



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



Canadian National Committee Comité national canadien

2017 CNC/CIE Annual Report

including

Minutes of the 62nd Annual Meeting
2017-October-04



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



Canadian National Committee Comité national canadien

MINUTES OF THE 62nd ANNUAL CNC/CIE MEETING

2017-October-04

National Institute of Standards and Technology, Gaithersburg Campus,
100 Bureau Drive, Gaithersburg, Maryland, USA.

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
CNC/CIE	Canadian National Committee of the CIE
CNC-BA	CNC/CIE Board of Administration
CoP	CNC/CIE Code of Procedure
USNC/CIE	US National Committee of the CIE
ICSU	International Council for Science
IES	Illuminating Engineering Society [North America]
ISO	International Organization for Standardization
NC	CIE National Committee
NRC	National Research Council of Canada
NRC-GIR	NRC Government and International Relations office
NRC-MSS	NRC Measurement Science and Standards Research Centre
NRC-CONST	NRC Construction Research Centre
NRCan	Natural Resources Canada
TC	CIE Technical Committee

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1. Division Member Reports

CNC/CIE Officer and Canadian Division Member reports were submitted electronically and posted on the CNC/CIE website with the 2016 Annual Report (including minutes of 61st annual meeting) prior to the CNC/CIE annual meeting for the purpose of presentation and discussion at this meeting. The Division Member reports were presented in a plenary session with the USNC/CIE prior to the AGM on Oct. 4.

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

The 62nd annual meeting of the CNC/CIE was called to order at 10:45 EST on Wednesday, October 4, 2017 by J.A. Veitch, Vice-President. [V. Venkaratamanan, President, was present by Webex.]

Ten 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.

3. Action Items and Matters Arising from the Minutes of the 61st CNC/CIE Annual Meeting:

The minutes of the 61st Annual Meeting were approved without changes.

3.1 and 3.2 Action Items and Matters Arising

Action items (A1-1 to A1-7) from the 61st annual meeting minutes (see Appendix C of the Minutes of the 61st Annual Meeting) were discussed. Action items AI-1, A1-2, A1-4 and A1-5 were done. Action item A1-3 was dealt with; Jennifer Veitch spoke with Ron Gibbons and it was decided that the AMA comments on LED street lighting are not something for CIE to address but IES is dealing with this issue so this AI is closed. Action items A1-6 and A1-7 were not done and these are to be kept as action items for this meeting, renumbered for 2017.

ACTION ITEM (2017-AI-1): Recruit a bilingual candidate for the Website Subcommittee (All)

ACTION ITEM (2017-AI-2): Recruit a Chair of Events Subcommittee to replace temporary chair, V. Venkataramanan (All)

It was also discussed that the meeting Minutes need to be prepared and distributed in a more timely fashion when memories are fresh. This led to the following new Action item. (Appendix C shows a complete list of Action Items from this meeting.)

ACTION ITEM (2017-AI-3): Have the Minutes of the annual meetings distributed within 8 weeks and approved by e-mail.

ACTION ITEM (2017-AI-4): Include the Division Reports for D6 and D8 from the USNC/CIE presented in the plenary session in the CNC/CIE Annual Report because they are more up-to-date than we otherwise would have.

The following Officer Reports are available at the CNC/CIE web site and will be included as

appendices in the 2017 Annual Report.

4. President's Report:

V. Venkataramanan presented his report with discussion. This report is attached as Appendix D.

5. Vice-President's Report:

J.A. Veitch presented her report with discussion. She mentioned there is a new agreement with SCC which is a pilot arrangement for harmonization of the Canadian mirror committee to ISO/TC 274. The CNC/CIE is the first group to have this recognition from SCC and this provides an avenue for expanding the CNC/CIE network. This report is attached as Appendix E.

6. Secretary's Report:

J. A> Veitch explained that there is no Secretary's report at this time, as Ali Ghaemi is standing in as an administrator for the previous secretary, W.S. Neil, who retired in June 2017. It was suggested not to fill the Secretary role until permanent staffing decisions are made at NRC.

7. Financial Report:

S.M. McFadden presented her report with discussion (attached as Appendix F). She noted that income through publication sales exceeded expenditures. It was mentioned that upgrading the website will cost ~\$1400 and the hosting of next year's plenary meeting of ISO TC 274 in Toronto will cost ~\$8000. It is hoped to reduce this amount by getting industrial sponsorship. Sharon also noted that that since our Secretary, Bill Neil, has retired from NRC, we only have 2 signatories for the CNC/CIE cheques – Venkat and herself.

ACTION ITEM (2017-AI-5): Sharon McFadden to contact TD Bank and ask about procedure to update signatures on CNC/CIE cheques (i.e. can just Venkat and herself request this change or does Bill Neil also need to be available?)

J.A. Veitch thanked S.M. McFadden for her work as Treasurer.

8. NRC-GIR Annual Performance Review (APR) of the CNC/CIE:

J.A. Veitch reported that the new process for the APR form involves the use of an online form and that this process takes much less time. It is less detailed and in future years it will repopulate the previous info on the form in recognition that most affiliations change little from year to year. V. Venkataramanan thanked J.A. Veitch for her excellent work on preparing these APR forms contributing to our success in getting a good performance review.

ACTION ITEM (2017-AI-6): Jennifer Veitch to inform NRC-GIR about the CIE GA in Jeju and V. Venkataramanan's plans to attend this general meeting.

ACTION ITEM (2017-AI-7): Venkat Venkataramanan to inform NRC-GIR that he is attending the GA in Jeju and that he will be providing a report.

9. Membership Subcommittee Report and Elections:

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

9.1 Membership and Elections Subcommittee:

M. Mossman presented her report as chair of the Membership Subcommittee and this report can be found in Appendix H. J.A. Veitch thanked M. Mossman for her hard work in updating the membership database. J.A. Veitch mentioned that there is a desire to recruit more members, it was noted that there are individuals in industry who do not know about the CNC-CIE and could benefit from being recruited. Potential members will be recruited by obtaining their e-mail addresses and sending them letters through the CIE mailbox.

At this point of the meeting (~11:30 a.m. EST, CNC/CIE BA member, Lorne Whitehead left the meeting. The quorum rule is for ½ of the members of the BA to be present at the meeting. It was confirmed that we still had a quorum.

There are 3 CNC/CIE members whose terms expire at the end of 2017: Vince Cimino, Guy Newsham and Chantal Arsenault. All three indicated that they were seeking membership renewals. The membership renewals were voted for in a block. M. Mossman initiated the motion for membership renewal. A.A. Gaertner seconded the nominations. All were in favour. The term accepted was 4 years.

ACTION ITEM (2017-AI-8): Michelle Mossman to inform these 3 individuals that their terms as CNC/CIE members have been renewed for 4 years.

ACTION ITEM (2017-AI-9): Michelle Mossman to send out an e-mail to CNC/CIE members to ask for suggestions of possible new candidates/contacts who could be recruited as new members.

Division 4 – The merging of Divisions 4 and 5 into a single division was discussed. M. Mossman nominated C. Suvagau to be the representative of the new Division 4 and A.A. Gaertner seconded this nomination. A vote was cast and all were in favour. The nomination was carried unanimously.

ACTION ITEM (2017-AI-10): J.A. Veitch will inform the CB of new CNC/CIE D4 country member: C. Suvagau.

9.2. M & E Subcommittee Membership

No change in 2017.

10. Website and Events Subcommittee Reports:

10.1 Website Report:

J.A. Veitch presented this report, with discussion, and noted that the upgraded website with a member's only platform will be available soon. It was mentioned that one of the motivations behind upgrading the website was improved security, as there was an unsuccessful attempt to hack the website last year. It was also mentioned that

the member's only platform will eliminate the need to send large attachments to members via email. S.M. McFadden mentioned that the necessary upgrades to the website have taken longer than expected and that there is no firm timeline on when upgrades will occur. This report is attached as Appendix I.

Jennifer also noted that the USNC/CIE has problems with their web-site so we will inform them that we are willing to post the presentations from the 2017 Technical Day and Joint Meeting on the CNC/CIE web-site. Sharon said that it would be best to have these provided as compressed pdf files. This resulted in an Action item.

ACTION ITEM (2017-AI-11): Jennifer Veitch and Sharon McFadden to coordinate the activity of posting the presentations from the 2017 Technical Day and Joint meeting on the CNC/CIE web-site.

Sharon also asked for more information from members about CIE publications, workshops, reports, TNs, etc., where they have contributed as an author, organizer, etc. – to be included on the CNC/CIE web-site. The information that she has currently on the CNC/CIE web-site on Canadian participation on CIE publications is about 4 years out-of-date. This also reminded Jennifer to contact André Laperrière if he has suggestions for someone to help with French translations of CIE documents. This resulted in the following two Action Items.

ACTION ITEM (2017-AI-12): Jennifer Veitch will send out a general e-mail to the CNC/CIE members not only asking for suggestions for new members but also to provide updates on what they are doing.

ACTION ITEM (2017-AI-13): Help is needed with translating English CIE documents into French. J.A. Veitch will ask A. Laperrière if he has suggestions for someone willing to translate CIE documents into French.

10.2 Events Report:

J.A. Veitch mentioned that the Events Subcommittee is inactive, and that there is a need to recruit an active chair for this subcommittee. It was mentioned that this chair would be expected to lead the committee by doing outreach during the annual meeting and extending the membership base. J.A. Veitch will contact somebody about serving on the Events Subcommittee. Joanne Zwinkels suggested that Shirley Coyle might be a good candidate. This resulted in an Action item:

ACTION ITEM (2017-AI-14): Jennifer Veitch to contact Shirley Coyle to ask if she would be willing to Chair the CNC/CIE Events Subcommittee.

11. Other Business:

11.1 Correspondence:

There was no correspondence received over the past year. It was noted that long-time active CNC/CIE member (and regular correspondent), Ernest Wotton, had passed away

in November 2016.

11.2 Date and place for next year's meeting:

Next year's meeting will be held in Ottawa due to budgetary constraints. There was no objection from any of the members about holding next year's meeting in Ottawa during either October or November. Martyn Timmings said that a possible conflict is with the CSA Energy Efficiency week. Cristian Suvagau indicated that it would be good to have these meetings one after the other and that something on Monday or Tuesday of that week would work. However, the CSA fall meeting is typically in Toronto and Monday is usually a free day. Martyn said that he would check on the dates of this CSA meeting next year. This discussion resulted in the following two action items:

ACTION ITEM (2017-AI-15): Martyn Timmings will check on the dates and location of the CSA Energy Efficiency 2018 fall meeting.

ACTION ITEM (2017-AI-16): Determine a date for next year's CNC/CIE annual meeting in Ottawa (Executive).

11.3 Any Other Business:

J.A. Veitch raised the issue of Division 8 representative, W. Heidrich, who did not submit a report on behalf of Division 8 and has not responded to emails. He is currently a visiting professor in Saudi Arabia. Those present felt that it would be preferable to have a person in Canada to serve as the Division 8 representative. This discussion resulted in the following action item:

ACTION ITEM (2017-AI-17): Michele Mossman will, through Lorne Whitehead, check with W. Heidrich to determine whether he plans to return to Canada and to actively carry out the role of D8 member.

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 12:08 hours EST.

Ali Ghaemi

Administrator, Canadian National Committee of the CIE

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

Appendix A

CNC/CIE 62nd Annual General Meeting

Proposed Agenda

DATE: Wednesday, Oct. 4, 2017

TIME: 08:30 – 10:30 EDT (Division Reports – Joint Session)

10:45 – 13:00 EDT (CNC/CIE Business)

LOCATION: National Institute of Standards and Technology, Gaithersburg campus
100 Bureau Drive, Gaithersburg, Maryland 20899 USA
West Square room in Bldg. 101

Webex is available for remote participation.

Request details from jennifer.veitch@nrc-cnrc.gc.ca.

RSVP: A. Ghaemi
Administrator, CNC/CIE
Tel: 613-993-6450
Email: CNC-CIE-Secretariat@nrc-cnrc.gc.ca

<http://www.cnc-cie.ca/>

PROPOSED AGENDA: (see next page)

CNC/CIE 62nd Annual Meeting

2017-Oct-04

PROPOSED AGENDA:

Joint Session with CIE/USNC

08:30 – 10:30:00 EDT

- | | |
|---|-------------------|
| 1. 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: Lighting and Signaling for Transport | A. Laperrière |
| Division 5: Exterior and Other Lighting Applications | C. Suvagau |
| Division 6: Photobiology and Photochemistry | S.Qutob |
| Division 8: Image Technology | W. Heidrich |
|
 | |
| CNC/CIE Business | |
| 10:45 – 13:00 EDT | |
|
 | |
| 2. Call to Order and Approval of Agenda | V. Venkataramanan |
| 3. Minutes of the 61st Annual CNC/CIE meeting | V. Venkataramanan |
| 3.1. Action items | |
| 3.2. Matters arising | |
| 4. President's report | V. Venkataramanan |
| 5. Vice-President's report | J.A. Veitch |
| 6. Secretary's report | [J. A. Veitch] |
| 7. Financial report | S.M. McFadden |
| 8. NRC-GIR Annual Performance Review of the CNC/CIE | J.A. Veitch |
| 9. Membership and Elections | |
| 9.1. Membership and Elections Subcommittees (see p. 3) | M. Mossman |
| 9.2. M & E Subcommittee Membership | M. Mossman |
| 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 |

The annual meeting of SMC-ISO-TC 274 will be held in the same location at 14:00 on 2017-Oct-04. See separate agenda.

Re: Item 9.1

Notice of Motion: Canadian Member of new CIE Division 4, Transportation and Exterior Applications

CIE will merge Divisions 4 and 5 at the mid-session meeting in Jeju, Korea in late October, creating a new Division 4 with the name “Transportation and Exterior Applications”.

At the AGM of the CNC/CIE, we will vote on the appointment of a Division Member for this new Division.

The sole nominee is Cristian Suvagau of BC Hydro, who was formerly the Division Member for CIE Division 5.

APPENDIX B
CNC/CIE 62nd Annual Meeting

Attendees

Name	CNC/CIE Affiliation	Other Affiliation
Venkat Venkataramanan*	President	U of Toronto
Jennifer Veitch	Vice-President, Division 3 Rep.	NRC-CONST
Ali Ghaemi*	Administrator	NRC-MSS
Sharon McFadden*	Treasurer	Retired
Joanne Zwinkels	Division 2 Rep.	NRC-MSS
Cristian Suvagau*	Division 5 Rep.	B.C. Hydro
Arnold Gaertner*	Board of Administration	NRC-MSS
Lorne Whitehead	Board of Administration	U of British Columbia
Martyn Timmings	Board of Administration	Studio Four Technical Services
Michele Mossman	Member	U of British Columbia
Jeffery Hovis*	Division 1 Rep.	U of Waterloo
Toby Lau*	Member	B.C. Hydro
Harold Murray*	Member	Independent Consultant
Li-Lin Tay	Observer	NRC-MSS

*** attended via teleconference / Webex**

APPENDIX C

Action Items from the 62nd Annual Meeting of the CNC/CIE

Action Item	Responsible	Action	Status
2017-AI-1	All	Recruit a bilingual candidate for the Website Subcommittee	
2017-AI2	All	Recruit a Chair of Events Subcommittee to replace temporary chair, V. Venkataramanan	
2017-AI-3	J. A. Veitch / A. Ghaemi / J. Zwinkels	Have the Minutes of the annual meetings distributed within 8 weeks and approved by e-mail.	
2017-AI-4	J. A. Veitch / A. Ghaemi / J. Zwinkels	Include the Division Reports for D6 and D8 from the USNC/CIE presented in the plenary session in the CNC/CIE Annual Report because they are more up-to-date than we otherwise would have.	
2017-AI-5	Sharon McFadden	To contact TD bank and ask about procedure to update signatures on CNC/CIE cheques (i.e. can just Venkat and herself request this change or does Bill Neil also need to be available?)	
2017-AI-6	J. Veitch	Contact NRC-GIR and notify them that V. Venkataramanan will attend the General Assembly on Oct. 22, 2017.	
2017-AI-7	V. Venkataramanan	Inform NRC-GIR that he is attending the GA in Jeju and that he will be providing a report.	
2017-AI-8	Michelle Mossman	to inform these 3 individuals that their terms as CNC/CIE members have been renewed for 4 years.	
2017-AI-9	Michelle Mossman	to inform these 3 individuals that their terms as CNC/CIE members have been renewed for 4 years.	
2017-AI-10	J.A. Veitch	will inform the CB of new CNC/CIE D4 country member: C. Suvagau.	
2017-AI-11	Jennifer Veitch, Sharon McFadden	to coordinate the activity of posting the presentations from the 2017 Technical Day and Joint meeting on the CNC/CIE web-site.	
2017-AI-12	Jennifer Veitch	send out a general e-mail to the CNC/CIE members not only asking for suggestions for new members but also to provide updates on what they are doing.	

2017-AI-13	J.A. Veitch	Ask A. Laperrière if he has suggestions for someone willing to translate CIE documents into French.	
2017-AI-14	Jennifer Veitch	Contact Shirley Coyle to ask if she would be willing to Chair the CNC/CIE Events Subcommittee.	
2017-AI-15	Martyn Timmings	check on the dates and location of the CSA Energy Efficiency 2018 fall meeting.	
2017-AI-16	Executive	Determine a date for next year's CNC/CIE annual meeting in Ottawa (All).	open
2017-AI-17	Michelle Mossman	Through Lorne Whitehead, check with W. Heidrich to determine whether whether he plans to return to Canada and to actively carry out the role of D8 member.	

APPENDIX D

CNC/CIE President's Report September 2017

Venkat Venkataramanan
vvenkat@imc.utoronto.ca

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

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

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

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

- The Smart Sustainable Lighting Network (SSLNet) at the University of Toronto, hosted a 3-day conference – Beyond Lighting, that included a conference day, an industry showcase, a career fair for youth, and five topical workshops. About 160 participated in various events.
- I conducted a Youth Skills Connection training program that trained more than 70 students for jobs in the energy efficient lighting sector. Jointly funded by the Ontario lighting companies and the provincial government, this was addressing the skills gap in conventional training and resulted in 12 students getting employment.
- In partnership with Zhejiang University (China) and Sensing, Hangzhou, China developing new photometric and spectroscopic instruments.

I thank the collegial National Advisory Committee for smooth and efficient conduct of affairs and for their continued efforts in popularizing lighting and advancement of lighting research.

APPENDIX E

CNC/CIE Vice-President's Report September 2017

Jennifer A. Veitch, Ph.D.

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

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

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

- SCC and the CNC/CIE have formalized ("harmonized") the arrangement for linkage between the CNC/CIE and SCC for the oversight of SMC/ISO TC 274. We have been acting in this way for years, but this signed agreement ensures that the structures in our Code of Procedure are recognized at the SCC end, and will facilitate the ongoing work even if individuals leave their roles.
- Thanks to financial support from BC Hydro, CSA Group, and the Standards Council of Canada, we were able to send a Canadian delegate (Mr. Toby Lau) to the plenary meeting of TC 274 and the meeting of its WG1 and WG2 in Delft, the Netherlands in June 2017.
- ISO/TC 274 accepted the Canadian invitation to hold its next Plenary meeting in Toronto in May, 2018.
- We cast all our ballots on time.
- Mrs. McFadden and Mr. Lau both serve on the ISO TC 274 Chair Advisory Group, which assists in charting the direction for the committee
- Mr. Conor Sampson will attend the joint meetings of ISO TC 163 and ISO TC 205 in Tokyo, Japan, in September in his role as one of two ISO TC 274 liaison officers to ISO TC 205/WG7 Indoor visual environment.
- Mr. Lau serves as the liaison from ISO/TC 163 to ISO/TC 274 (this means that he reports to ISO/TC 163 concerning the activities of ISO/TC 274). He will attend the joint meeting of ISO/TC163 and ISO/TC205 in Tokyo in this role and as a proxy for the Liaison Officer from ISO/TC274 to ISO/TC205 (Mr. Soh  il Moghtader).
- I gave a presentation about the CNC/CIE and SMC-ISO-TC274 by Webex to the annual meeting of CSA committee C419 in June 2017, and have begun to liaise better with that group to recruit expert members of CIE and ISO/TC 274 committees and working groups.

3. When our Secretary, William Neil retired from NRC, I took on some of the duties of Secretary. Administrative matters will be handled by Ali Ghaemi, a Technical Officer at NRC Measurement Science and Standards, on an interim basis, pending new staffing actions at NRC-MSS.

4. I participated in the organization of the joint meeting with the CIE/USNC, acting as co-Chair of the technical day. In this I was assisted by Jeff Hovis..

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

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

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

APPENDIX F

CNC/CIE Treasurer's Report to the CNC/CIE 62nd Annual Meeting

4 October 2017

Gaithersburg, Maryland, USA

The financial statement for the fiscal year October 1st 2016 to September 30th 2017 is presented below. Please note that the cost of the upgrade to the website, approximately \$1000, is outstanding.

Financial Report 1 October 2016 – 30 September 2017

Balance (October 1 st 2016)	\$25617.45
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Income:

Payment for publication sales	\$842.19
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Total Income	\$ 842.19
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Expenses:

2016 meeting - speaker's travel expenses	\$267.30
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Web Hosting 2016 and 2017	\$226.28
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Total Expenses	\$493.58
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Net Income (Loss)	\$348.61
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Balance (September 30 th 2017)	\$25966.06
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Respectfully submitted

Sharon McFadden
Treasurer, CNC/CIE

APPENDIX G
CNC/CIE Membership as at 2017-10-04

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

APPENDIX H

CNC/CIE Membership Subcommittee – Chair’s Report October 2017

Prepared by: Michele Mossman

The current membership includes:

- 15 Members of the CNC/CIE Board of Administration
- 42 Members (includes the 15 Members of the Board of Administration)
- 59 Affiliates

During 2017, the following activities were carried out by the Membership Subcommittee:

- We have maintained a detailed membership database. This database is circulated to subcommittee members whenever entries are updated.
- No new names were added to membership list during 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. We moved their names to a “past members” list which we will keep updated.

Nominations for 2017:

- Three Members whose terms expire at the end of 2017 (Vince Cimino, Guy Newsham and Chantal Arsenault) have agreed to be nominated to renew as Members for another term.
- Cristian Suvagau has agreed to be nominated as a voting member on behalf of the CNC for CIE Division 4 (the new Division formed after merging previous Divisions 4 and 5).

APPENDIX I

CNC/CIE Web Site Report October 2017

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

Domain

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

Usage

Usage this year has risen somewhat, with the 12-month average since Oct 2016 having been 260 unique visitors per month and 344 visits (versus 250 unique visitors per month and 407 visits in Jan-Sept 2016). However, More, we used less bandwidth: 135 MB as compared to 215 MB on average per month in 2016.

Looking at the country of origin of our visitors is a challenge because of the high number of automated crawler visits, many of whom are located in eastern Europe. Looked at by numbers of pages visited, Canada is 17th and the US is 16th. Measured in terms of bandwidth alone (which reflects document downloads), Canada is 5th (after Russia, Ukraine, Belarus, and Kazakhstan), but if one looks at a metric combining bandwidth and number of pages visited (MB per page view), the top three countries of origin using the site are Canada, France, and then the USA.

This year's usage showed an exceptional spike of visits from Russia and Ukraine, with an attempt to access the administrator's login page repeatedly over a three-day period in February. We excluded this from the statistics. (The attempt to fraudulently access the administrator page was unsuccessful.)

Upgrade

Bob Bridges continues to work on the upgrade to a new platform. When it is complete we will have new functionality, including a members-only space where we can post documents for review, eliminating the need to e-mail large attachments.

Content

Sharon McFadden continues in the role of content co-ordinator, for which we owe her a debt of thanks. With the new platform, she plans to do a few things:

- To update content that is currently out of date
- To update the Lighting in Canada links. For this we will need input from all Members and Affiliates.
- To provide more information about how to become involved in CIE technical work, including updated information about the status of TCs.

Note that we urgently need assistance with translation into French of the updated material. For this, we need an additional member of this subcommittee.

Members – please inform us of any CIE publications, including TR, TN, standards, and papers given at CIE conferences, in which they are listed as a contributor or author. That information also needs to be updated, and it is difficult to identify it unless information is provided to the Web Subcommittee.

History of Lighting in Canada

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

Maintenance

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



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2017 CNC/CIE Division Member Reports



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Division 1: Vision and Colour

Report to CNC/CIE 62nd Annual Meeting
Gaithersburg, MD October 4, 2017

Jeff Hovis
Email: jhovis@uwaterloo.ca

1 Introduction

The 2017 meeting will be held in Jeju, Korea on October 27, 2017 as part of the CIE-Midterm Meeting. Ellen Carter (US) will be serving as proxy for Jeff Hovis

2 Highlights

2.1 New Technical Committees and Reporterships

Two new Joint Technical Committees have been established during the past year

TC 10(D1/D8) A new colour appearance model for colour management systems: CIECAM16
To recommend a new colour appearance model, CIECAM16, to replace the CIECAM02 model for colour management systems. Chair: Changjun Li (CN)

JTC 1 (D1/D2/D4/D5): Implementation of CIE 191:2010 Mesopic Photometry in Outdoor Lighting
To investigate adaptation and viewing conditions and define visual adaptation fields in outdoor lighting. To define lighting applications where mesopic photometry could be used. To provide guidelines for implementing mesopic photometry in outdoor lighting. Chair: Stuart Mucklejohn (GB)

2.2 Division publications

CIE ISO 11664-5:2016. 2017. Colorimetry - Part 5: CIE 1976 $L^*u^*v^*$ Colour Space and u' , v' Uniform Chromaticity Scale Diagram. *This joint ISO/CIE International Standard is replacing the joint ISO/CIE International Standard ISO 11664-5:2009/CIE S 014-5:2009 without modification of its technical content.*

CIE TN 007:2017 Interim Recommendation for Practical Application of the CIE System for Mesopic Photometry in Outdoor Lighting

CIE 224:2017 CIE 2017 Colour Fidelity Index for accurate scientific use

x043:2016 Proceedings of the 4th CIE Expert Symposium on Colour and Visual Appearance 6 – 7 September 2016, Prague, Czech Republic.

2.3 Future meetings

CIE 2018 Topical Conference on Smart Lighting, Taipei, Chinese Taipei, April 26 – 27, 2018

3 Current Canadian participation in Division X activities

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

4 Highlights of Division Work Programme

4.1 Overview of the status of TCs and Reporterships

TC 1-81 Validity of Formulae for Predicting Small Colour Differences. New Committee Draft submitted in March, 2017.

TC 1-85 Update CIE Publication 15:2004 Colorimetry. The 1st committee draft of the 4th edition was submitted in July, 2017.

TC 1-93 Calculation of Self-Luminous Neutral Scale. The 2nd committee draft of Grey-scale Calculation for Self-luminous Devices was submitted in August, 2017.

JTC 10(D1/D8) A new colour appearance model for colour management systems: CIECAM16 Chair: Changjun Li (CN)

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

TC 1-97 Age- and Field-Size-Parameterised Calculation of Cone-Fundamental-Based Spectral Tristimulus Values: Chair: Jan-Henrik Wold (NO)

TC 1-96 A Comprehensive Model of Colour Vision: Chair: Ronnier Luo (GB)

TC 1-95 The Validity of the CIE Whiteness and Tint Equations: Chair: Robert Hirschler (HU)

TC 1-93: Calculation of self-luminous neutral scale: Chair: Robert Carter (US)

TC 1-92: Skin Colour Database: Chair: Kaida Xiao (GB)

TC 1-91: Methods for Evaluating the Colour Quality of White-Light Sources: Chair: Yandan Lin (CN)

TC 1-89: Enhancement of Images for Colour Defective Observers: Chair: Po-Chieh Hung (US)

TC 1-88: Scene Brightness Estimation: Chair: Yoshiki Nakamura (JP)

TC 1-86: Models of Colour Emotion and Harmony: Chair: Li-Chen Ou (TW)

TC 1-85: Update CIE Publication 15:2004 Colorimetry: Chair: Ellen Carter (US)

TC 1-84: Definition of Visual Field for Conspicuity: Chair: Nana Itoh (JP)

TC 1-83: Visual Aspects of Time-Modulated Lighting Systems : Chair: Dragan Sekulovski (NL)

TC 1-81: Validity of Formulae for Predicting Small Colour Differences: Chair: Klaus Richter (DE)

TC 1-76: Unique Hue Data: Chair: Sophie Wuerger (GB)

TC 1-63: Validity of the Range of CIE DE2000: Chair: Klaus Richter (DE)

Link to minutes and reports http://div1.cie.co.at/?i_ca_id=544

4.2 Dissolution of and changes to TCs and Reporterships

None that I am aware of.

5 Other Division News

There are a couple proposals for TCs submitted this year. The voting results haven't been published yet.

A TC entitled "A practicable approach for the evaluation and specification of colour rendition properties of white light sources." Proposed by Kees Teunissen.

A Joint Technical Committee (JTC) entitled "The measurement of sparkle and graininess" Proposed by Dr. Alejandro Ferrero from CIE Division 2.



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Division 2: Physical Measurement of Light and Radiation

Report to 11th Biennial Joint Meeting of the CNC/CIE and CIE-USNC
NIST Gaithersburg, October 4, 2017

Dr. Joanne Zwinkels
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1 Introduction

The 2017 annual meeting of CIE Division 2 (D2) will take place in conjunction with the CIE 2017 Mid-term meeting in Jeju Island, Republic of Korea, on October 26, 2017, followed by two days of D2 TC meetings. I will not be able to attend these meetings and am looking for a proxy to represent Canada at the D2 meeting.

2 Highlights (since the CNC-CIE 2016 D2 Report and plans for upcoming D2 meeting)

2.1 New Technical Committees and Reporterships

Proposal for a new D2 Research Forum: BRDF data handling and visualization (BiRD)

ToR: The aim is to collect recommendations on BRDF data handling and visualisation. It will include topics on data format, basic visualisation modes, parametrisation, and conversion to visual appearance descriptors currently used in industry.

Proposed Convenor: Dr. Gaël Obein

Status: under discussion by D2 management re relevance to D2 interests

Proposal for a new TC: from Reportership DR2-74: Characterisation of Sparkle and Graininess

ToR: This proposal follows from the final report of DR2-74 (Ferrero) Physical characterization of new visual effects in the field of appearance of materials

Proposed Chair: Alejandro Ferrero

Status: this could possibly be a JTC (D1/D20 because some visual aspects must be dealt with. This proposal is currently under discussion by D2 Management

Two new TCs approved by BA since the D2 2016 meeting:

TC2-88 Standard Reference Spectra for Solar Applications

Chair: Suga

ToR: To update the CIE 085-1989 "Solar Spectral Irradiance" that includes increased sampling intervals based on explicit meteorological input parameters for the SMARTS 2.9.5 model that produces the tabulated data for electronic data processing.

TC 2-89 Measurement of Temporal Light Modulation of Light Sources and Lighting Systems

Chair: Menno Schakel

ToR: See clause 5.2 in Call for Experts for this new TC.

2.2 Division publications

- CIE 226:2017 High-Speed Testing Methods for LEDs
- CIE 225:2016 Optical Measurement of High-Power LEDs

- CIE TN 007:2017 Interim Recommendation for Practical Application of the CIE System for Mesopic Photometry in Outdoor Lighting
- CIE x043:2016 Proceedings of the 4th CIE Expert Symposium on Colour and Visual Appearance 6 – 7 September 2016, Prague, Czech Republic
- CIE 220:2016 Characterization and Calibration Methods of UV Radiometers
- CIE TN 005:2016 Specifying Product Performance for Mesopic Applications
- CIE TN 004:2016 The Use of Terms and Units in Photometry – Implementation of the CIE System for Mesopic Photometry

Also D2 was a sponsoring Division of the CIE TLM Workshop that prepared:

CIE TN 008:2017:Final Report CIE Stakeholder Workshop for Temporal Light Modulation Standards for Lighting Systems

2.3 Future meetings

D2 2018 meeting: Eindhoven, NL on 13 June 2018, in connection with D2 TC meetings and a one day workshop

CIE Expert Tutorial and Workshop on Research Methods, Copenhagen, 13-14 Aug. 2018. This is an initiative of J. Veitch (D3) but there is possible interest from D2 to participate.

3 Current Canadian participation in Division 2 activities

Activity	Title	Canadian Members
<i>Seven TCs:</i>		
TC2-59	Characterisation of imaging luminance measurement devices	T. Moggridge (member)
TC2-77	Fundamental Concepts	J. Zwinkels (member)
TC2-80	Spectroradiometric measurement of light sources	J. Zwinkels (member)
TC2-82	Revision of CIE S014-2	J. Zwinkels (member)
JTC-1	Implementation of mesopic photometry in outdoor lighting	J. Zwinkels (member)
JTC-2 (CIE/CCPR)	Principles Governing Photometry	J. Zwinkels (member)
JTC-8 (all Divisions)	Terminology	S. McFadden, J. Zwinkels (members)
<i>One Liaison:</i>		
L2-3	ISO TC6: Paper, Pulp and Board	J. Zwinkels (member)
<i>One Officer:</i>		
	Associate Director	J. Zwinkels

4 Highlights of Division 2 Work Programme

4.1 Overview of the status of D2 TCs and Reporterships

The active D2 TCs and Reporterships are listed below. The most recent Minutes are available in CollTool (see also attached detailed progress report of D2 2016 meetings).

4.1.1 TC2-xx: Title (chair)

- 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 (Poppe)
- 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 2-49**: Photometry of Flashing Light (Ohno)
- TC 2-29**: Measurement of Detector Linearity Summary (Eppeldauer)

4.1.2 Reporterships DR2-xx: (Reporter) Title

DR2-52 (Kuei-Neng (Gilbert) Wu) Flicker measurement and flicker index study on solid state lighting

DR2-55 (David Chan) Simple Practical Guide for Measurement Uncertainty Estimations (supplement to CIE 198)

DR2-57 (Hiroshi Shitomi) Monitoring Progress of IEC TR 62778

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

DR2-61 (Peter Blattner) Review of Published D2 Publications

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 (James Walker) 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

4.2 Dissolution of and changes to TCs and Reporterships

4.2.1 Three new TCCs (due to vacancies) – LB D02-1601

TC 2-62 – change to Udo Krüger

TC 2-68 – change to Yasuki Yamouchi

TC 2-72 – change to Jim Gardner

4.2.2 Two changes in Reporterships – LB D02-1607

DR2-76 – change from Ohno to Krüger

DR2-58 – change from Goodman to Görlich

5 Other Division News

5.1 Work in Progress

CIE D2 Approval Draft technical Reports in BA and Division Voting state:

TC 2-63: Optical Measurement of High-Power LEDS (Deadline: 2017-07-29)

TC 2-64: High Speed Testing Methods for LEDS (Deadline: 2017-07-29)

5.2 Call for Experts for CIE D2 TCs:

TC 2-89 Measurement of Temporal Light Modulation of Light Sources and Lighting Systems

Chair: Menno Schakel

ToR: To provide guidance on the measurement of temporal light modulation of light sources and lighting systems. The TC shall first develop a technical note on a measurement protocol that will include recommended measurement conditions and methods to measure waveforms of light (time intervals, duration, bandwidth, photometer requirements, etc.) and frequency-domain power spectra (FFT and other methods) that enabling all researchers to report the results with sufficient information of the light investigated in a consistent way. In addition a standard test method shall be developed for flicker and stroboscopic effect using any existing or new metrics to be developed (i.e. proposed by TC1-83). Conventional metrics such as modulation depth can also be determined from the measurement data. The TC should analyse the reproducibility and uncertainties related to all metrics.

5.3 D2 Standardization Strategy

In response to the call from the CIE VPS for information from the Divisions about the present and near future (next 5 years) items that could/should/would be standardize in order to create a CIE standardization strategy, the D2 Director (Blattner) has prepared a list of: 1) D2-TCs presently working on CIE Standards; and 2) D2-TCs presently working on CIE technical report/reportership that could end up in CIE Standards). The number of items in the latter list is very long and has been classified into the following 4 topic areas: a) fundamental aspects; b) characterization of measurement devices; c) test methods for lighting products; and d) test methods for material characterization.

This proposed list is currently being discussed and augmented by the D2 Management Team. A fundamental discussion on a standardization strategy within D2 is planned in the near future.



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Division 3: Interior Environment and Lighting Design

Report to CNC/CIE 62nd Annual Meeting
Gaithersburg, MD, 2017-Oct-04

Jennifer A. Veitch, Ph.D.
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1 Introduction

The 2017 meeting of Division 3 will be held in Jeju, Korea, on Oct. 26, 2017. I will represent Canada (and also serve in the role of Division Director). Minutes of the meeting will be available in due course shortly at <http://div3.cie.co.at/>. This report is based on actions taken by electronic ballot since the last meeting, and on plans I know to be under way for decisions to be taken at the Division Meeting.

2 Highlights

2.1 New Technical Committees, Reporterships, and Other Activities

Division 3 is a participant in the new *JTC 11 (CIE-ISO): Light and Lighting – Maintenance factor – Way of working*. The CIE leader of this activity is Nigel Parry (GB). The scope of this joint activity is:

This deliverable will 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 with respect to 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).

Division 3 has also voted to participate in a new CIE *Joint Technical Committee on Depreciation and Maintenance of Lighting Systems*. A D3 JTC Co-Chairman is sought to lead this activity together with CIE Division 4:

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.

During this year, Division 3 initiated and led the organizing committee for the CIE Stakeholder Workshop for Temporal Light Modulation Standards for Lighting Systems, which was held at NRC in Ottawa on Feb 8-9, 2017. This led to the creation and completion of a reportership, *R 3-32, Reporter on the CIE Stakeholder Workshop for Temporal Light Modulation Standards for Lighting Systems*. I was the reporter.

2.2 Division publications

Since the last CNC/CIE report in November 2016, D3 has published

- CIE 222:2017: Decision Scheme for Lighting Controls in Non-Residential Buildings. This was the output of TC 3-49.

- CIE TN 008:2017 Final Report CIE Stakeholder Workshop for Temporal Light Modulation Standards for Lighting Systems. This was the output of reportership R3-32, for which I was the reporter.

The final report of TC 3-44, Lighting for Older People and People with Visual Impairment in Buildings is in the Approval Draft ballot at time of writing. The ballot closes on 2017-09-22, and it is likely that the document will have been published before the CNC/CIE meeting.

2.3 Future meetings

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

2018: Webex

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

3 Current Canadian participation in Division 3 activities

List Canadians who Chair or participate in Technical Committees, handle a Reportership, act as a Division Officer or act as a liaison. This list includes activities that ended during the reporting period.

Activity	Title	Canadian Members
TC3-49	Decision scheme for lighting controls for tertiary lighting in buildings. <u>Closed in 2017.</u>	C. Suvagau (Member); J. Veitch (Corresponding)
Org. Cttee, R-3-32	CIE Stakeholder Workshop for Light Source Temporal Light Modulation Standards. <u>Closed in 2017</u>	J. Veitch (Chair)
TC3-53	Revision of CIE S 008 Joint ISO*CIE Standard: Lighting of Work Places - Part 1: Indoor	J. Veitch (Member)
Officer	Division Director	J. Veitch
Org. Cttee	CIE Expert Symposium on Research Methods for the Effects of Lighting	J. Veitch (Member)

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

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

4 Highlights of Division Work Programme

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

New work items under discussion – which will continue at the Jeju meeting -- include:

- Development of an activity to address the need for resilient lighting, which is “lighting that allows buildings, community infrastructure, and services to better prepare and plan for, absorb, recover from and more successfully adapt to natural and man-made adverse events.”
- A reportership to review the state of knowledge concerning lighting for display screens. The goal is to update the document CIE 60:1984, *Vision and the Visual Display Unit Work Station*.
- Possible development of a TC to develop methods by which to test and rate optically complex fenestration, which builds on the existing CIE 173:2012 *Tubular Daylight Guidance Systems* to consider more complex systems in use today.

Division 3 chaired, with participation from D1, D2, and D6, the CIE Stakeholder Workshop for Light Source Temporal Light Modulation Standards. This limited-participation workshop developed a roadmap for the standards that are required to limit the risk of adverse visual, health, or behavioural effects from cyclical temporal variations in light source output (colloquially known as flicker). Among the actions arising from this workshop is the creation of a Research Forum to be a discussion mechanism to further activity in this domain. In support of this, I will present a talk in a workshop at the CIE 2017 session on “Temporal Light Artefacts in Automotive and General Lighting”.

Division 3 will present the CIE Expert Tutorial and Workshop on Research Methods for Human Factors in Lighting in Copenhagen in summer 2018. I am a member of the organizing committee. In preparation for this event, I will co-present a seminar on “Judging The Scientific Quality Of Applied Lighting Research” together with Steven Fotios (GB) and Kevin Houser (US) at the CIE 2017 conference in Jeju.

4.1 Overview of the status of TCs and Reporterships

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

<i>Activity</i>	<i>Title</i>	<i>Chairman</i>	<i>Status</i>
JTC 4 (D3/D6)	Visual, health, and environmental benefits of windows in buildings during daylight hours	J. Wienold (D3) empty (D6)	Work progressing, will meet in Korea
JTC 6 (CIE-ISO)	Energy Performance of Lighting in Buildings	S. Moghtader	ISO 20086 DIS ballot ends 2017-Nov-09
JTC 7 (D3/D1)	Discomfort caused by glare from luminaires with a non-uniform source luminance	N. Hara (D3) Y. Akashi (D1)	Work progressing
JTC 8 (all Ds)	Terminology	P. Zwick (CIE-TM); P. Thorns for D3.	This is a standing JTC. Its current work is to reconcile the eILV with the IEC Electropedia entries for lighting.
JTC 9 (D6/D1/D2/D3)	Quantifying ocular radiation input for non-visual photoreceptor stimulation	L. Schangen (D6) N. Itoh (D1) P. Blattner (D2) H. Noguchi (D3)	Work initiated in spring 2016.
JTC 11 (ISO/CIE)	Light and Lighting – Maintenance factor – Way of working.	N. Parry	Work beginning – call for experts.
JTC xx (D4/D3)	Depreciation and Maintenance of Lighting Systems	D. Gasparovsky (D4) TBD (D3)	New, not yet started – call for experts
TC 3-44	Lighting for the elderly	Y. Akashi	Approval Draft ballot ends 2017-09-22
TC 3-53	Revision of CIE S 008 Joint ISO*CIE Standard: Lighting of Work Places - Part 1: Indoor	Y. Koga	The status of this TC will probably change during the coming year, as the new standards structure is established.
TC 3-54	Revision of CIE 16-1970: Daylight	A. Rosemann	Work progressing.
TC 3-55	Metrics for sunlighting and daylight passing through sunshading devices	M. Fontoynt	Possible closure in Korea
R 3-29	Variable transmission glazing	J. Mardaljevic	Work is progressing; report expected in 2017.

<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 in 2017.

4.2 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 3-48	CIE standard method of UF table calculation for indoor luminaires	P. Thorns	To be closed, work not completed.
TC 3-49	Decision scheme for lighting controls for tertiary lighting in buildings	P. Dehoff	Closed, work published as CIE 222:2017
R 3-32	Reporter on the CIE Stakeholder Workshop for Temporal Light Modulation Standards for Lighting	J. Veitch	Published as CIE TN008:2017

5 Other Division News

As always, we would like to see more Canadian participation in Division 3 activities and TCs. At the end of the current quadrennium in 2019, I will have been the Canadian member of Division 3 since 2003. It would not be unreasonable for someone else to take over this role at that time. Anyone with an interest in active contributions should contact me.



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Division 4: Lighting and Signaling for Transport

Report to CNC/CIE 11th Annual Meeting
NIST Oct. 3-4

André Laperrière
Email: laperriere.andre@lte.ierq.ca

1 Introduction

Date: October 26-27 2017

Venue: Ramada Plaza Jeju Hotel, Jeju, Korea

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

2 Highlights

2.1 New Technical Committees and Reporterships

No new technical committee. In Korea in October 2017, the following technical committees will meet:

TC 4-33 Discomfort Glare in Road Lighting
TC 4-50 Road Surface Characterization for Lighting Applications
TC 4-51 Optimization of Road Lighting
TC 4-52 Lighting for pedestrian : new empirical data
TC 4-53 Tunnel Lighting Evolution
TC 4-54 Road Lighting for ageing drivers

2.2 Division publications

A publication *CIE TN 007:2017 Interim Recommendation for Practical Application of the CIE System for Mesopic photometry in Outdoor* was published and is available on the CNC/CIE website. . This Technical Note has been prepared by CIE Joint technical Committee of Division 1 "Vision and Colour", Division 2 "Physical Measurement of Light and Radiation", Division 4 "Lighting and Signalling for Transport", and Division 5 "Exterior Lighting and Other Applications". For the purposes of mesopic photometry for road and street lighting for drivers, motorcyclists, cyclists and pedestrians, the adaptation field is taken as the design area. As well, the adaptation luminance is taken as the average luminance of the adaptation field.

2.3 Future meetings

Since the next meeting will be held in October, not much progress is available at that time except for TC 4-52.

3 Current Canadian participation in Division 4 activities

Activity	Title	Canadian Members
TC4-51	Optimization of Road Lighting	André Laperrière

4 Other Division News

Since the Divisions 4 and 5 will be joined. André Laperrière will step down as D4 member and wants to thank the Canadian National Committee (CNC) for the opportunity they gave him to represent our great country for the CIE.



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



Canadian National Committee Comité national canadien

Division 5: Exterior and Other Lighting Applications

Report to CNC/CIE #th Annual Meeting
Location and date

Name of Division Member
Email: email address or CNC/CIE email address

1 Introduction

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

Until the upcoming CIE Midterm meeting in Jeju Island, South Korea – October 20-27, 2107 the D5 management is:

- Division Director Peter Schwarcz
- Division Secretary Dionyz Gasparovsky
- Division Editor Warren Julian

Last Div. 5 (I could not participate) was in Melbourne, March 8, 2016 where it was discussed to merge Div. 4 and 5 into a single Division.

In the Spring of 2017, the division merging proposal was voted in favor. The new Division 4 is renamed "Transportation and Exterior Applications" while Div. 5 will close.

The new Division 4 establishes 3 Subdivisions (Each with an associate director- TBD in October 2017):

- Fundamentals in outdoor lighting
- Lighting and signaling for transport
- Exterior Applications

There will also be only one Division 4 National Committee representative.

More information can be found on the CIE website.

2 Highlights

2.1 New Technical Committees and Reporterships

A new interorganizational Joint Technical Committee on Maintenance Factor was proposed and voted in favor. This will have a dual Logo ISO - CIE Standard. Work will start after CIE Midterm when new Div. 4 will be instated.

2.2 Division publications

CIE TN 007:2017 Interim Recommendation for Practical Application of the CIE System for Mesopic Photometry in Outdoor Lighting

This Technical Note defines the method for calculating the adaptation coefficient to be used in conjunction with the equations of the mesopic photometry system defined in CIE 191:2010, which describes the recommended system for mesopic photometry and is based on visual performance. The publication is written in English and is freely downloadable from the CIE webpage.

2.3 Future meetings

Future major conferences and CIE meetings relevant to Div 5:

- Lux Europa 2017 - Ljubljana Slovenia on September 18 – 20, 2017
- CIE Midterm 2017- Jeju Island, South Korea on October 20-27, 2017

3 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
Division 5	CNC Division representative	Cristian Suvagau

4 Highlights of Division Work Programme

4.1 Overview of the status of TCs and Reporterships

Currently open standards under review:

TC 5-20 Guide for Sports Lighting (will become TC 4-56)

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

Chair: Alan Smith (UK)

TC5-21 Guide to Urban Lighting Management (will become TC 4-55)

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

Chair: Mùjgan Serefhanoglu-Sözen (TR)

TC 5-26: Guide for the Lighting of Sport Events for Colour Television and Film Systems (will become TC 4-54)

Scope: To prepare a revision of CIE 83-1989 to better relate to CIE 169:2005 and the present state of the art of HDTV.

Chair: Alan Smith (UK)

TC5-28 Guide on the Limitations of the effects of Obtrusive Light (will become TC 4-53)

The document is ready for publication.

Chair: Nigel Pollard (GB)

4.2 New TC Proposals

New suggested items (to be casted after Div 4 and 5 merger- most likely in October 2017)

- Mine Lighting
- Depreciation and maintenance of outdoor lighting systems
- Prevention guide on light pollution from dynamic and color lighting (proposal from China)
- Guide on sports lighting luminaires arrangement for energy efficient sports lighting facilities (proposal from China)

5 Other Division News

Period for DIV voting on the D4 and D5 nomination for the new Division 4 Director has been closed as of 2017-08-16

- **Dionyz Gasparovsky** received a total of 17 votes (D4: 9 & D5: 8)
- Maurice Donners received a total of 12 votes (D4: 8 & D5: 4)
- Yandan Lin received a total of 4 votes (D4: 2 & D5: 2)



Division 6 Photobiology and Photochemistry

USNC/CIE Division 6 Update

October 2017

George C. Brainard, Ph.D., USNC/CIE Division 6, Member

The USNC Division 6 Member regrets being unable to attend the 11th Biennial USNC/CIE and CNC/CIE Meeting being held in Gaithersburg, MD, October 3-4, 2017.

Recently, three international meetings have occurred related to the interests of Division 6:

Lightfair International, Philadelphia PA, May 7-11, 2017

Dr. Sliney organized and presented in a panel session titled: "Blue Light – Is There an Issue?" Drs. Brainard and Hanifin also presented in this panel which was very well attended. Additionally, there were a number of other contributions related to the effect of light and lighting on health and well-being.

DIN-Expert-Panel "Effect of light on human beings", Berlin, Germany, June 21, 2017

This was an invitation only meeting hosted by DIN. Presentations were given from Drs. Brainard, Lucas, Lockley, Wright, Cajochen, Schernhammer, Wulf, Schlangen, Roenneberg, Bisegna and Kunz.

Annual Meeting of the Society of Light Therapy and Biological Rhythms, Berlin Germany, June 22-25, 2017.

The program included a full program of presentations on light therapy for treating winter depression, ADHD, fatigue related to chemotherapy in cancer patients and numerous other topics of interest to Division 6 members. Specifically, there were two Continuing Education Sessions, three Symposia, two Oral Presentation Sessions, and a Poster Session. For details and abstract see: sltbr.org/event/sltbr-meeting-2017

Hopefully, Division 6 colleagues who are able to attend the Gaithersburg meeting will provide updates on Division 6 activities not included in this short report.

Respectfully submitted,


George C. Brainard, Ph.D.
Professor of Neurology
Thomas Jefferson University
Philadelphia, Pennsylvania



CIE DIVISION 6

REPORT FOR 2017 CIE-USA-CA

David Sliney
4 October 2017



CIE Division 6 – Photobiology & Photochemistry

Terms of Reference

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

Division 6 - Officers

- Division Director John O'Hagan
- Associate Director Karl Schulmeister
- Associate Director David Sliney
- Associate Director Shu Takeshita
- Division Secretary Luke Price
- Division Editor Eric Liggins

Current Technical Committees

- **JTC 9 (D1/D2/D3/D6): Quantifying ocular radiation input for non-visual photoreceptor stimulation**
- **JTC 5 (CIE-IEC): Review of IEC 62471/CIE S009**
- **TC 6-64: Optical Safety of Infrared Eye Trackers Applied for Extended-Duration**
- **TC 6-52: Proper Measurement of Passive UV Air Disinfection Sources**


JTC 9 (D1/D2/D3/D6): Quantifying ocular radiation input for non-visual photoreceptor stimulation

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

JTC 5 (CIE-IEC):

Review of IEC 62471/CIE S009

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



TC 6-64:

Optical Safety of Infrared Eye Trackers Applied for Extended-Duration

To review the potential optical radiation hazards from infrared eye-tracking systems when exposure durations are continuous throughout the day. Emphasis is placed upon the use of eye-tracking for gaze-based communication for severely disabled persons, which requires exposure of the eyes throughout a day over many years. Although there exist exposure guidelines from the International Commission on Non-Ionizing Radiation (ICNIRP) for infrared exposure and a CIE Standard (S-009) for photobiological safety of lamps and lamp systems, the lengths of exposure employed in this type of interface technology for disabled users may exceed the durations envisioned in the current exposure guidelines and standards. Abnormalities in the eye behaviour of severely disabled users may also require special treatment in safety standards. Chair: David H. Sliney (US)

TC 6-52: Proper Measurement of Passive UV Air Disinfection Sources

To specify the biologically meaningful measurement distances and positions in installations of UV germicidal lamps for open, upper-air disinfection. Physical aspects of the measurement will be coordinated with CIE Division 2. Chair: Richard L. Vincent (US)

Other Activities of Division 6

- Some Reporterships,
 - e.g., “Measurement of Photobiological effective exposures in the workplace.”
- Prof. Bud Brainard, David Sliney and others participated in the Society for Light Treatment and Biological Rhythms in Berlin in June 2017

Report on Division 8 Activities

Max Derhak

CIE-USNC Division 8 representative

Division 8 Meeting

6:00 pm – 8:00 pm

September 13, 2017

Inga room, Scandic Lillehammer Hotel, Norway

&

WebEx



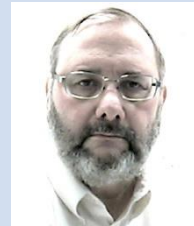
<https://cie.webex.com/cie/j.php?MTID=m0e430c3580aed0e33860d636f3170bad>

(in conjunction with CIC25)

Scope of Division 8

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

Officers

Role	Officer	
Division Director	Po-Chieh Hung (JPUS)	
Division Secretary	Christine Fernandez-Maloigne (FR)	
Division Editor	Danny Rich (US)	

Activity Since 2016 San Diego Mtg.

TC/DR /RF	Title	Chair(s)	Action	Result (time/org)
R8-13	Common Colour Appearance	Craig Revie (GB)	Report submitted	Approved (Nov '16 / Div)
TC8-16	Consistency of Colour Appearance within a single reproduction Medium	Craig Revie (GB) and Yasuki Yamauchi (JP)	New TC proposed	Approved (Feb '17 / BA)
TC 8-17	Methods for Evaluating Colour Difference between 3D Colour Objects	Kaida Xiao (GB)	New TC proposed	Approved (Feb '17 / BA)
JTC 10(D1/D8)	A Color Appearance Model for Color Management Systems: CIECAM16	Changjun Li (CN/D8), Ronnier Luo (GB/D1)	New TC proposed	Approved (Feb '17 / BA)
TC 8-07	Multispectral Imaging	Masahiro Yamaguchi (JP)	Technical Report CIE 223:2017 Multispectral Image Formats	Published (Feb '17) TC closed* (*automatically)
RF	Multispectral Imaging	Masahiro Yamaguchi (JP)	Research Forum proposed	Approved (Sep '17 / Div)
R8-17	Literature Survey on Uniform Colour Space for Imaging Applications including Wide Colour Gamut and High Dynamic Range Images	Youn Jin Kim (KR)	Reportership proposed	Approved (Aug '17 / Div)

Current Technical Committees

TC	Name	Status
TC8-12	Image and Video Compression Assessment	WD at DE
TC8-13	Colour Gamuts for Output Media	Active
TC8-14	Specification of Spatio-Chromatic Complexity	Active
TC8-15	Archival Colour Imaging	Active
TC8-16	Consistency of Colour Appearance within a single reproduction Medium	Active
TC8-17	Methods for Evaluating Colour Difference between 3D Colour Objects	Active
JTC 10 (D1/D8)	A new colour appearance model for colour management systems: CIECAM16	Active

Current Reportership

R#	Title and Reporter	Status
R8-14	Office Lighting for Image - Yasuki Yamauchi (JP)	Active
R8-15	A survey on Quality Metrics on Stereoscopic Imaging - Christine Fernandez-Maloigne (FR), Jesus Jaime Moreno (MX), Alessandro Rizzi (IT)	WD at DE, to be closed
R8-16	Material Adjustment Transforms - Max Derhak (US)	Active
R8-17	Literature Survey on Uniform Colour Space for Imaging Applications including Wide Colour Gamut and High Dynamic Range Images - Youn Jin Kim (KR)	Active

Technical Committee Report

Technical Committee

TC#	Title	TC chair	Year	Remarks
TC8-07	Multispectral Imaging	Masahiro Yamaguchi (JP)	2004	Closed (start RF)
TC8-12	Image and Video Compression Assessment	Pascal Bourdon (FR)	2007	
TC8-13	Colour Gamuts for Output Media	Kiran Deshpande (GB)	2013	
TC8-14	Specification of Spatio-Chromatic Complexity	Noël Richard (FR)	2015	
TC 8-15	Archival Colour Imaging	Melitte Buchman (US)	2015	
TC 8-16	Consistency of colour appearance within a single reproduction medium	Craig Revie (UK) Yasuki Yamauchi (JP)	2017	New
TC 8-17	Methods for Evaluating Colour Difference between 3D Colour Objects	Kaida Xiao (GB)	2017	New
JTC 10	A new colour appearance model for colour management systems: CIECAM16	Changjun Li (CN)	2017	New

TC8-07 Multispectral Imaging

Year established and closed: 2004-2017

Chair: Masahiro Yamaguchi (JP)

Terms of Reference:

To study, develop and recommend encoding techniques and data formats for the exchange of multispectral images, and to provide test procedures for the evaluation of multispectral imaging systems.

Members: 16

Current status: TR published and TC closed

TC8-07 Multispectral Imaging

Output

Publication of TR

CIE 223:2017 “Multispectral Image Formats”

ISBN 978-3-902842-10-7, (February 2017)

Supplement

- Related data (software, sample images) and links are provided in the web site: <http://www.multispectral.org/>

Notice of Research Forum

Spectral Imaging

Scope:

Discuss the future prospect of multispectral and hyperspectral imaging technology and identify the work items to be performed in the next step.

Leader: Masahiro Yamaguchi (JP)

of Members: 17 (as of June 22, 2017)

TC8-12 Image and Video Compression Assessment

Year Established: 2007

Chair: Pascal Bourdon (FR)

Terms of Reference:

To establish and report on the display and viewing conditions and materials for image and video compression quality evaluation in different applications including, but not limited to, web, mobile phones, HDTV, home cinema and digital cinema.

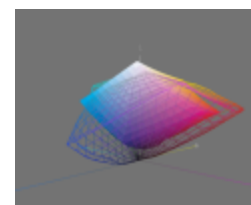
TC8-13 Colour Gamuts for Output Media

Year Established: 2013

Chair: Kiran Deshpande (GB)

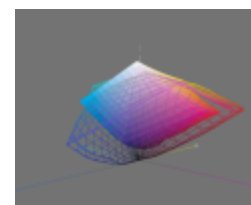
Terms of Reference:

To study and recommend methods for computing and communicating colour gamuts for output colour reproduction media.



Work Plan – Next Actions

- Alignment with ISO 18621-11 and iccMAX
- Finish evaluation of different methods using several data sets
- Agree on the encoding & communication of GBD
- WD approval process



TC8-14 Specification of Spatio-Chromatic Complexity

Year established: 2015

Chair: Noël RICHARD (FR)

Terms of Reference:

To produce a **state-of-the-art** report on the existing definitions of the complexity notation related to the aspects of non-uniform surfaces, generally defined as textured.

To combine these definitions in order **to produce a single definition** embedding both spatial and chromatic variations in a generic and vector form.

Members: **Richard Noël**, Dominique Lafon, Christine Fernandez-Maloigne (FR), **Mihai Ivanovici** (RO), Davide Gadia, Alessandro Rizzi (IT), Kinjiro Amano, Kaida Xiao (GB), Jon Hardeberg (NO), Masayuki Tanaka (JP), Manuel Mengoza (ES), Ghorbel Faouzi (TU)

Meetings: Pragues September 2016, Hammamet May 2018

Current status and work plan: Active

Outline for the Technical Report

1. **Multi-disciplinary state-of-the-art** of the complexity notion for colored and textured surfaces
2. Spatio-Chromatic Complexity **definition and bibliographic references**
3. **Reference** surfaces for SCC management
 1. Theoretical models for digital image generation with fixed SCC
 2. Existing texture ordered by their SCC,
link to real applications of texture management.
4. **Measuring or assessing** the SCC
 1. Physical measurements of complex surfaces
 2. Psycho-physical experiments on complex surfaces
 3. Digital evaluation of complex surfaces
 4. Results comparison
5. Applications and impact in use cases
6. Conclusion and next trends :
relationship between SCC and metrological texture assessment.

TC8-15 Archival Colour Imaging

Year Established: 2015

Chair: Melitte Buchman (USA)

Terms of Reference:

To recommend a set of techniques for the accurate capture, encoding and long-term preservation of colour descriptions of digital images that are either born digital or the result of digitizing 2D static physical objects including documents, maps, photographic materials and paintings.

Current Status and work plan

Goal: Our Output will be a Technical Report

Work plan:

- First working draft will be circulated Spring 2018. Iterate as needed. Prepare final WD.
- Issue WD ballot.
- WD ballot closes, address comments, finalize ED.
- Begin Division Enquiry, address comments, prepare AD.
- Issue AD ballot. Prepare final publication.
- Issue technical report.

TC8-16 Consistency of colour appearance within a single reproduction medium

Year established: 2017 (2nd March)

Co-Chairs: Craig Revie (UK) & Yasuki Yamauchi (JP)

Terms of Reference:

To study and report on sets of reproductions of the same source image that have a consistent colour appearance and are most similar to a reference reproduction, including recommending assessment methods that measure the similarity of reproductions of an image with different colour gamuts, for printed images on substrates with approximately similar characteristics in a fixed viewing environment.

Only the effect of colour reproduction on appearance will be considered by this TC and so the assessment will be performed using hard copy or soft copy proofing.

To propose a metric which can measure consistency of colour appearance.

TC8-16 Consistency of colour appearance within a single reproduction medium

Meetings:

6-Jul-2017	CIE TC 8-16 Inaugural Meeting
9-Aug-2017	CIE TC8-16 second teleconference
11-Sep-2017	CIE TC8-16 face-to-face meeting in Lillehammer

Planned research projects:

Fogra	Philipp Troester, Andreas Kraushaar
NTNU	Greg High, Peter Nussbaum, Phil Green
Yamagata University	Yasuki Yamauchi
RIT	Elena Fedorovskaya, Robert Chung, David Hunter, Pierre Urbain

Details of all meetings including presentations and recordings are available in the CIE COLLTOOL area

TC8-17 Methods for Evaluating Colour Difference between 3D Colour Objects

Year established: 2017

Chair: Kaida Xiao (GB)

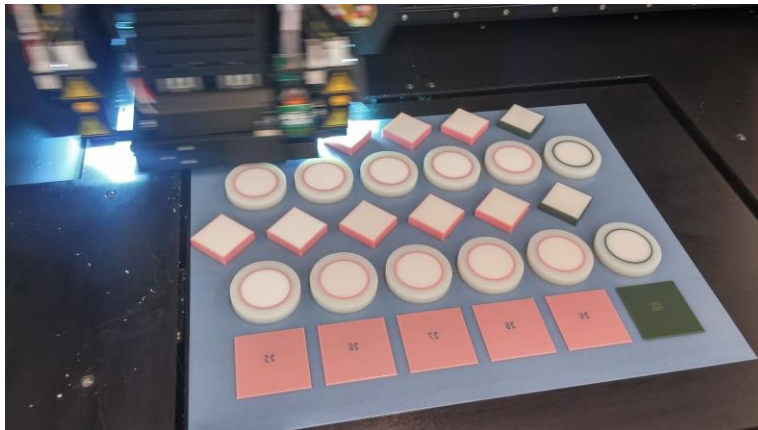
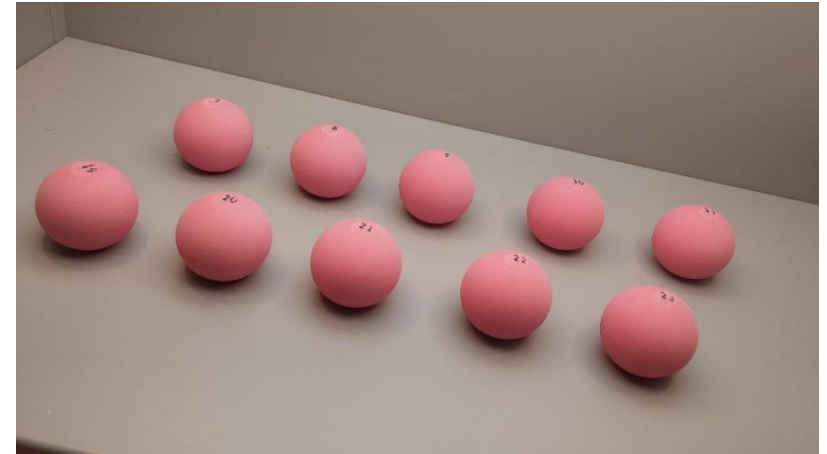
Terms of Reference:

To study the subjective assessment methods and recommend a dataset for colour difference evaluation of pairs of 3D colour objects. To prepare a report on the investigations of the effects on the perception of colour difference that may be caused by differences of 3D shape, gloss and material.

Current Status

3D samples preparation:

- **Cube, sphere, card**
- **Unique hue colours**
- **4 colour centers**
- **7 colour perturbations**



3D samples printing:

- **Stratasys J750 (in progress)**
- **3D systems ProJet 860 (in preparation)**
- **Mcor IRIS HD (in preparation)**

Work plan

- **3D samples printing is conducting using different 3D printing systems and materials (1-12 months)**
- **Experiment to evaluate those 3D objects will be designed and preliminary experiment will be conducted (13-18 months)**
- **Main experiment (19-36 months)**
- **Data analysis (37-42 months)**
- **TC Report (43-48 months)**

JTC 10 A new colour appearance model for colour management systems: CIECAM16

Year Established: 2017

Co-Chairs: Changjun Li (CN,D8) Ming Ronnier Luo (GB, D1)

Terms of Reference:

To recommend a new colour appearance model, CIECAM16, to replace the CIECAM02 model for colour management systems.

(JTC 10: Current Status)

- CIECAM02 has been reported to have some problems and various modifications to the model have been proposed to overcome them.
- All the modifications are either complicated or at the expense of a loss of accuracy in predicting the corresponding colour and colour appearance datasets.
- Recent work by Li *et al.** has resulted in a new CAM named as CAM16/CAT16/CAM16-UCS.
- This model overcomes the previous problems and has accuracy as good as CIECAM02 in predicting the visual data.
- Furthermore, the associated CAT16 and CAM16-UCS are better than CAT02 and CAM02-UCS respectively.
- Currently, research work to further evaluate the hyperbolic function and the range of CAM16 (or the domain of the inverse CAM16) are underway.
- JTC10 was set up in early 2017 to further evaluate CAM16, to make any necessary modifications, and to recommend the model as CIECAM16 to replace the original CIECAM02.

*CRA ,10 JUN 2017 | DOI: 10.1002/col.22131

(JTC 10: Work Plan)

1. The first draft of a TR will be finished by the end of September 2017, and will be distributed to all members.
2. The JTC will meet in October 2017 during the CIE meeting in Jeju Island, Korea. The draft TR will be discussed in the meeting and via email.
3. The final draft TR will be completed by the end of 2018.
4. The aim is to complete the TR publication process and close the JTC by the end of 2019, if not earlier.

Reporterships

DR#	Title	Reporter	Year	Remarks
R8-13	Common colour appearance	Craig Revie (UK)	2014	Closed and escalated to TC
R8-14	Office Lighting for Imaging	Yasuki Yamauchi (JP)	2015	TC8-10 follow up
R8-15	A survey on Quality Metrics on Stereoscopic Imaging	Christine Fernandez-Maloigne (FR) Jesus Jaime Moreno (MX) Alessandro Rizzi (IT)	2015	
R8-16	Material Adjustment Transforms	Max Derhak (US)	2016	
R8-17	Literature Survey on Uniform Colour Space for Imaging Applications including Wide Colour Gamut and High Dynamic Range Images	Youn Jin Kim (KR)	2017	New

R8-14 Office Lighting for Imaging

Year Established: 2015

Reporter: Yasuki Yamauchi (JP)

Terms of Reference:

To publish a Technical Note on the spectral power distribution and illumination levels used to view images in office lighting conditions, collected through the activity of TC8-10.

Current status and work plan:

The draft of a Technical Note is under preparation.

The draft has been completed almost 90%. After checking, the circulation of the draft will be proceeded soon.

I would like to circulate it to former members and among Div. simultaneously.

Technical Note Index

1. Background and purpose
2. Methods
 1. Reference Light Source
 2. Procedures
3. Participants
4. Results (Reference site)
5. Examples
6. Summary

References

Appendix

A-1. Guideline

R8-15 A survey on Quality Metrics on Stereoscopic Imaging

Year Established: 2015

Reporter: Christine Fernandez-Maloigne (FR)
Jesus Jaime Moreno (MX)
Alessandro Rizzi (IT)

Terms of Reference:

To publish a Technical Note to describe the state of the art of the Stereoscopic Image Quality Assessments (SIQA), and psychophysical experiments to evaluate the Metrics on Stereoscopic Imaging

Current status : to be published

R8-16 Material Adjustment Transforms

Year Established: 2016

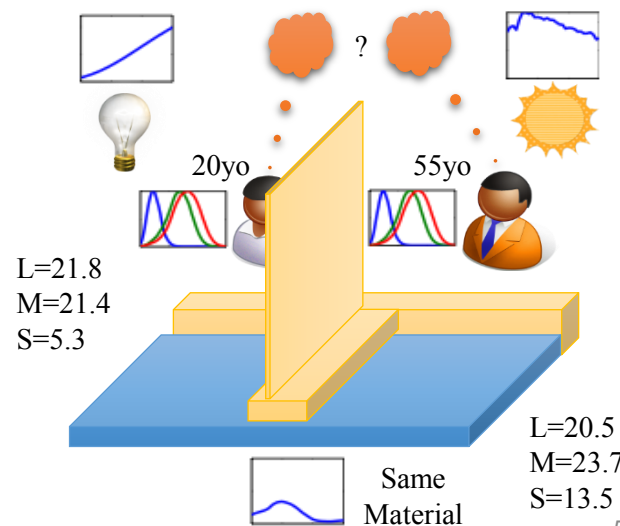
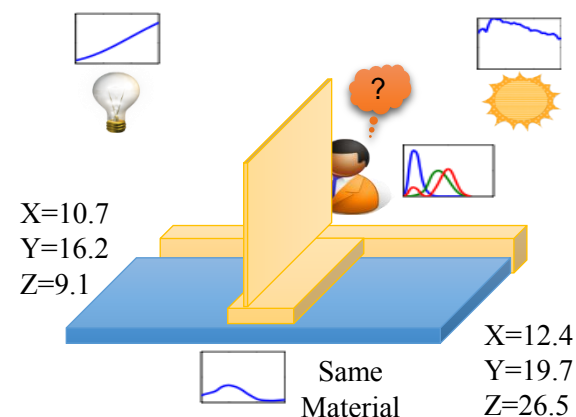
Reporter: Max Derhak (US)

Terms of Reference:

To study the topic of adjusting tristimulus values of material (object) colors to predict how they change due to differences in both lighting spectral power distribution and observer functions with the purpose of recommending one or more approaches that can be used in advance color management systems.

Material Adjustment Transform

- A Material Adjustment Transform (MAT) predicts for the same material the sensor excitations in one observing-condition based on sensor excitations in another observing-condition
- Based on transformation of sensor excitations for a reference set of materials
- Can be used to predict differences in either observer or illuminant (or both)
- Can work with either color matching functions or cone fundamentals / sensor functions



Creating Material Adjustment Transforms

- A Chromatic Adaptation Transform (CAT) is typically formed using sensor white balancing in conjunction with a sensor sharpening transform optimized to predict corresponding color experiments
- A Material Adjustment Transform (MAT) can be formed using optimization techniques with sensor excitations for a set of reference reflectances either:
 - By directly converting sensor excitations between two different observing-conditions
 - Requires optimization for every observing-condition combination
 - By creating observing-condition specific normalization transforms that convert sensor excitations to a reference color equivalency representation
 - MAT formed by combining normalization transform of starting observing-condition with inverse normalization transform of target observing-condition

$$\mathbf{M} = (\mathbf{A}_t)^{-1} \mathbf{A}_s$$

R8-16 Next Steps...

- Write R8-16 document
- Looking for individuals to collaborate with
- Work towards standard that can be referenced by other standards

R8-17 Literature Survey on Uniform Colour Space for Imaging Applications including Wide Colour Gamut and High Dynamic Range Images

Year Established: 2017

Reporter: Dr. Youn Jin Kim (KR)

Terms of Reference:

To survey the literature on modern uniform colour spaces for Wide Colour Gamut and High Dynamic Range imaging applications, including picture quality evaluation and image compression, and to publish it as Technical Note. The report will identify trends in the technology and make recommendations for one or more technical committees or joint technical committees with Division 1

Color Appearance Activity in Conjunction with ICC

■ Aim

- Measurement appearance properties for color reproduction

■ High interest within ICC

- Some support already provided by iccMAX
 - Spectral viewing conditions, BRDF data, ...
 - Flexible color transforms, appearance modeling, ...

■ Ideas:

- Adoption of one or more CAM's in iccMAX
- Implementation of a seamless workflow to communicate colour appearance using ICC profiles
- Demonstration of a workflow that supports parameterization of viewing conditions as environment variables
- ICS documents for the above

■ Held Informal meeting Sept. 14 during CIC

Note: Possible framework

- Using liaison (Weakest connection)
- Working with JTC 10 (CIECAM16)
- Establishing Reportership
- Establishing Research Forum (for wider participants)

Proposed Research Forum in CIE Division 8

- **Scope**

- To provide the recent knowledge of CIE Division 8 activities, such as Technical Committees and Reporterships, to ICC in consideration that the information will be used to create recommendations of the best practice for implementing colour appearance transforms and relevant knowledge into colour management applications based on iccMAX.

- **Participation**

- CIE D8 TC Chairs and Reporters; interested members of CIE D1 and D8; ICC members; other experts with an interest in colour appearance for colour management applications.

- **Coordination**

- Po-Chieh Hung

Proposed Colour appearance activity in ICC

- **Scope**

- 1. Create and disseminate best practice recommendations for implementing appearance transforms in colour management applications, based on input from CIE D8 Research Forum
- 2. Develop publicly-available tools such as templates, source code, example profiles, and test data.
- 3. Document the implementation of practical applications in iccMAX, including:
 - a) One or more CAM's
 - b) A seamless workflow to communicate colour appearance using ICC profiles
 - c) A workflow that supports parameterization of viewing conditions as environment variables
 - d) Interoperability Conformance Specifications for the above

- **Participation**

- ICC members; all experts with an interest in colour appearance for colour management applications.

- **Coordination**

- TBC

Thank you!