from ISO TC 274 to ISO TC 205/WG 7</i>	<i>C. Sampson</i>
<i>ISO/TC 274</i>	<i>Liaison officer from ISO TC 274 to ISO TC 163</i>	<i>T. Lau</i>

4 Highlights of Division Work Programme

D3 completed in 2016 a research strategy survey and report that is guiding discussions about new work items. The document also supported D3 input into the larger CIE Research Strategy, available [here](#). In both documents, the need for guidance concerning how to use interior lighting to the benefit of health and well-being in addition to visual performance is the highest priority research activity.

New work items under discussion include:

- Participation in a joint ISO/CIE activity to write a standard on maintenance factors that can apply to LED lighting products for both interior and exterior applications
- Leading a joint CIE/ISO activity to revise ISO 30061:2007(E)/CIE S 020/E:2007: Joint ISO/CIE Standard: Emergency Lighting
- Development of a design guide for lighting controls (to follow from the forthcoming publication of TC 3-49).

Division 3 is chairing, with participation from D1, D2, and D6, the CIE Stakeholder Workshop for Light Source Temporal Light Modulation Standards. This limited-participation workshop will develop a roadmap for the standards that are required to limit the risk of adverse visual, health, or behavioural effects from cyclical temporal variations in light source output (colloquially known as flicker). It will take place in Ottawa, likely in February 2017, with sponsorship from Natural Resource Canada – Office of Energy Efficiency, the National Electrical Manufacturers' Association, BC Hydro, Philips Lighting, and the National Research Council of Canada. The roadmap report will be published as a CIE Technical Note.

Division 3 is also planning an expert symposium to take place in Copenhagen in summer 2018, on Expert Symposium on Research Methods for the Effects of Lighting.

4.1 Overview of the status of TCs and Reporterships

D3 has adopted a standard template for reporting TC status. Reports on each TC are available as part of the 2016 meeting minutes at <http://div3.cie.co.at>.

<i>Activity</i>	<i>Title</i>	<i>Chairman</i>	<i>Status</i>
JTC 4 (D3/D6)	Visual, health, and environmental benefits of windows in buildings during daylight hours	J. Wienold (D3) empty (D6)	New JTCC for D3 this year. Committee needs a new JTCC for D6, but Dr. Wienold is picking up the work in any case.
JTC 6 (CIE-ISO)	Energy Performance of Lighting in Buildings	S. Moghtader	Work is proceeding in accordance with the ISO milestones set for this task.
JTC 7 (D3/D1)	Discomfort caused by glare from luminaires with a non-uniform source luminance	N. Hara (D3) Y. Akashi (to be confirmed)	New JTCC needed for D1, an appointment is in process.

<i>Activity</i>	<i>Title</i>	<i>Chairman</i>	<i>Status</i>
		(D1)	
JTC 8 (all Ds)	Terminology	P. Zwick (CIE-TM); P. Thorns for D3.	This is a standing JTC. Its current work is to reconcile the eILV with the IEC Electropedia entries for lighting.
JTC 9 (D6/D1/D2/D3)	Quantifying ocular radiation input for non-visual photoreceptor stimulation	L. Schangen (D6) N. Itoh (to be confirmed) (D1) P. Blattner (D2) H. Noguchi (D3)	Work initiated in spring 2016.
TC 3-44	Lighting for the elderly	Y. Akashi	The second WD is being reviewed by the committee.
TC 3-48	CIE standard method of UF table calculation for indoor luminaires	P. Thorns	Final revisions with CB for balloting.
TC 3-49	Decision scheme for lighting controls for tertiary lighting in buildings	P. Dehoff	ED ballot completed end of Sept. 2016, awaiting responses from the TCC. Publication expected early 2017.
TC 3-53	Revision of CIE S 008 Joint ISO*CIE Standard: Lighting of Work Places - Part 1: Indoor	Y. Koga	The status of this TC will probably change during the coming year, as the new standards structure is established.
TC 3-54	Revision of CIE 16-1970: Daylight	A. Rosemann	New TCC in Oct. 2016; work is being re-started following a hiatus in leadership.
TC 3-55	Metrics for sunlighting and daylight passing through sunshading devices	M. Fontoynt	Work program revision pending. (There had been a misunderstanding in 2015, and this TC was not closed at that time.)
R 3-29	Variable transmission glazing	J. Mardaljevic	Work is progressing.
R 3-31:	Available Daylighting Metrics	J. Mardaljevic	Work is progressing.

4.2 Dissolution of and changes to TCs and Reporterships

At the 2015 meeting, the following activities were closed.

<i>Activity</i>	<i>Title</i>	<i>Chair</i>	<i>Reason</i>
TC 3-45	Luminance-based design approach	Y. Nakamura	Work not completed by CoP deadline. Closed and material archived at CB.
TC 3-46	Research roadmap for healthful interior lighting applications	J. Veitch	Work completed: CIE 218:2016.

5 Other Division News]

New Associate Division Directors were appointed in January 2016: ADD3 – Electric Lighting – Prof. Nozomu Yoshizawa (JP) and ADD3 – Daylighting – Prof. John Mardaljevic (UK).



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



Canadian National Committee Comité national canadien

Division 4: Lighting and Signaling for Transport

Report to CIE Annual Meeting
CNC/CIE Business Meeting
André Laperrière
Email: laperrie.andre@lte.ireq.ca

Introduction

CIE DIVISION 4 MEETING 2016 Melbourne, Australia

Date: March 7, 2016

Venue: Mercure Hotel Treasury Gardens, Melbourne, Australia

.André Laperrière was not able to join the meeting due to budget cut.

2. Highlights

2.1 Combination of D4 and D5

Ann Webb was assigned the task of looking at the merge of divisions 4 and 5. A proposal how to proceed was prepared and published on the colltool, prior to the request to the members of divisions 4 and 5 to vote. Together with division 5, it was decided to discuss the voting result in the second part of the division 4 meeting on Wednesday.

The main reason for combining is a reduction in overlap and streamlining the organization, which is hoped to result in a more effective and efficient organization. A possible downside is the loss of division member positions, which might cause difficulties for members to join meetings. This could make it impossible for current D5 members to join future meetings and TCs, as their employer or national organization only approves the necessary time and travel when in an official capacity. On the other hand, most countries have the same representative for both D4 and D5. Another question is who is active; many Division members are not really active. Several options for forming official functions for the division 5 members affected were discussed. One option is to let the division give an advice to the national committees, to create an extra official position for representation in D4+5. This will be taken up to the board by the division director.

In Division 5, 11 division members voted for, 4 against and 5 abstained. In Division 4, out of 42 countries, 13 voted in favour and 2 voted against. This means that both divisions have agreed.

The result of the vote will be communicated to the board. For the new division management team, at least one new AD will be needed. Application emails can be sent to Ron Gibbons.

2.2 Reports from Division Editor

To come: reports from TC4-46 and TC4-47, TC4-51, TN of JTC-1, TN of TC4-54.

TC4-33 Discomfort Glare in Road Lighting – Chair Stephan Voelker

TC4-46 Roundels – Chair Ron Gibbons

TC4-47 Application of LEDs in Transport Signalling and Lighting – Chair Steve Jenkins

TC4-50 Road Surface Characterization for Lighting Applications – Chair Guiseppe Rossi

TC4-51 Optimizing of Road Lighting – Chair Pal Larsen
 TC4-52 Lighting for pedestrians: new empirical data – Chair Steve Fotios
 TR4-53 Tunnels lighting - Chair Raoul Lorphevre
 TR4-54 Road lighting for ageing drivers – Chair Maurice Donners

2.3 Future meetings

- a. Intermediate TC WebEx meetings
- b. 2017: South Korea – Jeju
- c. 2018: joining the LQ&E conference. Location to be announced.
- d. 2019: May Washington DC

3. Current Canadian participation in Division 4 activities

André Laperriere member of TC 4-51

Activity	Title	Canadian Members
TC451	Optimizing of Road Lighting	André Laperrière (member)

4. Highlights of Division Work Programme

Report from DD-and BA meetings since the last Division 4 meeting. Four DD and 2 BA meetings were held. Major topics were the CIE Research Strategy, expressing the needs for research from CIE, adding weight to those subjects on the list, e.g. in requesting funding for research projects, but this might also complicate getting funding for those topics not on the list. A specific list, without prioritization, is needed for D4. Nigel Parry offered to coordinate the Division Research Strategy, as a Division Reporter. The proposal made in Manchester to form Working Groups now is being formalized in the CoP as ‘Research Forums’. A ‘working group’ on cycles was already started. WGs can be joint between divisions.

Now, anyone can be a member in a TC. Some NCs think that only members of NCs can be a TC member. Proposal is now to make it optional for NCs to make membership of the NC compulsory for TC members from their country.

The Approval Draft Technical Report of TC 2-65 “Specifying Product Performance for Mesopic Applications” was approved by the Board of Administration as well as by Division 2 and Division 4.

BA voted: 3 Yes, 0 No, 0 Abstention

D2 voted: 8 Yes, 0 No, 0 Abstention

D4 voted: 7 Yes, 1 No, 0 Abstention

4.1 Overview of the status of TCs and Reporterships

4.1.1 TC 4-33: Glare

TC4-33 Glare, Stephan Voelker. Structure and main content was presented.

4.1.2 TC 4-47: Application of LEDs in Transport Signaling and Lighting (Steve Jenkins (AU))

Draft is almost finished, going out for ballot.

4.1.3 TC 4-50: Road reflectance

New TCC Guiseppa Rossi. Issue with liaison with PIARC (Permanent International Association of Road Congresses, as Eric Dumont is not a member anymore. Request for DD to reach out to PIARC. The World Road Association-PIARC was established in 1909. It brings together the road administrations of 121 governments and has members--individuals, companies, authorities and organizations in over 140 countries.

4.1.4 TC 4-51: Optimization of Road Lighting

New TCC: Pal Larson. The draft TR was discussed. New webex meeting to be scheduled for June.

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

Update/evaluation of CIE -115 LIGHTING OF ROADS FOR MOTOR AND PEDESTRIAN TRAFFIC: In TC4-51 discussion about energy use and efficiency requirements. Question whether this should be included in 115. Guiseppa Rossi recommended to make it an addendum, as 115 deals with safety. Workgroup to be created to look into it. Should the topics of cost analysis and energy requirements be included in 115 or only in the report of TC4-51? 7 volunteers: Steve Fotios, Pal Larson, Sermin Onaygil, Dionyz Gasparovski, Guiseppa Rossi, Raoul Lorphevre and Aleksanteri Ekrias agreed to join a Working Group, lead by Ron Gibbons. Also including the use of saturated colours in road lighting.

4.1.5 TC 4-52: Lighting for pedestrians: new empirical data

Presentation of work plan. A first note will be sent around for comment as a way to get people involved in the discussion.

4.1.6 TC 4-53: Tunnel lighting

First meeting. The work plan were introduced. The team is starting to write a first draft.

4.1.7 TC4-54 Road lighting for ageing drivers

First meeting. The work plan was introduced and a request for input was made.

4.1.8. JTC-001 Application of Mesopic Photometry

Next Webex planned in July

5. Other Division News

Official liaison to CIE.

L4 – 1 Axel Stockmar CEN/TC169, Lighting Applications and ISO TC274

No road lighting activity yet in this TC.

L4 – 7 Malcolm Nicholson IALA (International Association of Marine) – Malcolm

recently joined Sealight in Melbourne.

- Proposal by Dionyz Gasparovsky to start a new TC on Outdoor lighting maintenance
- New TC on Roundels proposed by Ron Gibbons

“Develop a CIE Standard, for proposal to ISO, providing the colorimetric and photometric properties of 200 mm and 300 mm road traffic control roundel signals.”

The Approval Draft Technical Report of TC 2-65 “Specifying Product Performance for Mesopic Applications” was approved by the Board of Administration as well as by Division 2 and Division 4.

BA voted: 3 Yes, 0 No, 0 Abstention

D2 voted: 8 Yes, 0 No, 0 Abstention

D4 voted: 7 Yes, 1 No, 0 Abstention

Yoshi Ohno addressed the meeting shortly expressing his interest in the Division 4 work and welcoming any suggestions from the division on possible improvements or activities to the CIE.

Division 5: Exterior Lighting

Report to CNC/CIE 61th Annual Meeting
Montreal Nov 8, 2016

Cristian Suvagau
Email: cristian.suvagau@bchydro.com

1 Introduction

The last meeting was in Melbourne, March 7–9, 2016, I was unable to attend.

Div 5 scope: To study procedures and prepare guides for the design of lighting for exterior working areas, security lighting, flood lighting, pedestrian and other urban areas without motorized traffic, areas for sports and recreation, and for mine lighting.

2 Highlights

The Melbourne meetings were in conjunction with the CIE Lighting Quality and Energy Efficiency Conference –March3–5,2016. This is the fourth biennial CIE Lighting Quality and Energy Efficiency Conference, the previous three having been held in Kuala Lumpur (2014), Hangzhou (2012) and Vienna (2010).

Topics discussed at the Conference pertaining to Division 5 included:

- Efficiency and visual perception quality
- Glare
- Adaptive lighting control
- Public acceptance
- Smart cities

I have not found meeting minutes from Melbourne on the CIE site to this date.

3 Overview of Technical Committees under Division 5

Currently open standards under review:

3.1 TC 5-20 Guide for Sports Lighting

Scope: To prepare a Guide for Sports Lighting that excludes Lighting for TV and Films. This guide will replace the present publications CIE 42-1978, CIE 45-1979, CIE 57-1983, CIE 58-1983 and CIE 62-1984.

Chair: Alan Smith (UK)

3.2 TC5-21 Guide to Urban Lighting Management

Scope: To prepare a Guide for Masterplanning Urban Lighting. The Guide shall be used whenever designing new or renewed creative lighting for masterplanning urban lighting. The Guide includes an integrated approach which takes into consideration functional lighting, floodlighting, decorative lighting and considers functional, aesthetic and emotional aspects of lighting design.

Chair: Mùjgan Serefhanoglu-Sözen (TR)

3.3 TC 5-26: Guide for the Lighting of Sport Events for Colour Television and Film Systems

Scope: To prepare a revision of CIE 83-1989 to better relate to CIE 169:2005 and the present state of the art of HDTV. Chair: Alan Smith (UK)

3.4 TC5-28 Guide on the Limitations of the effects of Obtrusive Light

The document is ready for publication

3.5 Other TC under Division 5:

- TC 5-18 Practical Design Guidelines for the Lighting of Exterior Work Areas
- TC 5-22 Beam Patterns for Exterior Floodlighting Luminaires
- TC 5-23 Guidelines for the Use of Different Illuminance Patterns in Outdoor Applications
- TC 5-24 Guide for Architectural and Decorative Lighting
- TC 5-27 Artificial Lighting and its Impact on the Natural Environment

4. Current Canadian participation in Division 5 activities

Publication drafts forwarded to respective outdoor specialists within our membership for review and comment

5. Future meetings

2017 October 20-27, Jeju Island, South Korea (Midterm meeting)

2018 Vacant

2019 Washington US



Division 6: PHOTOBIOLOGY AND PHOTOCHEMISTRY

Location: Meeting held via Webex **Date:** September 15, 2016

Dr. Sami Qutob
Email: Sami.Qutob@hc-sc.gc.ca

1 Introduction

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. John O'Hagan (GB)
Associate Director:	Dr. Shu Takeshita (JP)
Secretary:	Dr. Luke Price (GB)
Editor:	Dr. Eric Liggins (GB)

Attendees, country and roles

John O'Hagan (JOH) GB DD6 (Division Director)
NC Rep (National Committee Representative)
L6-2 WHO Liaison Officer
JTC-5 Chair
Shu Takeshita (ST) JP ADD6
NC Rep
Luke Price (LP) GB DS6 (Division Secretary)
JTC-9 Secretary
Eric Liggins (EL) GB DE6 (Division Editor)
Bud Brainard (BB) US NC Rep
Mart Peeters (MP) NL NC Rep
Nathalie Leslie (NL) DE Proxy NC Rep for Werner Jordan
Pierre Boulenguez (PB) FR Guest
Sharon Miller (SM) US Guest
Michael Lynn (ML) GB R6-43 Rapporteur (joint with Graham Hart)
(from agenda item 15)

1 Apologies

LP had received apologies from the following members and former members: Richard Vincent, US, TC6-52 Chair; Werner Jordan, DE, NC Rep; Walter Steudtner, DE, SSM Rep Osram; Luc Schlangen, NL, JTC-9 Chair; Annette Steinbusch, NL, GSM Rep Philips; Fabio Bisegna, IT, outgoing JTC-4 Cochair; Terje Christensen, NO, NC Rep; Mee-Ryoung Cho, KR, NC Rep; Ann R. Webb, GB, L6-7 WMO Liaison Officer, TC6-66 Chair, CIE Past President; Jens Christoffersen, DK, NC Rep and David Sliney, US, ADD6, L6-5 IEC TC76/WG1 and L6-6 ASP Liaison Officer, TC6-64 Chair, R6-44 Rapporteur (joint with Robert Angelo).

2 Minutes previous meeting

The previous minutes (http://div6.cie.co.at/?i_ca_id=604) were accepted with no objections.

3 Progress report from DD6

JOH had provided a written report, which was shared on screen. [The report was made available on CollTools (Collaboration Tools) shortly after the meeting].

JOH noted the Division closed most of its TCs at the last meeting - the new Code of Procedure is more stringent on timescales for TCs to deliver. Most of the remaining TCs are about to complete their reports.

There is a lot of overlap of the current topics within Divisions 1, 2 and 3 and a growing number of Joint Technical Committees. DD6 sees this as an opportunity, rather than a threat, but is mindful of other Divisions straying into the scope of Division 6 unintentionally.

CIE Secretary, Teresa Goodman, had chaired a session at the request of D6 with a small number of D6-related presentations in Melbourne in conjunction with the Lighting Quality and Energy Efficiency conference.

Following the practice of D2, D6 should consider opportunities to run symposia or workshops, e.g. on the detrimental and beneficial effects of light on people. Events outside of CIE often use speakers with vested interests and views that may not be supported by the science, so CIE D6 should ensure it has a voice.

In CIE, the commission is considering improving its website and how to update the means for promoting itself more widely. D4 and D5 are proposed to merge. CIE launched its Research Strategy in August 2016, to help steer research. JOH encouraged members and guests to look at the document, which can be downloaded from the CIE website (<http://www.cie.co.at/index.php/Research+Strategy>).

LP agreed to circulate the link to the CIE Research Strategy. **Action LP**

BB raised a question about the phrase that JOH had used: “beneficial effects of light on people” which he liked. He asked if CIE had discussed the phrase “human centric lighting”, asking what official status that term had in the CIE.

JOH noted that the CIE was trying to push away from the term “human centric lighting”. He noted that industry may still decide to continue using the term in talks and for promotions. BB reported a recent conversation with an IESNA director. IESNA has been discussing this and, to date, has not chosen to adopt the term “human centric lighting” in any official capacity.

BB noted this linked to JOH’s point about events on lighting and health outside of CIE, especially where the speakers were not greatly experienced in this topic and stressed that it was important that if there is a beneficial effect, the same light can also have a detrimental effect. JOH agreed.

4 Secretary's report

LP had provided a report that was available on CollTools. LP asked for Division 6 members to review the list of presently unreachable contacts, who will have to be removed from the list of contacts if no current contact details can be provided within the next 6 weeks.

5 Editor's report

EL had provided a report that was available on CollTools. EL explained the quality of the reports he had received from TCs over the year had been quite varied.

JOH thanked EL for his time spent on editorial work, and noted that Peter Zwick from Central Bureau had specifically complimented EL on the quality of documents received from him as being noticeably much better than those from some other divisions.

6 Progress reports from Technical Committee Chairs

LP set out the year's TC activities (except JOH set out the work of JTC-5 and JTC-8), as listed below.

TC6-49 Infrared Cataract (Tsotumo Okuno)

A report had been received and was available on CollTools. The TCC will soon finish addressing the comments on the ED and report to the CB.

TC6-52 Proper Measurement of Passive UV Air Disinfection Sources (Richard Vincent)

A report had been received and was available on CollTools. The TC is at a similar stage to TC6-49.

TC6-64 Optical Safety of Infrared Eye Trackers Applied for Extended-Durations (David Sliney)

A report had been received. [The report was made available on CollTools shortly after the meeting]. The TCC would soon finish addressing the comments and then report to the DD.

TC6-66 Maintaining summer levels of 25OH vitamin D during winter by minimal exposure to artificial UV sources: requirements and weighing the (dis)advantages. (Ann R. Webb, Secretary Ad Brand)

No report had been received and the Technical Report CIE 219:2016 "Maintaining Summer Levels of 25(OH)D during Winter by Minimal Exposure to Sunbeds: Requirements and Weighing the Advantages and Disadvantages" was published in the last few days, completing the work of the TC.

JTC-4 Visual, Health, and Environmental Benefits of Windows in Buildings during Daylight Hours (Martine Knoop-Velds)

A report had been received and was available on CollTools by the outgoing chair of the JTC, Martine Knoop-Velds. In the beginning of 2015 Fabio Bisegna had to resign as co-chair and D6 is still to provide a new co-chair. In Division 3, Martine Knoop had to resign as TCC in November 2015. Jan Wienold is proposed as new TCC, ballot is due May 11, 2016.

To participate in the work of JTC-4, Division 6 has to nominate a co-chair. Theoretically JTC members David Sliney, LP, Tongsheng Mou and Maria Ámundadóttir are potential candidates, along with potential new JTC members. LP proposed to seek to find a D6 candidate to be co-chair following Jan Wienold being confirmed as Chair for D3.

JTC-5 Joint Technical Committee to Revise CIE S009/IEC 62471 (John O'Hagan)

A report had been received and was available on CollTools shortly before the meeting. Over the year two meetings were held followed by editorial meetings. Delays had enabled a review for consistency with IESNA/ANSI RP27.1 and RP27.3. The current draft will be circulated in the JTC for a meeting together with the IEC TC76 meeting in Beijing in October 2016. The formal approval process is planned to run in parallel between CIE and IEC, for possible publication by the end of 2017.

JTC-8 International Lighting Vocabulary (Peter Zwick)

Although this is not listed as a D6 activity, all CIE Divisions are involved in this JTC. The JTC aim is IEC adoption of the existing ILV, with any modifications that are required. JOH noted that D6 did not have many definitions in this report, but the definitions had been reviewed term-by-term by relevant

professionals in CIE.

JTC-9 Quantifying ocular radiation input for non-visual photoreceptor stimulation (Luc Schlangen, Secretary Luke Price)

A report had been received and was available on CollTools. LP commented that early in July 2016 the JTC was formally declared active. Previously, three meetings occurred via skype in which a working draft for a standard was prepared and updated. The working draft of the standard defines the spectral sensitivities or action spectra for the five human photoreceptors that relate to the rods, S-,M- and Lcones and to the intrinsically-photoreceptive retinal ganglion cells. This makes it possible to quantify ocular irradiance with respect to its ability to stimulate individual photoreceptors that can contribute to eye mediated non-visual responses to light.

JOH noted that work of TCs and the TC chairs had to be reconfirmed periodically, and he proposed that all the work and the chairs of the longer standing TCs and JTCs be reconfirmed for the next four years, applying to TC6-49, TC6-52, TC6-64 and JTC-5. This was accepted with no objections.

7 Progress reports from Reporters

R6-44 Optical Radiation Hazard Measurements in the Workspace (David Sliney, Robert Angelo)

No report had been received for this new reportership. JOH believed this should take too long, as the previous TC had folded close to reporting due to a lack of complete unanimity during the voting. It had been decided the majority findings of the TC could be best captured with a DR rather than the work collating it in a report being lost.

R6-43 Illuminators for Treatment of Infant Hyperbilirubinemia (Graham Hart, Michael Lynn)

A report had been received and was available on CollTools. The DRs hope to produce a report for EL by the end of September 2016. JOH noted that D6 was desperately waiting for this.

ML later joined the call, during agenda item 15, and spoke about the need for this report. The original report which the DRs adopted could not be published as it lacked strong evidence. The question of which wavelength to treat jaundiced babies with is complex. The present blue light does work, but longer wavelengths may be better. Blue light has been more recently found to stress premature and full-term babies and higher mortality rates are associated with blue light treatment, although it cannot be shown that this is causal.

The DRs had discovered the importance of dermatologists opinions on the long term effects of blue light treatment, and there were concerns being expressed about the adverse effects in this community. Although manufacturers may have little incentive to change the treatment lamps, the DRs consider longer wavelengths would be as effective as the present lamps, and potentially less harmful, and they would make use of the additional concerns from dermatologists to make the case.

8 Progress reports from Liaisons with ICNIRP, WHO, IEC, ISO, ASP and WMO

LP noted that no advanced LO reports had been received, although he had received an email on WMO from Ann Webb. JOH set out what Liaisons the division had:

L6-1 IEC TC76/WG9 International Electrotechnical Commission: Optical radiation safety and laser equipment/Non coherent sources (Werner Horak)

L6-2 WHO World Health Organization (JOH)

L6-3 ISO TC217/WG7 International Organization for Standardization: Cosmetics/Sun protection test methods (Uli Osterwalder)

L6-4 ICNIRP International Commission on Non-Ionizing Radiation Protection (KS)

L6-5 IEC TC76/WG1 International Electrotechnical Commission: Optical radiation safety and laser equipment/Optical radiation safety (David Sliney)

L6-6 ASP American Society for Photobiology (David Sliney)

L6-7 WMO World Meteorological Organization (Ann R. Webb)

On L6-2 JOH said WHO proposed a basic safety standard concerning NIR based on converting IR wording. JOH had noted the need to also include the beneficial effects of optical radiation, including its beneficial visual and photobiological effects.

On the two IEC Liaisons in IEC TC76 (L6-1 and L6-5) 62471 was the main point of interest for CIE. JOH raised the work going on relating to lasers whose output was lamp-like, including projectors, vehicles headlights and room lighting.

JOH said that D6 should ideally have a liaison with IEC TC34 on "Lamps and related equipment".

JOH mentioned that CIE has the chair (Ad de Visser) of the ISO TC274 on "Light and lighting", where several proposals on action spectra for "healthy lighting" had been resisted. The latest related to a German proposal to make a melanopsin action spectrum standard based on "what we know now".

LP noted L6-3 related another ISO TC on Sun protection methods. LP had tried to contact UO, but had not had any response, but this was almost certainly the most important missing contact for the Division from his list.

On L6-7 Ann Webb had emailed LP details: "The Joint TC report was published some time ago, and disseminated by WMO as well as by CIE (free). [ARW] will send details of the latest CIE publication CIE 220:2016 Characterization and Calibration Methods of UV Radiometers to WMO and the UV SAG (though it did not come from D6)."

JOH asked if there were any liaisons which it would be worth D6 considering. PB noted ANSES in France [French Agency for Food, Environmental and Occupational Health & Safety] were about to provide a revision to their report on the harmful effects of blue light. JOH said that D6 was interested to see the outcome of this, but noted liaisons tended to be with international rather than national bodies.

There were no other proposals for liaisons.

9 Dissolution of TCs and Reporterships

Having reported, TC6-66 was proposed and agreed to be wound up, and there were no other dissolution discussed.

10 Proposals for TCs and Reporterships

JOH asked those attending for proposals, but none were given. JOH set out four proposals for possible DRs (or TCs) that might be convened during the year:

A proposal for a TC or at least a DR to review the action spectrum for vitamin D, and the suitability of the current CIE standard. JOH noted that there were a couple of people who might be interested.

A similar proposal in respect of the erythral action spectrum. Whilst JOH was confident that the current CIE standard would be considered OK, it was an appropriate time to review it.

A proposal relating to the WHO work on the Global Solar UV Index, again to consider if the current CIE standard remains best practice.

As noted in Manchester, there was an opportunity for a suitable individual to take on a DR related to what we know about the photosensitivity of plants.

11 Division Officers

JOH listed these as DD (himself), DS (Luke Price), DE (Eric Liggins), three ADDs (Shu Takeshita, David Sliney and Karl Schulmeister). He noted that next year he will be half-way through his second and final 4-year term, and nominations for his successor will be needed. The plan was to put out a call around July 2017 for expressions of interest. On appointment, the DD typically chooses the officers DS and DE for BA approval.

There were no changes to the Division Officers.

12 Future meetings

JOH said he would seek feedback following the meeting whether the use of Webex was a success or not.

D6 was invited and had accepted to hold its next meeting at the CIE conference from 20-27 October 2017 on Jeju Island in South Korea (Republic of Korea).

D6 was invited but would decline to hold its 2018 at the Chinese Taipei meeting in March, as this would be within 6 months of the previous meeting. JOH proposed to hold another Webex meeting later in the year.

The 2019 meeting would be held at the quadrennial CIE session in Washington DC, dates to be confirmed. JOH thought March had been suggested, BB thought there would be a good chance of Cherry Blossom then, whereas SM suggested snow was equally possible.

SM noted an FDA (Food and Drug Administration) meeting [of the "Technical Electronic Product Radiation Safety Standards Committee" (TEPRSSC)] on 25th to 26th October which is due to be announced soon conflicts with the IEC Beijing meeting. The FDA meeting concerns "electronic products that emit radiation" with a session about lighting and the need for new standards on the 25th. [This has now been formally announced, and details sent to the meeting attendees and posted on CollTools to D6 Associates.]

JOH noted that there were major issues with the detrimental effects of new LED fittings, which mostly related to problems with the installation, but also included direct effects of the light.

SM was not going, but a colleague would be giving her presentation. She agreed to share information with the group about the event. SM then noted that the American Medical Association (AMA) had issued a recent report about harmful effects related to blue light from LEDs. BB noted there had been followup responses from other organizations, and consequently there would be a joint working group between the US Department of Energy, IESNA (Illuminating Engineering Society of North America) and AMA. He noted that potential outputs from this working group would fit well with the FDA meeting in scope.

JOH asked if there were any other meetings for the division's attention. BB noted there are very many scientific meetings that overlap with D6, but specifically SLTBR (The Society of Light Treatment and Biological Rhythms) and SRBR (The Society for Research on Biological Rhythms) held annual events.

JOH's concern was not with scientific progress, but rather to know what is going on in respect of concerns about standard bodies going down a route that was not supported by the scientific evidence. BB noted a satellite to the IES meeting in Orlando. This is a closed meeting in October by invitation only on "Transforming health and well-being through light" with the aim of generating a white paper. BB was speaking and at least two or three other research scientists, and felt the event was being 'responsibly

organised' including diverse stake holders from different fields. JOH agreed that if anything came out of that meeting it would be worth D6 scrutiny.

13 Any Other Business

There was no other business.

ML gave his R6-43 report (see section 9 above).

14 Adjournment

JOH thanked the attendees for their time, invited them to attend the next meeting on Jeju Island and noted that we hoped to use Webex for those who could not make it and adjourned the meeting.

Luke Price

28 September 2016

Current list of DMs, TCMs, DRs and LOs

For DRs and LOs see minutes

DMs

AUSTRALIA	Frank Wilkinson	KOREA (REPUBLIC OF)	Meeryoung Cho
AUSTRIA	Karl Schulmeister	MALAYSIA	Chang Kee Kwong
BELGIUM	Guy Vandermeersch	NETHERLANDS	Mart Peeters
BRAZIL	Isac Roizenblatt	NEW ZEALAND	TBN
BULGARIA	Angel Pachamanov	NORWAY	Terje Christensen
CANADA	Sami Qutob	POLAND	Urszula Blaszczak
CHINA	Tongsheng Mou	ROMANIA	Constantin Ion
CROATIA	Damir Dracic	RUSSIAN FEDERATION	Roman Belyaev
CZECH REPUBLIC	TBN	SERBIA	Zoran Ledinski
DENMARK	Jens Christoffersen	SINGAPORE*	TBN
FINLAND	Helge Lemmetyinen	SLOVAK REPUBLIC	TBN
FRANCE	Coralie Barrau	SLOVENIA (REPUBLIC OF)	Katja Malovrh Rebec
GERMANY	Werner Jordan	SOUTH AFRICA	Natasha Nel-Sakharova
GREAT BRITAIN	John O'Hagan	SPAIN	Antonio Corróns
GREECE*	TBN	SWEDEN	Thorbjörn Laike
HONG KONG	T.M Chung	SWITZERLAND	Beat Gerber
HUNGARY	Gabriella Csik	CHINESE TAIPEI*	Chen-Yue Chen
INDIA	TBN	TURKEY	Alpin Köknel Yener
ISRAEL	Gabriele Dorfman-Furman	UKRAINE	TBN
JAPAN	Shu Takeshita	USA	George Brainard

* CIE Associate National Committee

TCMs (may include TCMs from other divisions in JTCs 4, 5 and 9, excludes JTC 8)

TC6-49 Infrared Cataract

TC chair: Tsutomu Okuno, Japan
TC members: Masami Kojima, Japan
Karl Schulmeister Austria
David Sliney USA
Per Söderberg Sweden
Yukihisa Suzuki Japan

Björn Tengroth Sweden
Bruce Stuck USA
Yu-Man Shang Taiwan

TC6-52 Proper Measurement of Passive UV Air Disinfection Sources

TC chair: Richard Vincent, USA
TC members: Bergman, R., USA
Blattner, P. Switzerland
Dekker, P. The Netherlands
Jordan, W. Germany
Larason, T. USA
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Leuschner, W. South Africa
Levin, R. USA
Mou, T. China
Slaney, D. USA
Webb, A. United Kingdom

TC6-64 Optical Safety of Infrared Eye Trackers Applied for Extended-Durations

TC chair: Dr. David Slaney, USA
TC members: Dr. Jean-Pierre Cesarini, France
Dr. Jacques Charlier France
Mr. Dixon Cleveland USA
Prof. Gintautas Daunys Lithuania
Mr. Detlev Droege Germany
Dr. Michael Donnegan UK
Mr. Markus Joos Germany
Ms. Fiona Mulvey – Secretary Germany
Dr. Karl Schulmeister Austria
Dr. Mårten Skogö Sweden
Dr. Per Söderberg Sweden
Prof. Olga Štěpánková Czech Republic
Dr. Arantxa Villanueva Spain

JTC-4 Visual, Health, and Environmental Benefits of Windows in Buildings during Daylight Hours

TC members:
Claudia Naves David Amorim Brazil
Maria Ámundadóttir Switzerland
Marilyne Andersen Switzerland
Myriam Aries Netherlands
Femke Beute Netherlands
Fabio Bisegna Italy (former JTC co-chair Division 6)
Deborah Burnett USA
Yvonne de Kort Netherlands
Terry Hartig Sweden
Helena Jahncke Sweden
Michael Jouaneh United States
Martine Knoop Germany (former JTC Chair Division 3)
John Mardaljevic UK
Jitka Mohelnikova Czech Republic
Michele Mossman Canada
Tongsheng Mou China

Mirjam Munch Germany
Mads Dines Petersen Denmark
Luke Price UK
Paolo Scarazzato Brazil
David Sliney USA
2016 Meeting held via Webex 10

JTC-5 Joint Technical Committee to Revise CIE S009/IEC 62471

TC chair: John O'Hagan, GB
TC members: Rolf Bergman, US
Fabio Bisegna IT
Pierre Boulenguez FR
John Dowdy US
David Gross US
Neil Haigh GB
Werner Halbritter DE
Werner Horak DE
Werner Jordan DE
Marina Khazova GB
Kohtaro Kohmoto JP
Richard Kotschenreuther DE
Yu-Ping Lan TW
Eric Liggins GB
Leslie Lyons GB
Tongsheng Mou CN
Jianguan Pan CN
Jay Parkinson US
Karl Schulmeister AS
Hiroshi Shitomi JP
David Sliney US
Peter Sperfeld DE
Katsunori Tachihara JP
Shu Takeshita JP
Richard Young DE

No report received: JTC-8 International Lighting Vocabulary (Peter Zwick, CB)

JTC-9 Quantifying ocular radiation input for non-visual photoreceptor stimulation

TC chair: Luc Schlangen, NL
TC members: Luke Price, GB (JTC secretary)
Robert Lucas GB
Dieter Lang DE
Raphael Kirsch DE
Manuel Spitschan US
Shantha Rajaratnam AU
Peter Blattner CH (JTC co-chair Division 2)
Hiroki Noguchi JP (JTC co-chair Division 3)