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

Canadian National Committee Comité National Canadien

CNC/CIE Annual Report 2004

Minutes of 49th Annual Meeting
2004-October-29

and

Division Members' Reports

and

Presentation to Joint CNC/CIE–IESNA group
S.M. McFadden

NRC·CNRC

Institute for National Measurement Standards • Institut des étalons nationaux de mesure • Ottawa, Canada, K1A 0R6, Fax (613) 952-1394

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

Canadian National Committee Comité National Canadien

MINUTES OF THE 49TH ANNUAL CNC/CIE MEETING

2004-October-29

The 49th annual meeting of the Canadian National Committee of the Commission Internationale de l'Éclairage (CNC/CIE) was held on Friday, October 29, 2004 in the Lighting Concept Centre—Canlyte Inc., Suite 300, 160 Pears Avenue, Toronto, Ontario M5R!3P8.

A joint luncheon hosted by the CNC/CIE was held with the Toronto Section of IESNA. During this luncheon S.M.!McFadden presented a seminar entitled *Current Work in the CIE: Report on a Symposium on LED Light Sources and Development of Performance Based Mesopic Photometry*. A copy of this presentation in attached to these Minutes.

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

CIE	Commission Internationale de l'Éclairage
CNC/CIE	Canadian National Committee of the CIE
CIE/USA	US National Committee of the CIE
CIE-BA	CIE Board of Administration
CIE-CB	CIE Central Bureau
NC	CIE National Committee
TC	CIE Technical Committee
CIE-DD	CIE Division Director
NRC-INMS	Institute for National Measurement Standards at the National Research Council of Canada
NRC-IRC	Institute for Research in Construction at the National Research Council of Canada
NRC-IRO	International Relations Office at the National Research Council of Canada
DRDC	Defence Research and Development Canada
IESNA	Illuminating Engineering Society of North America
M/AM	Members/Advisory Members

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

The 49th annual meeting of the Canadian National Committee of the Commission Internationale de l'Éclairage (CNC/CIE) was called to order at 9:00 on Friday, October 29, 2004 by J.A.!Love, President.

Nineteen Members and Advisory Members, and one guest, were in attendance. The list of all attendees is given in Appendix!A. At the request of the President, attendees introduced themselves.

The President thanked Canlyte Inc. and their staff for hosting this meeting and for their work in all the preparations for the meeting. The logistics for the joint luncheon with the Toronto Section of IESNA were then discussed.

The agenda as circulated by email (Appendix!B) was accepted.

2. Minutes of the 48th CNC/CIE Annual Meeting:

The secretary indicated that a hard copy of the Minutes of the 48th Annual Meeting had been mailed to all Members and Advisory Members. It was moved by R.A.!Smith, seconded by S.M.!McFadden, that the Minutes be accepted as distributed. Passed.

The action items from the 48th Annual Meeting (Appendix!C) were considered. With respect to Action Item 1 (AI-1), S.M.!McFadden indicated that she would send material to M.K.!Timmings, who would forward this information to the relevant IESNA groups. S.M.!McFadden stated that information concerning AI-2 would be in her report in Minutes Item 8 below. AI-3 has not been done. Concerning AI-4, S.M.!McFadden indicated that she had contacted the CIE-CB, and that they had indicated that they would consider buying back some of the CNC/CIE stock of CIE publications at a future date after the CNC/CIE has tried to sell as many items as possible. AI-5 has been completed. AI-6 and AI-7 will be reported on in Minutes Item 8 below. AI-8 to AI-12 have been completed. AI-13 and AI-14 can be discussed under Minutes Item 11 below. Re AI-15, A.R.!Robertson described the changes and additions (e.g. citizenship, duties of Members and Advisory Members, quorum) that he had incorporated into the latest draft of the CNC/CIE Code of Procedure. This draft (2004-10-26) had been emailed to all Members and Advisory Members prior to this meeting and is attached in Appendix!D. A.R.!Robertson will make any final changes required and the final draft will be mailed to all Members under the 2-month Letter Ballot for voting. AI-16 has been done.

It was suggested, as an Action Item for this coming year, that the Secretary send a copy of our General Interest mailing list to our present Members and Advisory Members to enable them to suggest additions to this list.

3. President's Report:

J.A.!Love presented his report, which is attached as Appendix!E.

4. Secretary's Report:

A.A. Gaertner presented his report, which is attached as Appendix!F. He briefly discussed each item in the report. It was moved by J.A.!Veitch, seconded by S.M.!McFadden, that the report be accepted. Passed. Discussion followed concerning the NRC-IRO assessment of the CNC/CIE. J.A.!Love stated that he would follow-up on the request by CISET that "*With respect specifically to the CNC/CIE, CISET members indicated that they would like to see the proposed action plan of the CNC broken down into clear objectives and actions*". It was suggested that the Code of Procedure could reflect some of NRC-IRO-CISET requirements, such as responsibilities to report on CIE symposia and our efforts to increase the number of younger members. It was also pointed out that for the approximately $10K which NRC-IRO invests in the CNC/CIE fees to the CIE, we have nearly 70 Technical Committee activities, which is very good!

5. Financial and Publications Report:

K.F.!Lin presented his report (Appendix G), noting that there are two parts to the report: the CIE Publication Stock List, and the CIE Publication – Canada Financial Report. He briefly discussed the Financial Report and noted that we have approximately $20K face value in our stock of CIE publications. It was moved by S.M.!McFadden, seconded by J.A.!Veitch, that these reports be accepted. Passed. A brief discussion followed concerning the use of the funds we have available in

the bank account. Suggestions included establishing a CNC/CIE website and establishing a scholarship for young scientists.

6. Reports from Division Members:

Note: The reports received from the Division Members are attached at the end of the Minutes, after all the Appendices.

DIVISION 1 Vision and Colour S.M. McFadden

S.M.!McFadden presented her report, highlighting the Canadian participation in Division 1. She formally requested CNC/CIE support (volunteers, etc.) for the CIE Division 1 meetings and a CIE Expert Symposium to be held in Canada in 2006. These meetings are to be held in conjunction with meetings of the Inter-Society Colour Council (ISCC). The president of the ISCC, J.C.!Zwinkels, explained some of the ISCC resources that would be available at this time.

W.K.!Adrian noted that he had completed a report for TC1-51 when he was the TC chair and wondered why that report was not brought forward. S.M.!McFadden recommended that he contact F.!Viénot, the CIE Division 1 Associate Director.

DIVISION 2 Physical Measurement of Light and Radiation J.C. Zwinkels

J.C.!Zwinkels presented her report and discussed the main items, noting the items with Canadian participation.

DIVISION 3 Interior Environment and Lighting Design I.C. Pasini

I.C. Pasini has resigned as Canadian CIE Division 3 Member and was unable to attend this meeting. He had made available copies of the CIE Division 3 meeting in Dublin on 2004-March-31. J.A.!Veitch had attended that meeting and was able to introduce the meeting minutes, pointing out some of the TCs with Canadian activity.

DIVISION 4 Lighting and Signalling for Transport J.!Bastianpillai

J.!Bastianpillai was unable to attend this meeting. He had submitted a report that A.D.!Silbiger presented on his behalf. E.!Wotton requested a copy of the TC4-41 toolkit "How to Evaluate the Impact of Street Lighting on Crime and Fear of Crime". J.A.!Love stated that he would obtain K.!Painter's email and forward it to E.!Wotton.

W.K.!Adrian asked whether anyone would be able to present a paper for him at the León meeting in May 2005. It was suggested that perhaps one of his former colleagues, Ron Gibbons, might be considered.

------ The meeting broke for lunch (11:25-14:10) ------

A joint luncheon hosted by the CNC/CIE was held with the Toronto Section of IESNA. During this luncheon S.M.!McFadden presented a seminar entitled *Current Work in the CIE: Report on a Symposium on LED Light Sources and Development of Performance Based Mesopic Photometry*. A copy of this presentation in attached to these Minutes.

DIVISION 5 Exterior and Other Lighting Applications M.K.!Timmings

M.K.!Timmings presented a verbal report. He indicated that he was looking for evaluators for a draft standard on emergency lighting. He has not received any reports from the CIE Division 5.

S.M.!McFadden made available a CIE Division 5 Activity Report (July 2004) that she received at a CIE-BA meeting.

DIVISION 6 Photobiology and Photochemistry J.D.Y. Deslauriers

J.D.Y.!Deslauriers was unable to attend this meeting, but he had submitted a report, which was distributed to the members for their information. J.A.!Veitch presented his report as she had attended the CIE Division 6 meetings in Vienna. She noted that present Division 6 activities are predominantly photobiological and that more CIE involvement in photochemical activities would be beneficial. She also suggested better Division 3 and Division 6 liaison, especially in TC6-57 and Museum Lighting.

J.A.!Veitch reported on the CIE Expert Symposium on *Light and Health: the Non-Visual Effects*, which she attended in Vienna from 30 September to 02 October 2004. The attendance at this symposium was very high—more than 100 attendees. Two Canadians attended, and both presented papers:

Dr. Marie Dumont, "Exposure to the light-dark cycle in day and night workers"
Dr. Jennifer Veitch, "Photometric Issues in Healthy Lighting Research and Application"

J.A.!Veitch was invited (and accepted) to join the organizing committee for the 2nd CIE Expert Symposium on Light and Health, which is expected to be held in early 2006.

DIVISION 8 Image Technology R. Baribeau

R. Baribeau presented his report, pointing out the various TCs and Reporterships. He noted that the division had held no meetings during this past year.

It was moved by R.A.!Smith, seconded by A.R.!Robertson, that the Division Members' reports be accepted. Passed.

7. Requests for Financial Support:

J.A.!Love proposed that the CNC/CIE cover the costs of the luncheon today, to which we had invited the Toronto Section of the IESNA. It was moved by M.K.!Timmings, seconded by R.A.!Smith, that the CNC/CIE cover the cost of the luncheon today. It was pointed out that this was not the correct CNC/CIE procedure for obtaining CNC/CIE reimbursement of expenses. J.A.!Love stated that he would submit the required CNC/CIE forms for covering the cost of the luncheon.

8. Report on CIE Board of Administration meetings:

S.M.!McFadden presented her report, which is attached as Appendix H. She pointed out that the CIE BA is composed of the CIE Executive and the CIE Division Directors, and meets annually. She noted that the CNC/CIE may need a member to monitor some of the issues raised in her report, such as education in lighting. The new awards will probably be given in the next CIE quadrennium.

She introduced the CIE BA recommended slate of officers for the 2007-2011 quadrennium. This information (NCCL 0412 from the CIE-CB) had been distributed to the CNC/CIE before this meeting as part of the proposed agenda for this meeting (Appendix B). After discussion, there were no new proposals from the CNC/CIE.

9. CIE Midterm Session (León, Spain 2005 May) issues:

The primary discussion concerned the nomination of the official CNC/CIE representation to the CIE General Assembly meeting to be held in León, Spain on 2005-May-14. It was moved by S.M.!McFadden, seconded by J.A.!Veitch, that the CNC/CIE nominate J.A.!Love as CNC/CIE GA-member, J.C.!Zwinkels as Appointed alternate with voting right, and M.K.!Timmings as Non-voting advisor. Passed. These nominations are now to be forwarded by the Secretary to NRC-IRO for approval and authorization.

10. CIE 2006 meetings of Division 1 and 8 in Canada:

J.C.!Zwinkels, President of the ISCC, introduced the ISCC, noting that they have approximately 700 members and 18 member bodies. The ISCC will celebrate its 75th anniversary in 2006 and has approved holding their annual meeting in conjunction with the CIE Division 1 meetings and a CIE Expert Symposium in Canada.

J.C.!Zwinkels noted the urgency of starting the CNC/CIE – ISCC coordination as soon as possible. She requested assistance with the specific tasks required, such as publicity and budgets. R.A.!Smith indicated that he is willing to help.

11. Nominations and Appointments (CNC/CIE):

The Secretary distributed a list of the current CNC/CIE Members and Advisory Members (Appendix!I).

11.1 Division Members:

I.C.!Pasini has submitted his resignation as the Canadian Member for CIE Division 3. J.A.!Love stated that J.A.!Veitch was willing to serve in this position. He called for any other nominations from the floor. There were none. Therefore J.A.!Veitch is appointed as the Canadian Member for CIE Division 3. The Secretary is to notify the CIE-CB and CIE Division 3 Director about this new appointment.

11.2 Members and Advisory Members:

11.2.1 CNC/CIE Members:

Since J.A.!Veitch is not currently a CNC/CIE Member, it was moved by M.K.!Timmings, seconded by A.R.!Robertson, that the CNC/CIE recommend to the DG of the NRC-INMS that J.A.!Veitch be appointed as a CNC/CIE Member. Passed.

The President noted that the terms of two of the CNC/CIE Members will expire this year at the end of December: K.F.!Lin and L.A.!Whitehead. Both have indicated that they are willing to continue as CNC/CIE Members. It was moved by S.M.!McFadden, seconded by M.K.!Timmings, that the CNC/CIE recommend to the DG of the NRC-INMS that K.F.!Lin be reappointed as a CNC/CIE Member. Passed. It was moved by J.A.!Veitch, seconded by K.F.!Lin, that the CNC/CIE recommend to the DG of the NRC-INMS that L.A.!Whitehead be reappointed as a CNC/CIE Member. Passed.

The Secretary is to forward these three nominations to the Director General of INMS for final approval and appointment.

11.2.2 CNC/CIE Advisory Members:

The Secretary presented the names of three Canadians who had been recommended by several CNC/CIE Members/Advisory Members. He had contacted them and they had expressed an interest in becoming CNC/CIE Advisory Members (see the Secretary's Report, Appendix F).

It was moved by J.A.!Veitch, seconded by J.C.!Zwinkels, that Chantal Arsenault be appointed to CNC/CIE Advisory Membership. Passed.
It was moved by S.M.!McFadden, seconded by J.A.!Veitch, that Igor Peshko be appointed to CNC/CIE Advisory Membership. Passed.
It was moved by S.M.!McFadden, seconded by J.C.!Zwinkels, that Venkat Venkataramanan be appointed to CNC/CIE Advisory Membership. Passed.

It was noted that some TC members such as P.!Gabriel were not listed in CNC/CIE Advisory Membership, and that some Advisory Members had retired and were no longer active in the field of lighting. It was recommended that the Secretary move R.V.!Day to the General Interest list. Several other items such as residency requirements are to be addressed after a new CNC/CIE Code of Procedure is adopted.

It was moved by A.R.!Robertson, seconded by J.A.!Chrysler, that the default communication by the CNC/CIE be electronic, while any member who wished hardcopy will be accommodated. Passed.

12. Other Business:

12.1 Correspondence:

There was none to report.

12.2 Date and Place of next Year's Meeting:

The President noted that next year's meeting would probably be a joint meeting hosted by the CIE/USA. He pointed out that these joint meetings usually include a one-day technical conference and asked for a volunteer to serve on the technical committee for the conference. R.A.!Smith indicated that he would coordinate with the CIE/USA in this regard.

It was pointed out that the next annual meeting would be the 50th annual meeting of the CNC/CIE. Discussion followed concerning possible special events to mark the occasion, and two committees were set up to work on two possibilities:

12.2.1 CNC/CIE website: J.A.!Veitch, R.A.!Smith, J.A.!Love and V.!Venkataramanan were appointed to consider the establishment of a CNC/CIE website.

12.2.2 Young Scientist: J.A.!Love (chair), R.A.!Smith, J.C.!Zwinkels and J.A.!Chrysler were appointed to consider the possibility that the CNC/CIE could support a young scientist (Masters or Ph.D. degree) to present a paper at the CNC/CIE-CIE/USA joint meetings. It was suggested that a competition for this funding could be set up.

12.3 Other Business:

E.!Wotton asked why the IESNA publication LD+A carried no news about the CNC/CIE. J.A.!Love volunteered to look into this.

E.!Wotton stated that a report on the CIE Expert Symposium on *Light and Health: the Non-Visual Effects*, should be placed in medical journals—that information about lighting should be carried in medical journals.

A.J.!Silbiger pointed out that the CSA no longer has funding for work on the CSA Standard C-653 *Performance Standard for Roadway Lighting Luminaires*, and he asked whether anyone would be able to support this work. He indicated that he would prepare a request that he would send to the Secretary to send to the CNC/CIE email list.

13. Adjournment

At approximately 16:55, it was moved by J.A.!Veitch, seconded by J.A.!Chrysler, that the meeting be adjourned.

A.A. Gaertner
Secretary, CNC/CIE
Institute for National Measurement Standards
National Research Council of Canada
Ottawa, Ontario K1A 0R6

Tel: (613) 993-9344
Fax: (613) 952-1394
Email: arnold.gaertner@nrc-cnrc.gc.ca

2005-October-24

CNC/CIE 49th Annual Meeting

2004-October-29

Action Items

Action Item Number (AI#)	49th Minutes Item Number	Responsible	Action
1	2	A.A.!Gaertner	send General Interest list to M/AM for additions
2	4	J.A.!Love	for CISET, clarify the CNC/CIE action plan
3	6	J.A.!Love	obtain K.!Painter's email for E.!Wotton
4	7	J.A.!Love	submit CNC/CIE forms for luncheon reimbursement
5	9	A.A.!Gaertner	forward GA nominations to NRC-IRO for authorisation
6	10	J.C.!Zwinkels, S.M.!McFadden	coordinate CIE – ISCC meetings in Canada 2006
7	11.1	A.A.!Gaertner	inform CIE-CB, CIE-DD re new Cdn Div 3 Member
8	11.2.1	A.A.!Gaertner	forward recommendations re 3 CNC/CIE Members to NRC-INMS-DG
9	11.2.2	A.A.!Gaertner	welcome 3 new Advisory Members
10	12.2	R.A.!Smith	coordinate technical session with CIE/USA
11	12.2.1	J.A.!Veitch, R.A.!Smith, J.A.!Love, V.!Venkataramanan	consider CNC/CIE website
12	12.2.2	J.A.!Love (chair), R.A.!Smith, J.C.!Zwinkels, J.A.!Chrysler	consider CNC/CIE support of young scientist
13	12.3	J.A.!Love	look into CNC/CIE info in LD+A
14	12.3	A.J.!Silbiger, A.A.!Gaertner	send request for CSA C-653 funding

LIST OF APPENDICES

APPENDIX A: Attendees to the 49th CNC/CIE Annual Meeting 2004-October-29
APPENDIX B: Agenda for the 49th CNC/CIE Annual Meeting 2004-October-29
APPENDIX C: Action Items from the 48th CNC/CIE Annual Meeting 2003-October-24
APPENDIX D: Draft (2004-10-26) amended Code of Procedure
APPENDIX E: President's Report
APPENDIX F: Secretary's Report
APPENDIX G: Financial and Publications Report
APPENDIX H: Report on CIE BA meeting 14 September 2004
APPENDIX I: CNC/CIE Members and Advisory Members

Attachments:
i. Canadian CIE Division Members' reports
ii. *Current Work in the CIE: Report on a Symposium on LED Light Sources and Development of Performance Based Mesopic Photometry*. A presentation by S.M.!McFadden at the joint CNC/CIE-IESNA luncheon on 2004-October-29.

APPENDIX A

CNC/CIE 49th Annual Meeting

2004-October-29

Attendees

Werner Adrian	Professor Emeritus, University of Waterloo
Nolie Agellon	Ministry of Transportation of Ontario
Réjean Baribeau	National Research Council (INMS)
Allyson Chrysler	Crossey Engineering Ltd.
William Cowan*	University of Waterloo
Arnold Gaertner	National Research Council (INMS)
John Harron	Spectral Applied Research
Byron Jordan	PAPRICAN
K. Frank Lin	Lighting Sciences Canada Ltd.
James Love	University of Calgary
Sharon McFadden	DRDC Toronto
Alan Robertson	National Research Council (INMS)
Andrew Silbiger	Andrew Silbiger Management Inc.
Ralph Smith	Ralph Smith Engineering Inc.
Nikolay Stoev	Valcom Laser Consulting
Martyn Timmings	Canlyte Inc.
Jennifer Veitch	National Research Council (IRC)
Venkat Venkataramanan†	University of Toronto
Ernest Wotton	self
Joanne Zwinkels	National Research Council (INMS)

† guest
* attended morning session only

Regrets

Joe Bastianpillai	Lumentech Engineers Inc.
Yvon Deslauriers	Health Canada (RPB)
Denis Lavoie	Lumec Inc.
Keith Niall	DRDC Toronto
Ivan Pasini	Pasini Lighting Services
Mankajee Shrestha	self
Radosveta Topalova	self
Lorne Whitehead	University of British Columbia
Roy Williams	Duha Color Services

APPENDIX B

CNC/CIE 49th Annual Meeting

Agenda

DATE: 2004-October-29, Friday

TIME: 9:00 to 17:30

LOCATION: Canlyte Inc. - The Lighting Concept Centre
160 Pears Avenue, Suite 300
Toronto, Ontario M5R 3P8

PROPOSED AGENDA:

Stated hour: 11:30-13:30 joint luncheon with Toronto IES chapter, speaker S.M.!McFadden

1. Call to Order and Approval of Agenda — J.A.!Love
2. Minutes of the 48th Annual CNC/CIE meeting
   - Action items
   - Matters arising
3. President's report — J.A.!Love
4. Secretary's report — A.A.!Gaertner
5. Financial and Publications Report — K.F.!Lin
6. Reports from Division Members
   - Division 1: Vision and Colour — S.M.!McFadden
   - Division 2: Physical Measurement of Light and Radiation — J.C.!Zwinkels
   - Division 3: Interior Environment and Lighting Design — I.C.!Pasini
   - Division 4: Lighting and Signalling for Transport — J.!Bastianpillai
   - Division 5: Exterior and Other Lighting Applications — M.K.!Timmings
   - Division 6: Photobiology and Photochemistry — J.D.!Yvon Deslauriers
   - Division 8: Image Technology — R.!Baribeau
7. Requests for Financial Support — J.A.!Love
8. Report on CIE Board of Administration meetings — S.M.!McFadden
9. CIE Midterm Session (León, Spain 2005 May) issues — J.A.!Love
10. CIE 2006 meetings of Division 1 and 8 in Canada — S.M.!McFadden/ J.C.!Zwinkels
11. Nominations and Appointments (CNC/CIE) — J.A.!Love
    - 11.1 Division Members
    - 11.2 Members and Advisory Members
12. Other Business — J.A.!Love
    - 12.1 Correspondence
    - 12.2 Date and Place for next year's meeting (50th, any special events?)
    - 12.3 Any other business
13. Adjournment — J.A.!Love

2004-October-25

The following letter from the CIE Central Bureau is to be considered with respect to item 8 or 9 of the agenda:

Circular Letter to CIE National Committees NCCL0412 (2004-09-14)

Dear Colleagues,

According to the CIE By-Laws 1.2.2, nominations for Officers for the 2007 - 2011 quadrennium may be made by the Board of Administration or by National Committees of the CIE. Nominations of the Board are to be sent to National Committees at least 8 months before the Midterm Meeting of the General Assembly.

The Board of Administration, at its meeting on 14 September 2004, recommended the following slate of officers:

President-Elect 2005-2007 and President 2007-2011:	Franz Hengstberger	South Africa
Past-President:	Wout van Bommel	The Netherlands
Vice-President Technical:	Janos Schanda	Hungary
Vice-President Publications:	Teresa Goodman	Great Britain
Vice-President Standards:	Michael Seidl	Germany
Vice-President Marketing:	Todd Newman	USA
Vice-President:	Lily Chang Wai Ling	China
Vice-President:	Ramani Venkataramani	India
Vice-President:	Gennady Shakhparunyants	Russian Fed.
Secretary:	Ken Sagawa	Japan
Treasurer:	Peter Gradl	Austria

National Committees are entitled to make further nominations for Officers. Nominations by a National Committee, endorsed by at least two other National Committees, must reach the General Secretary **by 2005-01-14 latest**.

Yours sincerely,

Christine Hermann
General Secretary

CIE Central Bureau
Kegelgasse 27
A-1030 Vienna, Austria
tel.: +43 1 - 714 31 87 0
fax: +43 1 - 714 31 87 18
e-mail: ciecb@ping.at
http://www.cie.co.at

APPENDIX C

CNC/CIE 49th Annual Meeting

Action items from CNC/CIE 48th Annual Meeting

Action Items

Action Item Number (AI#)	48th Minutes Item Number	Responsible	Action
1	2	M.K.!Timmings, S.M.!McFadden	contact IESNA sections re including CNC/CIE material on their website
2	4	S.M.!McFadden	obtain info re CIE awards and send to Secretary
3	5	S.M.!McFadden	contact CIE Division 8 Director re B.!Jordan
4	7	S.M.!McFadden, A.A.!Gaertner	contact CIE-CB re purchase of CNC/CIE stock of CIE publications
5	9	A.A.!Gaertner	email NRC-IRO assessment form to CNC/CIE Members and Annual Meeting attendees
6	10i	all	send names of potential CIE Supportive Members to S.M. McFadden
7	10ii	S.M.!McFadden	obtain info re new CIE awards
8	11.0	A.A.!Gaertner	indicate Division Member Assistants on M/AM list
9	11.0	A.A.!Gaertner	inform CIE-CB, CIE-DDs re new Cdn Div Members
10	11.1	A.A.!Gaertner	forward recommendations re CNC/CIE President and Vice-President to NRC-INMS-DG
11	11.2.1	A.A.!Gaertner	forward recommendations re 4 CNC/CIE Members to NRC-INMS-DG
12	11.2.2	A.A.!Gaertner	welcome 8 new Advisory Members
13	11.2.2	A.A.!Gaertner	contact 2 potential new Advisory Members
14	11.2.2	A.A.!Gaertner, S.M.!McFadden	poll Advisory Members re interest in CNC/CIE
15	12	A.R.!Robertson	draft amended version of Code of Procedure
16	13.2	S.M.!McFadden	arrange 49th Annual Meeting: 2004 October

APPENDIX D

CNC/CIE 49th Annual Meeting

2004-October-29

CNC/CIE Code of Procedure

Draft 2004-10-26

Canadian National Committee for the International Commission on Illumination

CODE OF PROCEDURE

1. Background

The International Commission on Illumination (abbreviated as CIE from its French title Commission Internationale de l'Eclairage) is a scientific, technical and cultural, non profit organization devoted to international cooperation and exchange of information among its member countries on all matters related to the science and art of lighting. The national adhering body for Canada is the National Research Council (NRC). NRC International Affairs determines the level of adherence and (subject to the level of the annual Treasury Board grant for international affiliation dues and consultation with the NRC Advisory Committee on International Science, Engineering and Technology) pays Canada's annual subscription to the CIE.

Under an agreement between NRC Corporate Services and the NRC Institute for National Measurement Standards (INMS), signed in 1993 and renewed in 1998 and 2004, INMS is responsible for setting up the Canadian National Committee (CNC) to deal with all other matters.

2. Objectives of CIE

The objectives of the CIE, as expressed in its Statutes, are:

(a) to provide an international forum for the discussion of all matters relating to the science, technology and art of lighting and for the interchange of information in these fields between countries;

(b) to develop basic standards and procedures of metrology in the fields of light and lighting;

(c) to provide guidance in the application of principles and procedures in the development of international standards in the fields of light and lighting;

(d) to prepare and publish proceedings, standards, technical reports and other publications concerned with all matters related to the science, technology and art of light and lighting; and

(e) to maintain liaison and technical interaction with other international organizations concerned with matters related to the science, technology, standardization and art in the fields of light and lighting.

It is important to note that in these objectives light and lighting embraces such fundamental subjects as vision, photometry and colorimetry, involving natural and man-made radiations over the UV, the visible and IR regions of the spectrum, and application subjects covering all usage of light, indoors and out,

including environmental and aesthetic effects, as well as means for the production and control of light and radiation.

From 1999 onwards also the optical, visual and metrological aspects of the communication, processing and reproduction of images, using all types of analogous and digital imaging devices, storage media and imaging media are covered by CIE.

3. Terms of Reference

The Terms of Reference of the CNC/CIE are:

(a) to collect and reconcile the many views of the Canadian lighting community on relevant issues;

(b) to identify, represent and promote the capabilities and distinctive competence of its Canadian lighting community internationally;

(c) to enhance the depth and breadth of the participation of the Canadian lighting community in the activities and events of the CIE and related organizations;

(d) to establish the mechanisms for communicating to the Canadian lighting community the views of the CIE and information about activities of the CIE;

(e) to distribute appropriate documentation, including the newsletter of the CIE;

(f) to attract and stage international events of value to the Canadian lighting community.

The CNC reports to the Director General of INMS.

These Terms of Reference include the responsibility to respond to all ballots of the CIE including the approval of new CIE Standards and Technical Reports.

4. Secretariat

The Secretariat of the CNC is located at INMS.

5. Members

The CNC consists of a maximum of nineteen Members appointed by the Director General of INMS. Terms of office are normally four years and are staggered to provide continuity. It is expected that the Membership will be distributed with regards to geography, linguistics and gender, and that it should ensure adequate representation of disciplines covered by the CIE as well as an appropriate turn-over to encourage the participation of young Canadian scientists and engineers. Members must be normally resident in Canada. In making appointments, the Director General takes account of the recommendations of the CNC.

In addition to the appointed Members, the CNC includes the following ex-officio Members:

- the Director-General of INMS or his/her delegate
- any Canadian resident who is an Officer of the CIE or a Director or Associate Director of a CIE Division

The duties of Members are:

- to contribute to the objectives of the CNC, as set out in section 3
- to be an Officer of the CIE and/or the CNC, to be the official Canadian Member of a CIE Division, or to assist at least one such Member
- to attend meetings of the CNC
- to vote in letter ballots of the CNC

The terms of office of Members are renewable for additional terms subject to the recommendation of the CNC and the approval of the Director General of INMS.

6. Officers

The Officers of the CNC are appointed by the Director General of INMS, on the recommendation of the CNC, from among its Members. The Officers include:

(a) a President who is responsible for conducting the affairs of the CNC, calling and chairing its meetings, and reporting to NRC on its activities;

(b) a Vice-President, who is responsible for performing the duties of the President whenever the President is unable to perform them;

(c) a Secretary, who is responsible for keeping the records of the CNC including the minutes of meetings, maintaining mailing lists (of Members, Advisory Members and other interested persons), corresponding with the Central Bureau of the CIE, conducting letter ballots on questions which arise between meetings, and other related duties;

(d) a Treasurer, who is responsible for maintaining a bank account in the name of the CNC/CIE and receiving and dispersing funds as directed by the CNC/CIE;

(e) a Publications Officer, who is responsible for the purchase of CIE Publications and their sale in Canada; and

(f) any other Officers that the CNC deems necessary.

All Officers must give a written report of their activities to the CNC at its annual meeting.

The Offices of President, Vice-President and Secretary must be held by separate people, but the Offices of Treasurer and Publications Officer may be combined with each other or with that of Secretary.

The slate of Officers shall be reviewed by the CNC at its first meeting following a CIE General Assembly and any recommendations for change shall be submitted to the Director General of INMS.

7. Advisory Members

The CNC may appoint any number of Advisory Members to assist it in its duties and to assure adequate representation of all interests. Advisory Members must be normally resident in Canada and may attend meetings and take part in discussions on an equal basis with Members. When an Advisory Member is appointed, the Secretary shall inform them in writing.

The duties of Advisory Members are:

- to contribute to the objectives of the CNC, as set out in section 3
- to assist at least one official Canadian Member of a CIE Division in his/her duties, for example by being a member of a CIE Technical Committee within the Division

The term of office of an Advisory Members is four years and is renewable subject to review by the CNC.

8. Observers

A representative of NRC International Affairs is an observer of the CNC.

9. Consultants

At the request of any Member or Advisory Member, the Secretary may invite one or more persons to attend any meeting or meetings, and/or to take part in discussions conducted by correspondence. Such persons do not have the right to vote.

10. Meetings

The President may call a meeting of the CNC whenever he/she deems it necessary or at the request of at least five Members, or at the request of the Director General of INMS. In any case there shall be a meeting in the last quarter of each calendar year. Members must be given at least three weeks notice of any CNC meeting.

11. Quorum

A quorum consists of one-half of the Members, including proxies and ex-officio Members. Advisory Members are not counted in determining a quorum.

12. Voting

In dealing with routine matters at meetings and by letter ballots, Members and Advisory Members are treated equally. A simple majority of Members and Advisory Members is required to ensure the passage of a motion. Members who are unable to attend a meeting may assign their vote to a proxy provided that they give written notice to the Secretary before the meeting.

13. Letter Ballots

At the request of the President or at least five Members of the CNC, or to deal with matters referred to the CNC by the CIE, the Secretary shall send out letter ballots to all Members and Advisory Members to ascertain their opinion on any question that arises between meetings.

The passage of any motion thus submitted requires:

(a) a simple majority of those Members and Advisory Members who vote,

(b) that the number of Members who vote constitute a quorum, and

(c) that all Members and Advisory Members be given at least three weeks notice of the closing date of the letter ballot.

Negative votes on a letter ballot shall be accompanied by an explanation.

As a matter of expediency, and at the discretion of the President, some letter ballots may be restricted to Members only.

14. Delegates to CIE General Assemblies

When a CIE General Assembly is to be held, the CNC recommends to the Director General of INMS the nomination of two delegates (one voting, the other non-voting) for appointment by NRC International Affairs. The President of the CNC shall normally be the voting delegate. The delegates are expected to present the policies of NRC International Affairs on issues relating to finances, Statutes and By-Laws, and of the CNC on other matters. The delegates must provide a written report to NRC International Affairs with a copy to the Director General of INMS and to the CNC.

15. Members of CIE Divisions

The CNC, whenever possible, appoints a voting Member to each CIE Division. If the person appointed is not already a Member of the CNC, he/she shall be nominated to the Director General of INMS for appointment as a Member immediately.

The duties of the Division Members are:

(a) to ascertain the views prevailing in Canada and to express these views in the deliberations of the Division either by correspondence or at meetings;

(b) to report in writing to the CNC, at its annual meeting, on the activities of the Division;

(c) to advise the CNC on matters pertaining to the Division and its associated Technical Committees;

(d) to encourage Canadian experts to be active members of Technical Committees within the Division; and

(e) to inform the Secretary of all Canadians who become members of Technical Committees within the Division.

If the Canadian Division Member is unable to attend a Division meeting, the President may appoint a substitute voting member. The substitute must present a report of his/her actions to the regular Member after the meeting.

The Member's annual report to the CNC should include the latest Activity Report of the Division, a summary of issues of particular importance to Canada, and a list of Canadian members of Technical Committees within the Division.

The term of office of a Division Member shall end at the first meeting of the CNC following a CIE General Assembly. However, the Division Member’s term as a Member of the CNC is subject to the terms of Section 5.

To assist each Division Member, the CNC, whenever possible, appoints a minimum of two other Members or Advisory Members to assist him/her.

16. Members of CIE Technical Committees

Members of CIE Technical Committees are appointed by the Technical Committee Chair. The CNC, in consultation with the appropriate Division member, may nominate a member for a CIE Technical Committee on which it is not already represented. This right should only be used if a competent person is available and prepared to be active. Any Canadian member of a CIE Technical Committee, whether appointed directly by the Technical Committee Chair or nominated by the CNC, who is not already a Member or Advisory Member of the CNC, automatically becomes an Advisory Member.

17. Members of Other CIE Committees

Canadian Members of other CIE Committees, such as the Finance Committee, who are not already Members or Advisory Members of the CNC/CIE, automatically become Advisory Members.

18. CIE Publications

The CNC receives royalties from the CIE for CIE Publications sold to residents of Canada. In addition, the CNC has purchased certain older CIE Publications from the Central Bureau and sells them in Canada with an appropriate mark-up. Proceeds from these royalties and sales, after deduction of costs, are used to support activities of the CNC.

19. Funding

The CNC/CIE does not, in general, provide financial support for members for their CIE-related activities. In special circumstances, when warranted, the Treasurer shall pay monies for expenses incurred during official CIE business, which have been approved at the annual CNC/CIE meeting, or by the Executive Committee, comprised of the President, Vice-President, Secretary and Treasurer. The CNC/CIE shall maintain a written policy outlining the criteria for such reimbursement of expenses.

NRC International Affairs will, subject to the availability of funds, contribute to the travel costs of university-based Canadian delegates to a CIE General Assembly.

20. Amendment of Code of Procedure

This Code of Procedure may be amended by an affirmative vote of a simple majority of the Members of the CNC at a meeting or by letter ballot provided that notice of motion has been given at least two months before the date of the meeting or the closing date of the letter ballot. Adoption of the amended Code requires the approval of the Director General of INMS.

APPENDIX E

CNC/CIE 49th Annual Meeting

2004-October-29

President's Report

Commission Internationale de l'Éclairage - Canadian National Committee
49th Annual Meeting – Toronto, October 29, 2004

My term of office began Jan. 1, 2004. The main activity for the year was related to the 2004 annual meeting. This was arranged to include a joint lunch with the Toronto section of the Illuminating Engineering Society of North America. This initiative was consistent with raising the profile of the Commission Internationale de l'Éclairage and the Canadian National Committee in the lighting community.

Respectfully submitted

Jim Love, Professor, University of Calgary
President
Canadian National Committee - Commission Internationale de l'Éclairage

APPENDIX F

CNC/CIE 49th Annual Meeting

2004-October-29

Secretary's Report

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

Canadian National Committee Comité National Canadien

CNC/CIE SECRETARY'S REPORT TO THE 49TH ANNUAL MEETING

2004-October-29

The following acronyms are used in this report:

CEN:	Comité Européen de Normalisation
CIE-CB:	CIE Central Bureau in Vienna, Austria
CIE-BA:	CIE Board of Administration
CNC/CIE:	Canadian National Committee of CIE
CIE/USA:	US National Committee of the CIE
GA:	General Assembly
NC:	National Committee
NRC:	National Research Council of Canada
NRC-IRO:	NRC International Relations Office
NRC-INMS:	NRC Institute for National Measurement Standards
NRC-IRC:	NRC Institute for Research in Construction

This report covers the period from 2003-October-24 to 2004-October-28.

CIE MATTERS:

1. Annual Membership Fee:
   The annual membership fee for the CNC/CIE as a member of the CIE for 2004 is 6,563 EUROS which was approximately $10,611 Cdn. The NRC-International Relations Office has continued to make these payments on our behalf.

2. CIE Draft Standards:

   CIE DS 012.3/E:2004 *Standard Method of Assessing the Spectral Quality of Daylight Simulators for Visual Appraisal and Measurement of Colour*. The comments received from all the CIE NCs concerning CIE DS 012.2/E:2002 were evaluated by the CIE Vice-President Technical, Vice-President Publications, Division Director and Technical Committee Chair. This revised version was sent to all CIE NCs for final ballot. Copies were mailed to each of the 13 CNC/CIE Members. Four replies were received, all in favor of publication. The CNC/CIE vote in favor of this draft standard was sent to the CIE-CB.

   CIE DS 015.2/E:2004 *Lighting of Work Places–Outdoor work places*. The comments received from all the CIE NCs and CEN member bodies concerning CIE DS 015/E:2002 were discussed at a joint CIE-CEN meeting. This revised version was sent to all CIE NCs for final ballot. Copies were mailed to each of the 13 CNC/CIE Members and to one Advisory Member. Three replies were received, all in favor of publication. The CNC/CIE vote in favor of this draft standard was sent to the CIE-CB.

3. Mailings:
   Amongst others, the following CIE materials have been received and mailed to the membership as appropriate:

   CIE NEWS Number 67, September 2003
   CIE NEWS Number 68, December 2003
   CIE NEWS Number 69, March 2004
   CIE NEWS Number 70, June 2004

   CIE Press Releases:

   Publication CIE 88:2004 (2nd Edition) *Guide for the Lighting of Road Tunnels and Underpasses.*
   Publication CIE 154:2003 *The Maintenance of Outdoor Lighting Systems*
   Publication CIE 155:2003 *Ultraviolet Air Disinfection*
   Publication CIE 156:2004 *Guidelines for the Evaluation of Gamut Mapping Algorithms*
   Publication CIE 157:2004 *Control of Damage to Museum Objects by Optical Radiation*

Publication CIE 158:2004 *Ocular Lighting Effects on Human Physiology and Behaviour*
Publication CIE 159:2004 *A Colour Appearance Model for Colour Management Systems: CIECAM02*
Publication CIE 160:2004 *A Review of Chromatic Adaptation Transforms.*

CIE Standard S010/E:2004 *Photometry–The CIE System of Physical Photometry*.

ISO/CIE joint standards:

ISO 15469:2004(E)/CIE S011/E:2003 *Spatial Distribution of Daylight–CIE Standard General Sky*

CNC/CIE MATTERS:

1. CNC/CIE 2004 Annual Meeting:
This meeting will be hosted by Canlyte Inc. in their Toronto offices on 160 Pears Avenue. A joint luncheon with the Toronto Chapter of the IES has also been arranged. We extend our thanks to Martyn Timmings of Canlyte for providing the meeting place, and to Jim Love of the CNC/CIE and Dyoni Smith of the IES for arranging the luncheon. We are happy that Sharon McFadden has agreed to speak to us at the luncheon concerning the recent CIE international seminar on LEDs, and about CIE work on photopic/scotopic issues.

2. NRC-IRO 2003 Assessment of the CNC/CIE:
A Partnership Agreement in support of Canada's affiliation with the CIE was signed in 1998 between NRC Corporate Services and NRC-INMS. This agreement was scheduled for renewal in 2003. However, prior to the renewal of the agreement an assessment was carried out to monitor the efficiency of the partnership and to ensure that maximum benefits are derived by the Canadian S&T community from the NRC affiliation with CIE. As reported at our 48th CNC/CIE annual meeting in October 2003, the members of the advisory Committee on International Science, Engineering and Technology (CISET) initiated the latest assessment in September 2003, and our response was submitted on 2003-October-17. A copy of our submission was sent to all CNC/CIE Members, and to the attendees of CNC/CIE Annual Meetings (2001,2002,2003). CISET has reviewed our submission and has recommended the extension of the INMS-NRC agreement. NRC has accepted the CISET recommendation. A copy of the NRC response is attached. Note that CISET has included recommendations for consideration by all CNCs, including a specific recommendation to the CNC/CIE to state our proposed action plan in clear objectives and actions. This assessment is important in that the NRC-IRO is presently responsible for paying our dues to the CIE.

3. Canadian Participation on CIE TCs:
Although it has been requested that each Division Member include a list of Canadian members of TCs within the Division (it is part of our Code of Procedure), the above evaluation of our activities increases the importance of knowing our level of involvement in CIE affairs. It has not always been easy to determine this information. However, as an attempt to obtain this information more easily, I have started with some information that I have gleaned from past Division Member reports, and this is also attached to this report. I hope that the Division Members will be able to keep me informed of further activity in this respect, and that CNC/CIE members keep both myself and their Division Member appraised of their participation.

4. Mailing Lists:
   4.1 At present I maintain 3 mailing lists: Members (13), Advisory Members (53), General Interest (18). In general, the difference between the first two and the third is that the third list tends to receive only CIE material (press releases of CIE publications, *CIE NEWS*) and notices of international conferences. Members and Advisory Members receive more CNC information such as various ballots, and the Minutes of the annual meeting and related information.
   4.2 Electronic Mail: I have sent more documents to the CNC/CIE membership this year by email. I have been using a PDF format which should be more versatile in accommodating the various computer systems, and the reader can be downloaded free from the Adobe website. I can now receive more information from the CIE-CB, such as Press Releases, in electronic format. I often receive announcements of meetings in electronic format, and I will forward these electronically rather than sending a large paper mailing. At present my email mailing lists are: Members (13), Advisory Members (44), General Interest (5). Please keep me updated on your email address.

5. Membership:
A list of our Members and Advisory Members is available and will be discussed during the annual meeting for the purposes of making any changes.
   5.1. Members:
   At last year's annual meeting six Member appointments were recommended by the CNC/CIE. Letters of appointment were sent to these people by Dr. Peter Hackett, Acting Director-General of INMS. All have accepted. They are:
   Mr. J. Bastianpillai for a four-year term until 2007-December-31
   Dr. Yvon Deslauriers for a four-year term until 2007-December-31
   Dr. James A. Love for a four-year term as CNC/CIE President until 2007-December-31

Mrs. Sharon McFadden for a four-year term until 2007-December-31
Mr. Martyn K. Timmings for a four-year term until 2007-December-31
Dr. J.C. Zwinkels for a four-year term as CNC/CIE Vice President until 2007-December-31

5.2. Advisory Members:

As a result of the actions taken at our last annual meeting, the following people have been added to our Advisory Membership:

Dr. W.K. Adrian, Waterloo, Ontario
Mr. Nolie Agellon, P.Eng., Ministry of Transportation, St. Catharines, Ontario
Mr. Chrisnel Blot, Spectra Lux Industries Inc., Ville St-Laurent, Québec
Dr. Marie Dumont, Hôpital du Sacré-Coeur de Montréal, Montréal, Québec
Mr. Kurt Ising, P.Eng., MacInnis Engineering Associates Inc., Richmond, B.C.
Mr. Denis Lavoie, Lumec Inc., Boisbriand, Québec
Mr. Jacques B. Roberge, P.Eng., Saint-Lambert, Québec
Ms Dyoni Smith, Metalumen Manufacturing Inc., Guelph, Ontario
Dr. Cristian Suvagau, P.Eng., B.C. Hydro, Burnaby, B.C.
Mr. Roy Williams, Duha Color Services, Winnipeg, Manitoba

The following people have been suggested for Advisory Membership and have expressed interest in the CNC/CIE:

Ms Chantal Arsenault, NRC-IRC, Ottawa. Ontario
Dr. Igor Peshko, University of Toronto Optical Technologies Centre, Toronto, Ontario
Dr. Venkat Venkataramanan, University of Toronto Optical Technologies Centre, Toronto, Ontario

The following people have been removed from our mailing lists:

B.N. Clarkson, due to retirement
Tony Ketvirtis, due to retirement
J.H. Kluge, lost contact
R.T. Blake, lost contact

Respectfully submitted,

A.A. Gaertner
Secretary, CNC/CIE
Institute for National Measurement Standards
Building M-36
National Research Council of Canada
1200 Montreal Road
Ottawa, Ontario K1A 0R6
Tel: (613) 993-9344
Fax: (613) 952-1394
Email: arnold.gaertner@nrc-cnrc.gc.ca

Attachments:

1. NRC/CISET response (2004-April-13) to the CISET 2003 Assessment of the CNC/CIE.
2. Canadian Participation on CIE Technical Committees, 2004-October-27

National Research Council Canada
Secretary General

Conseil national de recherches Canada
Secrétaire général

NRC·CNRC

13 April 2004

Dr. Peter Hackett
Acting Director General
Institute for National Measurement Standards
National Research Council
Ottawa, ON K1A 0R6

Dear Dr. Hackett: Peter

Some time ago, Dr. I. Smith, Chairman of the Advisory Committee on International Science, Engineering and Technology (CISET) of the National Research Council of Canada (NRC), asked for the cooperation of Dr. Janusz Lusztyk, then Director General of the Institute for National Measurement Standards, in the review by CISET of the partnership agreement between NRC Corporate Services and the Institute for National Measurement Standards in support of Canada's affiliation with the Commission internationale de l'éclairage (CIE). The current madate of CISET is attached for reference.

In collaboration with Dr. Arnold Gaertner, an assessment was carried out to assess the efficiency of the partnership and to ensure that the Canadian S&T community derives maximum benefits from the NRC affiliation with CIE. The final review of the assessment report and supporting documents was recently completed. In the view of CISET, the materials provided by the Canadian National Committee (CNC) for CIE were complete and very informative. The CISET members noted that the CNC/CIE functions effectively and the Canadian scientific community is very actively involved in CIE Committees.

I am pleased to inform you that, further to its review, CISET has recommended the extension of the INMS-NRC agreement and that NRC has accepted the CISET recommendation.

...2

Ottawa, Canada
K1A 0R6

(613) 993-4752
Docufax: (613) 957-2711

Canada

However, CISET members noted that although some CNCs are functioning very well, overall, all the CNCs should be encouraged to improve their performance by focusing on the following:

- holding regular meetings;
- promoting Canadian participation in the activities of the affiliated international organization in order to bring more visibility to Canadian science;
- maintaining a CNC website;
- reporting to NRC-IRO regularly, and through electronic format; and
- actively promoting the participation of young scientists in the CNC.

With respect specifically to the CNC/CIE, CISET members indicated that they would like to see the proposed action plan of the CNC broken down into clear objectives and actions.

For further information about these recommendations, the CNC/CIE representative should contact the CISET Secretary, Dr. Hamid Jorjani.

In light of the above, I would like to propose the revised working partnership agreement as laid out in Annex 1. You will note that this revised working partnership agreement includes the modified policy for NRC contributions to the travel costs of Canadian delegates attending CIE's General Assemblies. Under these guidelines (attached), NRC will contribute to the incremental costs of one official Canadian delegate attending CIE General Assemblies. The policy has also been modified to include non-government representatives.

I would also like to propose that this agreement remain in effect for a five-year period until 2009, and that at the end of this period, consultation take place to review the agreement. However, as per the recommendation of CISET, NRC will monitor the situation on an annual basis.

...3

3/ Dr. Peter Hackett

To indicate the approval by INMS of this agreement, I would appreciate it if you could sign and return to me one of the two enclosed copies of this letter.

Yours sincerely,

Patricia Mortimer

cc: Dr. Ian Smith, CISET Chairman
Dr. Arnold Gaertner, INMS/CIE Secretary
Dr. Sharon McFadden, President, CNC/CIE
Dr. Hamid Jorjani, CISET Secretary

Attachments

I agree with the proposal included in this letter and Annex 1.

_____

Dr. Peter Hackett
Acting Director General
Institute for National Measurement Standards

Canadian Participation on CIE Technical Committees

Division 1 Vision and Colour (Division Member: S.M.!McFadden)

W.K. Adrian	TC!1-51
I.!Ashdown	TC!1-62
W.B. Cowan	TC!1-37
B.!Jordan	TC!1-66
S.M. McFadden	TC!1-42, TC!1-60, TC!1-64 (Chairman)
A.R. Robertson	TC!1-27, TC!1-38, TC!1-48, TC!1-55, TC!1-56, TC!1-57(Chairman), TC!1-59
W.A. Simpson	TC!1-60
R. Topalova	TC!1-46, TC!1-54
J.C.!Zwinkels	TC!1-38, TC!1-44, TC!1-53, TC!1-57

Reporterships:

Liaisons:

J.C. Zwinkels	ISO TC6/WG3

Division 2 Physical Measurement of Light and Radiation (Division Member: J.C.!Zwinkels)

R. Baribeau	TC!2-42
L.P.!Boivin	TC!2-47, TC!2-48
A.A.!Gaertner	TC!2-04, TC!2-43
B.!Jordan	TC!2-39
J.B.!McArthur	TC!2-47, TC!2-48
S.M.!McFadden	TC!2-42
A.R.!Robertson	TC!2-16, TC!2-28, TC!2-35, TC!2-57 (Chairman)
J.C.!Zwinkels	TC!2-25(Chairman), TC!2-28, TC!2-39, TC!2-57

Reporterships:

Keith Niall	R!2-33

Liaisons:

J.C. Zwinkels	ISO TC6/WG3

Division 3 Interior Environment and Lighting Design (Division Member: I.C.!Pasini)

I. Ashdown	TC!3-11, TC!3-32, TC!3-33
P. Gabriel	TC!3-22
J.A. Love	TC!3-11, TC!3-19, TC!3-25, TC!3-32
C. Reinhardt	TC!3-33
R. Topalova	TC!3-34, TC!3-39
J.A.!Veitch	TC!3-34(Chairman)
L.A.!Whitehead	TC!3-30(Chairman), TC!3-38
B.!York	TC!3-30

Reporterships:

R. Topalova	R!3-17

Liaisons:

I.C. Pasini	IESNA

Division 4 Lighting and Signalling for Transport (Division Member: J.!Bastianpillai)

W.K. Adrian	TC!4-35, TC!4-36

Reporterships:

Liaisons:

Division 5 Exterior and Other Lighting Applications (Division Member: M.K.!Timmings)

J.B. Roberge TC!5-08, TC!5-12, TC!5-13, TC!5-14, TC!5-15, TC!5-16, TC!5-19, TC!5-20

Reporterships:

Liaisons:

Division 6 Photobiology and Photochemistry (Division Member: J.D.Y.!Deslauriers)

A.P.!Cullen TC!6-49
J.D.Y.!Deslauriers TC!6-55
F.H.!Glorieux TC!6-54
J.A.!Veitch TC!6-11(Chairman)

Reporterships:

Liaisons:

Division 8 Image Technology (Division Member: R.!Baribeau)

Reporterships:

Liaisons:

APPENDIX G

CNC/CIE 49th Annual Meeting

2004-October-29

Financial and Publications Report

CIE PUBLICATION - CANADA
FINANCIAL REPORT
AS OF
SEPTEMBER 30, 2004

CIE PUBLICATION - CANADA
FINANCIAL REPORT

INCOME STATEMENT 01/October/2003 - 30/September/2004

Revenue			
Publication sale [year 2003-2004]	$	1,403.00	
CNC/CIE 2003 Annual Conference Income	$	9,083.23	
Total Revenue			**$ 10,486.23**
Expense			
Bank charges [Oct/2003 - Sep/2004: 12 months @$3.95]	$	47.40	
Bank charges [cheque book order]	$	26.21	
Central Bureau of CIE (Euro$660.40) [re: publication purchase in year 2002-2003]	$	1,060.71	
Central Bureau of CIE (Euro$116.20) [re: publication purchase in year 2003-2004]	$	216.14	
Lighting Sciences Canada Ltd.[publication mailing expense] [re: $20.50 in year 2002-2003 + $11.25 in year 2003-2004]	$	31.75	
CNC/CIE 2003 Annual Conference Expenses	$	5,605.46	
Total Expense			**$ 6,987.67**
Net Income (Loss)			**$ 3,498.56**

CIE PUBLICATION - CANADA
FINANCIAL REPORT

BALANCE SHEET **01/October/2003 - 30/September/2004**

Assets		
Bank/Cash	$ 17,663.90	
Total Assets		**$ 17,663.90**
Liabilities		
Nil	$ -	
Total Liabilities		**$ -**
Equity		
Balance, beginning @ 01/October/2003	$ 14,165.34	
Current Income	$ 3,498.56	
Total Equity		**$ 17,663.90**
Liability & Equity		**$ 17,663.90**

CIE/CNC PUBLICATIONS BANK ACCOUNT - CANADA

Financial Report - Bank Account

CIE/CNC Publications Bank Account: 01/October/2003 - 30/September/2004 **(Canada)**

Date		Sales	Other Income	Payments to CB	Other Expenses	Balance
1-Oct-2003	Balance brought forward					$14,165.34
24-Oct-2003	Jim Love [ck#17]				$738.60	$13,426.74
	Re: CNC/CIE 2003 Annual Conference expense					
24-Oct-2003	Sodexho - catering [ck#19]				$1,748.35	$11,678.39
	Re: CNC/CIE 2003 Annual Conference expense					
24-Oct-2003	Holiday Inn [ck#20]				$2,999.81	$8,678.58
	Re: CNC/CIE 2003 Annual Conference expense					
24-Oct-2003	Sharen McFadden [ck#21]				$118.70	$8,559.88
	Re: CNC/CIE 2003 Annual Conference expense					
27-Oct-2003	Central Bureau of CIE [ck#18 Euro$660.40]			$ 1,060.71		$7,499.17
	Re: Payment of CIE publication purchases					
27-Oct-2003	Deposit: 2003 Conference Income [20 Canadian cheques]		$4,355.00			$11,854.17
27-Oct-2003	Deposit: 2003 Conference Income [Cash-Canadian dollar]		$605.00			$12,459.17
27-Oct-2003	Deposit: 2003 Conference Income [17 US cheques]		$4,123.23			$16,582.40
	(US$3205 @1.2865)					
31-Oct-2003	Davis & Henderson Ltd. (Cheque book order)				$29.48	$16,552.92
24-Mar-2004	Deposit: Publication sale [inv.#2059,2060,2061]	$439.00				$16,991.92
	Bank charges (Oct, Nov, Dec/2003 & Jan, Feb/2004)					
	$3.95 x 5 months				$19.75	$16,972.17
31-Mar-2004	Bank charge (Mar/2004)				$3.95	$16,968.22
14-Apr-2004	Davis & Henderson Ltd. (Cheque book order)				$26.21	$16,942.01
28-Apr-2004	Deposit: Publication sale [inv.#2062,2063]	$154.00				$17,096.01
29-Apr-2004	Credit Memo (Re. Cheque book order dated Oct/31/03)				$ (29.48)	$17,125.49
31-Jul-2004	Bank charges (Apr, May, June & July/2004)					
	$3.95 x 4 months				$15.80	$17,109.69
4-Aug-2004	Deposit: Publication sale [inv.#2064, 2065 & 2066]	$742.00				$17,851.69
31-Aug-2004	Bank charges (Aug/2004)				$3.95	$17,847.74
27-Sep-2004	Deposit: Publication sale [inv.#2067]	$68.00				$17,915.74
27-Sep-2004	K. Frank Lin-CIE Publication purchase[ck#22 Euro$116.20]			$ 216.14		$17,699.60
	Re: Reimburse payment to Central Bureau of CIE					
27-Sep-2004	Lighting Sciences Canada Ltd. [ck#23]				$31.75	$17,667.85
	Re: CIE publication mailing expense (Oct/02-Sep/04)					
30-Sep-2004	Bank charges (Sep/2004)				$3.95	$17,663.90
30-Sep-2004	**Total**	**$1,403.00**	**$9,083.23**	**$1,276.85**	**$5,710.82**	**$17,663.90**

CIE PUBLICATION SALE - CANADA

CIE Publication Sale: 01/October/2003 - 30/September/2004

Date/Inv. #	Description/Title of Publication	Qty	Sale	Expense	Net Amount
8-Dec-2003			$ 68.00		
#2059	CIE-154-2003: The Maintenance of Outdoor Lighting Systems	1		(no receipt)	
	Shipping cost - Regular mail (postage paid by LSC)			$ -	$ 68.00
10-Dec-2003			$ 92.00		
#2060	CIE-155-2003: Ultraviolet Air Disinfection	1			
	Shipping cost - Purolator (collect)			$ -	$ 92.00
13-Jan-2004			$ 279.00		
#2061	CIE-45-1979: Lighting for Ice Sports	1			
	CIE-58-1973: Lighting for Sports Halls	1			
	CIE-67-1986: Guide for the Photometric Specification & Measurement of Sports Lighting Installation	1			
	CIE-83-1989: Guide for the Lighting of Sports Events for Colour Televison and Film Systems	1			
	CIE-112-1994: Glare Evaluation System for Use Within Outdoor Sports and Area Lighting	1			
	Shipping cost - Regular mail			$ 2.40	$ 276.60
12-Mar-2004			$ 68.00		
#2062	CIE-154-2003: The Maintenance of Outdoor Lighting Systems	1			
	Shipping cost - Purolator (collect)			$ -	$ 68.00
22-Mar-2004			$ 86.00		
#2063	CIE-84-1989: Measurement of Luminous Flux	1			
	Shipping cost - N/A (directly shipped from Central Bureau of CIE)			$ -	$ 86.00
6-May-2004			$ 80.00		
#2064	CIE-150-2003: Guide on the Limitation of the Effects o f Obtrusive Light from Outdoor Lighting Installation	1			
	Shipping cost - N/A (directly shipped from Central Bureau of CIE)			$ -	$ 80.00
17-Jun-2004					
#2065	CIE-155-2003: Ultraviolet Air Disinfection	1	$ 91.00	(no receipt)	
	Shipping cost - Regular mail (postage paid by LSC)			$ -	$ 91.00
16-Jul-2004			$ 571.00		
#2066	CIE-12.2-1977: Recom. for the Lighitng of Roads for Motorized Traffic	1			
	CIE-34-1977: Road Lighting Lantern & Installation Data-Photometrics, Classification and Performance	1			
	CIE-47-1979: Road Lighting for Wet Conditions	1			
	CIE-66-1984: Road Surfaces and Lighting	1			
	CIE-115-1995: Recom. for the Lighting of Roads for Motor and Pedestrian Traffic	1			
	CIE-136-2000: Guide to the Lighting of Urban Areas	1			
	CIE-140-2000: Road Lighting Calculations	1			
	Shipping cost - Regular mail			$ 7.25	$ 563.75
5-Aug-2004			$ 68.00		
#2067	CIE-127-1997: Measurement of LEDs	1			
	Shipping cost - Regular mail			$ 1.60	$ 66.40
30-Sep-2004	**Total**		**$ 1,403.00**	**$ 11.25**	**$ 1,391.75**

CIE PUBLICATION PURCHASE - CANADA

Publication purchases from Central Bureau: 01/October/2003 - 30/September/2004 (CANADA)

Date	CIE Inv.	CIE Code	Title of Publication	Qty	Unit Cost	Total Cost	Discount	Running Total	Payment
					(Euro)	(Euro)	(Euro)	(Euro)	(Euro)
30-Sep-2003	Forward				$ -	$ -	$ -	$ 660.40	**$ -**
1-Oct-2003	337/NC	154	Maintenance of Outdoor Lighting Systems	2	$ 22.00	$ 44.00	($15.40)	$ 28.60	
27-Oct-2003	(Wire Transfer)		Payment to Central Bureau of CIE						$ 660.40
10-Dec-2003	429/NC	155	Ultraviolet Air Disinfection	2	$ 30.00	$ 60.00	($21.00)	$ 39.00	
24-Mar-2004	090/NC	84	Measurement of Luminous Flux	1	$ 28.00	$ 28.00	($9.80)	$ 18.20	
			Mailing Charges			$ 6.75		$ 6.75	
18-May-2004	151/NC	150	Guide on Limit. of Effects of Obtrusive Light	1	$ 26.00	$ 26.00	($9.10)	$ 16.90	
			Mailing Charges			$ 6.75		$ 6.75	
15-Sep-2004	(Wire Transfer)		Payment to Central Bureau of CIE						$ 116.20
			Total to date as of 30-September-2004			**$ 171.50**	**$ (55.30)**	**$ 776.60**	
			Payment to CB @ 30-September-2004						**$ 776.60**
			Balance due as of 30-September-2004					**$ -**	**(Euro)**

CIE/CNC PUBLICATION STOCK LIST

2004-SEPTEMBER-30

CIE	Title	Year	Price	Price				Sales						Purchase			Current	CB
No.			Code	Cd$	97-98	98-99	99-00	2001	2002	2003	2004	99-00	2001	2002	2003	2004	Stock	X
1	Urban sky glow	1980	C	68													4	
2.2	Colours of light signals	1975	I	109		1											2	X
8	Street lighting & accidents	1960															5	X
12.2	Road lighting for motor, traffic	1977	C	68							1						3	X
13.3	Colour rendering properties	1995	I	109		1		1									0	
15.2	Colorimetry	1986	H	98	1	3	1	3		2			1		4		2	
16	Daylight	1970	I	109													5	
17.4	International lighting vocabulary	1987	X	433				1									0	
18.2	Physical photometry	1983	E	80	1	1				1							0	
19/2.1	Visual performance - volume I	1981	K	137													4	
19/2.2	Visual performance - volume II	1981	I	109					1								3	
20	Solar radiation	1972															5	X
22	Luminance distrib. on clear sky	1973															4	X
23	Motorway lighting	1972	C	68													5	
24	Luminaire photometry (indoor)	1973															2	X
26	Recommendation for tunnel ltg	1973	I	109													5	X
27	Luminaire photometry(street ltg)	1973															4	X
28	Sports ltg for colour tv broadcast	1975															4	X
29.2	Guide on inteior lighting	1986	J	122													1	X
30.2	Calc. & Meas. (road lighting)	1982	L	166	1	1			1								0	X
31	Glare & uniformity (road lighting)	1976	C	68													0	
32A	Special road lighting (French)	1977	D	74													4	
32B	Special road lighting (English)	1977	D	74													5	
33A	Deprec.&install.road ltg (French)	1977	C	68													4	
33B	Deprec.&install.road ltg(English)	1977	C	68													5	
34	Road lighting installation data	1977	E	80							1						2	
35	Lighting of traffic signs	1978															1	X
37	Exterior lighting in the environ.	1976															5	X
38	Characteristics of materials	1977	L	166													4	
39.2	Surf.colours for visual signals	1983	I	109	1												3	
40	Interior lighting calculations	1978	G	91													4	
41	Light as true visual quantity	1978	E	80													4	
42	Lighting for tennis	1978	C	68													6	
43	Photometry of floodlights	1979	F	86													4	
44	Absolute reflection measurements	1979	H	98													2	
45	Lighting for ice sports	1979	C	68							1						4	
46	Material reflection stanadards	1979	J	122													4	
47	Road lighting for wet condition	1979	I	109							1						3	
48	Road traffic signals	1980	E	80				1									0	
49	Emergency lighting	1981	B	57													3	
51	Daylight simulators for colorim.	1981	D	74					1								1	X
51.2	Qual.of daylight simu.for colorimetry	1999	D	74								2					2	
52	Interior lighting calculations	1982	L	166													4	
53	Radiometers & photometers	1982	D	74	1	1	1	1					1				0	
54	Retroreflection - def./meas.	1982	D	74		1											1	X
54.2	Retroreflection:def. & measure.	2001	G	91					1				2				1	
55	Discomfort glare (interior)	1983	F	86													3	

CIE/CNC PUBLICATION STOCK LIST

2004-SEPTEMBER-30

CIE	Title	Year	Price	Price				Sales						Purchase			Current	CB
No.			Code	Cd$	97-98	98-99	99-00	2001	2002	2003	2004	99-00	2001	2002	2003	2004	Stock	X
56	Proceedings 1983/light&lighting	1983	L	166													5	
57	Lighting for football	1983	B	57													4	
58	Lighting for sports hall	1983	A	43							1						3	
59	Polarization	1984	D	74													4	
60	Vision/visual display work station	1984	D	74													1	
61	Tunnel entrance lighting	1984	I	109			1										2	
62	Lighting for swimming pools	1984	C	68				1									1	
63	Spectroradiometry	1984	G	91		1	1	1		1			1		2		1	
64	Spectral responsivity of detect.	1984	H	98		1											2	
65	Absolute radiometers	1985	D	74													3	
66	Road surfaces & lighting	1984	H	98							1						1	
67	Photometry of sports lighting	1986	A	43							1						1	
68	Lighting of exterior working area	1986	H	98													4	X
69	Illuminance meters	1987	E	80	1		1			1					3		2	
70	Meas. of luminous intensity	1987	F	86													2	
71	Proceedings 1987-Volume I	1987															1	X
71	Proceedings 1987-Volume II	1987															1	X
72	Retroreflectors at night	1987	G	91						1							1	
73	Visual aspect of road markings	1988	G	91													1	
74	Road signs	1988	K	137													3	
75	Spectral luminous efficiency	1988	C	68													2	
76	Meas. of luminescent specimens	1988	H	98													2	
77	Electric light sources	1988	K	137													0	
78	Brightness-luminance relations	1988	M	195													2	
79	Road traffic lights	1988	C	68				1									0	
80	Observer metamerism	1989	C	68													2	
81	Mesopic photometry	1989	D	74													3	
82	CIE history (1913-1988)	1990	M	195													1	
83	Lighting of sports for tv&film sys.	1989	C	68							1						0	
84	Meas. of luminous flux	1989	F	86		1	1				1	1				1	0	
85	Solar spectral irradiance	1989	F	86						1					2		1	
86	1988 2 deg.spec.lum.eff.function	1990	B	57													2	
87	Self-luminous displays	1990	E	80					1								0	
88	Lighting for road tunnels&underpas.	1990	F	86	1				1								0	
89	Technical collection 1990	1991	F	86													2	
90	Sunscreen testing (UV B)	1991	B	57													2	
91	Proceedings 1991-Volume I, P1	1991															2	X
91	Proceedings 1991-Volume I, P2	1991															2	X
91	Proceedings 1991-Volume II	1991															2	X
92	Guide for lighting of urban areas	1992	D	74				1									0	X
93	Road lighting/accident counter meas.	1992	J	122	1												3	
94	Guide for floodlighting	1993	H	98													1	
95	Contrast & visibility	1992	F	86					1								0	
96	Electric light sources	1992	C	68													0	
97	Maintenance/indoor ltg systems	1992	C	68													2	
98	Personal dosimetry of uv radiat.	1992	C	68													1	
99	Lighting education (1983-1989)	1992	B	57													1	

CIE/CNC PUBLICATION STOCK LIST

2004-SEPTEMBER-30

CIE	Title	Year	Price	Price				Sales						Purchase			Current	CB
No.			Code	Cd$	97-98	98-99	99-00	2001	2002	2003	2004	99-00	2001	2002	2003	2004	Stock	X
100	Visual task of night driving	1992	G	91													2	
101	Parametric effects/colour differ.	1993	B	57													0	
102	File format-photometric data	1993	C	68													1	
103	CIE technical collection 1993	1993	G	91													0	
104	Daytime running lights (DRL)	1993	B	57													1	
105	Spectroradiometry-optical radia.	1993	C	68	1	1											1	
106	Collection/photobio.& photochem.	1993	F	86													1	
107	Colours of signal lights	1994	E	80													1	
108	Daylight measurement	1994	F	86													1	
109	Corresponding colours	1994	B	57					1								1	
110	Spatial distribution of daylight	1994	D	74	1												0	
111	Variable message signs	1994	F	86					1								1	
112	Glare evaluation system-outdoor	1994	B	57		1					1						0	
113	Retroreflective road signs(night)	1995	G	91													1	
114	Collection-photometry&radiometry	1994	E	80													2	
115	Lighting of roads for motor ped.	1995	C	68		1					1						0	
116	Colour difference evaluation	1995	B	57			1										1	
117	Discomfort glare in interior lighting	1995	D	74	1												1	
118	Collection-colour & vision	1995	G	91													2	
119	Proceeding of New Delhi Vol.1	1995	X	189													0	
120	Proceeding of New Delhi Vol.2	1996	K	137													0	X
121	Goniophotometry of luminaires	1996	F	86		1			1	2					3		1	
122	Digital&colorimetric data for CRT	1996	C	68						1							0	
123	Low vision	1997	L	166													2	
123CD	Low vision: CD-ROM	1997	CD	83	1												0	
124	Collection-colour & vision	1997	E	80													2	
125	Standard erythema dose	1997	A	43					1								1	
126	Minimizing sky glow	1997	B	57													2	
127	Measurement of LEDs	1997	C	68	1	2		1	3	3	1			4	4		1	
128	Lighting of open cast mines	1998	C	68													2	
129	Lighting exterior work areas	1998	B	57				1									1	
130	Measurement of reflec.& trans.	1998	G	91			1										1	
131	CIECAM97s colour appearance	1998	B	57					1								1	X
132	Design methods for ltg of roads	1999	F	86													2	
133	Proc.24th ses.CIE,Warsaw	1999	X	335													0	
133CD	Proc.24th ses.CIE,Warsaw	1999	CD	114													0	
134	Collection in photobi&photochem.	1999	F	86			1										1	
135	Vision and colour	1999	H	98								2					2	
136	Guide to lighting of urban areas	2000	D	74				1	1		1	2		1			0	
137	Conspicuity of traffic sign	2000	D	74								2					2	
138	Col.in photobiology & photochem.	2000	F	86			1					2					1	
139	Diurnal&seas. var.in humans	2001	G	91													0	
140	Road lighting calculations	2000	D	74				1			1	2					0	
141	Test of suppl.systems of photo.	2001	I	109									2				2	
142	Impr.to ind.color-diff. evaluation	2001	B	57				1					2				1	
143	Colour vision req.for transport	2001	E	80				1	1				2				0	
144	Road surf. & marking refl.charact.	2001	D	74									2				2	

CIE/CNC PUBLICATION STOCK LIST

2004-SEPTEMBER-30

CIE	Title	Year	Price	Price				Sales					Purchase				Current	CB
No.			Code	Cd$	97-98	98-99	99-00	2001	2002	2003	2004	99-00	2001	2002	2003	2004	Stock	X
145	Cor.for vision&visual perform.	2002	E	80					2					2			0	
146/7	CIE collection on glare 2002	2002	C	68					1					2			1	
	146-CIE equations for disab.glare																	
	147-glare from small….sources																	
148	Action spect.of skin /w…lasers	2002	B	57										2			2	
149	Use of tungsten filament lamp	2002	C	68										2			2	
150	Guide..obtrusive light from outdoor ltg	2003	E	80						2	1				2	1	0	
151	Spectral weighting of Solar UV	2003	D	74											2		2	
153	Interc.of luminous flux of HPS	2003	A	43											2		2	
154	Maint.of outdoor lighting system	2003	C	68						1	1				2		0	
155	Ultraviolet air disinfection	2003	G	91						1	1				2		0	
156	....Gamut mapping algorithms	2004															0	
157	..Museum object by optical rad.	2004															0	
159	Colour appearance..CIECAM02	2004															0	
	CIE Discs:																	
D001	Phot. & colorimetric data	1988	C	68	1		1			1		1			1		0	
D002	Colorimetric&colour rend. data	1991	J	122													0	
D003	CIE roster		-														0	
D004	CIE publications	1993	J	122													0	X
D005	Daylight simulators	1994	A	43													0	
D006	Daylight AQC	1994	-														0	X
D007	Corresponding colours	1994	F	86													0	
D008	Colour rendering index	1995	X	53				2					2				1	
	Standards and Draft Standards:																	
ISO10526	Standard illuminants	1991	B	57			1										1	
ISO10527	Colorimetric observers	1991	G	91			1										2	
S003	Spatial distribution of daylight	1996	A	43	1												0	X
S004	Colours of light signals	2001	B	57													0	
S005	Illuminants for colorimetry	1998	B	57													2	
16508/S006	Road traffic light	1998	A	43	1												1	
17166/S007	Erythema action spectrum	1999	A	43			1		2					2			1	
8995/S008	Lighting of indoor work places	2001	C	68				3		4			3		5		1	
S009	Photobio.safety of lamp&system	2002	D	74													0	
S011	Spatial distribution of daylight	2003	A	43						2					3		1	
S013/E	Int'l stand.global solar UV index	2003	A	43													0	
DS004.2	Signal colours	1996	X														0	X
DS007.4	Erythema action spectrum	1998	X	-	1												0	X
DS008.2	Lighting of indoor work places	2000	X	31													0	X
DS009.1	Photobiological safety of lamps	2000	X	31													0	X
DS010.2/.3	CIE sys.of physical photometry	2001	X	31				2					2				0	
DS011.2/E	CIE standard general sky	2002	X	31													0	X
DS012.2/E	Spectral quality of daylight simu.	2002	X	31													0	
DS013.2	Int'l standard global UV index	2002	X	31													0	X
DS015/E	Ltg.of work places-outdoor work place	2002	X	31						1					1		0	

CIE/CNC PUBLICATION STOCK LIST

2004-SEPTEMBER-30

CIE	Title	Year	Price	Price				Sales					Purchase				Current	CB
No.			Code	Cd$	97-98	98-99	99-00	2001	2002	2003	2004	99-00	2001	2002	2003	2004	Stock	X
	Special Publications - Proceedings of Conferences and Symposia:																	
X001	SLG-Div.5 symposium	1989	B	57													0	X
X002	SLG-Div.4 symposium	1989	-														0	X
X003	Daylight & solar radiation meas..	1989	J	122													1	X
X004	Symp.light & radiation	1981	A	43		1											0	X
X005	Proc.seminar computer program	1992	J	122													0	
X006	Japan CIE/PRAKASH91	1991	B	57													0	
X007	Proc. symposium colorimetry	1993	X	125	1	1											0	
X008	Urban sky glow	1994	E	80													1	
X009	Proc.symposium photometry	1995	L	166													2	
X010	Proc.symposium image tech.	1996	L	166													0	
X011	Proc. 95 late papres	1996	F	86													0	
X012	Proc.NPL-UK conf.-visual scale	1997	I	109													0	
X013	Proc. LED symp. '97	1997	I	109	1	1		1	1				1				0	
X014	Proc.symposium'97-colour std.	1997	K	137													0	
X015	Proc. symp. lighting quality	1998	H	98													0	
X016	Meas.of optical radiation haz.	1998	X	98													0	
X017	Special 24th CIE, Warsaw 1999	2000	G	91													0	
X018	Proc.of CIE sym.'99-75 yrs.	1999	L	166													0	
X018CD	Proc.of CIE sym.'99-75 yrs.	1999	CD	83													0	
X019	Proc.of 3 workshops-road lighting	2001	J	122													0	
X020	Proc.of CIE symp. 2001	2001	I	109				1					1				0	
X021	Proc.of CIE symp. 2000	2001	I	109													0	
X022	Proc. of 2nd symp. on LED	2001	J	122				2	1				2	1			0	
X023	Proc.of two CIE workshops	2002	J	122													0	
X024	Proc.of CIE/ARUP sym.on visual	2002	L	166						1					1		0	
X024CD	Proc.of CIE/ARUP sym.on visual	2002	CD	92													0	
X025	Temporal & spatial aspects of light &	2003	L	166													0	
X025CD	Temporal & spatial aspects of light &	2003	CD	92													0	
AIC1AB	AIC Proc. 93 A+B	1993															0	
AIC1AC	AIC Proc. 93 A+C	1993															0	
AIC1ABC	AIC Proc. 93 A+B+C	1993															0	
Misc.	CIE symposium Toronto 2000	2000		10						1							0	
	Total				**19**	**21**	**14**	**28**	**24**	**27**	**17**	**14**	**24**	**16**	**39**	**2**	**280**	

NOTE: 1) **CB x** - Withdrawn and out-of-print publications from Central Bureau of CIE.

APPENDIX H

CNC/CIE 49th Annual Meeting

2004-October-29

CIE Board of Administration meeting
14-September-2004

Report on the Meeting of the CIE Board of Administration
14 September 2004

Sharon McFadden
Director, Division One

The meeting included the review and approval of the new Technical Committees proposed by the Divisions, reports from the various vice-presidents on initiatives that the BA is currently undertaking, and discussions on future meetings and other issues that have arisen during the past year. Finally, a slate of candidates for the 2007-2011 term were proposed and approved. This report will focus on the issues that are potentially relevant to the CNC/CIE.

Colour Compendium: Division 1 and 2 had been asked to investigate the production of a Compendium on Colour. It would be composed of relevant CIE reports on colour published by Division 1 and 2. After reviewing the reports that might possibly be included, the conclusion was that the cost of such a document would make it unattractive to potential purchasers. Thus, other possibilities are currently being pursued.

Expert Symposium: The CIE sponsored two very successful Expert Symposiums this year. The first was on LED Light Sources and the second was on Light and Health. The latter included a tutorial on Light Measurement for Photobiology. In fact the latter symposium was so successful that a follow-on symposium is being considered for next year possibly in France.

ILV: The Divisions all managed to meet the deadline for completion of the reviews of the different sections of the ILV. The voting for Division 1 and 2 has been completed already. Divisional and Board ballots for the remaining Divisions were distributed last week with a closing date of 1 December. An interdivisional coordinating committee has been set up to harmonize the terms and definitions across the sections once the voting is complete. That group will meet in Leon at the mid-term meeting.

Publication Sales: F. Hengstberger provided an extensive report, complete with figures on the various options for a webshop for CIE reports. Most of them were too costly for the sales volume of the CIE. After extensive discussion, the decision was to negotiate further with Techstreet, a US company used by IESNA among others. Hengstberger also gave a report on sales of CIE reports since the change in price. Total revenues are down, but the decrease is less than would be expected if the total number of units sold had remained the same. Thus, it would appear that the price cut is having the desired effect.

Education: J. Schanda put forward a proposal to coordinate efforts internationally to develop a curriculum for Master courses. It was felt that the CIE did not have the organization to easily support such an endeavour, but that BA members might provide names of professors in their country who teach lighting related courses at the graduate level with the goal of bringing them together in a workshop.
The idea of holding courses at the CB on measurement was also put forward. The course would be aimed at the ‘non-expert’ involved in lighting measurement. It was felt that this kind of course was not currently available. However, I indicated that what they were describing sounded like the course put on by NRC in Canada.

New Awards: J. Schanda provided an update on the new award systems. The German NC had opposed the idea of naming the awards. However, their request was turned down. The new awards will be:

a) Distinguished Services Award in Fundamental Research
Alternative names: Judd, Stiles, Wright
The majority of BA members voted for "Judd".

b) Distinguished Services Award in Applied Illuminating Engineering:
proposed name: Waldram
The majority of BA members voted in favour of "Waldram".

c) Distinguished Services Award for Organization/Administration:
proposed name: de Boer
The majority of BA members voted in favour of "de Boer".

Seminars and Symposia: D. Sliney is going to draft a document giving guidance on running a CIE Symposium. Our proposal for an expert symposium in 2006 was received favourably. TC1-58 will also hold a symposium on Mesopic Photometry at the Interim Meeting and there are plans to hold a Symposium on Visual Appearance in the fall of 2006 in France.

Quadrennial: C. Hermann distributed an amended Session countdown, with a shortened time period between abstract/paper submission and Session. The BA approved it. CB to inform the Organizing Committee accordingly. This decision is in line with a request made by the CNC/CIE prior to the 2004 Quadrennial.

New Slate of Officers: You have already received the slate of officers for the BA 2007-2011, that was approved by the current BA. The presentation of this list was preceded by a vote to change the Statutes to remove the limitation (6) on the number of Vive-Presidents in the BA. There was also some discussion on a Vice-President for young affairs to encourage the participation of young people in the CIE. However, no agreement was reached on what kind of person should occupy such a position and no names were brought forward.

APPENDIX I

CNC/CIE 49th Annual Meeting

2004-October-29

CNC/CIE Members and Advisory Members

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

Canadian National Committee Comité National Canadien

CNC/CIE MEMBERS

CNC/CIE			TERM (expiry)	CIE
President	J.A. Love	Alberta	2007-12-31	
Vice President	J.C. Zwinkels	Ontario	2007-12-31	Division 2
Secretary/Treasurer	A.A. Gaertner	Ontario	2005-12-31	
Publications	K.F. Lin	Ontario	2004-12-31	
	R. Baribeau	Ontario	2006-12-31	Division 8
	J.(Joe) Bastianpillai	Ontario	2007-12-31	Division 4
	J.D. Yvon Deslauriers	Ontario	2007-12-31	Division 6
	S.M. McFadden	Ontario	2007-12-31	Division 1, DD of Div 1
	I.C. Pasini	Ontario	2005-12-31	Division 3
Division 3 Assistant	Ralph A. Smith	New Brunswick	2005-12-31	
	M.K. Timmings	Ontario	2007-12-31	Division 5
	Lorne A. Whitehead	British Columbia	2004-12-31	
ex officio	A.R. Robertson	Ontario		NRC/INMS Member

CNC/CIE ADVISORY MEMBERS

W.K. Adrian	Ontario	Donald B. McIntyre	Ontario
Nolie Agellon	Ontario	S.W. McKnight	Ontario
Eduard Alf	Ontario	Arthur H. Mendel	Québec
[Chantal Arsenault	Ontario]	Guy Newsham	Ontario
Ian Ashdown	British Columbia	Keith Niall	Ontario
M.G. Bassett	Ontario	T. Nilsson	P.E.I.
Chrisnel Blot	Québec	Karen Pero	Québec
Mario Bucci	Ontario	[Igor Peshko	Ontario]
J. Allyson Chrysler	Ontario	Pascale Reinhardt	Ontario
Vince Cimino	Ontario	Tim M. Richardson	Ontario
W.B. Cowan	Ontario	J.B. Roberge	Québec (Finance)
Biman Das	Nova Scotia	Mankajee Shrestha	British Columbia
R.V. Day	Ontario	Andrew D. Silbiger	Ontario
Walter T. Delpero	Ontario	William A. Simpson	Ontario
Marie Dumont	Québec	Dyoni Smith	Ontario
John W. Harron	Ontario	Nikolay Stoev	Ontario
Kurt Ising	British Columbia	Cristian Suvagau	British Columbia
Byron Jordan	Québec	Eli Szamosi	Ontario
S.M. Kaye	Manitoba	B.W. Tansley	Ontario
Barbara Kolesnik	Ontario	R. Topalova	Ontario
Jacques Lacasse	Québec	J.A. Veitch	Ontario
R. Lakowski	British Columbia	[Venkat Venkataramanan	Ontario]
André Laperrière	Québec	James G. White	Ontario
Denis Lavoie	Québec	R.W. White	Québec
Ken Loach	Ontario	Roy Williams	Manitoba
P. Manning	Nova Scotia	Ernest Wotton	Ontario
J. Bruce McArthur	Ontario		

[ ] = require CNC/CIE appointment at annual meeting of 2004-October-29.

2004-October-26

NRC·CNRC

Institute for National Measurement Standards • Institut des étalons nationaux de mesure • Ottawa, Canada, K1A 0R6, Fax (613) 952-1394

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

Canadian National Committee Comité National Canadien

Canadian Division Members' Reports

CNC/CIE 49th Annual Meeting

2004-October-29

CIE Division 1

Vision and Colour

Division 1: Vision and Colour
Report to CNC/CIE 49th Annual Meeting

Sharon M. McFadden
Defence Research and Development Canada - Toronto
P.O. Box 2000, Toronto, Ontario M3M 3B9
Phone: (416) 635-2189
Fax: (416) 635-2013
email: sharon.mcfadden@drdc-rddc.gc.ca

The annual meeting of Division 1 was held June 10th 2004 in Tokyo, Japan. Division 1 met jointly with Division 2 with a joint session being held on the 9th of June. In addition there was a CIE Expert Symposium on LED Light Sources: - Physical Measurement and Visual and Photobiological Assessment, 7-8 June. Nine nations were represented at the meeting. S. McFadden was the official Canadian representative. Six Technical Committees (TC) met in conjunction with the meeting: TC1-42 Colour appearance in peripheral vision, TC1-58 Visual performance in the mesopic range, TC1-59 Standard photometric 10-deg observer, TC1-62 Color rendering of white LED light sources, TC1-64 Terminology for vision, color, and appearance, and TC1-65 Visual appearance measurement.

Highlights

One TC, TC1-51, and three Reporterships, R1-15, R1-27, and R1-34 were closed. One TCs, TC1-66, and two Reporterships, R1-35, and R1-36, were initiated (see summary below for a description on these).

Summary of Progress of Technical Committees and Reporterships

The following summaries of activities in the various Technical Committees of Division 1 are based on the minutes and my notes from the 2004 Division 1 meeting. Additional information on some of the TCs can be found in the Activity Report for 2004. It is available in PDF format on the Division 1 website http://www.bio.im.hiroshima-cu.ac.jp/~cie1. It includes the terms of reference and membership for all Technical Committees and Reporterships.

Progress in Vision Section (F. Viénot, Associate Director)

TC1-30: Luminous Efficiency Functions (Y. Nakano)
Dr. Nakano continues to work on a Chairman's report for this TC. He provided an extensive report at the 2004 meeting. The report will describe how to use 5 luminous efficiency functions. There are 5 equivalent luminances that go with each of the 5 luminous efficiency functions. The luminous efficiency functions are defined from 400nm to 700nm at 10 nm intervals. The report will now contain a simplified interpolation section. He hopes to have the fifth draft ready for circulation in the coming year.

TC1-36: Fundamental Chromaticity Diagram with Physiologically Significant Axes (F Viénot)
Progress continues to be made in this very important TC. The Committee has voted on Chapters two and three and is currently voting on Chapters 4 and 5. The report will provide a new fundamental response curve for the 2-degree observer. With this curve, if you can specify what is happening in the eye (e.g. transmission of lens and cornea, macular pigment), you will be able to calculate a correct 2-degree curve. Chapter five provides the formulae for correcting the 2-degree observer as a function of age and field size. They will not propose a new $V_{10}\lambda$ as a luminance measure or a new chromaticity

diagram. The latter will be the task of a future TC.

TC1-37: Supplementary Systems of Photometry (K Sagawa)
All of the material necessary to produce a report recommending a system of photometry to assess lights in terms of their comparative brightness relationships at any level has been collected. It is now necessary to write the report summarizing all of the discussion material to recommend a system of brightness photometry. Although the TC did not meet in Tokyo, the Chair provided an extensive report during the Division 1 meeting. This was followed by an extensive discussion among the attendees. This new system will take account of chromaticity effects and the Purkinje effect to account for luminance/brightness discrepancies. The chromatic component uses the formula developed by Nakano. The Ware and Cowan formula is insufficient. There was considerable discussion about the feasibility of producing curves across the whole mesopic range. Some felt that the proposed model did not provide a good fit to all the data. As well, people were concerned about the large variability in the data at the different levels between the scotopic and the photopic curves.

TC1-41: Extension of $V_m(\lambda)$ beyond 830 nm (P Walraven)
This technical report is still waiting for the results of TC1-36. The required information is in Part 2 of the report on which there is still no consensus.

TC1-42: Colour Appearance in Peripheral Vision (M Ayama)
This TC met in Tokyo. The Chair has drafted an outline of a final report. The outline was discussed during the TC meeting. The chair plans to draft a report over the next year.

TC1-46: Concept and Application of Equivalent Luminance (Y Nakano)
The objective of this TC is to write a technical report describing the fundamental concepts of equivalent luminance and to provide guidelines on how to apply these concepts. A major problem to achieving this goal is that the spectral sensitivity function changes across the mesopic range. Thus, it is necessary to describe the adaptation level of the eye. Given the difficulty involved in writing this report, it was recommended that the Chair start by writing a summary.

TC1-51: Visual Acuity (H J Schmidt Clausen)
The Chair resigned shortly before the meeting because he no longer has the resources to continue the work. Since the report was primarily based on his work, the TC was closed.

TC1-54: Age-Related Change of Visual Responses (K Sagawa)
Dr. Sagawa presented the data that has been collected so far on the three visual functions included in the terms of reference, i.e., spectral sensitivity, visual acuity, and contrast sensitivity of the eye. He is now ready to draft a report including the application of this data.

TC1-58: Visual Performance in the Mesopic Range (L Halonen)
This TC met in Tokyo. There were a number of different presentations. This TC is linked to a Euopean project, Mesopic Optimization of Visual Efficiency (MOVE) looking at performance in the mesopic range. During the TC meeting a revised set of Terms of Reference were proposed that should be more achievable. They are:

* To define mesopic visual performance and related terms.
* To investigate performance based photometry in the luminance region below approximately 10 cd/m2.
* To propose a model for the basis of performance based mesopic photometry

These were later approved at the Division 1 meeting and by the Board of Administration of the CIE.

TC1-59: Standard Photometric 10° Observer (J Schanda)
This TC had its final meeting in Tokyo. Consensus was reached on the few remaining points. Since the meeting, the report has been reviewed by the editor and has been submitted to the Central Bureau for Board and Division ballot.

TC1-60: Contrast Sensitivity Function (CSF) for Detection and Discrimination (E Martinez-Uriegas)
There was no report from the Chair at this meeting. There is ongoing discussion through an electronic room that has been set up by the Chair and some progress is being made.

R1-16: Visual Adaptation to Complex Luminance Distribution (H Shinoda)
This Reportership will be closed in Leon.

R1-19: Specification on Individual Variation in Heterochromatic Matching (H Yaguchi)
The reporter will be asked to produce a report or disband the Reportership.

R1-23: Guidelines on Planning a Mesopic Photometry Investigation (P Trezona)
The report is to be published in the CIE collection after recommendations provided by two reviewers have been incorporated. The Reportership should be closed in Leon.

R1-27: Measurement of Pupil Diameter (P Trezona)
This Reportership was closed.

Progress in Colour Section (M. Pointer, Associate Director)

TC1-27: Specification of Colour Appearance for Reflective Media and Self-Luminous Display Comparison (P J Alessi)
The Division is still awaiting a report from this TC. There was no report at the meeting.

TC1-38: Compatibility of Tabular Data for Computational Purposes (C McCamy)
At the meeting, Dr. Pointer stated that the TC had progressed to Draft 9. At that point only one person was in serious disagreement. Since the meeting, agreement has been reached; a successful TC vote has been completed and the final edited report has been submitted for Division and BA ballot.

TC1-44: Practical Daylight Sources for Colorimetry (R Hirschler)
A detailed summary of the current status of the work of this TC is available in the 2004 Activity report. There has been no further progress since then. Essentially, the TC has completed its work as defined under its terms of reference and the Chair is ready to start drafting a report. The evaluation of fluorescence is one issue that was not resolved by the TC. This will be a task of a future TC.

TC1-48: Revision of CIE Document 15.2 Colorimetry (J Schanda)
The final draft of this report was approved by the TC members. It was then submitted for Division and BA ballot. That ballot has been completed successfully. The Chair is currently incorporating comments arising out of the ballot.

TC1-52: Chromatic Adaptation Transform (M R Luo)
The report of this TC was published shortly after the Division 1 meeting. Thus, the TC will be closed in Leon.

TC1-53: A Standard Method of Assessing the Quality of Daylight Simulators (C McCamy)
This standard was sent for NC ballot and there were a number of concerns. Over the course of the year these concerns were dealt with and the revised standard was submitted for final ballot. That ballot was successful although there were still a few comments.

TC1-55: Uniform Colour Space for Industrial Colour Difference Evaluation (J Nobbs)
The TC members are looking at the DIN 99, DCI-95 and the CIECAM02 colour spaces to see if they can be adapted to industrial colour difference evaluation and provide a new uniform color space. The TC is not overtly active. However, it is maintaining a watching brief for any new papers on industrial colour difference evaluation.

TC1-56: Improved Colour Matching Functions (M Brill)
Experiments in support of the mandate of this TC to determine if there is a requirement for improved colour matching functions are being carried out by M. Fairchild in the US, R. Luo in the UK and the University of Granada in Spain.

TC1-57: Standards in Colorimetry (A Robertson)
At the time of the Division 1 meeting, this TC was relatively inactive. They have been awaiting the completion of TC1-48 and TC1-38. Now that TC1-48 has been approved and TC1-38 is ready for ballot, the TC will be able to proceed with its work and should have 2 to 3 standards ready shortly. Several ISO Committees complained that they wanted representation on the TC and appointed liaisons. However, the TC has received no feedback from those liaisons.

TC1-61: Categorical Colour Identification (T Ishida)
There was no report from this TC. S. McFadden agreed to contact the Chair about joining the TC to provide some input on the application of the results of research undertaken by this TC.

TC1-62 Colour rendering of LED light sources: (P Bodrogi)
The results of the research either undertaken or collected by the members of this TC show that there are clear problems with the CRI for estimating the colour rendering of white LEDs. The TC will now combine all of the data and prepare a report recommending a new TC be initiated to develop an improved CRI.

TC1-63 Validity of the range of CIEDE2000 (K. Richter)
This TC was established in 2003. Its terms of reference are to investigate the application of the CIEDE2000 equation at threshold, and to CIELAB colour differences>5.There was no report from this TC at the Division meeting, but a report is available in the 2004 Activity Report. Currently, the TC is collecting data on large colour differences.

TC 1-64 Terminology for vision, colour and appearance (S. McFadden)
This TC had its first meeting in Tokyo. It reviewed a set of terms sent to it by Division 8. The goal was to decide if the terms should be handled by Division 1 or Division 8. In addition a proposed way ahead for selecting new terms was agreed upon. One task of the TC wil lbe to decide on a format for the vocabulary and to date all of the terms.

TC1-65 Visual appearance measurement (M. Pointer)
The Chair circulated a report that he had written to all of the members. He recieved comments from about half of them.

R1-11 Cognitive Aspects of Colour: (G Derefeldt)
The report was to have been published as a CIE report during the past year. Two reviews of the report were received, but not all the concerns have been addressed. It is hoped that the remaining concerns will be handled quickly and the Reportership can be closed in Leon.

R1-15 Lighting Terminology: (M Pointer)
The ballot on the Division 1 terms has been completed and the Reportership was closed.

R1-32 Emotional aspects of colour and light (G. Derefeldt)
There was no report at the Division meeting. However a report is available in the 2004 Activity Report.

R1-33 Colour-difference evaluation (R. Luo)
A large study in Brazil showed some improvement for some pairs using CIEDE2000 and a study in the US had a similar result.

R1-34 Indoor daylight (J. Schanda)
The Reporter provided an extensive report to the Division meeting which is to be attached to the minutes. The report recommended the formation of a new TC. Thus the Reportership was closed.

Proposals for New Technical Committees and Reporterships

One TCs and three Reporterships were proposed.

TC1-66: Indoor daylight illuminant (C)
The terms of reference are to prepare a CIE recommendation on an Indoor Daylight Illuminant and a corresponding Indoor Daylight Source, considering the needs of the partner international standards organisations. The Chair is János Schanda HU. Initial members are Byron Jordan CA, Tony Bristow SE, Peter Clarke GB.

R1-35: Irregularities in ybar10(L) (V)
Terms of reference are to document the irregularities in ybar10(L) and, if necessary, recommend the formation of a Technical Committee to consider possible modifications. The Reporter is Pieter Walraven (NL).

R1-36: Action Spectra for Glare (V)The terms of reference are to summarise the literature on the subject and make a recommendation for terms of reference for a Technical Committee. The Reporter is Judith Fekete (HU).

R1-37: Definition of the Visual Field for Conspicuity (V)The terms of reference are to summarise the literature on the visual field for conspicuity and make a recommendation for terms of reference for a Technical Committee. The Reporter is Nana Itoh (JP).

Liaisons

Liaisons are currently established with:

- The Association International de la Couleur
- Comite Consultatif de Photometrie et Radiometrie, BIPM
- ISO/TC6/3.
- ISO/TC38/SC1

- ISO/TC42 – Photography
- ISO/TC130
- Steering Committee for Image Technology (SCIT)

The most recent reliable information on these Organizations and Committees can be found in the Division 1 Activity Report.

Next Meeting
The 2005 meeting will be held 16-17 May, in Leon, Spain, in conjunction with the Mid-Term meeting of the CIE. The 2006 meeting is tentatively scheduled for mid May in Ottawa, Canada. It will be held in conjunction with the Meeting of the Inter-Society Colour Council. The plan is to jointly hold a CIE Expert Symposium on the 1931 Standard Colorimetric Observer.

New Officers for Division 1
There were no changes to the officers of Division 1.

Canadian Participation in Division 1
Based on the latest information available to me, Canada has representatives on 15 Technical Committees in Division 1. The Canadian representatives are Ian Ashdown on TC1-62, Byron Jordan on TC1-66, W. Cowan on TC1-37, S. McFadden on TC1-42, TC1-60, TC1-64, and TC1-65, A. Robertson on TC1-27, TC1-38, TC1-48, TC1-56, TC1-57, and TC1-59, W. Simpson on TC1-60, J. Veitch corresponding member on TC1-65 and J. Zwinkels on TC1-38, TC1-44, TC1-53, and TC1-57. J. Zwinkels is also a liaison between Division 1 and ISO TC6/WG3. If anyone is interested in participating in one of the TCs, especially the newer ones, please contact Sharon McFadden.

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

Canadian National Committee Comité National Canadien

Canadian Division Members' Reports

CNC/CIE 49th Annual Meeting

2004-October-29

CIE Division 2

Physical Measurement of Light and Radiation

Division 2: Physical Measurement of Light and Radiation

Report to CNC/CIE 49th Annual Meeting
Toronto, Ontario, October 29, 2004

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

Phone: (613) 993-9363
FAX: (613) 952-1394
E-mail: Joanne.zwinkels@nrc-cnrc.gc.ca

The most recent CIE Division 2 General and TC meetings were held June 9-11, 2004 in Tokyo, Japan., in conjunction with CIE Division 1 meetings and LED Symposium. I was unable to attend and Dr. Alan Robertson was given my proxy as the official Canadian representative. The detailed minutes of the meeting can be found at the web-site: http://cie2.nist.gov.

Six Technical Committees (TCs) met in conjunction with the Division 2 meeting: TC 2-43 Uncertainty (Sauter), TC 2-45 Measurement of LEDs (Muray), TC 2-48 Spectral responsivity measurement (Eppeldauer), TC 2-58 Measurement of LED radiance/luminance (Kohmoto), TC 2-56 Standard on retroreflectance (Miller), TC 2-50 LED clusters and arrays (Sauter replaced by J. Schuettte as TCC).

There was no change in Officers of the Division.

Highlights

Proposals for New Technical Committees and Reporterships

TC 2-59 Characterization of Imaging Luminance Measurement Devices
Chair: P. Blattner (Switzerland)
TR: To prepare a Technical Report on methods for the characterization of imaging luminance measurement devices (Proposed as a result of R2-29)

TC 2-60 Effect of instrumental bandpass function and measurement interval on spectral quantities.
Chair: D. Gibbs (UK)
TR: To prepare a technical report that describes the effect of instrumental bandpass functions and measurement wavelength interval on spectrally resolved quantities and provide recommendations on suitable methods to minise the error introduced by instrumental bandpass functions on spectrally integrated or weighted quantities. (proposed as a result of R2-31).

R2-35: Uncertainties in Distribution Temperature Determination

Reporter: Alan Roberston (Canada)

TR: To investigate the potential effect of a change to the definition of distribution temperature to include a statement regarding weighting the spectral distribution values by the uncertainty of the measurements at each wavelength.

*Background Note**:*** Sauter reported on distribution temperature issue (see TC 2-43 notes). Yoshi Ohno's calculations show that effect is quite large (10-15 K in typical example). Sauter pointed out that he needed to calculate the uncertainties of his values. A. Robertson agreed and was appointed Reporter.

Summary of Progress of Technical Committees and Reporterships

Additional information can be found in the Minutes of the Division 2 meeting at the website: http://cie2.nist.gov. This site includes the terms of reference and membership for all Technical Committees and Reporterships.

Progress in TCs: 2-16, 29, 37, 40, 43, 45, 46, 47, 48 and 55 (Sauter, AD)

TC 2-16 Characterization of tristimulus colorimeters. Rastello resigned as TCC. Schanda appointed as new TCC. He will edit current document for vote.

TC 2-29 Linearity (Larason). No report

TC 2-37 Detectors as transfer standards (Ohno). Hopes to finish next year.

TC 2-40 Characterization of luminance/illuminance meters (Rattunde). Has not completed new draft. Interested in getting new members of TC.

TC 2-43 Uncertainty (Sauter). TC met in Tokyo and discussed Draft 4 of report. Expects final report to be ready for TC ballot this year.

TC 2-45 Measurement of LEDs, revision of CIE127 (Muray). Meeting held in Tokyo. Draft 4 is in good shape.

TC 2-46 Standard on LED intensity measurement. (Scarangello). Sauter has heard nothing from TCC since San Diego.

TC 2-47 UV meters. TCC has resigned. Goodman will look for NPL chair.

TC 2-48 Spectral responsivity measurement (Eppeldauer). Tc met in Tokyo and discussed Draft 6 of report. Some chapters written, some still to be added, e.g. Chapter on References..

TC 2-58 Measurement of LED radiance/luminance (Kohmoto). TC had first meeting in Tokyo. Concentrating on measurements needed for safety standards. Plans first draft in12 months. DD said there was much urgency in D6, etc. Kohmoto promised at least table of contents in 6 months. There are issues between CIE and IEC about which standards should apply to LEDs and in which applications.

Progress in TCs: 2-23, 49, 50 and 52 (Vandermeersch, AD, reported by Goodman)

TC 2-23 Photometry of street lighting luminaires (Vandermeersch). No meeting yet.. Rattunde said there was an informal meeting in connection with CEN meeting on same subject.

TC 2-49 Flashing lights (Ohno) NIST looking for guest worker to do some research on the topic. Rattunde does not think TC should wait for research – just specify how to measure according to one given formula without waiting for decision on "best" formula. This is the wrong Division for deciding what to measure.

TC 2-50 LED clusters & arrays (Sauter) TCC asked to resign;. J. Schuette (Germany) was nominated and approved as new TCC). New TCC then gave report on TC meeting. He wants to concentrate on 4 issues. thermal effects, measurement of luminance, chromaticity and amplitude modulation. Will meet again in Spain in 2005.

TC 2-52 Emergency lighting (Vandermeersch). Reported that the concepts promoted regarding emergency ballast lumen factor are in voting stage in IEC and, when approved, CIE can publish the TC document. It was remarked that IEC decides what to measure (the safety concept) and CIE decides how to make the measurements. As Vandermeersch is involved in both, he can coordinate the two approaches.

Progress in TCs: 2-17, 19, 25, 28, 32, 35, 39, 42, 51, 53, 56, and 57 (Johnson, AD)

Not much activity at the Tokyo meeting but 5 or 6 TCs have near-final drafts.

TC 2-17 Simulated solar radiation (Zerlaut) No report

TC 2-19 Spectral coefficient of retroreflection (Johnson) Little activity in TC but a few relevant things going on elsewhere

TC 2-25 Fluorescence measurements (Zwinkels, *Canada*). Report presented by A.Robertson. TCC has largely completed the revision of the TC report, incorporating the recommendations from the San Diego meeting. The target date for completion of this document (Draft 12) and submission for Division ballot is October 2004. The fluorescence vocabulary terms from TC 2-25 were sent to the D2 Editor for inclusion in the revised ILV. Upon request from the CIE CB, the CIE draft standard "DS012.2E "Standard method of assessing the spectral quality of daylight simulators for visual

appraisal and measurement of colour" prepared by TC 1-53, was reviewed with regards to clarifying the fluorescence terminology. Recommednations were made and accepted to revise the terminology to be consistent with the usage in TC 2-25.

TC 2-28 Characterization of spectrophotometers (Clarke) No known progress. Some discussion of the illogical name "spectrophotometer" but no resolution.

TC 2-32 Wet horizontal road markings (Hodson) Next draft expected for meeting in September 2004 (with D4).

TC 2-35 Standard for V-lambda. (Mielenz) DD reported. NC ballot took place some time ago. Editorial comments handled. In addition, there were some technical comments on the way some things were explained. CB failed to contact Klaus Mielenz but DD expects to resolve issues soon.

TC 2-39 Geometric tolerances (Rich). Document nearly finished. TCC has lost some support for CIE activities which has slowed things down. Johnson (AD) suggested that once report finished, D2 should move on to develop standard geometries. Carter (US) said that TCC reported at CORM meeting that another draft had been circulated and comments received. Issues regarding ways to assess sphere conformance have been resolved. TCC is reviewing document for style and will submit to DD and Editor.

TC 2-42 Colorimetry of visual displays (Wall) No report this year or last.

TC 2-51 Multi-channel spectrometers (Austin) No known progress.

TC 2-53 Multi-geometry measurements (Roesler) No known progress since San Diego.

TC 2-56 Standard on retroreflectance (Miller) TC met in Tokyo. Good progress. Will meet with D4 in September in Switzerland.

TC 2-57 Standard for D50 (Robertson, *Canada*) Waiting for current revision of S014-2 (Colorimetry – Part 2: CIE Standard Illuminants) to be completed. DD says this will be soon.

Progress of Reporterships

R 2-21 Detectors as transfer standards (Fox) No report.

R 2-23 ISO/IEC standards for reflectance/transmittance (Rich) No report.

R 2-27 Field measurement of traffic signals (Anderson) No report.

R 2-28 Colorimeter spectral responsivity (Kranicz) No report.

R 2-29 Imaging luminance meters (Blattner) Verbal report. More products available, more being sold, some inconsistencies in measurements. Reviewed various parameters that can be measured. Users generally satisfied. Most manufacturers solve characterization problems internally. Some methods are proprietary. One manufacturer keen for CIE TC and willing to chair. Young: Manufacturers will not be interested in a TC whose purpose is to identify problems. They only want TCs that produce solutions. Blattner proposes TC to prepare TR on methods for characterizing imaging luminance measurement devices. DD concerned about having manufacturer as chair. Under pressure, Blattner agreed to chair.

R 2-30 Measurement of TL5 lamps (Vandermeersch). Last report was final one. Closed.

R 2-31 Bandpass issues and revision of CIE 63(Gibbs) CIE 63 (1984) still valid but a little dated. Re-affirmation under new policy on old publications (see above) may be enough for time being but proposes new TC on bandwidth. It was also proposed that the TC should include recommendations on how to report data, e.g. how should bandwidth and step interval be indicated in the data file.

R 2-32 Visual appearance measurement (Pointer) Report has been submitted. It basically explains the TR of TC 1-65. Reporter is to keep D2 informed.

R 2-33 Laser-based projection displays (Niall, *Canada*) No report.

R 2-34 Photon counting (Rastello) No report

Reports of Liaisons

CCPR (Ohno) WGs on KCs and CMCs met at NIST last month. Bastie summarized situation on photobiological/photochemical units/quantities. NRC (Boivin, Gaertner, Robertson, Zwinkels) provided input to this document which can be downloaded from the CCPR web-site.

CIE D8 (Kravetz) Report sent after the meeting. Two technical reports have been balloted and passed (TC 8-01 Colour appearance modeling and TC 8-03 Gamut mapping). One TC report (TC 8-04 Chromatic adaptation) is under TC ballot.

ISO/TC6 (Zwinkels) Report given by A.Robertson and included as Attachment 4 of D2 minutes. Of note: ISO WG (optical properties of paper, pulp, board) is satisfied that CIE has agreed to retain the reference to the C- illuminant in the new Colorimetry Document (CIE 15.3); B. Jordan (PAPRICAN) has been appointed official liaison from ISO TC6/WG3 to CIE.

IALA (Anderson) Ian Tutt reported. There are various issues that IALA wants CIE help with. Some are D1 (such as conspicuity). Much anecdotal evidence that flashing LEDs

are more conspicuous than equivalent incandescent. Blue LEDs are being considered for warning lights and blue and yellow lights (alternating) are being considered for buoys.

General matters

Process for electronic sale/download of CIE Publications has been delayed but CB hopes to have it working soon. Some support for system whereby CB automatically notifies registered people every time a new publication is available. DD will bring this up at BA. Present interim system of electronic/fax order and hard copy delivery seems to work well with delivery worldwide within one week.

There is a suggestion to regularly review old publications and, if appropriate, give them a date notation to indicate date of last review.

CIE will introduce distinguished service award. About 3 awards per quadrennium. Nominations should go to BA.

There are now 37 countries in D2. Total of 187 people on mailing list (182 on e-mail). E-mail addresses are in password-protected area of website (Username: cie2; password: vienna). Draft documents are on website. D2 Secretary can easily set up a reflector for any TC on request.

Vocabulary Matters(formerly TC 2-44 – transferred to D2 Editor)

New terms from TC 2-25 will be included in D2 input for new ILV. This must go to CB by end of June so any remaining comments must go to D2 Editor by June 18th., or they cannot be considered. Any terms that remain controversial will stay as they are in current (4th) edition. There was a long discussion about distinction between terms that go in ILV and those that are specific to one TR. Possibly, ILV should include a list of the latter with references but not definitions.

D2 Editor highlighted a few terms for discussion at Tokyo meeting. These terms and decisions made, are as follows:

01-?? Wavelength range v wavelength region. No strong views. Left to next stage of editing.

01-17 Photon quantities. Should they be included? Decision deferred

01-28 Quantity of light. Change to luminous energy with quantity of light downgraded to second choice. Corresponding change to 01-43.

04-73 Gloss. Comments received that this is subjective term so it does not belong here. Others thought it should be here because it is something we try to measure. Decision was to keep as in present ILV.

05-42 Quantum flat detector (new term). Several opinions on what is best term and whether it is needed. Existing ILV calls it “non-selective”. Currently term refers to

external QE. One person (Japan) wanted an additional term for internal QE. Decided to stay with "non-selective" and to put internal v external as a footnote.

05-22 Goniophotometer. Sauter wants to add goniospectroradiometer and gonioradiometer. There is also goiniospectrophotometer. Too much to discuss therefore left unchanged until next round.

<New term> polychromator. The term seems to be used in several different ways. Similarly for array detector. Not everyone agreed so this term is not to be included.

<New term> monochromator. This term is currently not defined. DD will send e-mail proposal with definitions of monochromator and polychromator. If all agree, the definitions will go forward. If not, default is to stay with 4th edition.

Miscellaneous

Ideas for future symposia.

1. Uncertainties – based on Sauter document – probably 2006 at earliest.
2. Pulse sources – lower priority. LEDs – this week's Symposium was very successful – consensus that another should be held at suitable time – with D1 and D4 perhaps.
3. Traceability chain, CIPM MRA, uncertainty introduced at each step etc. DD indicated that an introductory course on measurement is being discussed at BA level. This may cover some of these issues
4. Measurement of optical properties of materials is blatantly absent from list but there is a lot of interest particularly with respect to complex materials like metallics.

Future trends

- Extension of traditional wavelength range (mainly for safety issues)
- Measurement of OLEDs
- Measurement of "smart paper"
- Fibre optics
- Mesopic measurements

This list will be put on website and updated from time to time

NPL has set up database where people can place data on materials, sources and detectors. The database is now active and available for people to upload data. Data will be marked as accredited, traceable or not traceable. There is a review process for assigning new data into one of the three categories.

Future D2 Meetings

2005 - meeting will be held in Léon, Spain, (see brochure that has been sent to NCs) May 12-21 is full span for all meetings

2006: invitations received from: PTB (in connection with InterLumen) and CNC/CIE (in connection with D1 and ISCC). Sauter said that symposium on uncertainty could be held in conjunction with meeting at PTB. DD proposed straw vote here but also letter vote of other countries. Decision was made to meet at PTB.

2007 – Beijing, June

Future D2 Symposia
Priority is: 1) LED measurements, 2) uncertainty evaluation, 3) pulse source measurement. AD Sauter proposed next symposium on uncertainty in 2006.

Canadian Participation in Division 2
Canada has representation on 10 Technical Committees:

TC 2-04	A. Gaertner (NRC)
TC 2-25,	J.C. Zwinkels (*Chairman*, NRC)
TC 2-28	J.C. Zwinkels, A.R. Robertson (NRC)
TC 2-35	A.R. Robertson
TC 2-39	J.C. Zwinkels, B. Jordan (PAPRICAN)
TC 2-42	S. McFadden (DCIEM), R. Baribeau (NRC)
TC 2-43	A. Gaertner (NRC)
TC 2-47	L.P. Boivin (NRC), B. McArthur (AES)
TC 2-48	L.P. Boivin , R. McArthur
TC 2-57	A.R. Robertson (*Chairman)*, J.C. Zwinkels

One Liaison:

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

Two Reporterships:

R2-33,	K, Niall (DCIEM)
R2-35	A.R. Robertson (NRC)

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

Canadian National Committee Comité National Canadien

Canadian Division Members' Reports

CNC/CIE 49th Annual Meeting

2004-October-29

CIE Division 3

Interior Environment and Lighting Design

Minutes of the Division 3 meeting held at the Dublin Institute of Technology, March 31, 2004

Dominique Dumortier
ENTPE, France

1. OPENING OF THE MEETING

The Division Director (DD) opened the meeting by welcoming the members and observers. He then presented the agenda of the meeting which was approved by the attendance.

2. ATTENDANCE

The following were in attendance :

Marc Fontoynont	Division Director, ENTPE (France)
Dominique Dumortier	Associate Director Natural Lighting, ENTPE (France)
Yoshiki Nakamura	Associate Director Artificial Lighting, Tokyo Institute of Technology (Japan)
J-B Aizenberg	Division 3 Representative (Russia)
Lou Bedocs	Thorn Lighting Holdings Ltd (UK)
Grega Bizjak	Division 3 representative (Slovenia)
David Carter	Chair TC3-31, Chair TC3-38 (UK)
Benedicte Collard	Division 3 representative (Belgium)
Peter Dehoff	Division 3 representative (Austria)
Jean–Jacques Ezrati	C2RMF, Ministère de la culture (France)
David Gibbs	National Physical Laboratory (UK)
Henri Juslén	Philips Lighting (The Netherlands/Finland)
Matej Kobav	University of Ljubljana (Slovenia)
Yasuko Koga	Kyushu University (Japan)
Erlend Lillelien	LUXOASA, Norway Lighting Committee (Norway)
Terry Mc Gowan	Consultant, IEE, (USA)
Anna Pellegrino	Politecnico de Torino (Italy)
Simon Simos	University of Geneva (Switzerland)
Axel Stockmar	President of National Committee (Germany)
Jennifer Veitch	NRCC/IRC (Canada)
Lorne Whitehead	University of British Columbia, Vancouver (Canada)

3. APOLOGIES FOR ABSENCE

The attendance was sorry to learn that Geoffrey Cook, the division secretary, could not attend the meeting due to illness. All the division wished him a fast recovery.

Apologies for absence were received from:

Stanislav Darula (Slovakia)
Dilek Enarun (Turkey)
Hyman Kaplan (USA)
Derrick Kendrick (Australia)
Richard Kittler (Slovakia)
Eliyahu Ne'eman (Israel)
Ivan Pasini (Canada)
Pracki Piotr (Poland)
Jan Petter Skar (Norway)
Yoshiaki Uetani (Japan)
Wout Van Bommel (Netherlands)
Istvan Vonnak (Hungary)
Hayden Willey (New Zealand)
Laurens Zonneveldt (Netherlands)

4. APPROVAL OF SAN DIEGO MINUTES

The minutes of the previous meeting of the Division in San Diego in 2003 were approved.

5. DIVISION MEMBERSHIP CHANGES - WELCOME NEW MEMBERS

The division has received confirmation of the appointment of new division representatives: for Slovenia, Dr. Grega Bizjak from the University of Ljubljana and for Italy, Dr. Anna Pellegrino from the Polytechnic of Turin.

6. TC CHAIRMAN REPORTS

6.1 TC3-11 Daylight calculation methods – Chairman: M. Navaab

Since the TC meeting of San Diego, there has been no news from the chairman and no evidence of exchange between the members of the TC. The Associate Director for Natural Lighting (ADNL) indicates that the final report presented in San Diego seems to be mainly based on the work done previously by P. Tregenza and the members of the IEA Task 21. This is not the first time that work done through an IEA task is transferred to CIE. However, the chairman should check if there are rights on the material that he intends to publish in the final report. It is reminded to the chairman that the TC should come to an end by July 2004.

ADNL to contact M. Navaab.

6.2 TC3-19 Scale model photometry for interior lighting – Chairman: M. Navaab

Since the TC meeting of San Diego, there has been no news from the chairman and no evidence of exchange between the members of the TC. The ADNL will remind the chairman that he should send the final report to his members by July 2004.

ADNL to contact M. Navaab.

6.3 TC3-20 Lighting and architecture – Chairman: H. Kramer

The DD indicated that he had not received news from H. Kramer and asked the assistance for information. He stated that the division had a great interest in this work and that the problem caused to CIE by the numerous color pictures could be solved by reducing their resolution and publishing the report on a CD. An Architectural publisher could be selected to publish the report in full color and full resolution while retaining a strong CIE presence as the source authority.

DD to contact Heinrich Kramer.
DS to check whether Jonathan David has contacted architectural book publishers.

6.4 TC3-22 Control of damage to museum objects – Chairman: E. Ne'eman.

The final report was submitted to the CIE Central Bureau before the CIE 25th Session in San Diego. The review process has been completed before the end of 2003. Comments by the reviewers have been dealt with, by the editors of the TC and the revised draft was sent to the Central Bureau. The report has been published in February 2004 as CIE 157:2004. TC 3.22 is now closed.

6.5 TC3-25 Co-ordination of the IDMP and its data – Chairman: D. Dumortier.

The chairman indicated that more than half of the IDMP stations have now ceased their operation due to lack of funding. In spite of not being up to date, the Web server is still a useful source of information on the IDMP. The chairman has recently received requests of information from research teams in Spain and in Hong Kong. It is still planned to update the IDMP Web server this year - Grega Bizjak from the University of Ljubljana has offered the help of his team. The chairman stresses the fact that the IDMP measurements are still extremely valuable; they are an essential source of data for the development and the validation of calculation methods using satellite images. He mentions that his IDMP station is still in operation and that all the measurements from 1992 to now, are available for free download at the following web page: http://idmp.entpe.fr/vaulx/mesfr.htm.

6.6 TC3-30 Hollow light guides – Chairman: L. Whitehead

The DD reminded that there was still some disagreement from the Russian members of the committee on the final version of the report, although most of the suggestions by these members were integrated by the chairman Prof. L. Whitehead, in fall 2003. Prof. J. Aizenberg presented the points of disagreement. The DD reported the various mail exchanges that he had with J. Aizenberg and the chairman. Therefore, if J. Aizenberg was still not satisfied with the report, a minority report would be added to it. This is the normal CIE procedure in that case. In spite of the disagreement, the chairman and the DD expressed their thanks to the work done by J. Aizenberg in this TC. Division voting should thus happen within a few months.

TC Chairman to include a minority sentence indicating the points of disagreement.
Then, TC chairman to send the report to C. Hermann-CIE for division ballot.

6.7 TC3-31 Lighting for real spaces – Chairman: D. Carter

This TC has been closed for more than one year; the Chairman has said that the final report had been sent to CIE headquarters since December 2002. It seems to have stayed there ever since and no action ever taken.

TC chairman to ask C. Hermann-CIE to start the voting procedure within the division and the board.

6.8 TC3-33 Test cases for the assessment of accuracy of lighting computer programs – Chairman: F. Maamari

The TC met just before the division meeting. A draft report has been circulated in March between TC members. The final report will be sent mid-April for comments and voting by TC members, by mid-July.

TC chairman to send the final report to TC members by mid-April.
TC chairman to send the final report to C. Hermann-CIE for divisional ballot by September.

6.9 TC3-34 Protocols for describing lighting - Chairwoman: J. Veitch

The work of this TC is progressing well. The TC met just before the division meeting to review the first version of the draft report. The final version will ready in 2005.

6.10 TC3-36 Use of satellite images to derive daylight data – Chairman: D. Dumortier

The Chairman reminded that the work of this TC was linked to the upcoming IEA task related to the production of solar radiation information from satellite images. This IEA task for now called "Solar Resource Knowledge Management" has received a go-ahead in 2003. It should start by October 2004. Its objective is to provide further standardization, better data reliability and availability, improved spatial and temporal coverage and customized solar resource products easily accessible to the industry. The operating agent will be the National Renewable Energy Laboratory, USA. Many European countries will be involved in the task. The TC should be able to report progress at the next division meeting.

The chairman also mentioned that daylight information from satellite images has been available since 1999, on the SATEL-LIGHT web server: http://www.satel-light.com. The server has been updated in September 2003. It now provides 5 years of half hour information for Europe, roughly from Lisboa to Moscow. It allows to produce maps and site specific diagrams. Another web server: www.soda-is.com, provides solar radiation information over a larger geographic area with a lower resolution.

6.11 TC3-37 Guide for the application of the CIE general sky - Chairman: Y. Uetani.

The DS has received no news from Y. Uetani. Y. Koga informed the attendance that the chairman was extremely busy with his new responsibilities at the Kyoto University. The DD read a letter sent by D. Kendrick surprised to see no progress

from the TC. The ADNL and the DD proposed to reduce the scope of the TC to the production of CIE sky type frequencies around the world. This could be done using IDMP measurements but more widely using the information now provided by the satellite images. The TC should agree on the method and then show some examples. The ADNL proposes a method which could be implemented on the SATEL-LIGHT server. Knowing that Y. Uetani may resign from the chairmanship of the TC, the division invites D. Kendrick to define what could be his contribution.

ADNL to check with Y. Uetani if he wants to keep his chairmanship.

6.12 TC3-38 Tubular daylight guidance systems – Chairman: D. Carter

The TC met before the division meeting. The TC Chairman reported on the good progress of this work. The commercial aspects of the area are considerable and there is substantive representation of these interests in the TC. The draft of the final report will be available at the end of the year. It will be discussed during the next TC meeting in December 2004, in Lyon. The industrial members of the TC have proposed to contribute to the production of a final report of good quality.

6.13 TC3-39 Discomfort glare from daylight in buildings - Chairman:W. Osterhaus

The DS has not received any news from the TC chairman since June 2003. However, the division knows that the work is under progress through different international collaborations.

DS to check with the TC chairman.

6.14 TC3-40 Maintenance of indoor lighting systems update - Chairman: L. Bedocs

This new TC met for the first time in Dublin. It has now 14 members. Its objective is to update the CIE 97 publication. This revision will provide data on new luminaires and lamps. It will introduce an improved method for room surface maintenance factor estimate that extend for 10 years operation. It will add the variable maintenance cycle method. It will extend the economic estimation of maintenance cycles. It will introduce sections covering the impact of lighting controls, sustainable design, end of life disposal and recycling. The work should be completed by June 2005 for publication at the time of the next Lux-Europa conference in Berlin.

6.15 TC3-41 Visual quality of displays in museums – Chairman: E. Ne'eman

There was no meeting of this TC in Dublin. Its chairman has now finalized the terms of reference and produced a work plan. The TC will propose guidelines to control undesirable visual effects and improve visual comfort in the museum environment. The work of the TC will focus on direct glare from light sources and windows, reflected glare from bright surfaces and particularly from glass of free standing and wall mounted show cases, as well as other glass covered objects. It will look at the quality of light sources used for displays. It will provide improved solutions for the visibility of sensitive museum objects which are inevitably illuminated by low illuminances. Finally, it will provide proper measurement routines of illuminance, ultraviolet and infrared radiation. The TC has 14 members.

7. DIVISION REPORTERS REPORTS

7.1 R3-02 Stage and studio lighting – K.R. Ackerman

This reportership was closed at the San Diego meeting. However, the division still needs a liaison with a national or international body which would have interest in lighting for entertainment.

DS to check with the Society of Television Lighting Directors whether a new liaison can be found.

7.2 R3-13 Lighting vocabulary – Y. Koga

Y. Koga gave a report at the meeting. A draft vocabulary containing approximately 130 definitions has been produced. The document lists all the terms with their present definition, with the proposed changes and the explanations for the changes. Y. Koga proposes to send this draft soon after the meeting to all division members. Division members should send their comments directly to Y. Koga. An English version of the vocabulary is to be agreed by 1 July 2004.

Reporter to send the list of terms with the proposed changes to all division members.

7.3 R3-15 Lighting standards and recommendations – S. Simos

There has been some new additions to the spreadsheet which had been presented in San Diego. The spreadsheet should be made available on the division web site as well as on the CIE main site, as a free download. The reportership will then be closed.

Reporter to send the spreadsheet to ADNL and CIE for addition to their web site.

7.4 R3-17 Calculation of utilisation factors – R. Topalova

There has been no report from R. Topalova. A new European standard on the computation of UF is just coming out. As soon as it is available, it should be used by the reporter to review the methods which are used outside of Europe and compare with the CIE method.

DS to check with reporter.

7.5 R3-18 Thermal environment, climate and visual references - C. Laurentin

7.6 R3-19 Glare from windows - M. Velds

7.7 R3-20 Use of satellite images - Y. Koga

These three reports which have been produced since 2001 need to be recirculated within the division, then included in the CIE collection.

DS to re-circulate the three reports for comments by the division.
DS to check with C. Hermann whether a vote of the division is needed.

7.8 R3-21 Determination of discomfort glare - L. Bedocs

L. Bedocs indicates that the report will be ready for the next meeting. It will review the various approaches to the determination of discomfort glare from those listed in the CIE Publication 117 to the one used in the UGR. It will explain what the UGR is and when it is not applicable. T. Mc Gowan explains that the IESNA has discussed on adopting the UGR method. The IESNA thinks there are limitations to the existing approaches: UGR as well as VCP: overhead glare prediction being one. The IESNA has decided to keep the VCP method while expressing more clearly its limitations.

7.9 R3-22 Design guidance, review of publication 29.2 - H. Kaplan

The reporter could not come to the meeting. He has written to the division to indicate that he was officially the liaison between CIE division 3 and 5 and the International Association of Lighting Designers. He indicated that members of both organizations would contribute to the report.

7.10 R3-23 Lighting control and energy efficiency - P. Dehoff

The reporter presented the content of his future report. He intended to present something very exhaustive on the subject. After discussion within the division, it was decided to reduce the scope of the report to allow the reporter to focus on the definition of potential actions for the division in this area.

7.11 R3-24 Overhead glare - T. Mc Gowan

T. Mc Gowan presented a short report including two reference papers from Peter Boyce which clearly show that the problem exists. His conclusion is that CIE should motivate further research on the subject. This could be done through a short article in the CIE news. The author will forward to the division suggestions of investigations to be conducted.

8. LIAISON OFFICERS REPORTS

8.1 CEC JOULE Projects - M. Fontoynont

Framework programme 6 from the EC did not offer opportunities to launch international research programmes in lighting technologies at the European level (a proposal was set up and rejected). Potential funding may exist in FP7.

8.2 CEN/TC169 Lighting Applications - L. Bedocs

L. Bedocs reported on WG2 - Outside Working Places indicating that the standard was about to be voted. A group is working on energy labeling of luminaires.

8.3 International Association of Lighting Designers - H. Kramer

No report was received.

DD to check with H. Kramer if he would agree to be the liaison officer for the European Lighting Designers Association (ELDA), H. Kaplan would then be the IALD liaison officer.

8.4 International Energy Agency - M. Fontoynont

The ADNL had already presented the upcoming task on "Solar Resource Knowledge Management". The DD mentioned a new IEA task on electric lighting which should also start this year (coordinator: Lisa Halonen, Finland).

8.5 ISO/TC159/SC4/WG5 Ergonomics Physics Environment Lighting - L. Bedocs

8.6 ISO/TC205/WG7 Building environment design indoor visual environment:

8.7 World Meteorological Organisation (WMO)

ADNL to check with J. Page whether a new contact could be found at WMO.

8.8 IESNA - I. Pasini

Due to its new job position, I. Pasini cannot be the liaison officer anymore.

DS to check with Rita Harrold at IESNA for a new liaison officer.

8.9 SLL - Lighting for Age and Sensory Impairment - G. Cook

9. PROPOSALS FOR NEW TCS AND REPORTERSHIPS

The list of areas of future work which was established at the San Diego meeting was again reviewed. The major areas were: lighting and health, ground reflected sunlight, overhead glare (covered by R 3-24), design guidance (covered by R 3-22), contrast rendering factor, energy efficiency, lighting controls (covered by R 3-23) and glass in buildings. Two new reporterships related to uncovered items of this list have been proposed at the division meeting.

9.1 R3-25 Lighting and health - Chairman to be designated

The reporter will gather information on light and health - the new CIE publication 1.58 is now available – and investigate the consequences on lighting. T. Mc Gowan and M. Fontoynont will attend the next workshop on Light and Health to be held in Vienna, in September.

9.2 R3-26 Ground reflected sunlight - M. Fontoynont

The reporter will investigate how daylight prediction methods could be improved to take better into account ground reflected sunlight.

10. REVIEW OF DIVISION 3 PUBLICATIONS

The ADAL and the ADNL presented a review of division 3 publications. The ADAL suggested that there was a need for publications based on the trial and error process in lighting design.

Based on the comments made by the associate directors and following discussions within the division, each publication was assigned a "status" selected among the following: "revision" (indicating that an update is in the work), "current" (indicating that the document is up to date), "archive" (indicating that the document is outdated). The division suggests that the CIE uses this status information for all its publications. In addition to the "status" field, a "comments" field giving explanations on the status and a "keywords" field describing the content of the document could be used. This would allow the potential buyers of the publications to really know what they order. J. Veitch also suggests that CIE should present the publications from the latest ones to the oldest ones. The table below presents the results of the review.

N°	Short Title	Status	Comments
16	Daylight	Current	Nothing wrong but software and daylight database give flexibility
19.21	Visual performance, vol.1	Archive	
19.22	Visual performance, vol.2	Archive	
29.2	Guide on interior lighting	Revision	Work of R 3-22
40	Calculations – Basic method	Current	
49	Guide on the emergency lighting	Revision	Work of TC 5.19
52	Calculations – Applied method	Current	
55	Discomfort glare	Archive	
60	Vision and the VDU workstation	Archive	
97	Maintenance of indoor electric lighting	Revision	Work of TC 3-40
103/2	Industrial lighting and safety at work	Current	
103/5	The economics of lighting maintenance	Current	
108	Guide on daylight measurement	Current	Nothing wrong, few changes to match field practice
110	Spatial distribution of daylight	Current	
117	Discomfort glare in interior lighting	Current	
147	Glare from small, large sources	Current	

The DD indicates that in 2004, new publications will be added to the list:

"Hollow light guides" (TC 3-30)
"Lighting for real spaces" (TC 3-31)
"Test cases for the assessment of accuracy of lighting computer programs" (TC 3-33)
"Control of damage to museum objects" (TC 3-22)
"Thermal environment, climate and visual references" (R3-18)
"Glare from windows" (R3-19)
"Use of satellite images" (R3-20)

DS to ask C. Hermann to present CIE publications by chronological order: last one first, add a new information on the status of the publication: revision, current, archive.

11. OTHER BUSINESS

Regarding the TC meetings, J. Veitch (TC 3-34) suggests restricting their access to members and corresponding members only. This would avoid discussing over and over the same points from one meeting to the other. The division indicates that the participation of non members in TC meetings requires the agreement from the TC chairman. Non members could well attend TC meetings but be asked to keep silent. It is decided that a sentence will be added on the occasion of next meetings, asking non members to check with the TC chairman if their participation is welcome.

T. McGowan reminds the division that a conference on Light and Health is organized by CIE, at the CIE headquarters in Vienna, from September 30 to October 2.

Some members of the division have complained that the division 3 web server had not been updated often enough this year. The ADNL (former DS), who still has the charge of maintaining the server, indicates that its update is a time consuming task. There are many sections: objectives, list and details of current and past TCs, addresses of members, list of publications. The roster has been updated. But since the San Diego meeting, the ADNL had difficulty in finding extra time to update the web server. The web server is indeed useful, the best evidence of that, is its systematic use during the division meetings as an aid for the discussions.

The ADNL reminds that he created the web server for the division without any assistance from the CIE headquarters. Managing the web server, preparing the minutes, checking the roster of division members, making sure the action list gets executed are important tasks for the life of the division. This has nothing to do with technical tasks in which researchers can find their own interest. CIE headquarters should realize that division webmasters and division secretaries are doing tasks that the general secretary should do, or if not, that the general secretary should fund. The ADNL suggests once again - it had been done at the division meeting in Ottawa, in 2002 – that the CIE headquarters provide financial help to the division for these tasks – an equivalent of two weeks work per year. This would allow the DS to justify the time spent in managing the division activities to his own institution. Many, if not all national committees pay their secretaries for doing the job that division secretaries and webmasters are doing, why not CIE Headquarters?

DD to contact the CIE Headquarters to stress the importance of this problem.

12. DATES OF NEXT MEETINGS

The next TC meetings will happen during the Light Festival in Lyon, France, on Tuesday December 7 and Wednesday December 8, 2004. TC 3-40 will meet on December 7. The Light Festival gives the opportunity for many lighting designers to create for a few days innovative light shows in the streets of Lyon. Last year, the festival attracted more than one million people. **The next division meeting will occur during the Lux Europa conference in Berlin, on Thursday September 22 and Friday September 23, 2005.**

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

Canadian National Committee Comité National Canadien

Canadian Division Members' Reports

CNC/CIE 49th Annual Meeting

2004-October-29

CIE Division 4

Lighting and Signalling for Transport

REPORT ON DIVISION 4 ACTIVITIES

Division Officers

Division Director	Pentti Hauttala (second term reappointment)
Secretary	Tapani Nurmi
Assoc Director	Add Devisser

Werner Reimenschnieder an active member of TC4 passed away earlier this year.

Meetings

A joint meeting of Divisions 4 and 5 was held in Bern, Switzerland in September of this year.

Progress Reports

TC 4-10 Automobile Lighting Systems
Two documents nearly ready for publication. Titles of documents unknown. About a year for publication

TC 4-15 No report

TC 4-16 No report

TC 4 –19 No report

TC 4-21 Interference by light of Astronomical Observations
A draft document titled “Guidelines for Reducing Sky Glow” will be distributed to the full TC for comments by the end of the year.

TC 4-24 Calculations and measurement of tunnel lighting quality criteria
A draft was prepared and sent to members for comments. The comments are now being reviewed.

TC 4-26 Systems for measurement of photometric quantities of roadlighting installations.
A draft is being prepared.

TC 4- 27 No report

TC 4- 32 No report

TC 4- 33 No report

TC 4-35 Guide for the Lighting of Road Tunnels and Underpasses.
The document has been balloted and the results are as follows:
14 Yes
7 No
6 Did not vote
Canada voted NO because there were a number of disagreements with established North American Design Practices.

TC 4-36 Visibility Designs for Roadway Lighting
Second draft is being prepared and should be ready for voting before the next meeting.

TC 4 – 37 No report

TC 4-38 Daytime Visibility Requirements for Roadway Signs
Fourth draft is being prepared and should be ready for balloting soon.

TC 4-41 Crime and Roadway Lighting
A toolkit entitled “How to Evaluate the Impact of Street Lighting on Crime and Fear of Crime” is being prepared by Kate Painter and will be sent to the membership for review and comments.

TC 4 – 42 No report

TC 4 – 43 A new TC is proposed “ Emergency Lighting in Tunnels”

Written Reports:
A written report titled “The Use of LEDS in Road Transport” by Steve Jenkins is available for review.

Divisional Ballot for Division 4 part of the International Lighting Vocabulary (ILV) is out for balloting by all members of TC4

Submitted by

Joe Bastianpillai

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

Canadian National Committee Comité National Canadien

Canadian Division Members' Reports

CNC/CIE 49th Annual Meeting

2004-October-29

CIE Division 5

Exterior Lighting and Other Applications

CIE - 5 ACTIVITY REPORT

JULY 2004

Director: Nigel Pollard Editor: Secretary: Tom Lemons

DIVISION 4/5 MEETING
BERN
SWITZERLAND

*****

8-11 September 2004

Our hosts are Schweizer Licht Gesellschaft (SLG) who are organizing the meeting at **Bern University** and to whom we owe our thanks.

The **Divisional meeting** will be held on the **Thursday 9th PM** in Room B78 and **TC** meetings as follows:

Wednesday 8th	am	- TC 5-20 - Guide for Sports Lighting.	Room A 97
Thursday 9th	am	- TC 5-16 – Exterior Security Lighting.	Room B 79
		- TC 5-19 – Emergency Lighting	Room A 97

Saturday 11th Whole day - TC 4-11 - High Level Matters

[TC4-11 is a full day trip to Bernese Oberland, visiting Ballenberg open air museum. The total cost (transport by railway, boat and bus, entrance fee, tax for guided tour), meals not included is SFR. 75.- or EURO 50.-]

For full details, including and hotel booking forms, please see the CIE Division 4 Web site.

1. From the Director

Dear Members of Division 5,

First, may I thank those of you who voted for me in the ballot last year, so elevating me to Director, with a seat on the Board of Administration of the CIE.

Secondly, I must thank Tom Lemons, for stepping into my shoes as Secretary, I hope and believe we should make a good team, and hence be a good service to you the members.

Finally, our thanks should go to our out going Director Josef Horvath, for his eight years as DD and for keeping the Division a going concern.

Well, what of the next eight years? Our next meeting is in Bern, Switzerland from the 8-11 September 2004. So far 3 TC's have asked to hold meeting and I hope to see as many of you there as possible. One of our first jobs is to find an Editor. If any of you with a good command of English would be willing to take up this not to onerous job, please contact Tom Lemons or myself.

At the 25th Session meeting in San Diego, we had a "record" attendance of members present – 8, out of 40, and it concerns me greatly that if the Division is to continue in a viable form, then we have got to make it more relevant to you, our members and your employers, so that attendances at meetings is seen as a necessity rather than an unaffordable expense. I would be interested to hear how you feel this could be achieved.

You will also notice that while two new Reporterships were set up in San Diego, we had no ideas for Technical Committees. With the majority of you not attending, this was obviously not representative; so if any of you have ideas, please let our Secretary or I know. We currently have only five working TC's, all of which should finish their work during the current Quadrennial. While we will need to review past Reports, this is an ominous sign as I am sure the world of exterior lighting is far from perfect!

While quantity does not always mean quality, I hope you can see my concern with the viability of our Division and why I personally feel our work at TC level, which is surely what CIE is all about, could be equally well driven as part or from within another Division. Hopefully we can discuss this at our next meeting. If you cannot make it, please let me have your views.

Nigel Pollard

2. News on TCs.

TC 5.08 Lighting of Off-shore Gas and Oil Structures
Draft report due at Bern or committee will be closed.

TC 5.11 Practical Design Guidelines for Sports Lighting Installations for Television and Film
Draft report due at Bern or committee will be closed.

TC 5.13 CIE/ISO Standard for the lighting of Exterior Work Places
A joint meeting of CIE/CEN was held in Prague in October 2003 to which the DD was invited. At this meeting a further draft document was agreed and sent out for wider comment. A final draft has since been prepared taking into account these wider comments, particularly those from Japan. This final document is now out for voting.

TC 5.14 Maintenance of Outdoor Lighting Systems
This has now been published as CIE Pub. 154:2003
The TC will be formally closed at the next meeting.

TC 5.16 Exterior Security Lighting of Private Properties
Third draft to be worked on at Bern meeting.

TC 5-19 Emergency Lighting
Final draft to be agreed at Bern meeting.

TC 5.20 Sports Lighting
Forth draft to be worked on at Bern meeting.

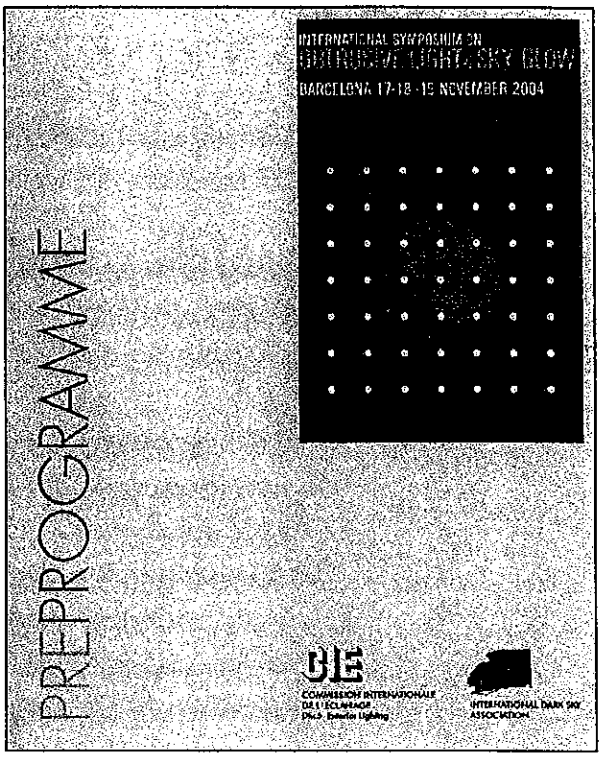
TC 5.21 City Beautification
Nothing to Report.

3. Other News

For those of you interested in the ongoing research into Obtrusive Light, our colleagues in the Catalonian District of Spain are hosting a Symposium in Barcelona from the 17-19 November 2004 entitled "Obtrusive Light & Sky Glow" at which a number of our Division Members will be taking part.

For full details please visit their web site at:

www.cie-ida-barcelona2004.org



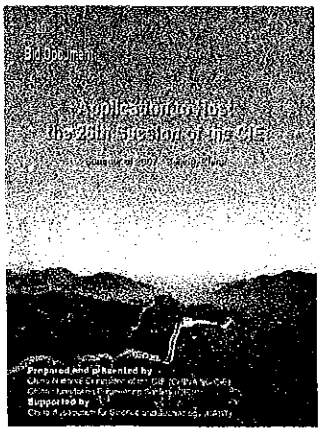
4. Date of future Meetings

CIE Mid Term Session

12-21 May 2005
Leon, Spain

CIE 26th Session

27 June – 4 July 2007
Beijing, China



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

Canadian National Committee Comité National Canadien

Canadian Division Members' Reports

CNC/CIE 49th Annual Meeting

2004-October-29

CIE Division 6

Photobiology and Photochemistry

DIVISION 6

PHOTOBIOLOGY AND PHOTOCHEMISTRY

Report to the Canadian National Committee
October 29, 2004

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

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

(With the highly appreciated cooperation of Jennifer A. Veitch, Ph.D.)

1. Introduction.

The annual meeting of Division 6 took place on 28 September in conjunction with the Tutorial on Light Measurement for Photobiology and the Light and Health Symposium in Vienna, Austria. The Division meeting was held at the CIE Central Bureau.

The Division Terms of Reference are to study and evaluate the effects of optical radiation on biological and photochemical systems (exclusive of vision). A complete list of TCs and their current status is available on the Division web page: http://physics.nist.gov/Divisions/Div844/CIE/CIE6/index.html

2. Division Officers.

The Division Officers are:

Director:	Dr. Ann R. Webb (UK)
Associate Director, Photobiological Standards:	Dr. Kohtaro Kohmoto (JP)
Associate Director, Photobiological Standards & Measurements:	Dr. Karl Schulmeister (AT)
Associate Director, Photodermatology:	Dr. Jean-Pierre Césarini (FR)
Secretary:	Mr. Stephen Wengraitis (USA)
Editor:	Dr. Myron L. Wolbarsht (USA)

3. Technical Committees that met at the occasion of the Annual Meeting.

TC 6-08 Guidelines for Obtaining Action Spectra.
New Chair, David Sliney (USA).

TC 6-24 Sunscreen and UVA.
Chair: Jean-Pierre Césarini (France).

TC 6-28 Standardisation of Sunscreen Testing.
Chair: Jean-Pierre Césarini (France).

TC 6-33 Photoimmunological Effects Mediated through the Skin.
Chair: E. C. de Fabo (USA).

TC 6-39 UV Radiation at Lighted Environments.
Chair: Kohtaro Kohmoto (Japan).

TC 6-55 Photobiological Safety of LED's
Chair: Werner Horak (Ger).

4. Recently released reports by Division 6 technical committees:

155:2003: Ultraviolet air disinfection (final report of TC 6-35) (no Canadian members) (http://www.cie.co.at/publ/abst/155-03.html)

158:2004: Ocular lighting effects on human physiology and behaviour (final report of TC 6-11) (chaired by J. A. Veitch, Canada) (http://www.cie.co.at/publ/abst/158-04.html)

5. Proposals for Dissolution of TCs and Reporterships

Reports from the following TCs have all been published and were closed:
- TC 6-11 Systemic Neuroendocrine Effects of Optical Radiation on the Human
- TC 6-16 Psychobiological Effects of Lighting
- TC 6-25 Spectral Weighting of Solar Ultraviolet Radiation

TC 6-42 Lighting Aspects for Plant Growth in Controlled Environments, is recommended for closure, with the agreement of the TC Chair Seidlitz first.

TC 6-08 Guidelines for Obtaining Action Spectra, Chair was changed to David Sliney.

TC 6-23 Develop Generalized Action Spectra for Plant Responses to Wavebands from 280 to 1100 nm. Chair was changed to Stephen Flint.

6. Proposals for New TCs and Reporterships.

The following new TC was proposed:
TC 6-57 Indoor UV Risk Assessment: Proposed Chairman: Robert Sayre (USA). This TC would study means to reduce UV exposure in schools and other settings low enough to be safe environments for people with extreme UV sensitivity. Following discussion, it was decided that the terms of reference required further revision before the TC could be formally established.

TC 6-58. Optimal UV Exposure Limit. This TC would attempt to establish limits of UV exposure required for good health – in recognition that both too much and too little are both deleterious. The committee membership would need to be diverse to cover all of the possible effects. There might also be some overlap with an ICNIRP working group.

7. Liaisons

IEC: David Sliney reported at the Vienna meeting a problem arising from a new practice of IEC. They have attempted to circumvent their committee structures. In areas where they don't currently have a working group or technical committee, they can convene a workshop for a single meeting. The workshop produces a report that becomes a de facto standard, but without national voting. Furthermore there's no guarantee that the workshop participants will be unbiased, because they are selected differently from the usual procedures. Janos Schanda concurred with this, saying that he knows of this having happened in the case of flicker in VDTs. In a related discussion there an ongoing turf battle between CIE and IEC over the lamp safety standard (CIE S 009/E:2002), which is still not published as an IEC standard although it should be.

Dr. Sliney also reported on a request from ISO to change the boundary between UVA and the visible spectrum from 400 to 380 nm because that is the terminology they want to use. CIE has until now been cool to the suggestion, and at the Vienna meeting Dr. Sliney was strongly opposed to it because it would cause confusion with regard to existing CIE documents. Those present at the Vienna meeting concurred that it would be a bad idea to change the definition and urged CIE to continue to reject this suggestion by ISO.

8. Future D6 Meetings

2005 – September: Division 6 will meet around the meeting of the European Society for Photobiology meeting, Aix les Bains, France.

2007 – June: The 26th Session will be held in Beijing.

9. Canadian members of D6 Technical Committees

TC 6-11 J.A. Veitch (Chairman)

TC 6-49 A.P. Cullen

TC 6-54 F.H. Glorieux

TC 6-55 J.D.Y. Deslauriers

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

Canadian National Committee Comité National Canadien

Canadian Division Members' Reports

CNC/CIE 49th Annual Meeting

2004-October-29

CIE Division 8

Image Technology

The CIE Division 8 "Image Technology" and its Activities in 2003/2004

Report to the CNC-CIE, October 29, 2004

Réjean Baribeau
Institute for National Measurement Standards
National Research Council Canada
Ottawa, Ontario K1A 0R6

Phone: (613) 993-9351
Fax (613) 952-1394
E-mail: rejean.baribeau@nrc.ca

1- Highlights

The main events that occurred during this reporting period are:

- TC8-01 published its report CIE 159:2004 *A Colour Appearance Model for Colour Management Systems:CIECAM02* and will be closed.
- A reportership R8-06 Results of CIECAM02 has been established.
- TC8-03 published its report CIE 156:2004 *Guidelines for the Evaluation of Gamut Mapping Algorithms* and will be closed.
- TC8-04 report *Chromatic Adaptation Under Mixed Illumination Condition when Comparing Softcopy and Hardcopy Images* has balloted and will be closed when the report is approved.
- TC8-05 submitted its report *Criteria for the Evaluation of Extended-Gamut Colour Encodings* and will be closed with its publication.
- TC 8-08 Spatial Appearance Models has been created under the leadership of Garrett Johnson of RIT.
- The draft report of Reportership 8-05 *The Effects of Fluorescence in the Characterization of Imaging Media*, by Dr. Danny Rich),has been circulated for Division and Board ballot.

The CIE Division 8 Image Technology is not holding a division meeting this year but a brainstorming session is scheduled on November 13 evening at the upcoming Color Imaging Conference (CIC-04) in Scottsdale.

2- Organization

Terms of Reference:

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.

Domaine d'activité:

Etudier les méthodes et préparer des recommandations et des normes, relative aux aspects optiques, visuels et métrologiques de la communication, du traitement et de la reproduction des images, applicables à tous les types de dispositifs d'acquisition, de conservation et de restitution, aussi bien analogiques que numériques.

Web site: http://www.colour.org/

A moderated Divisional email list exist and is intended to reach all those who actively participate in Division 8 of the CIE: Division officers, Division members, and TC members. It can be reached by mailing to ciedivision8-L@vivid.colour.org .

2.1 Division Officers

Director of Division	Todd Newman
Associate Directors	Dr. Noboru Ohta (reporters)
Secretary of Division	David McDowell
Editor of Division	Dr. Mike Pointer

2.2 Official Division Members

CIE Division 8 has 36 member countries, of which 19 have designated representative. Canadian Member: Réjean Baribeau

2.3 Liaisons

CIE Division 8 has liaisons with the following organizations and liaison officers:

CIE Division 1 (Michael Pointer)
CIE Division 2 (Y. Ohno)
AIC - Association Internationale de la Couleur
ISO/TC36: Cinematography
ISO/TC38/SC1: Textiles: Colour Fastness & Measurement
ISC/TC42: Photography (Mike Pointer)
ISO/TC61/SC5/WG1:
ISO/TC159/SC4/WG2: Ergonomics/Sign & Contr/VDU Requirements
ISO/TC187: Colour Notations
ISO/TC6/WG3: Paper Board and Pulp - Optical Properties
ISO/TC130: Graphic Technology(Danny Rich)
ISO/IEC/JTAG2:Joint Technical Advisory Group (JTAG) 2 for Imagery(Tim Kohler)
ICC -- International Colour Consortium (Tim Kohler)
CCPR - Comité Consultatif de Photométrie et Radiométrie,
BIPM
IEC/TC100 Multimedia Equipment and (Danny Rich)
ASTM/E12 Color and Appearance (Mike Pointer)
JTC1/SC28 (Klaus Richter)

2.4 Publications from Division 8

None.

2.5 Technical Reports

None.

2.6 Technical Committees

TC8-01: Colour Appearance Modeling for Colour Management Applications –to be closed
TC8-02: Colour Difference Evaluation in Images
TC8-03: Gamut Mapping – to be closed
TC8-04: Adaptation under Mixed Illumination Conditions
TC8-05: Communication of Colour Information
TC8-06: Image Technology Vocabulary
TC8-07: Multispectral Imaging
TC8-08: Spatial Appearance Models

2.7 Reporterships

R8-01 Reportership on Grading of Color Measurement Equipment (Y. Ohno)
R8-02 Reportership of Fluorescence (C. McCamy) –closed.
R8-03 Reportership on Potential CIE and IEC/TC100/PT61966 Interactions (H. Ikeda)
R8-04 Reportership on the Effects of Fluorescence in the Characterization of Imaging Media. (D. Rich)
R8-05 Reportership on Image Appearance (M. Fairchild)
R8-06 Reportership on Results of CIECAM02 (Nathan Moroney)

3- Technical Committees work in progress

TC8-01: Colour Appearance Modeling for Colour Management Applications

Terms of Reference:
To study, develop, and recommend a colour appearance model based on CIECAM97s for use in digital colour management and to develop clear usage guidelines for common applications. Consideration is to be given to colour and engineering requirements for open colour management systems.

Chair: Nathan Moroney
Web site: http://www.colour.org/tc8-01/

The technical report entitled *Colour Appearance Models for Coulour Management systems* has been published (CIE 159:2004). This document outlines a specific colour appearance model, CIECAM02, which may be useful for colour management applications. The model is based on CIECAM97s and consists of a chromatic adaptation transform and equations for computing a set of perceptual attribute correlates.

This committed will be closed. A reportership, R-06 Results of CIECAM02, has been established and assigned to Nathan Moroney, who is to hold a users and developers' meeting at the Color Imaging Conference in Scottsdale in November 2004.

TC8-02: Colour Difference Evaluation in Images

Terms of Reference:
To study, develop and standardize methods to derive colour differences for images.

Chair: Ronnier Luo
Web site: http://www.colour.org/tc8-02/

This committee, is examining formulas for including spatial aspects of colour difference evaluation. Having resolved differences between these formulas, they are now ready to begin the final draft of their report. TC8-02 will hold a meeting at CIC-04 to review the latest draft of the document.

TC8-03: Gamut Mapping

Terms of Reference:
To study, develop and recommend an optimal solution for cross-device and cross-media image reproduction. This solution will provide a standard procedure to calculate the colour gamut of an image, an imaging system, or its components, and either one algorithm, or a set of algorithms and rules for use in specific applications.

Chair: Jan Morovic
Web site: http://www.colour.org/tc8-03/

A technical report entitled *Guidelines for the Evaluation of Gamut Mapping Algorithms* has been published (CIE 156:2004. This technical report provides guidelines for the evaluation of the cross-device and cross-media colour image reproduction performance of gamut mapping algorithms (GMAs). The guidelines cover numerous aspects of GMA evaluation including test images, media, viewing conditions, measurement, gamut boundary calculation, gamut mapping algorithms, colour paces and experimental method. Also provided are example workflows that show how the general principles are applied and a checklist for determining compliance with the guidelines. The results of GMA evaluation carried out in accordance with these guidelines will then serve as the basis for recommending either one gamut mapping algorithm, or a set of algorithms and rules for use in specific applications.

This technical committee will be closed.

TC8-04: Adaptation under Mixed Illumination Conditions

Terms of Reference:
To investigate the state of adaptation of the visual system when comparing soft-copy images on self-luminous displays and hard copy images viewed under various ambient lighting conditions.

Chair: Naoya Katoh
Web site: http://www.colour.org/tc8-04/

This TC has completed its work and submitted a final report *Chromatic Adaptation Under Mixed Illumination Condition when Comparing Softcopy and Hardcopy Images* for review by the Division and the Board of Administration.

Summary:
The chromatic adaptation transforms (CATs) used in most colour appearance models (CAMs) assume that observers are fully adapted to a given set of viewing conditions. Unfortunately, the condition of complete chromatic adaptation usually does not occur in the consumer market and in more casual industrial use. Instead, these users tend to view softcopy in a room with sufficient ambient illumination to allow comfortable viewing and examination of hardcopy imaging. Further, users often desire to compare hardcopy and softcopy images using rapid successive binocular observations. The focus of this report is to determine how colour imaging experts can best accommodate the desires and practices of these more casual observers. It shows that accounting for mixed and incomplete chromatic adaptation produces more accurate results in colour appearance than not accounting for them. It includes a mathematical model for chromatic adaptation and provides appropriate parameters for the chromatic adaptation model under such viewing conditions.

When the report is approved, that will complete the work of this TC and it will be closed.

TC8-05: Communication of Colour Information

Terms of Reference:
To standardize a minimal set of techniques that enable unambiguous and efficient communication of the colour information in images. Two fundamental approaches will be addressed:

- The association with the image data of additional data that describes the colour space of the image data.
- The representation of the image data in a standard colour space.

The standard will also define a minimal set of standard colour spaces that addresses a wide range of imaging applications. Whenever possible, existing standard colour spaces will be used in preference to creating new ones.

Chair: Rob Buckley
Web site: http://www.colour.org/tc8-05/

A technical report entitled *Criteria for the Evaluation of Extended-Gamut Color Encodings* has undergone TC ballot. This document defines a set of objective metrics for evaluating the characteristics of output-referred extended-gamut colour encodings. Detailed metrics have been developed to evaluate a number of important attributes of extended-gamut encodings, including gamut volume characteristics, colour quantization characteristics, hue constancy when applying non-linear tone scale modifications to RGB colour values, and complexity of transformations required to and from typical standard spaces.

It is expected that the report will be accepted by the end of the year, after which the committed will be closed.

TC8-06: Image Technology Vocabulary

Terms of Reference:
To liaise with TC7-06 (International Lighting Vocabulary) and collate definitions of terms associated with image technology.

Chair: Janos D. Schanda
Web site: http://www.colour.org/tc8-06/

TC 8-06 has completed its work in preparing the Division 8 inputs (terms and definitions on imaging) for the International Lighting Vocabulary update.

TC8-07: Multispectral Imaging (CIE approval pending)

Proposed 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..

Chair: Dr. Patrick Herzog (P.Herzog@color-aixperts.de)

This TC was formed in 2002 and was to cover the following subjects:
1. Spectral test sets
    1.1 data sets for simulation and testing,
    1.2 definition and fabrication of an experimental spectral test chart,
    1.3 test chart of pairs of metameric colors.
2. Definition of sets of color matching functions of typical human observers to be used in multispectral imaging systems for the definition of observer metamerism.
3. Encoding of multispectral image data
    3.1 linear encoding and quantization,
    3.2 nonlinear encoding and quantization,
    3.3 mixed spectral and spatial encoding.
4. Definition of data formats for the exchange of multispectral image data.
5. Recommendations for the definition of quality of a multispectral system and test procedures.

The TC had its first meeting in November 2002. In particular, it has been found that that the focus should be on the visible range of the spectrum, while extensions into the near IR and UV should not be excluded. It was also noted that multi-spectral imaging covers multi-spectral image acquisition, multi-spectral image encoding, multi-spectral images and multi-spectral image reproduction systems such as multi-primaries displays and spectral printers.

During this reviewing period, the committee has been active discussing file formats for sharing multispectral colour information. JPEG 2000, BIIF (ISO/IEC 12087-5,NITFS), TIFF (various forms), open EXR, MUSP etc. were considered. Also a new organization has established a web site: http://www.multispectral.org. Last meeting was April 8,2004 Aachen Germany

4- Reporterships

R8-01 Reportership on Grading of Color Measurement Equipment
(Y. Ohno)

Div. 8 members voted unanimously for the termination to this reportership, as it was felt that it had not resulted in any tangible results and, consequently, did not appear to be needed at this time.

R8-02 Reportership on Fluorescence
C McCamy (USA)

Terms of Reference
To report annually on problems involving fluorescence in image technology, activities in the standards bodies and publications that bear on fluorescence problems, and to recommend the formation of a technical committee if such activity appears desirable.

This reportership is now closed.

R8-03 Reportership on potential CIE and IEC/TC100/PT61966 interactions
H Ikeda (Japan)

Terms of Reference
To produce a report on how CIE Division 8 should interact with IEC TC100 PT61966. End Date: March 2000.

Div. 8 members voted unanimously for the termination to this reportership, as it was felt that it had not resulted in any tangible results and, consequently, did not appear to be needed at this time.

R8-04 Reportership on the Effects of Fluorescence in the Characterization of Imaging Media.
D. Rich (USA)

The reporter was to define the issues and report on what the terms of reference and working program should be for possibly a Division 2 TC. His draft report *The Effects of Fluorescence in the Characterization of Imaging Media* has been circulated for Division and Board ballot.

R8-05 Reportership on Image Appearance.
(pending concurrence from Dr Fairchild)

The terms of reference would be:
To investigate and report on research extending colour appearance models to include properties of spatial vision for static images and scenes with particular focus on
1 Spatial filtering of image difference metrics
2 Spatial adaptation for image rendering
3 Potential interaction between 1 and 2

R8-06 Reportership on Results of CIECAM02.
Nathan Moroney (USA)

A Users and Developers' type meeting will be held at the CIC-04 conference.

5- Canadian Participation

Alastair Reed (Cymbolic Sciences) TC8-05

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

Canadian National Committee Comité National Canadien

Presentation to Joint CNC/CIE–IESNA group

CNC/CIE 49th Annual Meeting

2004-October-29

Current Work in the CIE
Report on a Symposium on LED Light Sources and Development of Performance Based Mesopic Photometry

Mrs. Sharon M. McFadden
Defence R&D Canada - Toronto
1133 Sheppard Avenue West
P.O. Box 2000
Toronto, Ontario M3M 3B9

Tel: (416) 635-2189
Fax: (416) 635-2013
Email: sharon.mcfadden@drdc-rddc.gc.ca

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

CNC/CIE

Current Work in the CIE
Report on a Symposium on LED Light Sources and Development of Performance Based Mesopic Photometry

Sharon McFadden
Director CIE Division 1: Vision and Colour

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

CNC/CIE

Background

- CIE composed of seven divisions
  - two basic and five applied Divisions
- Basic Divisions are:
  - Vision and Colour
  - Measurement of Light and Radiation
- Develop knowledge to support effective use and measurement of lighting under all conditions
- Two areas of current concern
  - LED light sources
  - mesopic photometry

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

CNC/CIE

Symposium on LED Light Sources: Physical Measurement and Visual and Photobiological Assessment

- CIE Expert Symposium
- Sponsored by Divisions 1, 2 and 6
  - D6 covers Photobiology and Photochemistry
- Purpose: determine the current status of knowledge on visual, measurement, and safety aspects of LEDs
- Recommend areas where CIE should be forming Technical Committees to gather new knowledge or to tranlate existing knowledge into guidelines and standards

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

CNC/CIE

LED Light Sources

- Widely used in illumination and displays
  - Indicator lamps, traffic lights
  - Backlighting of displays
  - Decorative lighting
  - Automotive lighting
- Expected to become a major light source in the future
  - luminous efficacy of commercial white LEDs surpasses that of halogen incandescent lamps,
  - potential to equal efficacy of fluorescent lamps

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

CNC/CIE

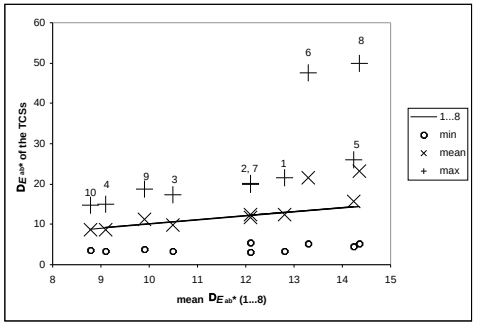
LEDs – Visual Aspects: Colour Rendering

- Prediction of colour rendering of objects under white LEDs using CIE Colour Rendering Index (CRI) problematic
- Satisfactory CRI but visual match poor with some colours
- Work of TC1-62 suggests it may be due to use of single number for CRI.
  - evaluation of colour rendering of individual colour samples used in calculating CRI show some samples deviate substantially from average value with some white LEDs.

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

CNC/CIE

Minimal, mean, and maximal CIELAB colour differences of the first eight CIE Test Colour Samples for 10 different test sources (6 and 8 are white LED clusters) (from Bodrogi, et al, 2004)



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

CNC/CIE

Possible Reasons for Failure of CRI

- White LED light sources generated by:
  - combining red, green and blue LEDs
  - phosphor-conversion of blue or near-UV light from LEDs
- Thus LEDs narrowband and CRI validated on broadband sources
- Narrowband source may interact with narrow band surface colours used in CRI samples

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

CNC/CIE

Way Ahead in Colour Rendering

- Possible solutions to improve colour rendering
  - new colour appearance algorithms such as CIECAM may provide better way of calculating CRI
  - look at alternative methods for estimating visual quality of light sources
    - Colour Discrimination Index CDI
    - Colour Preference Index CPI
    - visual clarity
    - Colour Harmony Index CHI
- All of these lack simplicity of current CRI

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

CNC/CIE

LEDs – Alternative View

- Currently only one standard – warm white light
- LEDs produce bright "white" light
- To get good CRI must add filters
  - reduces efficiency
- With alternative reference light sources
  - user can choose between between energy efficiency and tradition

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

CNC/CIE

LEDs - Safety

- Do LEDs pose a safety hazard?
- General consensus is that "virtually every conventional (surface-emitting) LED is perfectly safe to view under any reasonable conditions of use"
- BUT: LEDs currently covered by IEC Laser Safety Standard
  - Puts burden on LED manufacturers to prove safe
  - difficult to accurately apply measurement techniques specified in IEC standard

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

CNC/CIE

LEDs - Safety

- CIE standard, Photobiological Safety of Lamps and Lamp Systems, S-009/E:2002, also covers LEDs
  - problems with trying to apply it to LEDs as well
  - indicates some high powered white LEDs pose photochemical hazard because of high blue light emission

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

CNC/CIE

Possible Blue Light Hazard

- New blue-sensitive photoreceptor discovered
  - responsible for suppression of melatonin
- Peak sensitivity around 470 nm
- Action spectrum for photochemically induced retinal injury peaks near 445 nm
- Need to exercise caution in using LEDs emitting below 500 nm

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

CNC/CIE

LEDs - Measurement Issues

- Initially manufacturers used existing measurement methods and tools to characterize LED sources
  - poor agreement amongst different manufacturers
- LEDs differ from other sources
  - Low light output
  - Narrow band lights sources
  - Packaged in many different sizes and shapes
  - Spatial power distributions vary widely
  - Test equipment usually built for larger sources

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

CNC/CIE

LEDs - Initial Measurement Solutions

- Required measurement techniques that produced reproducible results
- CIE Technical Report 127 produced by Division 2
- Recommendations on how to measure the most important quantities:
  - Luminous/radiant intensity
  - Total flux
  - Spectral power distribution
- Considerable improvement provided recommended measurement geometry followed

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

CNC/CIE

LEDs - Other Measurement Requirements

- Many other issues identified since publication of Technical Report 127 due to continuing development of new applications.
  - Selection of a suitable detector
  - Accurate measurement of total flux and requirement to measure partial flux
  - measurement of spectral power distribution
  - accurate evaluation of photobiological safety
- Need standardized LEDs with spectral and spatial power distribution identical to the test LEDs
  - allows use of comparison method

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

CNC/CIE

LEDs – Way Ahead in Measurement

- CIE should:
  - give guidance on possible methods
  - provide an analysis of measurement errors and uncertainty
  - let user select best method for particular situation
  - specify expected results from particular method
- Papers in symposium provide good picture of state of knowledge on measurement issues

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

CNC/CIE

Measurement of Light in the Mesopic Region

- Today nearly all photometers use an approximation to Vl curve
- Vl assesses visual sensitivity under normal illumination levels (above 10 nits) of 2 degree observer
- Used to measure lighting levels under all conditions
- Other curves do exist to measure visual sensitivity under other conditions
- Best known
  - 10 degree photopic sensitivity curve V_{10}l
  - scotopic sensitivity curve

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

CNC/CIE

Mesopic Vision

- CIE definition
  - Vision by the normal eye when it is adapted to levels of luminance intermediate between the photopic and scotopic values. Note. In mesopic vision, both the cones and the rods are active
- No standardized sensitivity function for mesopic region
  - sensitivity changes as a function of adaptation level and task
  - need more than one function

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

CNC/CIE

Requirement for Mesopic Functions

- Increasing interest in lighting at mesopic levels
  - road and street lighting
  - emergency lighting
  - air traffic
  - military
- Carry out tasks with minimal impact on night vision and environment
- Accurately assess lighting required to carry out tasks

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

CNC/CIE

Establishment of Mesopic Functions

- Division 1 has ongoing work to establish additional functions that more accurately assess sensitivity under different lighting levels and conditions
- Based on methods such as flicker photometry and brightness matching used to establish Vl
- Many different models – no agreement on best
- Alternative approach to develop performance based sensitivity functions
- Establish visibility requirements of different tasks in mesopic region
- Use to evaluate brightness based models

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

CNC/CIE

Performance Based Mesopic Photometry

- Objective: find interaction amongst spectral sensitivity, lighting conditions and visual tasks in mesopic applications
- Major effort under Mesopic Optimization of Visual Efficiency (MOVE) Consortium
  - several European countries conducting experiments
    - different experimental techniques
    - different visual criteria: detection, response time, identification
    - common parameters: light levels, eccentricity, stimulus size

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

CNC/CIE

Next Steps

- MOVE experiments nearing completion
- Results will be reported at Symposium on Mesopic Photometry at CIE Mid-Term Meeting in Leon, Spain
- Results also incorporated into work of TC1-58: Development of performance based mesopic photometry
- Further research required to validate results
- In the long term link these results with development of functions based on physiology of eye to specify other systems of photometry
  - incorporated into measurement systems

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

CNC/CIE

Questions