



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



Canadian National Committee Comité national canadien

MINUTES OF THE 63rd ANNUAL CNC/CIE MEETING

2018-November-05

The 63rd annual meeting of the Canadian National Committee of the Commission Internationale de l'Éclairage (CNC/CIE) was held on Monday, November, 5, 2018 at the National Research Council of Canada, 1200 Montreal Road, in Building M-24, Ottawa Ontario.

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



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

The 63rd annual meeting of the CNC/CIE was called to order at 9:00 EST on Monday, November 5, 2018 by J.A. Veitch, Vice-President.

Seven 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. Minutes of the 62nd Annual CNC/CIE meeting:

The minutes of the 62nd Annual Meeting were approved without changes.

2.1 Action Items:

Action items (AI-1 to AI-17) from the 62nd annual meeting minutes (see Appendix C of the Minutes of the 62nd Annual Meeting) were discussed. Action items AI-1 and AI-2 were not yet done and are to be kept as action items for this meeting. Action items AI-3 and AI-4 were done. For action item AI-5 Sharon contacted TD-bank and was told that the procedure to update signatures on CNC/CIE cheques would not require the signature of the previous Secretariat Bill Neil and she determined that it would be beneficial to wait until a new Secretariat was appointed before going ahead with updating the signatures on the CNC/CIE cheques. Action items AI-7, AI-8 and AI-9 were done. Action item AI-10 was not yet done as the CB still lists A. Laperrière as leader of CNC/CIE Division 4, instead of listing C. Suvagau as leader of CNC/CIE Division 4. Action items AI-11 and AI-12 were done. Action item AI-13 is done as Jennifer has asked A. Laperrière for someone willing to translate CIE documents into French; however, he has not gotten back to her yet. Action item AI-14 is done. Action item AI-15 is done, action item AI-16 is still open and action item AI-17 is done.

2.2 Matters Arising:

ACTION ITEM (2018-AI-1): Recruit a bilingual candidate for the Website Subcommittee (All)

ACTION ITEM (2018-AI-2): Recruit a Chair of Events Subcommittee to replace temporary chair, V. Venkataramanan (All)

ACTION ITEM (2018-AI-3): Inform the CB of new CNC/CIE D4 country member: C. Suvagau.

The following Officer Reports are available at the CNC/CIE web site and will be included as appendices in the 2017 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 she chaired the Canadian Mirror Committee and hosted the international members of the lighting community at the



University of Toronto during the ISO-TC-274 meeting in May 2017. It was also mentioned that she cast all of the ballots on time and that a couple of things that relate to the Canadian Mirror Committee may require decisions to be made at some later time.

5. Secretary's Report

6. Financial Report:

S.M. McFadden presented her report with discussion and is attached as Appendix F. S.M. McFadden mentioned that there were three major sources of expenses this year; (1) expenses for the TC 274 meeting and workshop held at the University of Toronto during May 2017, (2) CNC sponsorship of SSLNET 2018 and (3) and updates to hosting the website. S.M. McFadden noted that the changes to the website have reduced negative automated negative traffic compared to last year making it a worthwhile expense. It was also noted that the new website is more flexible and provides better coordination between the French and English webpages. S.M. McFadden also mentioned that updating the signatures on the CNC/CIE cheques does not require the previous Secretariat Bill Neil's signature, rather, once a new Secretariat is elected, this individual can go to TD-Bank and fill out the necessary paperwork to be the new signatory (2/3 current signatories can update signatures). S.M. McFadden also noted that there is a new contact at the CB and that she did not receive funds for the sales of publications for this year yet. Because she has now provided the CB with the relevant banking information, they should soon be able to deposit the income generated through publication sales, which in her estimate would be between 500-600 dollars. J.A. Veitch then mentioned the importance of the national committees being made aware of publication codes as this year there was only a single request for a publication code. J.A. Veitch then proposed adding a page on the CNC-CIE website where members could log in and access the publication code for purchasing publications. This page would make it so that CNC-CIE members could log in to the website and access the code before purchasing a publication, in turn, boosting publication sales and increasing CNC-CIE revenues. S.M. McFadden replied that the webpage containing the purchasing code could be set up so that whenever an update is made to the member's area webpage an automated email could be sent out to registered members notifying them of any updated and that this method would be more direct than having the Secretariat manually email the members every time an update to the member's area was made. S. Coyle then mentioned that spending one-third of the budget this year seemed unusually high, but J.A. Veitch replied that this spending was sent out in a ballot for members to vote on, and that the members approved the total spent. Li-Lin Tay then asked about how the CNC-CIE generates revenue, and J.A. Veitch replied that the CNC-CIE generates revenue in two ways; (1) through publication payments from the CIE CB and (2) by charging a registration fee whenever a joint meeting is hosted (this happens once every 4 years). S.M. McFadden pointed out that usually each year is either revenue neutral or slightly positive or negative and that sponsoring SSLNET was necessary to raise the visibility of the ISO-TC-274 meeting that was held in May 2017. There were no further comments about the financial report. S. Coyle motioned for approval of the financial report and J. Hovis seconded the approval of the financial report. No one present at the meeting or on WebEx opposed or abstained the motion and the financial report was passed without changes. J.A. Veitch thanked S.M. McFadden for her work as treasurer.



7. NRC Annual Performance Review of the CNC/CIE:

J.A. Veitch noted that the NRC has changed the way it does the annual performance review and that a new person, Pierre Olivier-Bedard, handles the APR for NRC. J.A. Veitch also noted that in December of 2017 the APR moved to an online system which requires the completion of a document for review. This year's APR was completed on time and highlighted the midterm and general assembly meetings. The CNC-CIE did very well on the APR assessment and placed in the top quarter of the 28 committees that undergo an APR. H. Murray then asked J.A. Veitch the amount of fees that the CNC pays the CIE, and J.A. Veitch replied that CIE dues are 9500 Euros per year, and that this yearly due was higher than for other scientific unions. J. Hovis then asked J.A. Veitch about how the APR evaluation is done, and J.A. Veitch replied that a committee comprised of members knowledgeable about science policy outside of the NRC provides the reviews. J.A. Veitch also remarked that this new system for APR is better than the system previously used, the previous system used 2-3 individuals for each committee and these individuals weren't knowledgeable about science. S. Coyle then asked J.A. Veitch if this process was documented and J.A. Veitch replied that the word document containing the APR is on a server at the NRC.

8. Reports from Division Members:

8.1 Division 1 Vision and Colour:

J. Hovis mentioned that there are some new TCs being proposed in Division 1, including one for the transformations for chromatic adaptation under white light, particularly with the use of LEDs being a current topic of interest for Division 1. J. Hovis also mentioned that a meeting in Washington DC is coming up in June 2019 and another meeting in Hong Kong has been approved. J.A. Veitch then asked J. Hovis who the new proposed Division 1 director is, and J. Hovis replied that Dr. Kwok was re-elected as Division 1 director. J.A. Veitch then remarked that she looked at the CIE website and was surprised not to see a call for experts for those committees from April to November. S.M. McFadden mentioned that any call for experts must be approved by the CIE and asked Jeff if approval had been granted, and J. Hovis replied that the new TCs listed have not been fully approved. J.A. Veitch then asked if they have proposed another research forum for CCT, and S.M. McFadden replied that the last meeting she attended was in 2016 and during that meeting Dr. Kwok had set up a reporter ship for CCT, and she believed that they are replacing reporter ships with TCs. J. Hovis then checked the Division 1 meeting minutes and mentioned that there was approval in the fall of 2017 to look at the colour rendering properties but that this approval did not go beyond the Division 1 meeting. J. Hovis then mentioned that objectives for research that would qualify colour preferences in people would be an interesting topic for the upcoming Washington DC meeting. J. Hovis thanked everybody for listening to his presentation about Division 1 activity and there were no further comments for J. Hovis. J.A. Veitch remarked that she would like more Canadians participating in the TCs for Division 1, and asked that anyone get in touch with division members to propose experts for TCs.



8.2 Division 2 Physical Measurement of Light and Radiation:

J. Zwinkels was not present at the meeting so J.A. Veitch presented the Division 2 report on her behalf. J.A. Veitch mentioned that a Division 2 meeting took place earlier this June and during this meeting 2 new TCs and 1 joint TC were approved. J.A. Veitch then mentioned that intricate lighting is a joint TC from Divisions 6, 1, 2 and 3 that Division 2 has been working on that deals with lighting and health and has been approved. J.A. Veitch then mentioned that one of the important TCs approved by Division 2 was the International Standard Format for the Electronic Transfer of Luminaire Optical Bands and that this TC has a Canadian member Ian Ashdown's involvement and is moving its way through the process of approval and should be approved soon. J.A. Veitch noted that this TC was the international version of the work Ian has done for IES and deals with luminaires a part from the ones used for generating light. J.A. Veitch also mentioned that there are proposals for total transmittance and diffuse transmittance, and the proposal for intricate lighting is a joint TC between Divisions 6, 1, 2 and 3 that has been approved and is a joint activity with ISO-TC-274 which already held a meeting in Toronto and has another one coming up via WebEx. The plan with the intricate lighting TC is to produce a CIE technical note that provides clear guidelines for the use of terms and definitions that relate to intricate lighting. J.A. Veitch also noted that this TC is interested in questions related to sampling theory, but rather than have a reporter-ship start right away; they will use the opportunity to have an in-person workshop. J.A. Veitch then reminded everyone that it would now be a good time to submit any comments to J. Zwinkels on this proposal as the upcoming workshop will get decided by a meeting of the scientific committee in 3 weeks.

***ACTION ITEM (2018-AI-4):** J.A. Veitch and S.M. McFadden will coordinate the list of the CIE roster provided by the CB with list S.M. McFadden has on the website so that both lists are the same.*

J.A. Veitch then asked S.M. McFadden for her comments regarding JTC-8. S.M. McFadden mentioned that the work JTC-8 has done over the past year is concerned with updating the terms and definition used by IEC. S.M. McFadden believes we have reached an agreement with IEC and this updated vocabulary document is now going out to NCs for comment and can also be found on the members area of the CNC-CIE website. S.M. McFadden encouraged members to go on to the website and access the vocabulary document and to submit any comments they might have. J.A. Veitch remarked that now is a good time to take submit comments as once the updated vocabulary document gets posted by the IEC it will be much more difficult to make changes to the definitions and terms. S.M. McFadden noted that the terms used by the IEC are from 1987 and this would be a huge upgrade for that document.

J.A. Veitch then looked over the list of work programs J. Zwinkels provided in her Division 2 report and highlighted that one of the things that division 2 does is that they develop a subset of committees that they consider high priority and these receive more attention from the management team from the division. J.A. Veitch mentioned TC289 Measurement of Temporal Light Modulation of Light Sources and Lighting Systems was formed last year after hosting a workshop at the NRC on temporal light modulation and this is one of the high priority TCs Division 2 is working on. This TC has 2 steps for their work plan; (1) first a



technical note with the measurement protocol that is most urgently needed for giving people a common basis for making measurements and (2) turning this protocol into a standard. J.A. Veitch mentioned that for any questions regarding the details of the reports to email J. Zwinkels.

8.3 Division 3 Interior Environment and Lighting Design:

J.A. Veitch presented the Division 3 report with discussion. J.A. Veitch mentioned that Division 3 met twice since the last CNC meeting, and she has given S.M. McFadden the 2018 meeting minutes to post on the CNC-CIE website. J.A. Veitch mentioned that some highlights of Division 3 activity this year were the approval of the JTC14 and ISO-CIE double badged report which provides a summary of what is known of light on health outcomes and identifies recommendations. J.A. Veitch remarked that there is an overlap between IES light and human health committees. J.A. Veitch noted that a new joint activity JCC15 was created to revise an existing document (ISO889-15) standard for indoor workplaces which was originally published in 2001 and is now outdated and needs updating. J.A. Veitch mentioned that the next meeting for Division 3 will be in the spring of 2019 and she would like more Canadian/North American experts on the CIE or ISO committees. D. Gottesman then asked J.A. Veitch about how to get involved on the CIE/ISO committees and J.A. Veitch replied that by emailing her she would provide an application that needs to be filled out and submitted to the CIE and upon approval by the chair of committee, she could then join the committees. J.A. Veitch then turned the conversation toward the single report made this year that was concerned with lighting for older people and visual impairment in buildings which is available on the CNC-CIE website. J.A. Veitch finally mentioned JTC9-CIE system for metrology, a document that was approved, and thanked all those that participated in the Canadian ballot. The JTC9-CIE document is undergoing final editing and should be posted soon. J.A. Veitch additionally mentioned that JTC 7 has a draft document that is undergoing final editing and voting on this document will begin soon. Another highlight of Division 3 was that there is a 50 year old document in need of revision, and J.A. Veitch is trying to find a new TC chairman to revise this document.

8.4 Division 4 Transportation and Exterior Applications:

C. Suvagau presented the Division 4 report with discussion. C. Suvagau reminded those in attendance that the new Division 4 Transportation and Exterior Applications was created by merging the old Division 4 Lighting and Signaling for Transport with the old Division 5 Exterior and Other Lighting Applications. C. Suvagau then went over the highlights of the most recent Division 4 meeting noting that there was an APR done on the evolution of artificial lighting impacts and LED design for roadway lighting and another APR done on the appreciation and maintenance of lighting systems. C. Suvagau then mentioned that Division 4 had several publications over the last year; TC 001 was a publication that dealt with terminology used in light and lighting maintenance factors. It was also mentioned that Division 4 has 13 publications at the handling stage, 5 in the process of publication, 5 proposed for archival, 5 pending reviews, and 8 that will expire at the end of 2018. C. Suvagau also mentioned that the upcoming Division 4 meeting being held in Washington DC will deal with a number of draft proposals, including one LEDs and traffic signaling. C. Suvagau then talked about the progress of several other draft proposals including one for



lighting for pedestrians, tunnel lighting, and road-lighting for ageing drivers. C. Suvagau then talked about new metrics for LED based systems, quality of life vs. energy efficiency and implementing outdoor lighting systems from energy to non-energy based benefit. This concluded C. Suvagau's report on Division 4. No one in attendance had any questions for C. Suvagau's Division 4 report. D. Gottesman then asked about getting involved in the subcommittee for Division 4 lighting and pedestrians, and a group email exchange regarding her application to join this subcommittee was agreed upon.

8.5 Division 6 Photobiology and Photochemistry:

J.A. Veitch mentioned that Division 6 member S. Qutob sent his regrets for not being able to attend the meeting. J.A. Veitch mentioned that John O'Hagan remains the director of Division 6 and that they had their last meeting in China during June. J.A. Veitch noted that she was a member of a new Division 6 TC for integrative lighting. One ongoing joint activity undertaken by Division 6 involves revising the photo-biological light safety standard and identifying risk groups. J.A. Veitch also mentioned that the completion of JTC9 report is ongoing and that the report will be released soon. J.A. Veitch noted that Division 6 needs to make better use of liaisons with other organizations; coordination with the CIE and ICNER is crucial. She also mentioned her frustration with Canadians whose work deals with topic pertaining to Division 6, but are not active in the committees of Division 6 and that a 2-3 person increase in Canadians being active in Division 6 committees would be ideal. This concluded the Division 6 report and no questions were raised regarding Division 6 activity by those in attendance.

8.6 Division 8 Image Technology:

There was no report for Division 8 Image Technology as the previous member of Division 8 resigned. Tara Akhavan is currently on the ballot for Division 8 membership. No information regarding Division 8 activity was shared by anyone in attendance at the meeting.

9. Membership Subcommittee Report and Elections:

The current list of the CNC/CIE Board of Administration and Members is given in [Appendix I](#).

9.1 Membership and Elections Subcommittees

M. Mossman presented her report as chair of the Membership Subcommittee and this report can be found in [Appendix H](#). M. Mossman noted that there are currently 15 CNC-CIE board of administration members and 63 affiliate members. M. Mossman then said that she added 8 new affiliates since last year's annual general meeting, and that 6 people were removed from the CNC-CIE membership list due to either retirement, moving out of Canada or having outdated contact information. M. Mossman then noted that 5 members whose terms expired at the end of the year all agreed to have their terms renewed for 4 additional years. D. Gottesman then asked to be nominated as a CNC-CIE member. Tara Akhavan is currently on the ballot for Division 8 membership. J.A. Veitch noted that the ballot for Tara's nomination for Division 8 membership does not include a term, and it was voted by the members in attendance that her term for membership would expire at the end of 2023.



ACTION ITEM (2018-AI-5): A. Ghaemi to distribute a ballot nominating D. Gottesman's, L. Tay and A. Rasoulof for CNC-CIE membership while also amending T. Akhavan's ballot for Division 8 membership so that it indicates that her term expires in 2023.

9.2 M & E Subcommittee Membership:

J.A. Veitch then noted the need to improve outreach and expand the membership of the CNC-CIE in areas of lighting that the CNC-CIE lacks expertise in. M. Mossman noted that she recruits new CNC-CIE members by identifying candidates for membership at meetings and professional organizations (i.e. IES) when members directories are published. J.A. Veitch noted a need to recruit more members in academic domains and V. Venkataramanan noted a need to recruit members in Health.

ACTION ITEM (2018-AI-6): J.A. Veitch and A. Ghaemi to develop a system for disseminating a call for experts and press releases to relevant groups that are interested in the activity of the CNC-CIE.

10. Ad hoc Subcommittees

10.1 Website Subcommittee:

J.A. Veitch presented this report, with discussion, and noted that the software upgrade applied to the website has been completed and in use during 2018. S.M. McFadden said that she will be writing a manual for the use of the website for the person who will someday takeover managing the website. S.M. McFadden also noted that she has updated the menu items on the website and that the vocabulary document on the website is incomplete and still in the beta phase. S.M. McFadden also mentioned that she had sent out account and password credentials to all of the members of the CNC-CIE board of administration and L. Whitehead and M. Mossman remarked that they had not had the opportunity to log into the new website using their credentials. The previous year's AGM minutes are available on the member's only area of the new website. S.M. McFadden mentioned that the links that used to provide information on CNC-CIE activity are outdated when the website moved to a new server and she hopes to have them functional again at some point in the future. J.A. Veitch mentioned that the new website with its member's only area will allow the hosting of large documents eliminating the need to send large attachments whenever emailing members. J.A. Veitch also mentioned that she would like to dedicate a part of the website to the history of lighting in Canada, and that she would coordinate with L. Tay about recruiting a summer student for this purpose. After concluding the Website Subcommittee report there were no further comments or questions for S.M. McFadden regarding the website. J.A. Veitch thanked S.M. McFadden for her work on updating the website.

10.2 Events Subcommittee:

J.A. Veitch mentioned that the Events Subcommittee meets once every year.

11. Other Business:

11.1 Correspondence:

There was no correspondence received over the past year.



11.2 Date and place for next year's meeting:

J.A. Veitch began the discussion for determining a date and a place for next year's meeting by noting that last year's meeting was held in the Gaithersburg Campus of NIST. She also noted that the CNC-CIE has received a request to host a joint technical meeting with the US-CIE and CORM in Ottawa. CORM has appointed 2 people on their side as conference coordinators; J. Zwinkels and T. Moggridge. J.A. Veitch indicated her preference to have a day and a half dedicated to conference meetings and a half-day or full day dedicated for the various business meetings of CORM, US-CIE and the CNC-CIE held in parallel. V. Venkataramanan remarked that any meeting exceeding 3 days would be difficult. S.M. McFadden asked if we could share the cost of organizing and funding the meeting with CORM as none of the emails J. Zwinkels have sent regarding the meeting mentioned splitting the cost of hosting the meeting. It was agreed upon by those in attendance that days to avoid included the week of September 22-25th, October 14th and November 11th. J.A. Veitch mentioned that she wants to ask a contact at CSA when they hold their annual meeting and that whatever week is selected for the meeting, it will be a Monday, Tuesday and Wednesday block to allow for Sunday travel. Some potential dates included November 4, 5, and 6 or October 27, 29, and 29. J.A. Veitch mentioned a need to identify individuals who can work with CORM and the US-CIE to coordinate this meeting. J.A. Veitch suggested that at least 2 people; one from NRC and one outside of NRC should be sent to the meeting. S. Coyle volunteered to attend the meeting as a non NRC member and J.A. Veitch and L. Tay agreed that they would decide together which NRC member to send to the meeting.

11.3 Any Other Business:

V. Venkataramanan formally congratulated both J.A. Veitch and L. Whitehead for their elections as VP for their respective technical committees. S.M. McFadden noted that there is still a need to find a new chair for the Events Subcommittee.

ACTION ITEM (2018-AI-7): M. Mossman and A. Gaertner will get in touch with division members in December and start canvassing for new members.

12. Adjournment

J.A. Veitch expressed her 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 12:20 hours EST.

Ali Ghaemi

Administrator, Canadian National Committee of the CIE

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



LIST OF APPENDICES

- APPENDIX A: Agenda for the 63rd CNC/CIE Annual Meeting
- APPENDIX B: Attendees to the 63rd CNC/CIE Annual Meeting
- APPENDIX C: Action Items from the 63rd CNC/CIE Annual Meeting
- APPENDIX D: President's Report
- APPENDIX E: Vice-President's Report
- APPENDIX F: Treasurer's Report
- APPENDIX G: CNC/CIE Web Site Report
- APPENDIX H: CNC/CIE Membership Subcommittee Report
- APPENDIX I: CNC/CIE Members and Advisory Members List
Division Member Reports



APPENDIX A

CNC/CIE 63rd Annual General Meeting

Proposed Agenda

DATE: Monday, Nov. 5, 2018

TIME: 9:00 to 12:00

LOCATION: National Research Council of Canada
1200 Montreal Road, Ottawa, Ontario K1A 0R6 Canada
Bldg. M-24

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| 1. Call to Order and Approval of Agenda | V. Venkataramanan |
| 2. Minutes of the 62nd Annual CNC/CIE meeting | V. Venkataramanan |
| 2.1. Action items | |
| 2.2. Matters arising | |
| 3. President's report | V. Venkataramanan |
| 4. Vice-President's report | J.A. Veitch |
| 5. Secretary's report | A. Ghaemi & J. Veitch |
| 6. Financial report | S.M. McFadden |
| 7. NRC Annual Performance Review of the CNC/CIE | J.A. Veitch |
| 8. Reports from Division Members | |
| Division 1: Vision and Colour | J. Hovis |
| Division 2: Physical Measurement of Light and Radiation | J.C. Zwinkels |
| Division 3: Interior Environment and Lighting Design | J.A. Veitch |
| Division 4: Transportation and Exterior Applications | C. Suvagau |
| Division 6: Photobiology and Photochemistry | S.Qutob |
| Division 8: Image Technology | |
| 9. Membership and Elections | |
| 9.1. Membership and Elections Subcommittees | M. Mossman |
| 9.2. M & E Subcommittee Membership | V. Venkataramanan |
| 10. Ad hoc Subcommittees | |
| 10.1. Website Subcommittee | J. A. Veitch |
| 10.2. Events Subcommittee | 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 |



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Canadian National Committee Comité national canadien

The annual meeting of MC-ISO-TC 274 will be held in the same location at *13:00, also on 2018-Nov-05*. See separate agenda.



APPENDIX B

CNC/CIE 63rd Annual Meeting Attendees

Name	CNC/CIE Affiliation	Other Affiliation
Venkat Venkataramanan*	President	U of Toronto
Jennifer Veitch	Vice-President, Division 3 Rep.	NRC-Construction
Ali Ghaemi	Administrator	NRC-MSS
Shirley Coyle	Member	Cree Lighting
Sharon McFadden*	Treasurer, Division 1 Rep.	Retired
Deborah Gottesman*	Member	Independent Consultant
Cristian Suvagau*	Division 4 Rep.	B.C. Hydro
Lorne Whitehead*	Board of Administration	U of British Columbia
Michele Mossman*	Member	U of British Columbia
Jeffery Hovis*	Member	University of Waterloo
Harold Murray*	Member	Independent Consultant
Naomi Miller*	Observer	PNNL
Li-Lin Tay	Observer	NRC-MSS
Amin Rasoulof	Observer	NRC-MSS

* attended via teleconference / Webex



APPENDIX C

Action Items from the 63rd Annual Meeting of the CNC/CIE

Action Item	Responsible	Action	Status
2018-AI-1	All	Recruit a bilingual candidate for the Website Subcommittee	OPEN
2018-AI-2	All	Recruit a Chair of Events Subcommittee to replace temporary Chair V. Venkataramanan	OPEN
2018-AI-3	J.A. Veitch	Inform the CIE-CB of new CNC-CIE Division 4 country member: C. Suvagau	OPEN
2018-AI-4	J.A. Veitch and S.M. McFadden	Coordinate the list of the CIE roster provided by the CIE-CB with the list S.M. McFadden has on the website so that both lists are the same	OPEN
2018-AI-5	A. Ghaemi	Distribute a ballot to CNC-CIE members nominating D. Gottesman, L. Tay, and A. Rasoulof for CNC-CIE membership while also amending T. Akhavan's ballot for Division 8 membership so that it indicates her term expires in 2023.	OPEN
2018-AI-6	J.A. Veitch and A. Ghaemi	Develop a system for disseminating a call for experts and press releases to relevant groups that are interested in the activity of the CNC-CIE.	OPEN
2018-AI-7	M. Mossman and A. Gaertner	Get in touch with the Division members in December and start canvassing for potential new members.	OPEN



APPENDIX D

CNC/CIE President's Report November 2018

Venkat Venkataramanan
vvenkat@imc.utoronto.ca

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

I hosted ISO TC 274 Plenary Meeting at the University of Toronto campus on 29th to 31st May 2018.

I also hosted a CIE-ISO-SSLNet workshop on Lighting for Ageing Societies on the 1st June 2018.

An adjunct conference (open) themed Integrative Lighting was hosted on 1st and 2nd June 2018, including a workshop on Safety and Performance Certification of lighting products and an industrial showcase.

I participate in TC-2 63 - Optical Measurements of High-Power LEDs.

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

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

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 2018

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 four tasks.

1. I led the preparation of the 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 MC-ISO-TC 274 this afternoon. Highlights of the year are:

- We hosted the ISO/TC 274 plenary meeting at the University of Toronto at the end of May. Partial funding for the event was received from Axis Lighting and the Elect-Federation of Canada.
- In relation to this, we also sponsored the Smart Sustainable Lighting Network Symposium, and organized a workshop on Lighting for the Aging and Partially Sighted.
- Thanks to financial support from BC Hydro, CSA Group, and the Standards Council of Canada, we were able to support Mr. Toby Lau (ISO/TC 274/WG2 and ISO/TC 163, Oslo) and Mr. Conor Sampson (ISO/TC 205/WG7, Oslo) to attend meetings overseas in late September.
- We cast all our ballots on time.

3. I continued to work with Ali Ghaemi on the administrative side of the CNC/CIE.

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



APPENDIX F

CNC/CIE Treasurer's Report to the CNC/CIE 63rd Annual Meeting

5 November 2018

Ottawa, Ontario

The financial statement for the period 1 October 2017 to 31 October 2018 is presented below.

Financial Report 1 October 2017 – 31 October 2018

Balance (1 October 2017)		\$25966.06
Income:		
Sponsorships for TC 274 meeting	\$1500.00	
Total Income		\$ 1500.00
Expenses:		
Expenses for TC 274 meeting and workshop	\$5422.95	
CNC Sponsorship of SSLNET2018	\$2000.00	
Website update and hosting	\$1610.53	
Total Expenses		\$ 9033.48
Net Income (Loss)		(\$7533.48)
Balance (28 October 2018)		\$18432.58

Respectfully submitted

Sharon McFadden
Treasurer, CNC/CIE



APPENDIX G

CNC/CIE Web Site Report November 2018

Sharon McFadden and Jennifer Veitch

1 Domain

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

2 Usage

Usage has dropped somewhat this year. Over the last 12 months we averaged 228 unique visits and 322 visits per month as compared to 2017 with 260 unique visits and 344 visits per month. In terms of bandwidth, a total of 707 MB was used per month, significantly more than in previous years where it was typically less than 200 MB.

Since the upgrade, automated crawler visits are documented separately making it easier to assess who is visiting our site. The most visits were from the U.S. with Canada second, and China third. If bandwidth is taken into account, the top users of our site were France and Israel followed by China and the US. Interestingly, the documents most frequently downloaded were Press Releases.

Upgrade

The software upgrade to the system was completed early this year. The new software is easier to work with and provides some new features for users such as better links between equivalent French and English pages and the ability to capture screens.

3 Content

Using the new interface software, Sharon has taken the opportunity to carry out some much-needed upgrades, including

- Reorganizing menu items to better reflect CNC versus CIE content.
- Reorganizing and updating the content of most of the menu items.
- Setting up a Members Only area. At the moment, members are able to access Ballot documents and Division minutes by going to the Members area (labelled CNC/CIE Members). Accounts have been created for members of the Board of Administration. Other members can gain access by requesting a login from the CNC Secretariat.

Items that we hope to complete this year include:

- Recreating a page with links to organizations involved in lighting in Canada. We will be reaching out to members for links to their organizations in the near future.
- Better information about how to become involved in CIE technical work. The website now has a list of all current Technical Committees including the names of any Canadian members. We want to enhance this by alerting members to new committees that they could participate in.



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



Canadian National Committee Comité national canadien

- Expanding the Members Only area with accounts for all Members, and using that as the principal means to share documents for meetings and balloting.

We are still looking for someone to at least proof read the French content of the French web pages. Very little of the content is changed regularly so it is not an onerous job. If you could provide this assistance, contact the CNC/CIE Secretariat.

We encourage members to visit the website and offer suggestions for improvements and additions.

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.

4 Maintenance

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



APPENDIX H

CNC/CIE Membership Subcommittee – Chair's Report October 2018

Prepared by: Michele Mossman

The current membership includes:

- 15 Members of the CNC/CIE Board of Administration
- 37 Members (includes the 15 Members of the Board of Administration)
- 63 Affiliates

During 2018, the following activities were carried out by the Membership Subcommittee:

- We maintained the detailed membership database. This database is circulated to subcommittee members whenever entries are updated.
- Eight new affiliates were added to membership list since October 2017.
- Six names were removed from the membership list during 2017. 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.

Nominations for 2018:

- Five Members whose terms expire at the end of 2018 (Ian Ashdown, Shirley Coyle, Barbara Kolesnik, Keith Niall and Mankajee Shrestha) have agreed to be nominated to renew as Members for another term.
- Deborah Gottesman, currently listed as an Affiliate, has agreed to be nominated as a Member.
- Tara Akhavan has agreed to be nominated as the CNC member for CIE Division 8 (Image Technology). An email ballot for this nomination is in progress.



APPENDIX I

CNC/CIE Membership as at 2018-11-05

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				
Treasurer	S.M. McFadden	ON	2019	
	J. Bastianpillai	ON	2019	
	A.A. Gaertner	ON	2018	
	W. Heidrich	BC	2020	Division 8
	J. Hovis	ON	2020	Division 1
	A. Laperrière	QC	2019	Division 4
	J.A. Love	AB	2019	
	M. Mossman	BC	2020	
	S.S. Qutob	ON	2019	Division 6
	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
ex officio, MSS DG	G. MacDonald	ON		
ex officio, MSS DG	A. Steele	ON		

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	2019	Keith Niall	ON	2019
Chrisnel Blot	QC	2019	Thomy Nilsson	PEI	2019
Vince Cimino	ON	2017	Kristin Poduska	NL	2020
Shirley Coyle	ON	2019	Paul Prior	ON	SMC-ISO-
Marie Dumont	QC	2019			
Chad Green	ON	SMC-ISO-	Alan R. Robertson	ON	2017
John W. Harron	ON	2017	Mankajee Shrestha	BC	2019
			Conor Sampson	QC	SMC-ISO-
Kurt Ising	BC	2019	Andrew D. Silbiger	ON	2020
Barbara Kolesnik	ON	2019	Dyoni Smith	ON	2017
Toby Lau	BC	SMC-ISO-	Ralph A. Smith	NB	2018



K.F. Lin	ON	2020	Nikolay Stoev	ON	2019
Tim Moggridge	ON	2019	Robert W. White	QC	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'Éclairage
Internationale Beleuchtungskommission



Canadian National Committee Comité national canadien

APPENDIX J

2018 CNC/CIE Division Member Reports



Division 1: Vision and Colour

Report to CNC/CIE 63rd Annual Meeting

National Research Council of Canada
1200 Montreal Road, Ottawa, Ontario K1A 0R6 Canada
Bldg. M-24
Monday, Nov. 5, 2018
9:00 to 12:00

Jeff Hovis
Email: jhovis@uwaterloo.ca

Division 1: Vision and Colour

Report to CNC/CIE 63rd Annual Meeting

National Research Council of Canada
1200 Montreal Road, Ottawa, Ontario K1A 0R6 Canada
Bldg. M-24
Monday, Nov. 5, 2018
9:00 to 12:00

Jeff Hovis
Email: jhovis@uwaterloo.ca

1 Introduction

The annual Division 1 meeting was held Saturday 28th April 2018, Taipei, Taiwan. Ellen Carter was Canada's delegate. The minutes are posted on the CNC-CIE members' site.

2 Highlights

2.1 *New Technical Committees and Reporterships*

These were proposed at the April meeting and approved by Division 1 members. They still have to be approved by the CIE board.

Technical Committees

- The Validity of the Chromatic Adaptation Transforms under White Light** (Minchen Wei)
- Revision and Update of CIE 170 Fundamental Chromaticity Diagram with Physiological Axes** (JanHenrik Wold)
- Gloss measurement and gloss perception** (Frederick Leloup)

Research Forum approved by Division 1 in April 2018. More details will be forthcoming
Revisiting Correlated Colour Temperature (Youngshin Kwak)

2.2 *Division publications*

- CIE 228:2018 Grey-Scale Calculation for Self-Luminous Devices
- CIE 015:2018 Colorimetry, 4th Edition
- Draft International Standard DIS 026/E:2018 CIE System for Metrology of Optical Radiation for ipRGC-Influenced Responses to Light



2.3 Division 1 Director

Youngshin Kwak, was re-elected as D1 Director for the term 2019-2023.

2.4 Future meetings

Division 1 Meeting will be held as part of the CIE 29th Session 2019 to be held in Washington DC, USA, 17-22 June 2019

CIE Division 1 Meeting as part of the CIE Expert Symposium on Colour and Visual Appearance in 2020, will take place in Hong Kong likely in April.

3 Current Canadian participation in Division 1 activities

L. Whitehead Co-author CIE 015:2018

Sharon McFadden continues her work on the ILV

3.1 Overview of the status of TCs and Reporterships

TC1-83 Visual Aspects of Time-modulated Lighting Systems: Dragan Sekulovski NL

- WD of TR is in preparation.

TC1-84 Definition of Visual Field for Conspicuity: Nana Itoh JP

- TCC is now revising WD according to the discussion of TCM held in Jeju.
- The TC was approved by D1 to extend its activity to 2019, with the following ballot results:

TC1-89 Enhancement of Images for Colour Defective Observers: Po-Chieh Hung US

- WD was approved as CD on Feb. 11, 2018.
- CD was reviewed by DE on Apr. 16, and is in revision process.

TC1-97 Age- and Field-Size-Parameterized Calculation of Cone-Fundamental-Based Spectral

Tristimulus Values: Jan Henrik Wold NO

- New beta version released for testing, including an installer for PC, an installer for Mac, and Source code for Linux users.
- New beta version can be downloaded from following URL.

<https://github.com/ifarup/ciefunctions/releases>

- TCC asked D1 members to check this beta version and ask feedbacks if any.

TC1-92 Skin colour database (Kaida Xiao, GB)

- The work plan includes preparing the TR and identifying further work. TC extended to 2020

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

- Work continues

TC1-96 A comprehensive model of colour vision (M. Ronnier Luo, CN)

- Work Plan
 1. To complete the remaining work on CAM16 extension to unrelated colours by the end of July,
 2. To circulate the 1st report by the end of 2019, and
 3. To complete the TC in June 2020.

Extend TC1-96 to extend to 2020

R1-53 Gloss perception and measurement (Frédéric Leloup, BE)

R1-62 Typical LED Spectra (Sophie Jost, FR)



- Development of LED illuminants and reference spectrum for colorimetry and photometry" Under submission.

R1.63 Tristimulus Integration (Changjun Li, CN)

- No new work to report

R1.64 Real Colour Gamuts (Changjun Li, CN)

- No new work to report

R1.67 Revisiting Correlated Colour Temperature (Youngshin Kwak, KR)

- Research Forum is proposed based on this reportship. (See new research forum proposal).

R1.68 A gamut area measure and colour-shift graphic, based on CIE 13.3-1995R1.67 (Kees Teunissen, NL)

- Decided to simplify the document and publish the TN in support of the Excel calculation tool that can replace the old CIE DOS-based tool.
- A new ED/TN will be circulated for BA and D1 commenting.

R1.69 Applicability of Metrics for Evaluating Reflected Glare on Displays (Shao-Tang Hung, TW)

No report at this meeting.

3.2 Joint Committees

JTC 1 (D1/D2/D4/D5): Implementation of CIE 191:2010 Mesopic Photometry in Outdoor Lighting

- WD of TR is in preparation.

JTC 7 (D1/D3): Discomfort caused by glare from luminaires with a non-uniform source luminance

- TC ballot was in Jan.2017 and WD is currently being modified.

JTC 9 (D1/D2/D3/D6): CIE system for metrology of IPRGC influenced light response (new title)

- Expected publication of CIE/ISO standard in Q4 2018.
- Within the context of the current draft, D1 decided to take the following actions:
 1. Ask JTC9 to make clear statement in DIS draft about values of the tables applicable only for non-visual effects, and not for the colorimetry. This request will be report to TCC of JTC9 in the BA meeting.
 2. D1 Co-chair will ask JTC9 to send DIS draft to circulate within D1 before next ballot.

JTC 8 Terminology in light and lighting (Div. 1 members Sharon McFadden, CA & Michael Pointer, GB)

JTC 10 A new colour appearance model for colour management systems: CIECAM16 (Changjun Li CN of D8; M. Ronnier Luo GB of D1)

- Hopefully, the final draft TR will be completed by the end of 2018.

JTC 12 The measurement of sparkle and graininess (A Ferrero ES of D2; Y Kwak KR of D1)

- Work continues

3.3 Research Forum

CIE Research Fora are established to facilitate ongoing knowledge exchange and research on a scientific topic or research area where there is insufficient completed scientific work to support the work of a CIE Technical Committee.

Research Forum 3 (Kees Teunissen, NL)

Established during the D1 meeting in Jeju: October 2017

New Title: Matters relating to specifying colour rendition of white-light sources"



3.4 Dissolution of and changes to TCs and Reporterships

TC1-93 Calculation of Self-luminous Neutral Scale: Robert Carter US is closed

TC1-88 Scene Brightness Estimation: Yoshiki Nakamura JP is closed

TC1-63 Validity of the Range of CIEDE2000 (Klaus Richter, DE)

After TC1.81 report is published, may reactivate work.

R1-53 Gloss perception and measurement (Frédéric Leloup, BE)

- Most efficient way to proceed was to open the TC and then one of the first acts of the TC could be to publish a TN from the results of the reportership report.

4 Other Division News



Division 2: Physical Measurement of Light and Radiation

Report to CNC/CIE annual meeting
NRC Ottawa, November 5, 2018

Dr. Joanne Zwinkels
Email: joanne.zwinkels@nrc-cnrc.gc.ca

5 Introduction

The 2018 annual meeting of CIE Division 2 (D2) took place on June 13, 2018, in conjunction with the CIE Workshop on Selected LED-Related Topics (June 12) at the Eindhoven Technical University, Eindhoven, NL, followed by two days of D2 TC meetings. I attended these D2 meetings in my role as both one of the Associate Directors of D2 and as Country member representing Canada.

6 Highlights

6.1 New Technical Committees and Reporterships

Proposals for Two (2) new TCs and One (1) new JTC:

New TC Proposal: International Standard Format for the Electronic Transfer of Luminaire Optical Data

Background: Ian Ashdown (CA) participated in the D2 meeting via Webex and presented his draft TC proposal. The intention is to replace the regional IEX/EULUMDAT/TM14/CIE formats with one worldwide universal format, including optical data other than just the luminous intensity distribution..

Proposed Chair: Ian Ashdown (CA)

Status: this TC proposal is being refined and will be submitted shortly

New TC Proposal: Measurement of Total Transmittance, Diffuse Transmittance and Transmittance Haze

Proposed Chair: Hsueh-Ling Yu (TW)

Background: H-Ling has practically finished reportership DR 2-79 and a new TC proposal will be submitted soon.

New JTC Proposal: Integrative Lighting

Proposed Chair: John O'Hagan (GB)

Background: The meeting attendees were asked to consider whether D2 should be part of this JTC. Although measurement is a small part of this proposal; it is more about quantities and units; it was agreed that D2 should take part and that P. Blattner become the D2 Co-Chair.

Proposals for Three (3) new Reporterships:

New Reportership Proposal: Flash effective intensity calculation

Proposed Reporter: Dennis Couzin (DE)

Background: Detailed proposal was tabled. Comments were made that these experiments are in the fully dark-adapted condition whereas in practice, the pilot or ship's staff, may not be fully dark adapted and there may be significant background light.

After the meeting, this reportership is: DR 2-81.

New Reportership Proposal: TN on clarification of the difference between adjustment, calibration and verification.

Proposed Reporter: Tony Bergen (AU)

Background: The intention is to reduce confusion in the understanding and use of the terms calibration, adjustment or verification, with a target audience of users who send the equipment to a calibration laboratory, i.e. at a basic level.

After the meeting, this reportship is: DR 2-82.

New Reportship Proposal: Sampling theory used in photometry and radiometry

Background: this proposal was discussed at the meeting. It was noted that there is currently little guidance on how to apply sampling theory in our measurements; applications include: spectroradiometry, goniophotometry, goniospectrophotometry, etc. It was decided that it would be more appropriate to first have a workshop on this topic at the CIE 2019 Session, possibly Chaired by Udo Kruger, subject to approval by the ISC for CIE 2019.

6.2 Division publications

- **CIE 198-SP2:2018** Determination of Measurement Uncertainties in Photometry Supplement 2: Spectral measurements and derivative quantities
- **CIE 229:2018** Groundwork for Measurement of Effective Intensity of Flashing Lights
- **CIE 226:2017** High-Speed Testing Methods for LEDs

6.3 Future meetings

D2 Tutorial on CIE S025: Moscow, 5-8 November 2018

D2 2019 meeting: in connection with CIE 2019 29th Quadrennial Session, 14- 22 June 2018, Washington, D.C.

7 Current Canadian participation in Division 2 activities

Activity	Title	Canadian Members
<i>Eight TCs:</i>		
TC2-59		
TC2-77	Characterisation of imaging luminance measurement devices	T. Moggridge (member)
TC2-80	Fundamental Concepts	J. Zwinkels (member)
TC2-82	Spectroradiometric measurement of light sources	J. Zwinkels (member)
TC 2-90	Revision of CIE S014-2	J. Zwinkels (member)
JTC-1	LED reference spectrum for photometer calibration	J. Zwinkels (member)
JTC-2 (CIE/CCPR)	Implementation of mesopic photometry in outdoor lighting	J. Zwinkels (member)
JTC-8 (all Divisions)	Principles Governing Photometry	J. Zwinkels (member)
		S. McFadden, J. Zwinkels

<i>One Liaison:</i> L2-3	Terminology	(members)
<i>One Officer:</i>	ISO TC6: Paper, Pulp and Board	J. Zwinkels (member)
	Associate Director	J. Zwinkels

8 Highlights of Division 2 Work Programme

8.1 Overview of the status of D2 TCs and Reporterships

The active D2 TCs, JTCs and Reporterships are listed below. The most recent Minutes are attached.

8.1.1 TC2-xx or JTC-xx: Title (chair)

- JTC-12 (D1/D2/D8) The measurement of sparkle and graininess (D2TCC: Ferrero)
- JTC-01 Implementation of mesopic photometry in outdoor lighting (D2TCC: Goodman)
- TC 2-91 Optical measurement methods of LED packages and LED arrays (Schneider)
- TC 2-90 LED reference spectrum for photometer calibration (Poikonen)
- TC 2-89 Measurement of Temporal Light Modulation of Light Sources and Lighting Systems (Schakel)
- TC 2-88 Standard Reference Solar Spectra for Industrial Applications (Suga)
- TC 2-87 Broadband UV LED radiometric measurements between 320 nm and 420 nm (Eppeldauer)
- TC 2-86 Glare Measurement by Imaging Luminance Measurement Device (ILMD); (Chen)
- TC 2-85 Recommendation on the geometrical parameters for the measurement of the Bidirectional Reflectance Distribution Function (BRDF); (Obein)
- TC 2-84 Recommendations on LED package test data reporting (Pope)
- TC 2-83 CIE Standard on test methods for OLED light sources (Vander Meersch)
- TC 2-82 Revision of CIE S014-2 (Csuti)
- TC 2-81 Update of CIE 065:1985 (Absolute Radiometers); (Smid)
- TC 2-80: Spectroradiometric measurement of light sources (Young)
- TC 2-79: Integrating sphere photometry and spectroradiometry (D.H.Lee)
- TC 2-78: The Goniophotometry of Lamps and Luminaires (Bergen)
- TC 2-77: Fundamental Concepts (Bergen)
- TC 2-76: Characterization of AC-driven LED Products for SSL Applications (Chou)
- TC 2-75: Photometry of Curved and Flexible OLED and LED Sources (H-L Yu)
- TC 2-74: Goniospectroradiometry of Optical Radiation Sources (Pan)
- TC 2-72: The Evaluation of Uncertainties in Measurement of the Optical Properties of Solid State Lighting Devices, including coloured LEDs (Gardner)
- TC 2-69: CIE Classification Systems of Illuminance and Luminance Meters (Blattner)
- TC 2-68: Optical Measurement Methods for OLEDs used for Lighting (Yamauchi)
- TC 2-67: Photometry of Lighting and Light-signalling Devices for Road Vehicles (Reiners)
- TC 2-62: Imaging-Photometer-Based Near-Field Goniophotometry (Krüger)
- TC 2-59: Characterisation of Imaging Luminance Measurement Devices (Krüger)
- TC 2-51: Calibration, Characterisation and Use of Array Spectroradiometers (Richard Young)
- TC 2-50: Measurement of the Optical Properties of LED Assemblies (Distl)
- TC 2-29: Measurement of Detector Linearity Summary (Eppeldauer)

4.1.2 Reporterships DR2-xx: (Reporter) Title



- DR2-55** (David Chan) Simple Practical Guide for Measurement Uncertainty Estimations (supplement to CIE 198)
- DR2-58** (Steffen Görlich) Standard lamps: availability of and alternatives to commercially available incandescent sources
- DR2-60** (Teresa Goodman) Discussion on the definition of Luminance/Radiance
- DR2-64** (Teresa Goodman) Technical Note on Errors of Measurement in Spectrophotometry
- DR2-69** (Roman Dubnicka) TN on the validation of a near-field goniophotometer
- DR2-70** (Roman Dubnicka) Guide for the Field Photometric Measurements for the Verification of Lighting Systems
- DR2-71** (Tuomas Poikonen) Towards LED based standard calibration sources for photometry
- DR2-72** (Peter Blattner) Towards a new CIE file format for luminous intensity distributions of luminaires
- DR2-73** (Udo Krüger) Colour Luminance File Format Specification
- DR2-74** (Alejandro Ferrero) Physical characterisation of new visual effects in the field of appearance of materials
- DR2-75** (Tony Bergen) TN on the use of “Accuracy” and related terms in the specifications of testing and measurement equipment
- DR2-76** (Udo Krüger) TN on measurement uncertainties for testing of LED Lamps, Luminaires and Modules
- DR2-77** (Tongsheng Mou) Measurement of Quantities Relating to Photobiological Safety of Lighting Products
- DR2-78** (Annette Koo) Investigation of the need for documentary guidance relating to 0°:d (d:0°) reflectance instrument
- DR2-79** (Hsueh-Ling Yu) Measurement of total transmittance, diffuse transmittance, and transmittance haze
- DR 2-80** (Anders Thorseth) Metrology of laser-based lighting

8.2 Dissolution of and changes to TCs and Reporterships

4.2.1 The following Four (4) Reporterships were closed.

- DR 2-71** Reason: new TC was created: TC 2-90
- DR 2-72** Reason: new TC proposal; see Section 2.2 above
- DR 2-73** Reason: no longer strong demand for this file format
- DR 2-74** Reason: new TC was created: JTC-12

4.2.2 One change in Reporterships

- DR 2-77** – change in ToR to: Monitoring the progress of the development of IEC TR 62741-4”

9 Other Division News

5.1 Work in Progress

- CIE LB D02-1809** D2 commenting on 1/2359/CDV (IEC 60050-845 ED2): (International electrotechnical vocabulary – Part 845: Lighting)
- CIE LB D02-1808** DIV commenting on ED/TN of DR 2-75; deadline: 2018-09-07
- CIE LB D02-1807** New TC proposal – File Format for Luminaire Data; Deadline: 2018-08-05
- CIE LB D02-1806** New TC proposal – Measurement standard for LED packages; Deadline: 2018-05-25 (approved)

5.2 Call for Experts for CIE D2 TCs:

If you would like to contribute to one of the two D2 TCs below, please directly contact TC Chair via email.

TC 2-90 (D2) LED Reference Spectrum for Photometer Calibration



The purpose of this TC is to investigate and publish an LED reference spectrum to complement the Standard Illuminant A. The TC will investigate and decide the spectral shape, wavelength range and the format to be used for publishing the reference spectrum. In addition a metric for the quality of the match of spectral distribution of real sources to the reference spectrum will be defined for the purpose of photometric calibrations.

Chair: Tuomas Poikonen

TC 2-91 (D2) Optical Measurement Methods of LED Packages and LED Arrays

The purpose of this TC is to define an international standard for the optical measurements of semiconductor light sources (in particular LED packages and LED arrays as defined in CIE S 017-SP1) to the extent to which they emit incoherent optical radiation. Semiconductor light sources in terms of this standard are individual inorganic light emitting diodes or combinations of multiple objects of the same type in different two- or three-dimensional structures, which are distinguished and identified herein as LED packages and LED arrays. This document will not deal with e.g. LED lamps and luminaires as they are already covered by CIE S 025 or other applications of higher integration levels.

The standard shall describe in particular the geometrical arrangements, the electrical, thermal and temporal operating conditions and the measurement of the values of photometric, colorimetric and spectroradiometric quantities. Moreover, measurement quantities and associated measurement procedures are defined for describing the specific properties of LEDs and to take into account the restricted measurement options available during their manufacture or binning procedure.

The document does not cover semiconductor emitters for coherent optical radiation (lasers), nor limit values for evaluating radiation safety.

The document does not cover measurements of bare LED dice (chip or wafer probing).

Chair: Markus Schneider

5.3 CIE Research and D2 Standardization Strategy

5.3.1 CIE Research Strategy

People are encouraged to share the research strategy within their NC and to use it for funding and grant applications. It was noted that there needs to be a record of official use of the CIE research strategy, for example when letters of support are generated and when people use the research strategy to coordinate research or apply for grants, etc.

5.3.2 D2 Strategy

The D2D noted that there have been several D2 TCs which have closed without publication and many of these are in the area of reflectance and transmittance and appearance. There was a discussion at the meeting whether D2 should develop a specific strategy in this area. It was proposed to have a half-day WebEx workshop on this topic, including D1 and D8 members, to brainstorm a strategy and provide priorities for material standardization and measurement methods. The deadline for this Webex meeting is end of October 2018. The initial members of this adhoc task group are: Gaël Obein, Alejandro Ferrero, Peter Blattner and Joanne Zwinkels.



Division 3: Interior Environment and Lighting Design

Report to CNC/CIE 63rd Annual Meeting
Ottawa, ON, 2018-Nov-05

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

10 Introduction

The 2017 meeting of Division 3 was held in Jeju, Korea, on Oct. 26, 2017, and the 2018 meeting was held by Webex on June 19, 2018. The 2018 minutes are available to CNC/CIE Members on the Members area of the website. This report includes actions taken by e-mail since the June 2018 meeting.

11 Highlights

11.1 New Technical Committees, Reporterships, and Other Activities

JTC 14 (CIE-ISO) Integrative Lighting (Chairman: John O'Hagan, GB)

This JTC is a joint activity with ISO/TC 274/JWG4. Its Terms of Reference are: To undertake an analysis of published scientific studies and review experience from published application studies on non-visual effects of light on humans, with the aim to provide guidance for safe and beneficial use in lighting applications beyond illumination for vision. The material to be analysed is existing material plus the outcome from studies that will become available during the period of this JTC. In particular, the work of the CIE on light as an input for all known photoreceptors in the human eye is included. The outcome of this JTC shall not cover subjects where no proper scientific validation is available and will concentrate on “low hanging fruit” or only provide the status of the different aspects of this topic.

JTC 15 (CIE-ISO) Lighting of Indoor Workplaces (Chairman: Etsuko Mochizuki, JP).

This JTC is the CIE side of a joint activity with ISO/TC274/JWG5, and has as its Terms of Reference to revise ISO/CIE 8995-1 in response to its systematic review. This replaces the former TC 3-53. I am a member of this committee.

Reportership 3-32: Guidelines for Post-Occupancy Evaluation of Lighting Installations (Veronica Garcia-Hansen, AU)

This reportership is to develop terms of reference for a new technical committee that will write a guide for POEs.

Reportership 3-33: Documentation Template for Studies on Non-image-forming Effects (Jennifer Veitch, CA)

This reportership will write a CIE Technical Note that will provide guidance on the proper reporting of such research, with the intent of circulating it to a broad range of journals known to publish papers in this field.

Research Forum RF-02 Matters Relating to Temporal Light Modulation (Convenor: Jennifer Veitch, CA)

This Research Forum is a gathering place for discussions related to research on TLM in all its aspects and has membership from people across the CIE Divisions.

11.2 Division publications

Since the last CNC/CIE report in October 2017, D3 has published



- **CIE 227:2017 Lighting for Older People and People with Visual Impairment in Buildings.** This was the final report of TC 3-44.
- D3 also contributed to the successful conclusion of JTC 9. Its document has passed the Approval Draft ballot and will shortly be published as CIE S026/E:2018 CIE System for Metrology of Optical Radiation for ipRGC-Influenced Responses to Light.

11.3 Future meetings

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

12 Current Canadian participation in Division 3 activities

Canadians who Chair or participate in Technical Committees, handle a Reportership, act as a Division Officer or act as a liaison are listed below. This list includes activities that ended during the reporting period. Increased participation by Canadians in CIE TCs – including students and those early in their careers – would be most welcome.

Activity	Title	Canadian Members
TC 3-53	Revision of CIE S 008 Joint ISO*CIE Standard: Lighting of Work Places - Part 1: Indoor [Closed in 2018]	J. Veitch (Member)
JTC 4	Visual, Health, and Environmental Benefits of Windows in Buildings during Daylight Hours	M. Mossman (Member)
JTC 14	Integrative Lighting	J. Veitch (Member; D3 Chair)
JTC 15	Lighting of Indoor Workplaces	J. Veitch (Member)
R 3-33	Documentation Template for Studies on Non-image-forming Effects	J. Veitch (Reporter)
RF-02	Matters Relating to Temporal Light Modulation	J. Veitch (Convenor)
Officer	Division Director	J. Veitch
Org. Ctte	CIE Expert Symposium on Research Methods for the Effects of Lighting [Aug 2018; see below]	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>Energy performance of lighting in buildings</i>	<i>T. Lau</i>
<i>[CIE JTC 6] (CIE-ISO)</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 163</i>	<i>Liaison officer from ISO TC 163 to ISO TC 274</i>	<i>T. Lau</i>

13 Highlights of Division Work Programme

D3 contributed to several articles in LED Professional Magazine to assist in the promotion of the CIE Research Strategy.

Division 3 presented the CIE Expert Tutorial and Workshop on Research Methods for Human Factors in Lighting in Copenhagen in summer 2018. It was a great success, with 98 participants from around the world for two days of invited tutorials and submitted workshop and poster papers about research methods. In relation to this, the CIE and the Illuminating Engineering Society will co-sponsor a special issue of the journal LEUKOS on Applied Lighting Research Methods. Some of the papers are written versions of talks given in Copenhagen, and others are submitted. All papers in the special issue will be Gold Open Access. Publication is expected in mid-2019.



13.1 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 meeting minutes available to CNC/CIE Members at www.cnc-cie.ca.

<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)	Work progressing slowly.
JTC 6 (CIE-ISO)	Energy Performance of Lighting in Buildings	S. Moghtader	ISO 20086 IS ballot ends in early December.
JTC 7 (D3/D1)	Discomfort caused by glare from luminaires with a non-uniform source luminance	N. Hara (D3) Y. Akashi (D1)	Draft document with DE3 for review; balloting to begin shortly.
JTC 8 (all Ds)	Terminology	P. Zwick (CIE-TM); P. Thorns for D3.	This is a standing JTC. The outcome of the work to reconcile the eILV with the IEC Electropedia entries for lighting is currently under comment.
JTC 9 (D6/D1/D2/D3)	Quantifying ocular radiation input for non-visual photoreceptor stimulation	L. Schangen (D6) N. Itoh (D1) P. Blattner (D2) H. Noguchi (D3)	IS ballot concluded; document approved and will be published as CIE S026/E:2018 shortly.
JTC 11 (ISO/CIE)	Light and Lighting – Maintenance factor – Way of working.	N. Parry	DTS ballot concluded in Aug. 2018; revisions under way in preparation for final ballot.
JTC 13 (D4/D3)	Depreciation and Maintenance of Lighting Systems	D. Gasparovsky (D4) Peng Zhuang (D3)	Just beginning its work.
TC 3-54	Revision of CIE 16-1970: Daylight	[vacant]	TCC had to resign; new TCC being sought.
TC 3-55	Metrics for sunlighting and daylight passing through sunshading devices	M. Fontoynt	Work has resumed.
TC 3-56	Assessment of Discomfort Glare from Daylight in Buildings	T. Iwata	Progressing slowly.
JTC 14	Integrative Lighting	J. O'Hagan	Work under way; meeting Nov. 15
JTC 15	Lighting of Indoor Workplaces	E. Mochizuki	Work beginning; first meeting spring 2019
R 3-29	Variable transmission glazing	J. Mardaljevic	Work is progressing; report expected shortly.



<i>Activity</i>	<i>Title</i>	<i>Chairman</i>	<i>Status</i>
R 3-31:	Available Daylighting Metrics	J. Mardaljevic	Work is progressing; report expected shortly.
R3-32	Guidelines for Post-Occupancy Evaluation of Lighting Installations	V. Garcia-Hansen	Work beginning
R 3-33	Documentation Template for Studies on Non-image-forming Effects	J. Veitch	Work under way.
RF-02	Matters Relating to Temporal Light Modulation	J. Veitch	ongoing

13.2 Dissolution of and changes to TCs and Reporterships

The following activities have been closed.

<i>Activity</i>	<i>Title</i>	<i>Chair</i>	<i>Reason</i>
TC 3-44	Lighting for the elderly	Y. Akashi	Closed with publication of CIE 227:2017
TC 3-53	Revision of CIE S 008 Joint ISO*CIE Standard: Lighting of Work Places - Part 1: Indoor	Y. Koga	Closed and replaced by JTC 15.

14 Other Division News

As always, we would like to see more Canadian participation in Division 3 activities and TCs. Anyone interested in becoming more active in the CIE should contact me for more information about opportunities.

At the end of the current quadrennium in 2019, I will have been the Canadian member of Division 3 since 2003. I would be more than delighted to hand over this role to someone else, as it was not meant to be a lifetime appointment.



Division 4: Transportation and Exterior Applications

Report to CNC/CIE 63rd Annual Meeting
Ottawa, November 5, 2018

Cristian Suvagau
Email: cristian.suvagau@bchydro.com

15 Introduction

Division 4 Scope: To study and prepare guides for the design of exterior lighting and light signalling.

The officers elected at the CIE Midterm meeting in Jeju Island, South Korea – October 20-27, 2017 of the new formed Division 4 (from the merging of former Divisions 4 and 5) are:

- Division Director Dionyz Gasparovsky (SK)
- Division Secretary Maurice Donners (NL)
- Division Editor Nigel Parry (GB)

In addition, the new Division 4 establishes 3 Subdivisions (each with an Associate Director):

- AD#1-Steve Fotios (GB) - Fundamentals in outdoor lighting
- AD#2-Raoul Lorphevre (BE) - Lighting & signaling for transport
- AD#3-Sermin Onaygil (TR) - Exterior applications

Last Division 4 meeting (I could not participate) was held in Berlin, from May 22 to 23, 2018 in conjunction with the CIE Workshop on a New Vision of Visibility for Roadway Lighting. The following Div. 4 technical committees hold meetings at the event:

- TC 4-33 Discomfort Glare in Road Lighting
- TC 4-50 Road Surface Characterization for Lighting Applications
- TC 4-52 Lighting for Pedestrians: New Empirical Data
- TC 4-53 Tunnel Lighting Evolution
- TC 4-54 Road lighting for Ageing Drivers
- TC 4-57 Guide for Sports Lighting
- JTC 13 Depreciation and maintenance of lighting systems.

More information can be found on the CIE website.

16 Highlights

16.1 New Technical Committees and Reporterships

TC 4-40 Performance Evaluation Of Retro-Reflective Traffic Signs

Chair: Dionyz Gasparovsky (SK)

TC 4-27 Artificial Light And Its Impact On The Natural Environment

Chair: Paul Carlson (US)

TC 4-36 Visibility Design For Roadway Lighting

Chair: Giuseppe Rossi (IT)



TC 4-46 300nm Roundel Signals

Chair: Ron Gibbons (US)

JTC 4-12 Depreciation And Maintenance Of Lighting Systems

Chair: Dionyz Gasparovsky (SK)

Rxx-Guide For Floodlighting (revision to CIE 94-1993)

Reporter: Diana del Negro (PT)

Ryy- Lighting For Open-Cast Mines (revision to CIE 128-1998)

Reporter: Diana del Negro (PT)

Rzz- Visibility and Glare Study of LED Traffic Signs

Reporter: Tsung-Xian Lee (TW)

16.2 Division publications

Publications produced during the past year:

- JTC 01 Implementation of CIE 191:2010 Mesopic Photometry in Outdoor Lighting
- JTC 08 Terminology in Light and Lighting
- JTC 11 Light and Lighting Maintenance Factor Way of Working
- CIE 150:2017 Guide on the Limitation of the Effects of Obtrusive Light from Outdoor Lighting Installations, 2nd Edition

Here is summary (as of Jeju 2017 resolution) the existing/ current publications in the scope of Division 4:

- 10 publications are marked as “current”
- 13 publications are currently handled
- 5 publications are prepared or suggested for revision
- 5 publications are proposed for archival / withdrawal
- 5 publications have pending reviews
- 8 publications will expire in 2018

16.3 Future meetings

- CIE Quadrennial Session, June 2019, Washington DC, USA

17 Current Canadian participation in Division X 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
Div. 4	CNC Division representative	Cristian Suvagau

18 Highlights of Division Work Program

18.1 Overview of the status of TCs and Reporterships

Since the merger of the two divisions has resulted in re-numbering of some of the TC, here is the complete list of the open technical committees now under Division 4:

TC 4-15 Road lighting Calculations

Scope: To revise and update CIE 12.2 2) To revise CIE 30.2 with the object of incorporating recently developed techniques relating to visibility, glare, and other lighting variables. 3) To recommend whether a CIE/ISO Standard in this area is appropriate.

Chair: Sermin Onaygil (TR)

Status: Awaiting ballot in 2018.

TC 4-33 Discomfort Glare in Road Lighting

Scope: To study the known mathematical description of the discomfort glare in road and vehicle lighting, its scaling and comparisons with field studies and to condense the outcome in a report that should result in methods for discomfort glare assessment. To review or replace Publication CIE 31-1976.

Chair: Stephan Völker (DE)

Status: Due out in 2019.

TC 4-45 Performance Assessment Method for Vehicle Headlamps

Scope: Extend the technical report describing the development of requirements for an objective procedure to evaluate forward-lighting system performance in terms of active safety taking into account latest forward lighting technologies.

Chair: Gert Langhammer (DE)

TC 4-47 Application of LED's in Transport Lighting and Signalling

Scope: To review the application and methods of measurement of LED Systems in transport lighting and signaling as far as they affect the visual performance of the users of the transport system. To prepare a Technical Report which includes the findings of the review and recommendations for the visual characteristics of LED signals and lighting.

Chair: Steve E Jenkins (AU)

Status: Draft finished

TC 4-50 Road Surface Characterization for Lighting Applications

Scope: To revise Publication CIE/PIARC TR 66, 1984 containing the Standards. To propose Methodologies for the Determination of Parameters from Calculation and from Laboratory and on site Measurements, considering also the Evaluation of Uncertainty. To publish Data. Review CIE Publications 47 and 144, excluding the sections on markings.

Chair: Haldun Demirdes (TR)

Status: Finalization of the draft expected in 2020.

TC 4-51 Optimization of Road Lighting

Scope: To develop guidance on optimization of road lighting to balance the benefits and costs.

Primary issues include accident risk and energy consumption. Tasks include: - Technical Report or update CIE Publication 93. - Provide analysis of lighting quality

Chair: Per-Ole Wanvik (NO)

TC 4-52 Lighting for Pedestrians: New Empirical Data

Scope: To establish empirical data that might be used to determine design criteria when lighting to meet the needs of pedestrians. The committee will review evidence of, and the applicability of, three approaches to establishing such criteria: 1. by considering how lighting influences the visual needs of pedestrians. 2. by considering the costs and benefits of lighting. 3. by considering current practice in different regions.

Chair: Steve Fotios (GB)

Status: Finalization of the draft expected in 2019.

TC 4-53 Tunnel Lighting Evolution

Scope: To prepare a revision of CIE 88:2004: "Guide for the lighting of road tunnels and underpasses"

Chair: Raoul Lorphevre (BE)

TC 4-54 Road Lighting for Ageing Drivers

Scope: To propose improvements to the existing road lighting recommendations to provide the required safety and comfort for drivers with a visual system which has deteriorated due to normal healthy ageing processes, based on a review of existing data and performance based empirical data. Drivers in this context is meant to include drivers of motor vehicles as well as cyclists, including powered bikes (e-bikes, pedalecs, etc.)

Chair: Maurice Donners (NL)

TC 4-55 Guide for the Lighting of Sport Events for Colour Television and Film Systems (new TC number as being moved from Div 5)

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 (GB)

TC 4-56 Masterplanning Urban Lighting

Scope: To prepare a Guide to Masterplanning Urban Lighting. The Guide shall be used whenever designing new or renewed creative lighting for master planning 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: Müjgan Serefhanoglu-Sözen (TR)

TC 4-57 Guide for Sports Lighting (new TC number as being moved from Div 5)

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 (GB)

TC 4-58 Obtrusive Light from Colourful and Dynamic Lighting and its Limitation (new TC number as being moved from Div 5)

Scope: To provide guidelines for the implementation and usage of colourful and dynamic lighting in outdoor applications aiming at limitation of obtrusive light with respect to astronomical observations, humans and night-time environment. To develop metrics for obtrusive light from colourful and dynamic lighting systems and to propose suitable methods for limitation or prevention of obtrusive light from such systems.

Chair: Steve Lau (CN)

TC 4-59 Guide for Lighting Urban Elements

Scope: To revise and update the (obsolete, 20 years-old) publication CIE 94:1993 'Guide for floodlighting', introducing additional and updated information on the current light sources, luminaires and lighting techniques, as well as on the importance of lighting urban elements and the techniques and technology available for this lighting task. To extend the decorative/aesthetical focused guidelines by technical practice and research based recommendations on other issues such as economic, functional, environmental and urbanistic aspects. To consider the particular case of cultural heritage in order to contribute to its preservation.

Chair: Diana del Negro (PT)

JTC 11 (CIE-ISO) Light and Lighting – Maintenance factor – Way of working

Scope: To provide a standardized way of working for determining the maintenance factor for both indoor and outdoor installations using the methodology as described in CIE 154:2003 & CIE 97:2005.

The deliverable will combine insights from IEC standards w.r.t. product performance of luminaires and light sources currently in the market with the existing determination methodology from CIE technical reports. Furthermore, it will reference to the data in the CIE technical reports w.r.t. the impact of the environment on luminaires (accumulation of dirt on surfaces and luminaires).

Chair: Nigel Parry (GB)

JTC 13 (D4/D3) Depreciation and Maintenance of Lighting Systems

Scope: To revise CIE 97:2005 and CIE 154:2003 in order to bring them up to date by incorporating recently used approaches for determination of lumen maintenance of LED lamps, dealing with lamp and ballast/driver survival factor and upgrading the luminaire maintenance factor according to current technologies and environmental factors. To deal additionally with distortion of luminous intensity distribution due to environmental influences. To extend the document by maintenance of LED luminaires regarding their cooling specific requirements.

Chair: Dionyz Gasparovsky (SK)

18.2 Dissolution of and changes to TCs and Reporterships

- TC 5-28 Guide On Limitation Of The Effects Of Obtrusive Light
- R 4-41 Lighting For Elderly
- R 4-48 Intrusive Light
- R 5-16 Photometric Specification And Measurement Of Sports Lighting Installations
- R 5-18 Comparison Of Glare Assessment Methods



18.3 Research Strategy

The following research topics are considered for Div. 4 strategic plan. Topics are either (partially) approached within existing TC other could make the subject of future TC, JTC or RF proposals:

- Adaptive, intelligent and dynamic lighting for Smart Cities, Internet of Things and LiFi Communications
- Depreciation and maintenance of lighting systems
- Phantom array effects in vehicle rear lighting
- Lighting of urban environment with focus on pedestrians & cyclists
- Lighting for the ageing population
- New metrics for LED based lighting systems
- Quality of light versus energy efficiency and cost saving
- Obtrusive light from static, dynamic and colour lighting, and its impact to humans and natural environment
- Urban master planning and floodlighting
- Mine lighting
- Lighting in railway applications

19 Other Division News

After the merger approval in 2017, the new management team of Division 4 has devised a strong action plan meant to improve collaboration and efficiency of work based on:

- Focusing on team work
- Improving the efficiency
- Strengthening of the role of education
- Being more transparent
- Supporting the collaboration



Division 6: PHOTOBIOLOGY AND PHOTOCHEMISTRY

Report to CNC/CIE 63rd Annual Meeting
National Research Council of Canada
1200 Montreal Road, Ottawa, Ontario K1A 0R6 Canada Bldg. M-24
DATE: Monday, Nov. 5, 2018
TIME: 9:00 to 12:00

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

20 Introduction

The CIE held its Midterm Meeting in Jeju Island, South Korea from October 21, 2017 to October 28, 2017. The meeting was accompanied by a 3-days conference on the subject “Smarter Lighting for Better Life”. In 5 invited presentations, 57 oral presentations, 49 presented posters, 61 posters and 7 workshops experts from all over the world presented latest research results and survey lectures on various subjects related to light and lighting, e.g. “Colour quality”, “Metrology for photometric and radiometric devices”, “Glare”, “Road lighting”, “Interior environment and lighting design”, “Exterior lighting”, “Lighting and health”, “Visual perception in interior lighting”, “Eye-related metrology”.

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>

Attendees, country and division roles

John O’Hagan (JOH)	GB	DD6 (Division Director) L6-2 WHO Liaison Officer L6-8 CEN TC169 WG8 Liaison Officer NC Rep (National Committee Representative) JTC-5 Chair
Shu Takeshita (ST)	JP	ADD6 NC Rep
David H Sliney (DHS)	US	ADD6 L6-5 IEC76 WG1 Liaison Officer L6-6 ASP Liaison Officer R6-44 (Shared Reportership) TC6-64 Chair
Luke Price (LP)	GB	DS6 (Division Secretary) L6-9 CEN TC169 WG13 Liaison Officer JTC-9 Secretary
Ann R Webb (ARW)	GB	L6-7 WMO Liaison Officer
Tongseng Mou (TM)	CN	NC Rep



Jennifer Veitch (JV)	CA	NC Rep Proxy, for Sami Qutob CA
Sohyun Ahn (SA)	KR	
Jianqi Cai (JC)	CN	
Dandan Hou (DH)	CN	
Shao-Tang Hung (STH)	TW	
Nathalie Leise (NL)	DE	
Cherry Li (CL)	CN	
Chao-Hua Wen (CHW)	TW	
Lorna Wen (LW)	CN	
He Yang (HY)	CN	

Welcome by Director

John O'Hagan welcomed all to the meeting, including Shu Takeshita who was the only attendee by Webex link.

Apologies

John O'Hagan (GB) and LUKE PRICE (GB) had received apologies from the following: Michael Lynn and Graham Hart (GB) Rapporteurs for R6-43, Kathryn Nield for CB, Peter Zwick as JTC-8 Chair for CB, Richard Vincent (US) as TC6-52 Chair, David Baeza as ES NC Rep.

Approval of agenda

The agenda was accepted with no objections.

Minutes previous meeting

The previous minutes (http://div6.cie.co.at/?i_ca_id=604) were accepted with the addition of a note that the meeting was held by Webex. **Action Luke Price**

21 Highlights

21.1 Division publications

No new division publications.

21.2 Future meetings

The Chinese Taipei conference was considered too early (in 6 months' time), so the 2018 meeting was proposed to be held in the summer-autumn by WebEx again. The 2019 meeting would be held at the CIE Session in Washington.

22 Current Canadian participation in Division 6 activities



Sami Qutob is an official Canadian representative of Division 6. Currently, no Canadians chair or participate in Technical Committees, handle a Reportership, act as a Division Officer or act as a liaison. There were no changes to the Division Officers. Within the next year, the process of selecting the new DD6 will start. Other Division Officers are nominated by the DD and approved by the BA.

23 Highlights of Division Work Programme

4.1 Progress report from DD6

The initial International Day of Light will be held on 16 May 2018. This date (in 1960) was the day Theodore Maiman first successfully demonstrated a working laser. CIE BA had discussed the possibility of repeating “open laboratories” around that day.

John O’Hagan gave a presentation on the coordination of activities between ISO TC274 and CIE, including the different routes: purely scientific publication in CIE; purely practical application in ISO and any mixture a joint project.

An equivalent arrangement will have to be developed for IEC, involving IEC TC76 and JTC-5.

D6 has 9 published standards and 4 under development. Every 5 years standards come up for review in D6. John O’Hagan confirmed that D6 had circulated the review for JTC-8 and Peter Zwick had comments on the text, but that all the comments had been minor editorial changes.

John O’Hagan was concerned that the dual logo and CIE cover pages should be retained in these joint standards at regional and national levels.

Shu Takeshita asked who in CIE was preparing the new advance document for the review of ISO 17166:1999(E)/CIE S 007/E-1998. He noted that he had not received information despite being a member of ISO TC274 and D6, and that it was necessary for CIE to provide information on the status of this standard.

JV confirmed that this was assigned to Peter Zwick by the CIE leadership, as it was felt the changes needed were purely minor editorial changes, and John O’Hagan added the leadership had decided that we were not ready to review the action spectrum itself yet. DHS also said he was concerned that the photobiological experts were not involved in the review, but was reassured by John O’Hagan pointing out that the changes were all typographical, and explicitly that no significant change had happened relating to the 1 nm discrepancy that was currently being discussed with Ann Webb. John O’Hagan agreed to ensure Shu Takeshita and David Sliney get copies of the proposed changes.

Action John O’Hagan

4.2 Secretary's report

Luke Price gave a brief report, that two Liaisons – L6-8 to CEN TC169 WG8 Photobiology and L6-8 to CEN TC169 WG13 Non-visual effects of light on human beings – had been created and following the ballots John O’Hagan and Luke Price had been appointed to these roles, respectively.

4.3 Editor's report

John O’Hagan made a report on behalf of the Division Editor (DE) Eric Liggins (EL). EL was considered one of the better DEs in CIE and that he had gone through all the drafts and improved them. Peter Zwick finds his approach very helpful, and has been preparing guidance for DEs to follow similar practice, as much of his time is taken up doing work DEs should have completed before drafts reach CB. John O’Hagan noted that D6 and CIE were very grateful for his work.

23.4 Status of TCs and Reporterships

At the very least this should include a list of Active TCs and provide a link to a current set of minutes or Activity Report. It can also include a summary of the progress of some or all of the TCs and reporterships. The summary should highlight anything of potential relevance to CNC/CIE members.

4.4.1 Progress reports from Technical Committee Chairs

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

A progress report had been received and was available on CollTools. After some rounds, involving DE6 and CB feedback, the latest comments were received in September 2017, and it is planned that a revised document be prepared and voted upon, moving towards publication.

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

TC6-64 is still an active TC. The report has been through the DE and is just waiting for some minor amendments. The TC will close automatically when the report is published.

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

A progress report had been received and was available on CollTools.

Luke Price explained that Jan Wienold was in the process of trying to resurrect the JTC, which aims initially to produce two or three Technical Notes, and had already received material from a number of different members.

Luke Price noted this JTC did not have a D6 co-chair, John O'Hagan explained Fabio Bisegna had been unable to continue as the D6 co-chair when Italy had left CIE and JV (as DD3) noted that this JTC would really like a D6 co-chair as soon as possible. A photobiologist Mirjam Munch had been involved who would have been suitable to coordinate the material for D6, but unfortunately had left the JTC. DHS said he would be willing to stand for this position, and it was agreed that the ballot be conducted separately from the meeting.

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

A progress report had been received and was available on CollTools.

JTC-8 International Lighting Vocabulary (Peter Zwick)

A progress report had been received and was available on CollTools.

All CIE Divisions are involved in this JTC. LUKE PRICE noted that this was the first time that the Divisions had received a report from the JTC.

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

A progress report had been received and was available on CollTools. The first draft was out for voting amongst the JTC members, which should be complete in mid-November.

John O'Hagan noted that due to an oversight ISO had only recently been informed that this JTC intended to create an International Standard, although it had been included in the JTC's proposal that CIE approved.

Luke Price talked through two slides from the Chair, Luc Schlangen, to explain how the standard would provide for five separate action spectra relating to non-visual effects, for melanopsin photoreception and four of which were consistent with existing CIE visual standards for rods and



cones. He explained the hoped-for progress of the report, and JOHN O'HAGAN noted that the BA had agreed the JTC-9 could apply for a fast-track route to publication.

4.4.2 Progress reports from Reporters

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

The report was submitted a year ago, and edits were made for the comments received. Following the last response to Peter Zwick on the table of measurements, the document should be ready to go out. JOHN O'HAGAN requested that DHS confirm whether this is ready, and when it was to send the report to him and to DE6. DHS explained that the report was finished, and it was agreed that DHS simply needed to send this report to John O'Hagan.

Action DHS

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

A progress report had been received and was available on CollTools. Luke Price had also received an e-mail overnight with further details, to mention Mike Lynn hoped to contact Graham Hart shortly to sign off the report for submission to the Division.

Action ML/GH

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

John O'Hagan set out the current Division Liaisons:

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 (John O'Hagan)

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 (Karl Schulmeister) On L6-4, John O'Hagan noted that ICNIRP's relevant work had involved a review of 2 statements on LEDs and Laser Diodes and was considering a new statement on Blue Light and Beneficial Effects on Health. He had pointed out to them that this topic was not really within their expertise, and it would be unwise to issue a statement when there was potentially only one expert on the topic in their group, namely Professor Bud Brainard.

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)

L6-8 CEN TC169 WG8 Photobiology (John O'Hagan) On L6-8, John O'Hagan noted that this group had 4 standards that didn't fit with anything CIE would support.



L6-9 CEN TC169 WG13 Non-visual effects of light on human beings (Luke Price) On L6-9, Luke Price noted that CB were dealing with the liaison issues, which were largely concluded on his appointment. The WG had produced its Technical Report in any case, so the liaison was not likely to become active.

A liaison to ISA (International SSL Alliance) was suggested for regular communication and to invite research collaboration on healthy lighting and agriculture.

John O'Hagan/Luke Price had received slides from ISA and this proposal was discussed. ISA appeared to be keen to create standards, and Kathy Nield (CIE General Secretary) had advised D6 through LUKE PRICE that they should be encouraged to carry out activities within CIE rather than by liaison to external work.

John O'Hagan asked ISA, through those present, for a written description of where ISA thinks there are gaps within the CIE reports and standards, for example information relating to chickens that he had discussed personally earlier during the wider CIE Mid-term meeting.

It was agreed that the ISA material could be shared via the Division 6 Associates room on Collaboration Tools. **Action LUKE PRICE**

There were no other proposals for liaisons.

23.5 Dissolution of and changes to TCs and Reporterships

This was a standing item, and there were no proposals for dissolutions this year.

24 Other Division News

John O'Hagan asked if it was thought CIE should issue a statement on the Blue Light Hazard to address the concerns, those relating to LEDs in particular. He noted the European SCHEER (Scientific Committee on Health, Environmental and Emerging Risks) had drafted a report along these lines, that perhaps CIE could reform into its own message. He Yang said there was a white paper on this issue he could share with D6, and Luke Price agreed to add this on CollTools.

Action He Yang/Luke Price

John O'Hagan also added it was useful for the Division to have friendly connections with representatives on National Standards Committees, and those present were encouraged to seek such people to become Division 6 associates and become involved in the Division.

Action all

There was no other business.